Wood Plastic Composite Decking Manufacturing Process
What are Wood-Plastic Composites (WPC)?

- Combination of Wood-Plastic
  - Thermoplastic- HDPE, LDPE, PP, PVC
  - Wood Flour- 20 to 60 mesh- Pine, Oak, Maple
  - Lubricants, Pigments, Coupling agents, other additives
- Technology
  - Extrusion, Injection or Compression molding
  - Pre-Compounding
How are WPCs manufactured?

Logs, Chips, Shavings, etc. → Hammermill → Blended → Extruded → Wood Flour

Courtesy of WMEL, Washington State University, www.wmel.wsu.edu
General Manufacturing Flow

Resin Silo → Compounder or Blender → Extruder → Die → Calibrator → Extruding System

Extruding System → Chiller

Chiller → Spray Cooling

Spray Cooling → Cut-off Saw

Cut-off Saw → Embossing

Embossing → Brushing

Brushing → Puller

Puller → Stacker
Dried, Compounded, Extruded

- Pre-dry Wood Flour (<2%)
- Dry Blend Components
- Twin-Screw Extruder

Source: Milacron Inc.
Typical Extrusion Line

Wood Materials & Engineering Laboratory
WSU, Pullman, WA
- flexible manufacturing
- does not cater only to economies of scale
- low capital investment
Maintained by Wood Materials and Engineering Laboratory (www.wmel.wsu.edu) at Washington State University