

Astra Gemini - building progress

B E Wyborn

Central Laser Facility, CCLRC Rutherford Appleton Laboratory, Chilton, Didcot, Oxon., OX110QX, UK

J M Henstridge, R E Cranston, D G Pyke

Building Projects Group, CCLRC Rutherford Appleton Laboratory, Chilton, Didcot, Oxon., OX110QX, UK

Main contact email address: *b.e.wyborn@rl.ac.uk*

Introduction

The building specification for Astra Gemini has evolved from the initial conceptual design previously reported¹⁾. It has been driven by:

- The need to satisfy laser and target area requirements
- Regulatory requirements
- Radiological hazard assessments.

In mid October 2004 it became clear that the conceptual design proposed in the original grant submission would not be optimum. It was therefore decided to significantly alter the building design.

It was decided to enlarge the target area, construct one large concrete floor at first floor level to house all laser related systems and to locate all services at ground floor level. This enabled a more open approach to the building specification and provided a far more flexible and appropriate building solution. The new ground floor and first floor layouts are shown in Figures 1 & 2.

Progress

The work was split into several phases and progress with these phases is as follows:

•Phase 1 - clear areas, install mezzanine above Target Area 2 and 3 Control Rooms.

Work started in July 2004. Figures 3 – 5 show progress.

•Phase 2 - clear electrical workshop, install mezzanine, knock through to meet phase 1, install external stairs and relocate the electrical workshop.

Work started in Sept. 2004. Figures 6 – 7 show progress.

•Phase 3 - relocation of the Target Area 2 Control Room and establishing a route to Target Area 2.

The Target Area 2 Control Room was relocated during a slot in the Astra experimental programme in Sept./Oct. 2004. Figure 8 shows the relocated control room.

•Phase 4 - (The build phase of new laser and target areas) has been split into two:

Phase 4a - remove redundant partitions, ceilings, services etc.

Work started in Jan. 2005 to prepare for the main build phase with the removal of redundant partitions, ceilings and services. The Laser Area 3 entrance opening was constructed at high level from the mezzanine. Work also took place to clear pipes, cables etc from trenches. The safe route into Target Area 2 was completed. Figures 9 & 10 show progress.

Phase 4b – Main build of Target Area 3 (concrete bunker), Laser Area 3, services area, changing areas and corridors etc. *Work has continued with the layout of equipment in the Laser Area and Target Area. This has enabled the final detailed design of the building to be completed. Figure 11 shows the design in 3D visualisation.*

Conclusion

The upcoming year will see this design become reality.

References

1. J Collier *et al.*, CLF Annual Report 2003-2004, p182

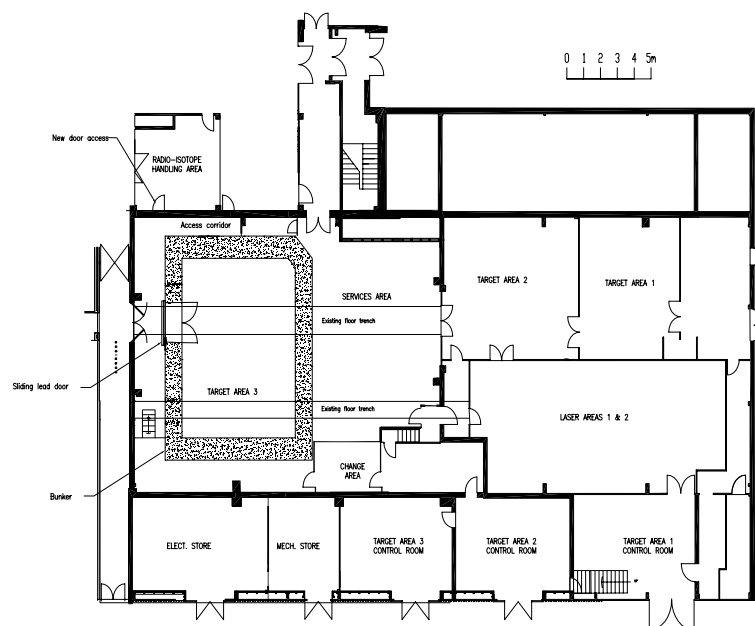


Figure 1. ground floor plan.

