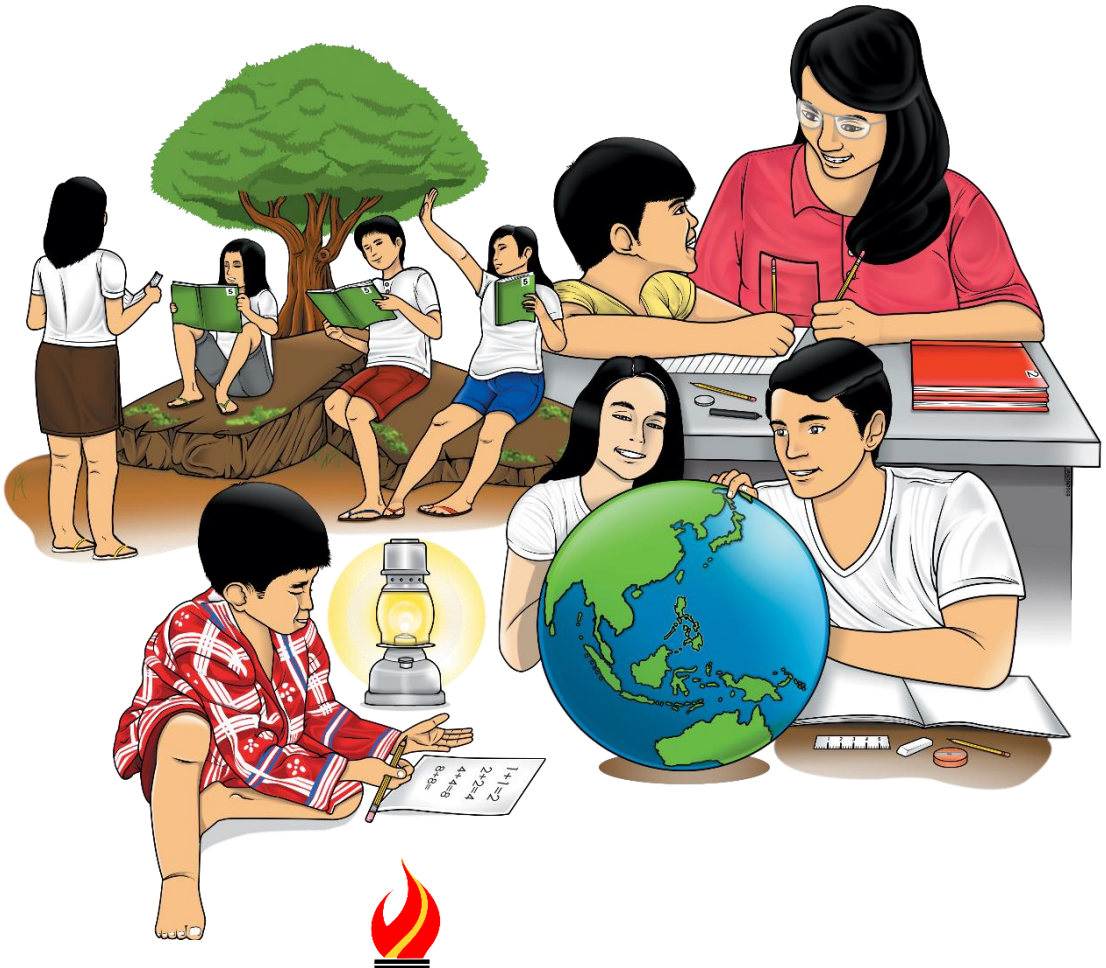
7/8

DepED
DEPARTMENT OF EDUCATION

TLE (SMAW)

Module 5:

INTERPRET PLANS AND DRAWINGS (ID)



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ADM

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Alternative Delivery Mode
Module 5: Interpret Plans and Drawings (ID)
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Introductory Message

This Self-Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by- step as you discover and understand the lesson prepared for you.

Pre-test are provided to measure your prior knowledge on lessons in each SLM. This will tell you if you need to proceed on completing this module, or if you need to ask your facilitator or your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, Notes to the Teachers are also provided to the facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. Read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

Thank you.

What I Need to Know

Welcome to the world of **Shielded Metal Arc Welding (SMAW).**

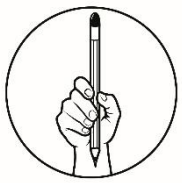
This Module is an exploratory course which leads you to **Shielded Metal Arc Welding [SMAW]** National Certificate Level II [NC II]. It covers common competencies for you to possess. These competencies are;

- Analyze signs, symbol and data: TLE_IAAW7/8ID-0i-j-1
- Interpret technical drawing: TLE_IAAW7/8ID-0i-j-2

Learning Objectives

At the end of the lesson, you are expected to do the following:

- Determine appropriate welding materials based on technical drawing
- Identify tools, materials and equipment according to plans



What I Know

Pretest

A. Multiple Choice

Write the letter of the correct answer on your answer sheet.

