

MODULE TITLE	AIR CONDITIONING DRAWING
Nominal Duration	One Module
Module Code or Number	EA147
Module Purpose	This module provides the students with the knowledge and skills necessary to interpret analyse and produce mechanical drawings for specified air conditioning installations. Students will be able to interpret architectural, structural and mechanical drawings, and produce duct work and pipe work layouts from specified data.
Relationship to Competency Standards	This module will be modified in line with the requirements of the National Metals and Engineering Standards When they become available. The module contains the knowledge and skills identified and agreed by all States and Territories. It has been developed on the assumption that these will be reflected in the Standards.
Prerequisites	EA131HVAC Air Systems EA133HVAC Hydronic Systems
Summary of Content	Australian Standards, Architectural and mechanical drafting conventions, Fire, hydraulic, electrical layout diagrams, Sketching of pipework circuits and mechanical services, Drawing Standards and Symbols, Working, detail and assembly Drawings, Ductwork layouts and conventions, Pipework layouts and conventions, CAD programs.
Delivery	This module contains learning outcomes that will require both theory and practical instruction. As such, it will require resources to facilitate both on and off the job delivery strategies.

These strategies may involve:

*co-operative registered off-the-job provider/
employer delivery sharing available resources.

*delivery by an employer who is sub-registered as
an off-the-job provider, with qualified trainers in-
house using resources to facilitate on and off-the-
job delivery.

*off-the-job objectives should focus on the
industry context while on-the-job objectives
should reflect application within enterprise
operations.

Assessment instruments will need to be developed
by the module provider. These instruments will
need to reflect consistency with stated module
learning outcomes and related assessment
criteria.

Student records will be the responsibility of the
off-the-job provider and where more than one off-
the-job provider is involved, formal processes for
transfer of student information must be
established.

Learning outcomes

On completion of this module the learner will be
able to:

Learning outcome 1

**Interpret architectural, structural,
hydraulic, fire, electrical layout and
mechanical drawings as found in the HVAC
Industry.**

Assessment criteria

- 1.1 Identify standard symbols used in drawings.
- 1.2 Interpret non standard symbols.
- 1.3 Retrieve specific detailed information from
drawings.

Conditions

Normally learning will take place in drawing
office and classroom or other suitable study
environment.

During learning, access to relevant Australian Standards and examples of architectural, structural, and mechanical drawings which have been produced using standard and non standard symbols.

Assessment method

Supervised, closed book, short answer/multiple choice test.
Practical, on the job exercises.

Learning outcome 2

Produce manual and/or computer aided duct work, pipework, equipment and plant room layouts from specified data.

Assessment criteria

- 2.1 Produce duct work layout drawings conforming to industry and Australian standards comprising all major air distribution components and fittings, and showing all necessary dimensions and air volume flow rates.
- 2.2 Produce pipework layout drawings conforming to industry and Australian standards comprising all major hydronic system components and fittings, and showing all necessary dimensions and fluid volume flow rates.
- 2.3 Produce equipment and plant room layout drawings conforming to industry and Australian standards comprising all major air and hydronic system components and showing all necessary provisions for access and maintenance.

Conditions

Normally learning will take place in drawing office and classroom or other suitable study environment.

Access to relevant Australian Standards and examples of mechanical drawings which have been produced using standard symbols. Access to computer aided design and drafting equipment is an advantage.

Assessment method

Practical, on the job drawings.
Assignment.

Suggested Learning Resources

AIRAH 1989. AIRAH Handbook.

AIRAH. Design Aids.

ASHRAE. ASHRAE Handbook, HVAC Systems.
Atlanta

Carrier Air Conditioning Company. Handbook of Air Conditioning Design, M_cGraw - Hill.

Jones. Air Conditioning Engineering.

SMACNA 1987. HVAC Systems Applications

Standards Australia-Latest Editions to be used:

AS1101 parts 1,5 & 6. Graphic Symbols for General Engineering.

Selected Architectural and Structural References.

Selected CAD programs.