**Project Deliverable 3**

**Student Name**

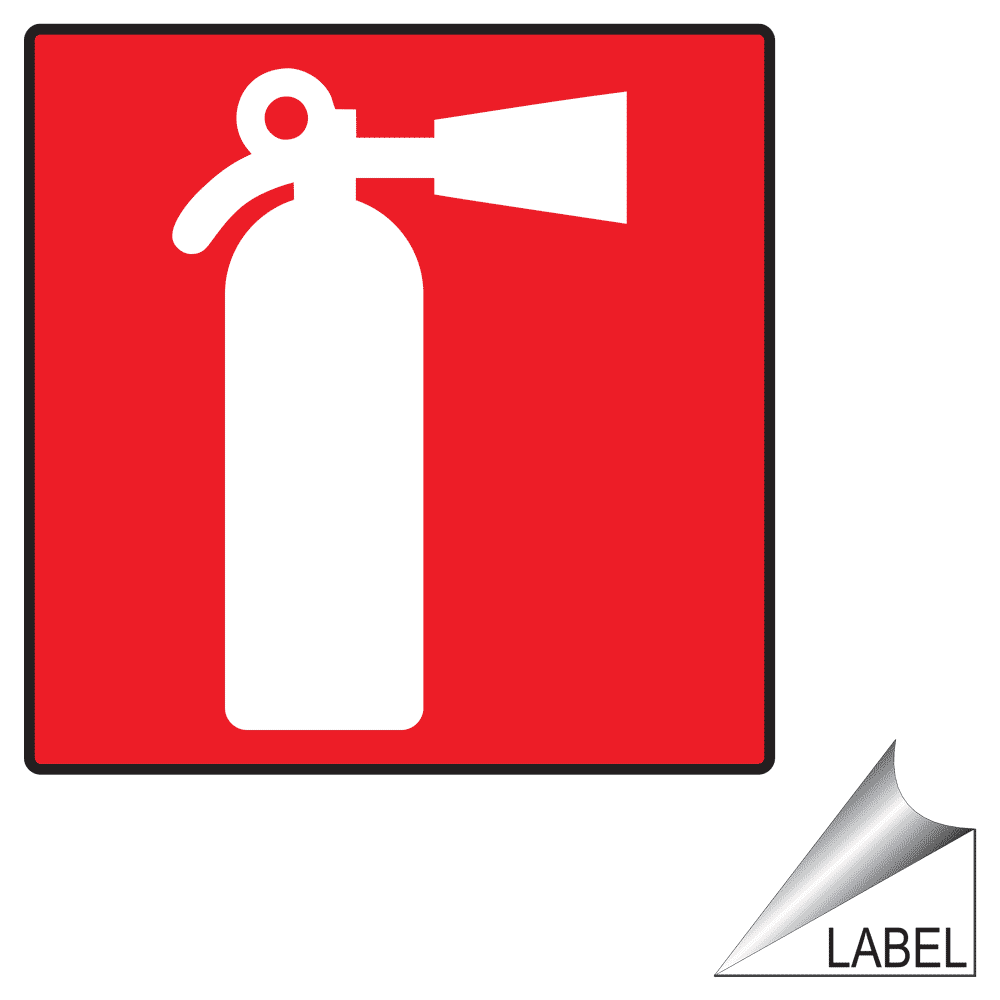
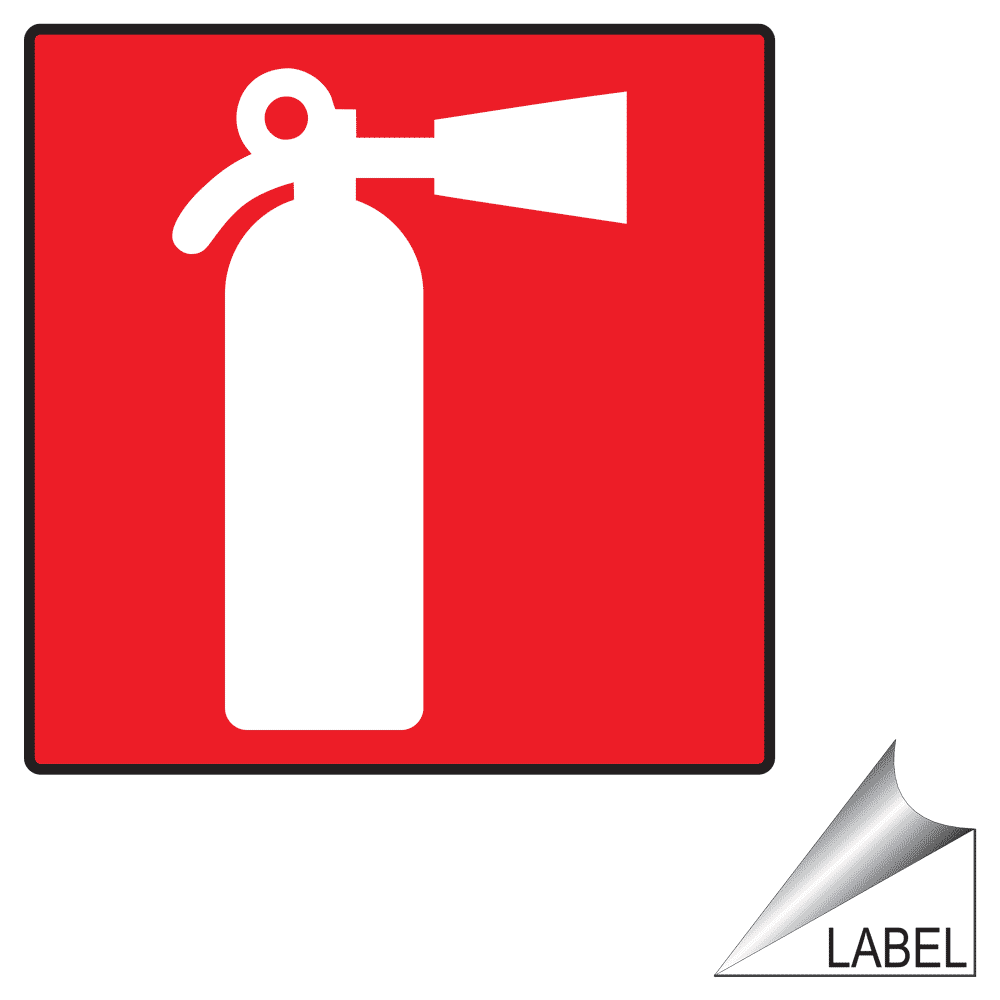
**Student ID**