1. What is the symbol for Site Weld?

   a.  b. c.  d. 

2. What is the symbol for Site Weld around?

   a.  b. c.  d. 

3. What is the symbol for Site Flush Contour?

   a.  b. c.  d. 

4. What is the symbol for Site Concave Contour?

   a.  b. c.  d. 

5. What is the symbol for Site Convex Contour?

   a.  b. c.  d. 

6. What does symbol **F** represents?

   a. Groove Angle
   b. Finish
   c. Length of Weld
   d. Pitch of Weld

7. What does symbol **P** represents?

   a. Groove Angle
   b. Finish
   c. Length of Weld
   d. Pitch of Weld

8. What does symbol **A** represents?
   a. Groove Angle
   b. Finish
   c. Length of Weld
   d. Pitch of Weld

9. Which is not a part of ARC welding symbol?
   a. A reference line
   b. An arrow
   c. A round
   d. A tail

10. It is a circle drawn on the welding symbol, indicating that the described weld is to be made all around the part.
    a. Weld all round
    b. Field weld
    c. Field cut
    d. Circle

11. It is located on the side as the symbol and indicates that the weld should be raised or convex shape.
    a. Convex contour symbol
    b. Concave contour symbol
    c. All round
    d. Site weld

12. It is a line connected to the arrow.
    a. Reference line
    b. arrow
    c. Tail
    d. Basic wield symbol

13. It indicates the position of the weld.
    a. Reference line
    b. arrow
    c. Tail
    d. Basic wield symbol

14. It is added to the symbol when a special note is required.
    a. Reference line
    b. Tail
    c. Arrow
    d. Basic wield symbol

15. It is an open box that intersects the reference line
    a. Spacer
    b. Backing
    c. Flush contour
    d. Concave contour

Interpret Plans and Drawings (ID)

What's In

Review of Past Lesson

Preventive maintenance of tools is necessary to avoid injuries in the work place. Give at least Five (5) practices in Preventive Maintenance of Tools in SMAW.

1._____

2._____

3._____

4._____

5._____

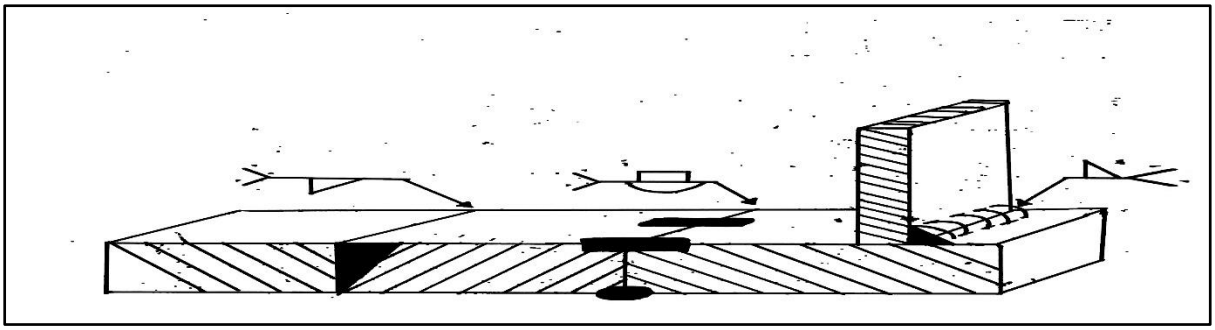
Metal works are essential to the industry specially in building construction, household equipment's and even in the learning environment. In other areas of specialization, you have signs and symbols in order to work properly and guided. In shielded metal arc welding (SMAW) you need to understand this symbols in order to complete a job clearly and understood what is the objective of the given work.

Did you have sketches of metal works at home or in the machine shop? Can you identify those symbols used? I think you should know, because in creating metal works you need to understand these technical e drawings and symbols to work correctly.

Notes to the Teacher

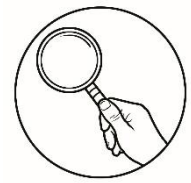
1. Read the lessons properly. These will guide you to do at the end of this module.
2. Find out what you already know by taking the learning activities.
3. Apply what you have learned in another activity or real life situation.

What's New



These drawing uses technical signs and symbol representing basic welding process. Can you identify some of the symbols used in this drawing. Write it in your answer sheet.

CO_Q1_TLE-SMAW 7/8_ Module 5



What is It

Guide Questions:

Answer the following questions and write your answer in your activity notebook.

