Sanghavi College of Engineering

Varvandi, Mhasrul Road,
Nashik – 422 202

SITE VISIT REPORT ON WELDED CONNECTION

Title: - Visit to understand Welded Connection.

Date of Visit: - 07/08/2024

Address of Site: - Cricket ground of SMES, Nashik

Guided by: - Mr. B. V. Nikam (Site In-Charge)

No. of students visited: - 19

Name of visit coordinator: - Ms. Madhuri. Z. Khairnar

Photo 1*:* Group photo with students at Cricket ground of SMES, Nashik

❖ INTRODUCTION:

The Civil Engineering Department organized a site visit for Third Year Students to study welded connections for the Design of Steel Structures subject. Site In-Charge Mr. B.V. Nikam explain students about welded connections. We visited at Cricket ground of SMES, Nashik to gain practical insights into welded connections on 7th Aug. 2024.

The visit was organized with the prior permission of honorable Director of SCOE Dr. P. A. Zawar, Principal Dr. B. S. Shirole and HOD of Civil Department Mr. T. H. Boraste.

❖ OBJECTIVE OF VISIT:

1. The main objective behind the visit was to Students should be able to welded connection, design of welded connection, sections cutting and safety measures.
2. Students should be able to understand information about welding procedure and welding machine.

❖ INTRODUCTION ABOUT NASHIK ROAD RAILWAY STATION

The site visit commenced with a briefing by Mr. Nikam, highlighting the procedure of welding, sections used for welding, safety measures, and welding techniques. We observed various welded connections, including butt welds, lap joints, and tee joints, and learned about Shielded Metal Arc Welding (SMAW) and Gas Metal Arc Welding (GMAW) processes.

❖ WELDED CONNECTIONS

The students saw how welded connections are made between different steel sections. They also learned about the different types of welding joints used in steel structures, such as butt welds, fillet welds, and lap welds.

Welded connections are made by melting the edges of two or more steel sections together and allowing them to solidify. This creates a strong and permanent bond between the steel sections.

There are many different types of welded joints, but the most common types used in steel structures are:

a) **Butt welds:** Butt welds are used to join two pieces of steel that are end-to-end. The edges of the steel are prepared by beveling them at a 45-degree angle. The beveled edges are then melted together and allowed to solidify.

Photo6: Butt weld

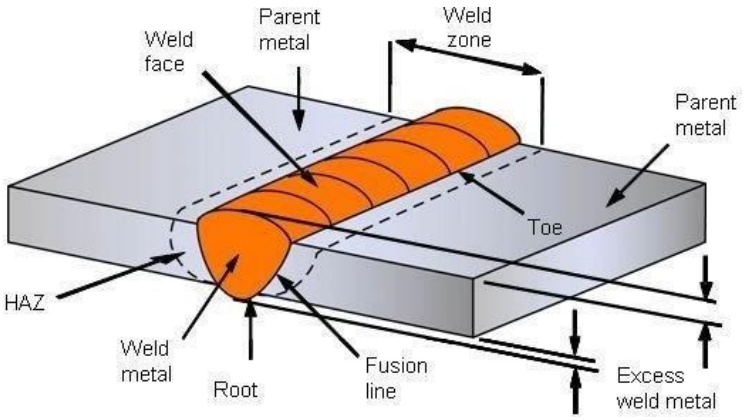

Figure 1: Butt weld

b) **Fillet welds:** Fillet welds are used to join two pieces of steel that are perpendicular to each other. The weld is made in the corner where the two pieces of steel meet.

The type of welded joint that is used depends on the specific application. For example, butt welds are stronger than fillet welds, so they are often used in applications

where high strength is required.

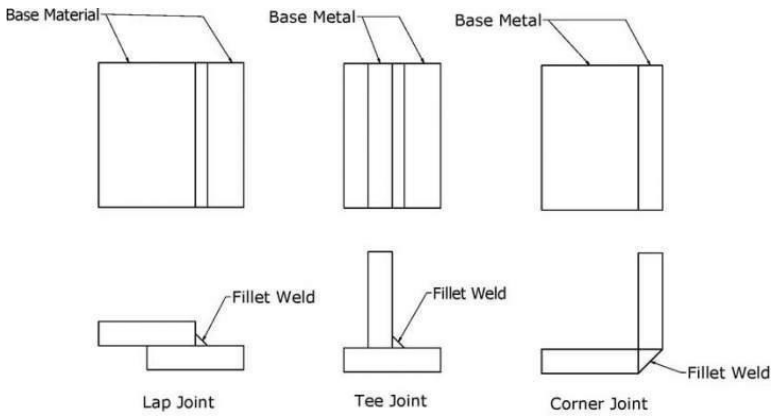

Figure 2: Types of Fillet welds

❖ WELDING PROCESSES

Welding in its very basic form, is the joining of two metals through heat or pressure. It's an ancient process that dates back as far as the Iron Age. During that time, our ancestors hammered two metals together using heat.

Different types of welding processes are used depending on factors such as:

- Type of metal welded - Aluminum, copper, steel etc.
- The thickness of the metal
- The welding environment (inside, outside, underwater, etc.)
- Where the final product is going to be used - hospital, automotive, aerospace, etc.

➢ Gas Metal Arc Welding (GMAW or MIG Welding)

In this welding process, the wire electrode also acts as the filler metal to create the weld. It is constantly fed through the welding gun as it melts. MIG also uses shielding gas that comes in the form of carbon dioxide, oxygen, helium, or argon. This gas traveling through the welding gun is essential. It helps protect the molten pool of metal (weld pool) from environmental contaminants that can affect the quality of the weld.

Photo 2: Students learned about welding procedure

❖ CONCLUSION

The visit to railway station was a valuable educational experience for the students, bridging the gap between theoretical knowledge and practical application in the field of civil engineering. The visit provided valuable practical knowledge about welded connection, highlighting the importance of proper design, execution and safety measures.

Prof. M. Z. Khairnar — **Visit Co- ordinator**

Prof. T. H. Boraste — **HOD**

Prof. Dr. B.S. Shirole

Principal