Auxiliary Views
Motivation

Multiview drawing set of an inclined surface shows:

- One view of the surface seen on edge
- Two views seen as a foreshortened (i.e., not true size) surface

Sometimes need a view of inclined surface that shows its true size and shape
From Descriptive Geometry

True size and shape of a planar face (or true length of a line) can only be represented in an orthographic projection if:

- Line of sight is normal to the face, or, equivalently,
- View plane is parallel to the face
Definitions

- An **auxiliary view** is an orthographic view that is projected onto any plane other than one of the principal planes.

- A **primary auxiliary view** is an auxiliary view projected from one of the six principal views.
  - Used to find true size of an **inclined surface**.

- A **secondary auxiliary view** is a view projected from a primary auxiliary view.
  - Used to find true size of an **oblique surface**.
Object with inclined surface placed inside glass box
Additional plane added to glass box - parallel to inclined surface
Inclined surface projected onto inclined plane
Auxiliary View Projection Theory - 2

Inclined projection plane hinged to principal projection plane (Horizontal, Frontal, Profile) that shows inclined surface as an edge.
Auxiliary View Projection Theory - 3

- Views unfolded - auxiliary view shows true size and shape of inclined surface
- Distance from hinge to edge of inclined surface same for all views, principal or auxiliary
- Convention is to only show inclined surface in an auxiliary view

NOTE: Often convenient to choose $D = 0$
Auxiliary Views: 3 Cases

Depending upon where the inclined surface appears on edge, primary auxiliary views can be projected from either the:

- Horizontal Plane
- Frontal Plane
- Profile Plane
Auxiliary Views

Over and Out