1. Give 5 examples of symbols you use in drawing plans.

_____
_____
_____
_____

2. What do you think of the importance of the interpreting drawing in metal work?

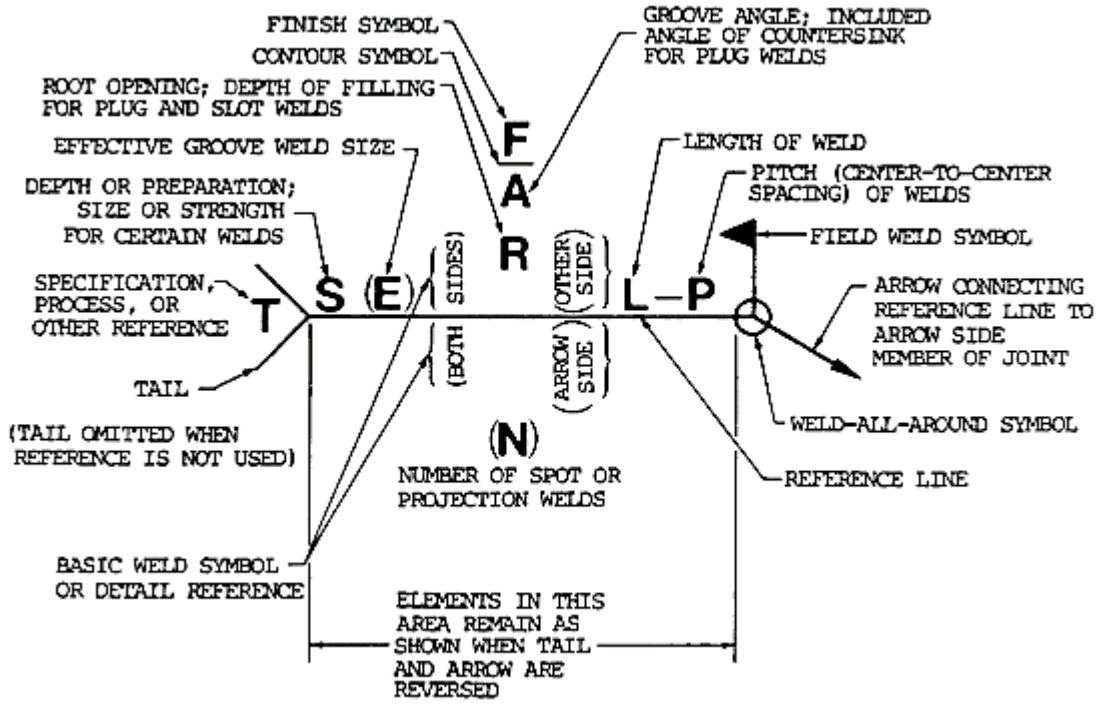
_____
_____
_____
_____

Welding Symbol

Welding symbol have specific role in the standards of welding with respect to each roles of the symbol.
The arrows in a welding symbol represents the other side of the weld.
Some weld symbols have no arrow or other side significance. Though, supplementary symbols used in conjunction may have such significance.

References: these are needed to clarify a symbol; the reference is positioned in a tail on the welding symbol.
Dimensions: represents the length, width and height of the weld, root opening and angle.

Use of Welding Symbols



Source of Image: https://weldguru.com/wp-content/uploads/welding-symbol-fig3-2.gif

F – Finish Symbol
A – Groove Angle
R – Root Opening
S – Depth of Bevel
E – Groove Weld Size
L – Length of Weld
P – Pitch of Weld
T – Tail of Weld

