

## CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

### 5.1 Conclusion

The fabrication of a twin metal panel door using mild steel was successfully carried out, demonstrating that local materials and standard workshop tools can produce secure, functional, and aesthetically appealing doors. The project involved material selection, precise measurement, cutting, welding, grinding, painting, and final assembly. The fabricated door met structural, functional, and cost-effectiveness criteria suitable for residential or institutional use.

This project enhanced practical skills in metalworking, especially in welding, finishing, and design interpretation. It also shows that local fabrication can serve as a viable alternative to expensive, imported security doors without compromising performance.

### 5.2 Recommendation

Based on the experiences and outcomes of this project, the following recommendations are made:

- Improved Finishing Techniques: Powder coating or spray painting should be considered in future projects for better aesthetic and weather protection.

- Use of Jigs and Fixtures: To improve welding alignment and productivity, jigs should be used for frame and panel assembly.

Quality Control Checks: Future projects should adopt more rigorous testing for load capacity and environmental exposure.

Training and Supervision: Students and workshop technicians should receive regular training on modern welding safety and fabrication practices.

Prototype Development: This design can be further developed into a prototype for small-scale manufacturing in local communities.

### 5.3 Suggestions for Further Study

Integration of automated locking mechanisms in metal doors.

Use of alternative corrosion-resistant materials like stainless steel or galvanized iron. Study of acoustic and thermal insulation in metal door panels

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