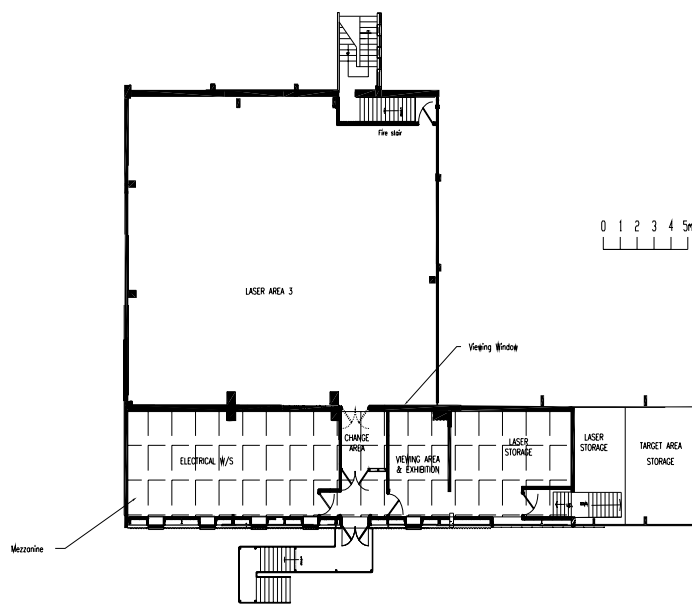


Figure 2. first floor plan.



Figures 3, 4 & 5. installing stairs at ground floor level between Laser Control Room and new Target Area 2 Control Room, installing the mezzanine and ceiling above the new Target Area 2 Control Room.



Figures 6 & 7. relocated electrical workshop and new external stairway.



Figure 8. relocated Target Area 2 Control Room.



Figures 9 & 10. area cleared ready for main build phase.

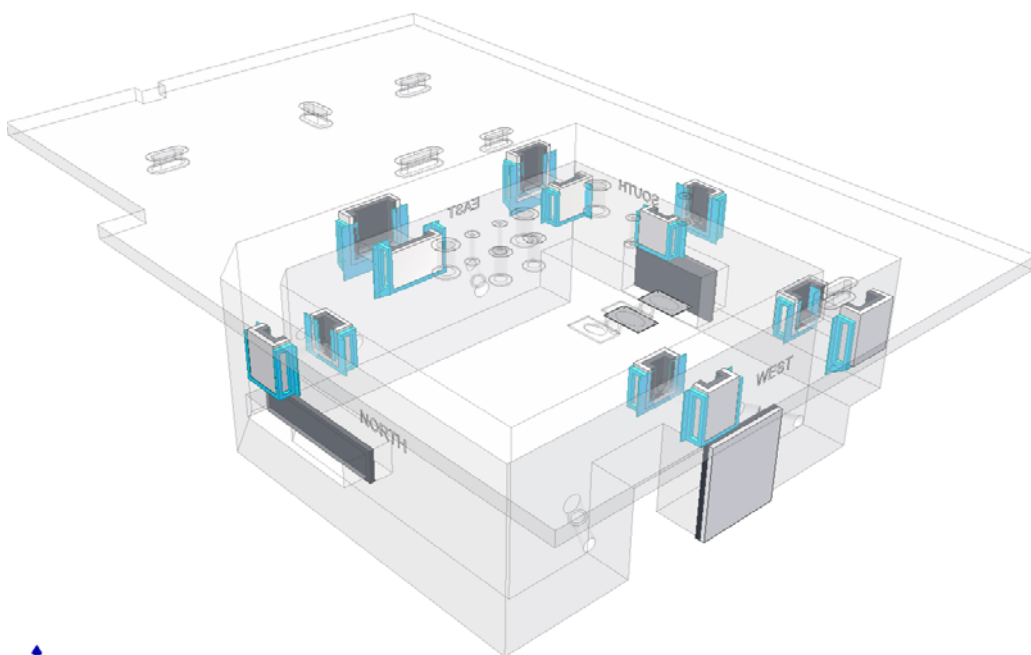


Figure 11. 3D visualisation of Laser Area 3, concrete bunker and Target Area 3 without lasers etc.