N – Number of Spot or Projection Welds

- Field Weld

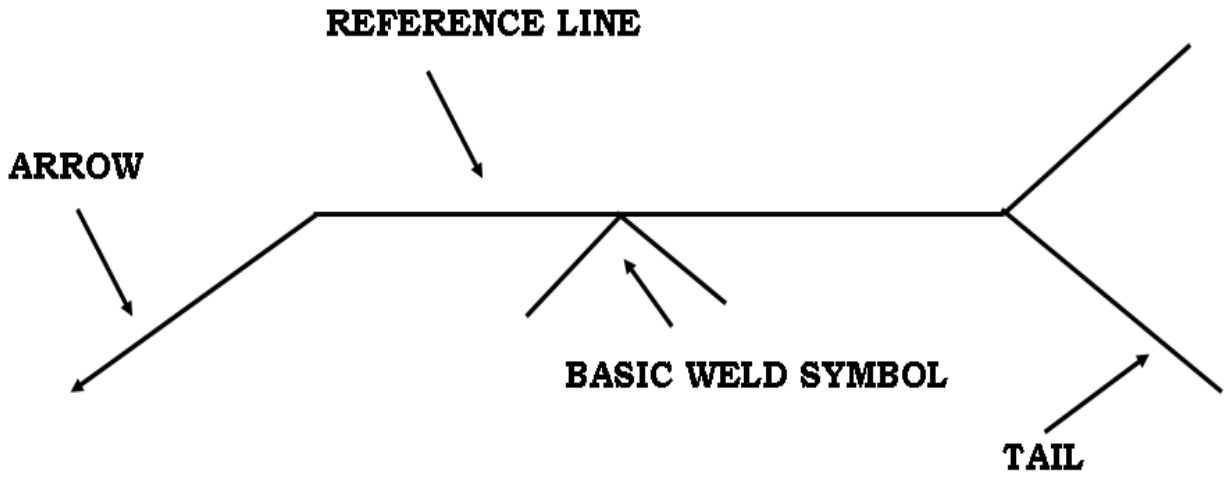
- Weld All Around

- Contour Symbol

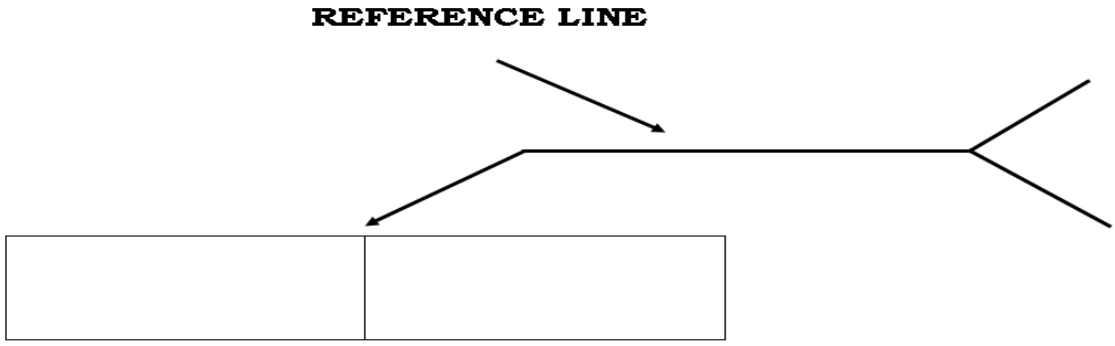
Meaning and Uses of symbols

Four main parts of Arc Welding Symbols

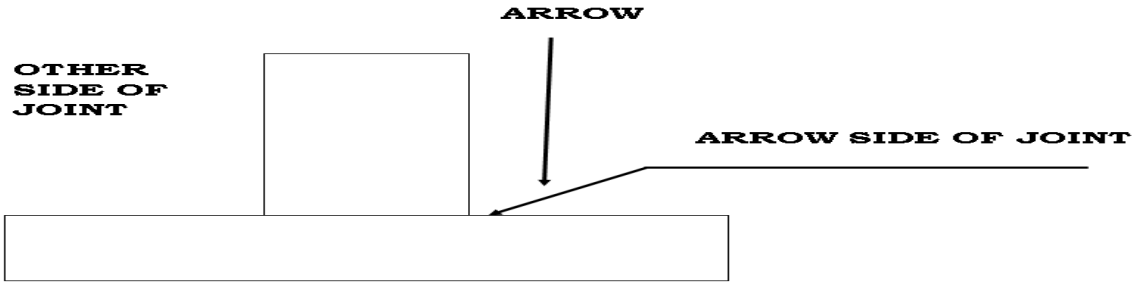
1. A reference line
2. An arrow
3. A basic welding symbol
4. A tail



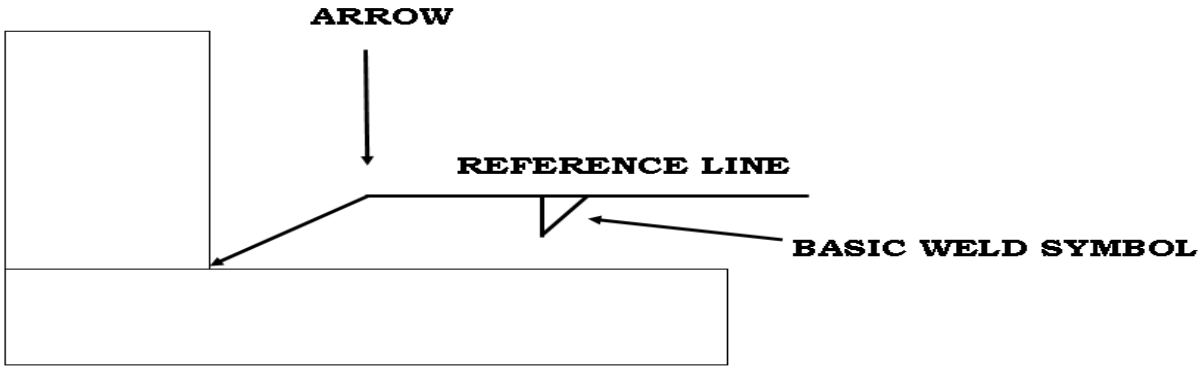
1. The **reference line** is a line connected to the arrow. The position of the basic symbol above or beneath this line determines the location of the weld. The reference line is always drawn parallel to the bottom edge of the drawing, or to the base line of a view.