**15/12/2024**

**Layout Design for Kuwait Motor Design**

This document includes the layout design for Kuwait Motor Design, which they will use for the production of their bevel and inline motors. It includes all the required machinery, operations, and follows he specifications provided, with a clear focus on efficient flow, safety standards, employee requirements, and the proper infrastructure for both electrical and air needs.

* The 2 CNC lathe machines are placed at top right corner for uninterrupted access. Each produces 3 gears per hour and hence require full-time operation. 4 gears for the bevel motor and 2 gears for inline motor. A 2m space is left in the back to allow for maintenance processes.
* The jib crane is placed directly adjacent to the CNC lathe to ensure it can lift and move heavy parts that the lathe handles. However, it shouldn’t interfere with walkways.
* The Aluminum casting cell is placed on the left of the steel casing for isolation to ensure safety. It is placed as far away from the gearbox assembly as possible, with a 10m spacing from other equipment.
* Gearbox assembly line is aligned with the CNC machine to ensure proximity to machined parts for smooth process flow. Placed near the workers’ entrance for efficient access.
* The layout includes 2 electric motor cells. Each produces one motor an hour, one for the bevel motor and the other for the inline motor.
* Two final assembly lines are placed near the offices, one for Bevel Gearbox assembly and the other for Inline Gearbox assembly. They have spacing for movement of manufactured goods out of the facility.
* Fire extinguishers are strategically placed near the CNC lathe, 2 final assembly lines and aluminum casting cell.
* 6m2 of space left for the recycling of industrial waste in an area with very few operations, and also directly accessible by the forklift for easy movement out of the facility.
* Walkways of at least 1.2 meters are left next to every machine.



