436-105 Engineering Communications

GL14: DG - Developments

unfolding or unrolling a 3-D object to a flat pattern
Developments

• Development
  – process of unfolding or unrolling a 3-D object to a flat pattern

• Developed surface, or pattern
  – flat figure which can be folded to create a 3-D object

• Pattern development
  – process of creating a flat pattern from orthographic views
A4 copy paper box

To what shape should the cardboard sheet be cut?
Developed!
Mark string at panel edges
Development classes

- See Bertoline et al. Ch. 13.3 for
  - parallel line developments (prisms, cylinders)
  - radial-line developments (pyramids, cones)
  - triangulation developments (ruled surfaces)
True length of a line by rotation
Example: Chimney transition

Chimney

Transition

Roof
Chimney transition

TL views of ruled surface generators

TL views of ruled surface generators
Chimney transition

Chord length, e.g. E→F:
\[ s = 2r \sin(\pi/N) \]
\[ = 400 \sin(\pi/12) \]
\[ = 103.5 \text{ mm} \]