2. The **arrow** indicates the position of the weld; it is drawn at an angle from the end of the reference line to one side of the joint. This side is called the „arrow side of the joint". The opposite side is called the other side of the joint.

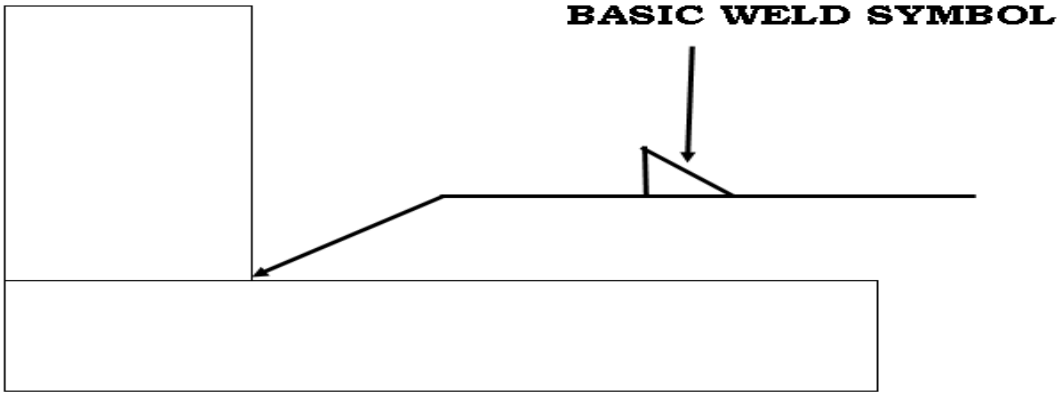


Welds on the "arrow side of the joint" are shown by inverting the weld symbol and placing it beneath the reference line.



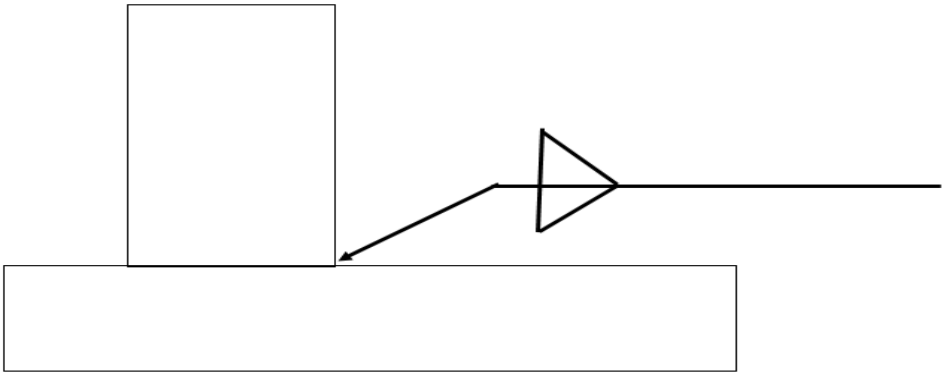
Symbol Indicating Fillet Weld at Arrow Side of Joint

1. Welds on the "other side of the joint" are shown by placing the symbols above the reference line.

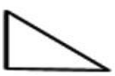
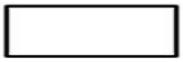
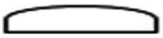
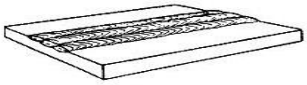
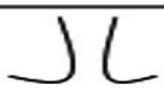
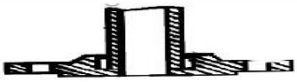


Symbol indicating fillet welds on the other side of joint.