**2m**

1.2m

*Steel column (cannot be moved)*

Jib Crane

**2m**

*4 meters*

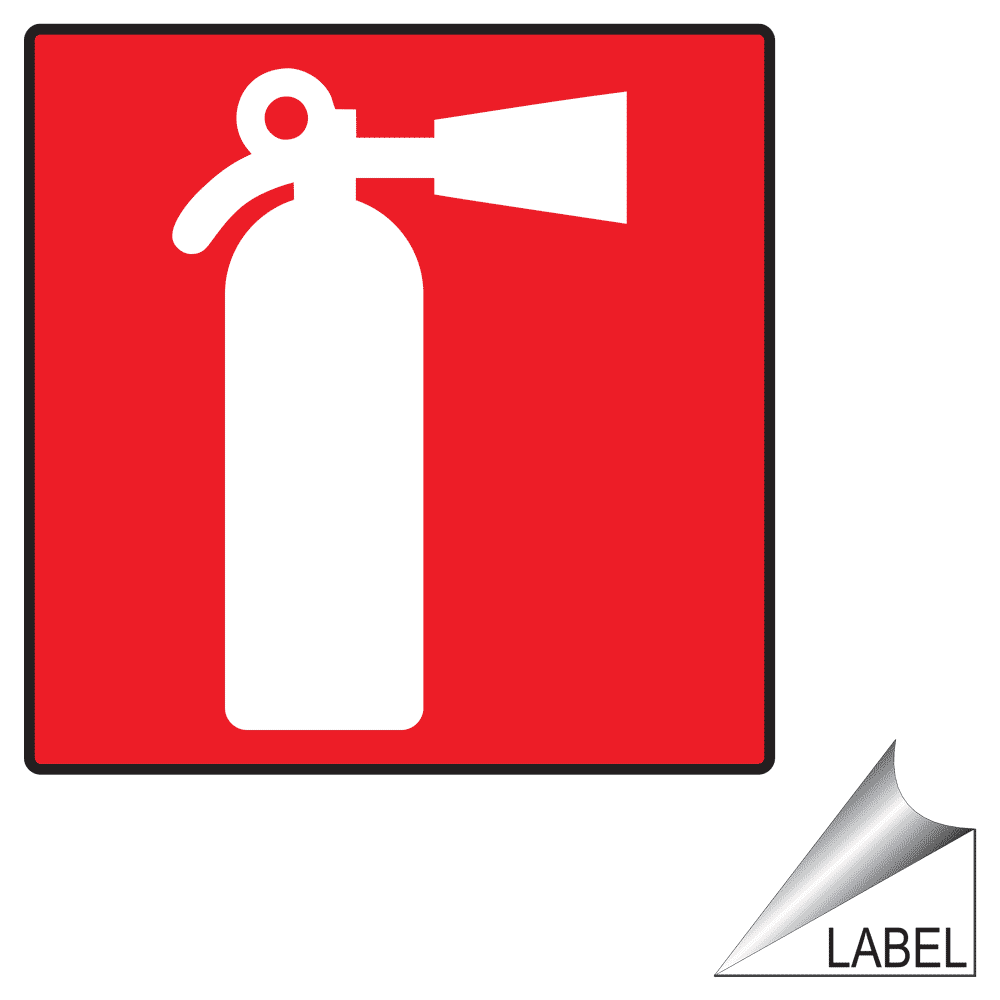
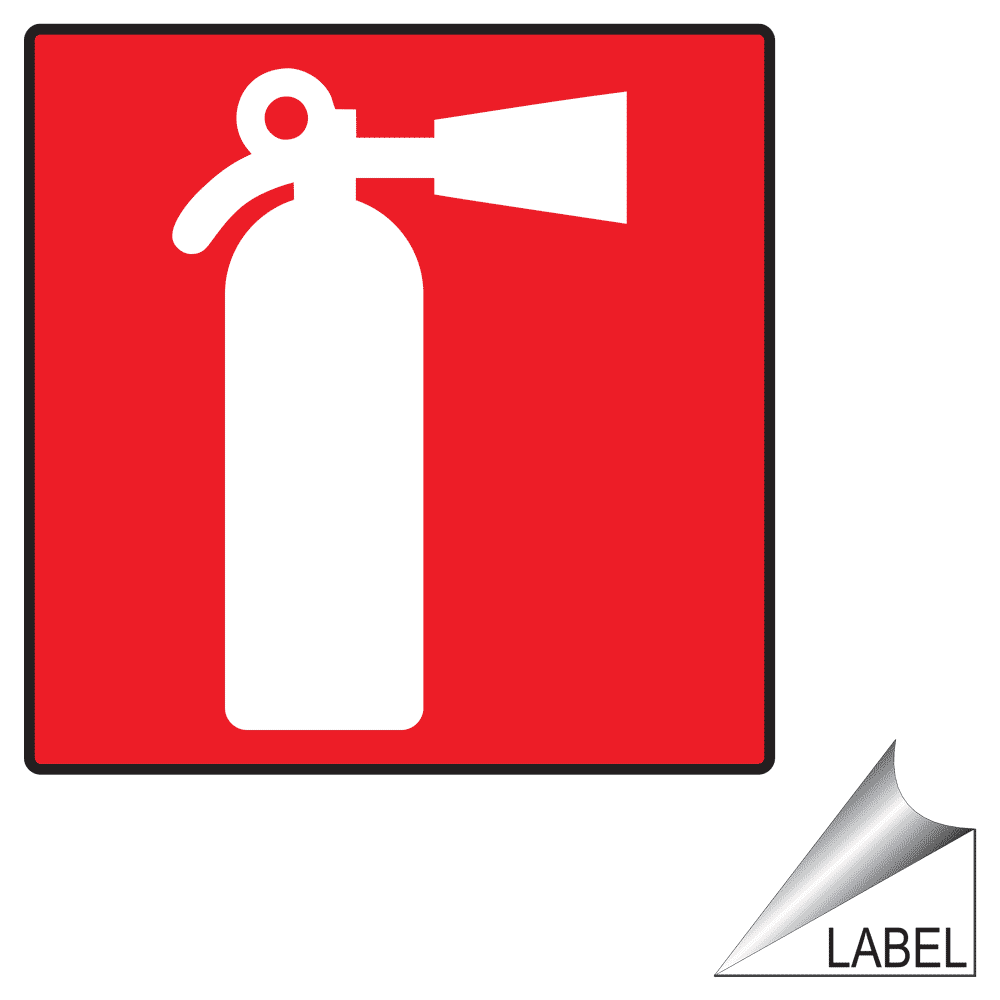
1.2m

10m

1.2m

CNC Lathe

Aluminum casting



4m

2.5m

2.5m

2m

2m

1.2m

1.2m

Final assembly

Final assembly

1.2m

2m

2.5m

1.2m

6m

6m

1.2m

1.5m

1.5m

1.5m

1.5m

Electric motor cell

Electric motor cell

**1.8m**

10m

1.2m

10m

10m

Gearbox assembly line

**2m**

**2m**

CNC Lathe

Layout of the facility

WC

Changing room

Management office

Electric motor cell

Gearbox assembly line

Aluminum casting

CNC Lathe

Final assembly

Layout of the machines

Jib Crane