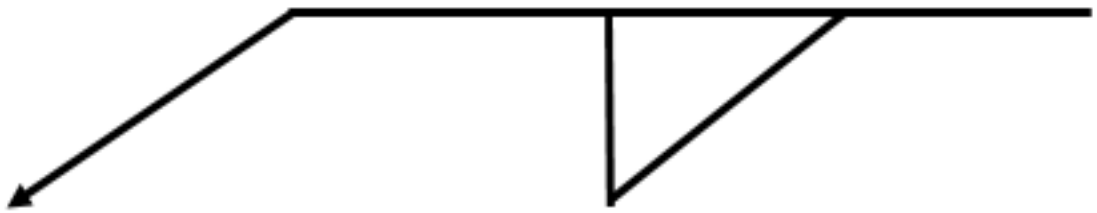
2. Welds on both sides of the joint are shown by placing the weld symbol above and below the reference line.



3. Basic weld symbols describe the type of weld to be made. This symbol is a miniature drawing of the metal's edge preparation prior to welding. The basic weld symbol is only part of the entire AWS welding symbol.

FILLET		
PLUG		
SPOT		
SEAM		
BACKING		
MELT THRU		
SURFACING		
FLANCE EDGE		

4. The **tail** is added to the symbol only when special notes are required. A number or letter code used inside the tail direct the welder to special notes located elsewhere on the drawing. These notes may specify the heat treatment, welding process used, or other information not given on the welding symbol.



Supplementary Symbols

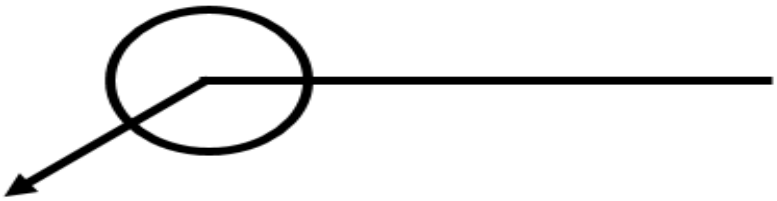
FILLET	
PLUG	
SPOT	
SEAM	
BACKING	
MELT THRU	
SURFACING	
FLANCE EDGE	

WELD ALL ROUND	
FIELD WELD	
FLUSH	
CONVEX	
CONCAVE	

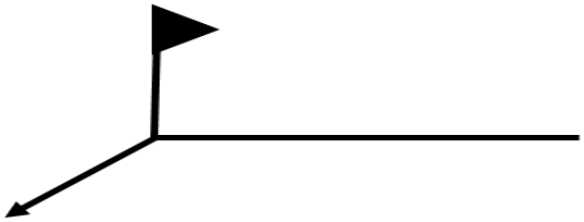
SQUARE	
V	
BEVEL	
U	
J	
FLARE V	
FLARE BEVEL	
FLANCE CORNER	

Supplementary symbols can be placed above or below the basic symbol, or at the intersection of the reference line and the arrow. Dimensions and reference to specifications,
or welding procedures may also be added.

1. **Weld all around** is a circle drawn on the welding symbol, indicating that the described weld is to be made all around the part.

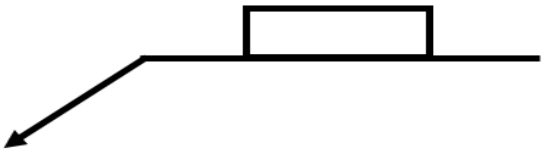


2. **Field weld symbol** is a symbol added to the basic AWS welding symbol to indicate that a weld is to be made at the job site (“ in the field”), rather than in a fabricating shop.

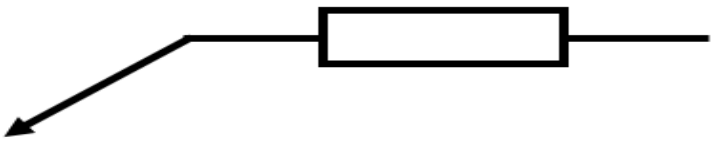


3. **Melt through** is a complete joint penetration for a joint welded from one side and visible root reinforcement is produced.

4. **Backing symbol** is an open rectangular box used in combination with a groove weld symbol located on the reference line indicating that locating materials is required on the opposite side control penetration.

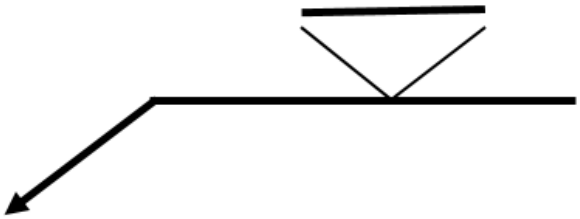


5. **Spacer** symbol is an open box that intersects the reference line, indicating that a spacer is placed between joint.

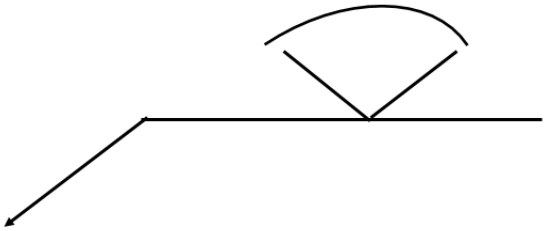


Contour and Finish Symbol

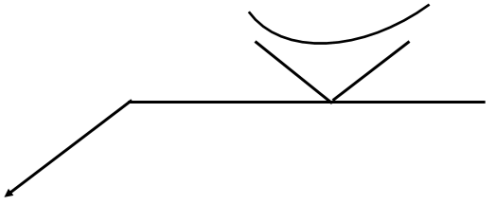
1. **Flush contour symbol** is located on the same side as the symbol and indicates the weld should be approximately a flat plane with the surface.



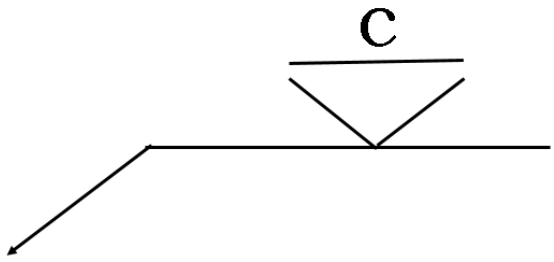
2. **Convex contour symbol** is located on the side as the symbol and indicates that the weld should be raised or convex shape.



3. **Concave contour symbol** is located on the same side as the symbol indicates that the weld should be concave shape.



4. If the contour requires finishing, a **finishing symbol** will be used in conjunction with the contour symbol, a letter G indicate grinding, C indicate shipping, M indicate machining, and U indicate unspecified which local method should be used.



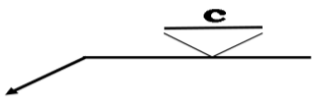
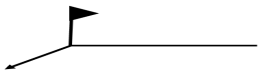
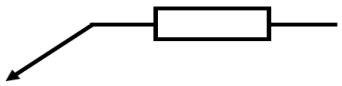
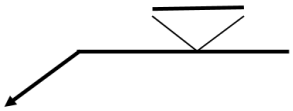
What's More

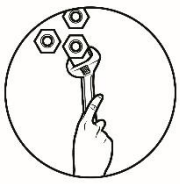
Direction: Identify and Draw the described welding symbols.

1. It is located on the same side as the symbol indicates that the weld should be concave shape.
2. It is located on the same side as the symbol and indicates the weld should be approximately a flat plane with the surface.
3. This symbol is an open box that intersects the reference line, indicating that a spacer is placed between joint.
4. It is a circle drawn on the welding symbol, indicating that the described weld is to be made all around the part.
5. A complete joint penetration for a joint welded from one side and visible root reinforcement is produced.

What I Have Learned

Identify the given symbols

1.	
2.	
3.	
4.	
5.	



What I Can Do

Directions: Suppose you were told to create a 4x4 Table with a high of 2ft what symbols are you going to use in sketching? Draw your sketch on a separate sheet of paper and List down at least Five (5) tools that you are going to use in creating this project.

Post-Test

I. Multiple Choice

1. Which is not a part of ARC welding symbol
   a. A reference line c. round
   b. An arrow d. tail
2. It is a circle drawn on the welding symbol, indicating that the described weld is to be made all around the part.
   a. Weld all round c. Field cut
   b. Field weld d. Circle
3. It is located on the side as the symbol and indicates that the weld should be raised or convex shape.
   a. Convex contour symbol c. All round
   b. Concave contour symbol d. Site weld
4. It is a line connected to the arrow.
   a. Reference line c. Tail
   b. arrow d. Basic wield symbol
5. It indicates the position of the weld.
   a. Reference line c. Tail
   b. arrow d. Basic wield symbol
6. It is added to the symbol when a special note is required.
   a. Reference line c. Arrow

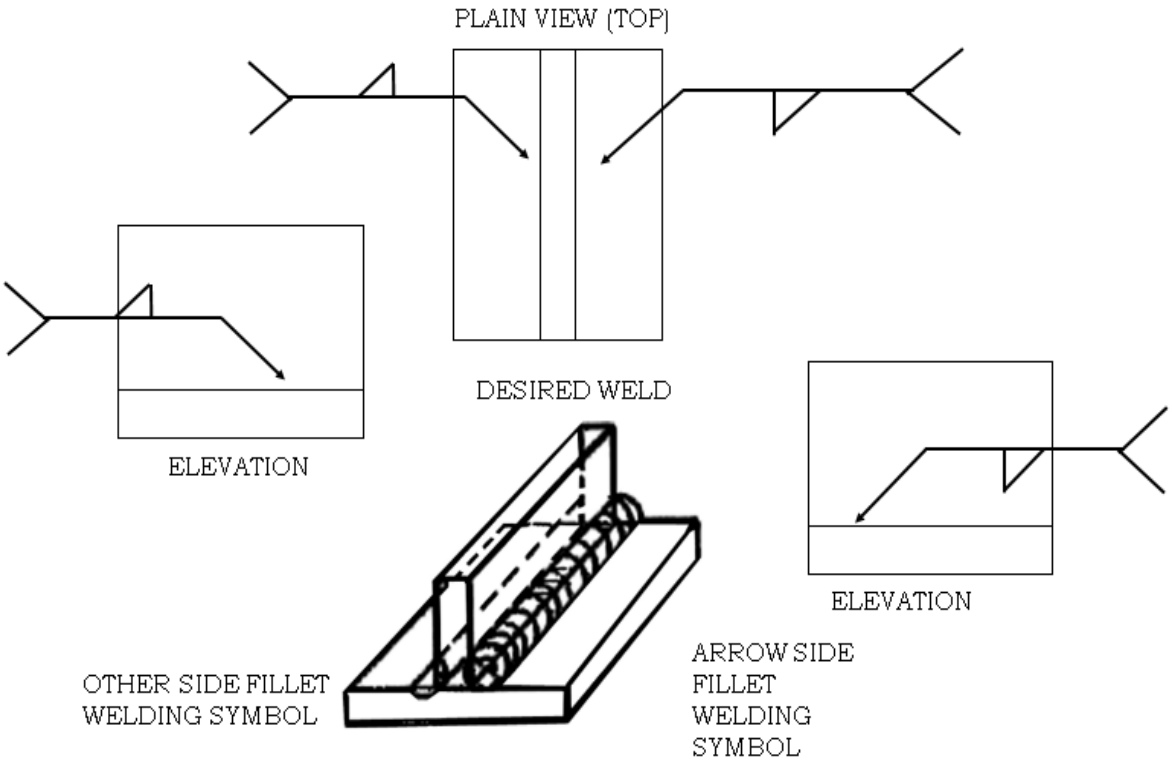
b. Tail
d. Basic wield symbol

7. It is an open box that intersects the reference line
   a. Spacer
   c. Flush contour
   b. Backing
   d. Concave contour
8. What symbol is used if the contour requires finishing
   a. Finishing symbol
   c. Convex contour symbol
   b. Concave contour symbol
   d. Spacer
9. It is located on the same side as the symbol indicates that the weld should be concave shape
   a. Finishing symbol
   c. Convex contour symbol
   b. Concave contour symbol
   d. Spacer
10. A symbol added to the basic AWS welding symbol to indicate that a weld is to be made at the job site.
   a. Convex contour symbol
   c. Finishing symbol
   b. Field weld symbol
   d. Weld all round
11. What does symbol F symbol represents?
   a. Groove Angle
   c. Length of Weld
   b. Finish
   d. Pitch of Weld

12. An open rectangular box used in combination with a groove weld symbol located on the reference line indicating that locating materials is required on the opposite side control penetration.
   a. Backing symbol
   c. Buffing symbol
   b. Flush contour symbol
   d. Box symbol
13. What does symbol P represents?
   a. Groove Angle
   c. Length of Weld
   b. Finish
   d. Pitch of Weld
14. What does symbol A represents?
   a. Groove Angle
   c. Length of Weld
   b. Finish
   d. Pitch of Weld
15. What is the symbol for Site Flush Contour?
   a. 
   b.
   c. 
   d. 

Additional Activities

Analyze the given drawing, describe what is being represented by the symbols and enumerate the proper tools to be used and procedure for this welding sketch.


PLAIN VIEW (TOP)
ELEVATION
DESIRED WELD
ELEVATION
OTHER SIDE FILLET
WELDING SYMBOL
ARROW SIDE
FILLET
WELDING
SYMBOL

Answer Key

What have I learned

1. Finishing symbol
2. Backing symbol
3. Field weld symbol
4. Spacer
5. Flush contour symbol

What's More

1. Concave contour symbol + Drawing (Refer to module content)
2. Flush contour symbol + Drawing (Refer to module content)
3. Spacer+ Drawing (Refer to module content)
4. Weld all around + Drawing (Refer to module content)
5. Melt through + Drawing (Refer to module content)

Assessment

1.c
2.a
3.a
4.a
5.b
6.b
7.a
8.a
9.b
10.b
11.b
12.a
13.d
14.a

Pretest

1.a
2.d
3.b
4.d
5.c
6.b
7.d
8.a
9.c
10.a
11.a
12.a
13.b
14.b
15.a

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