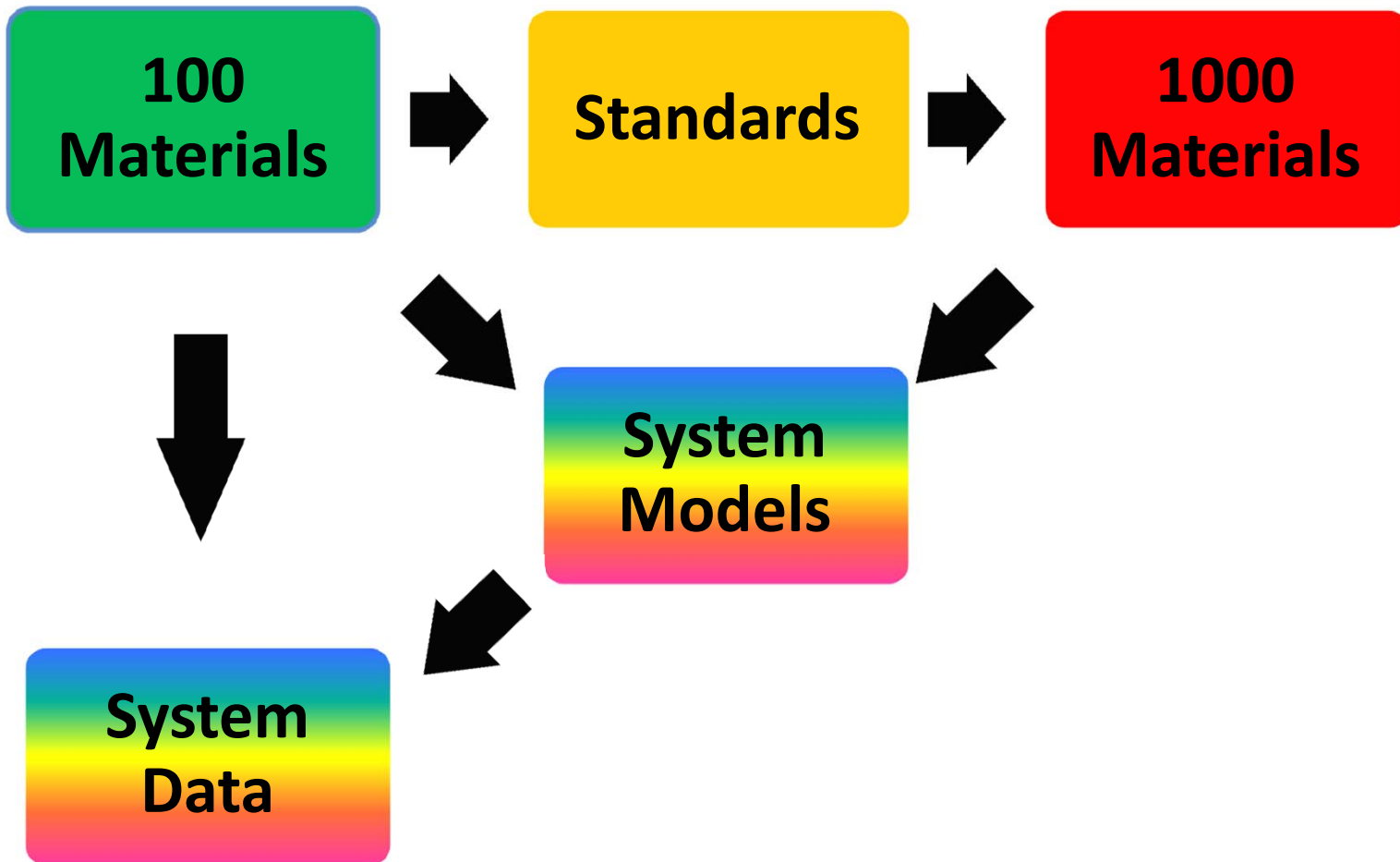
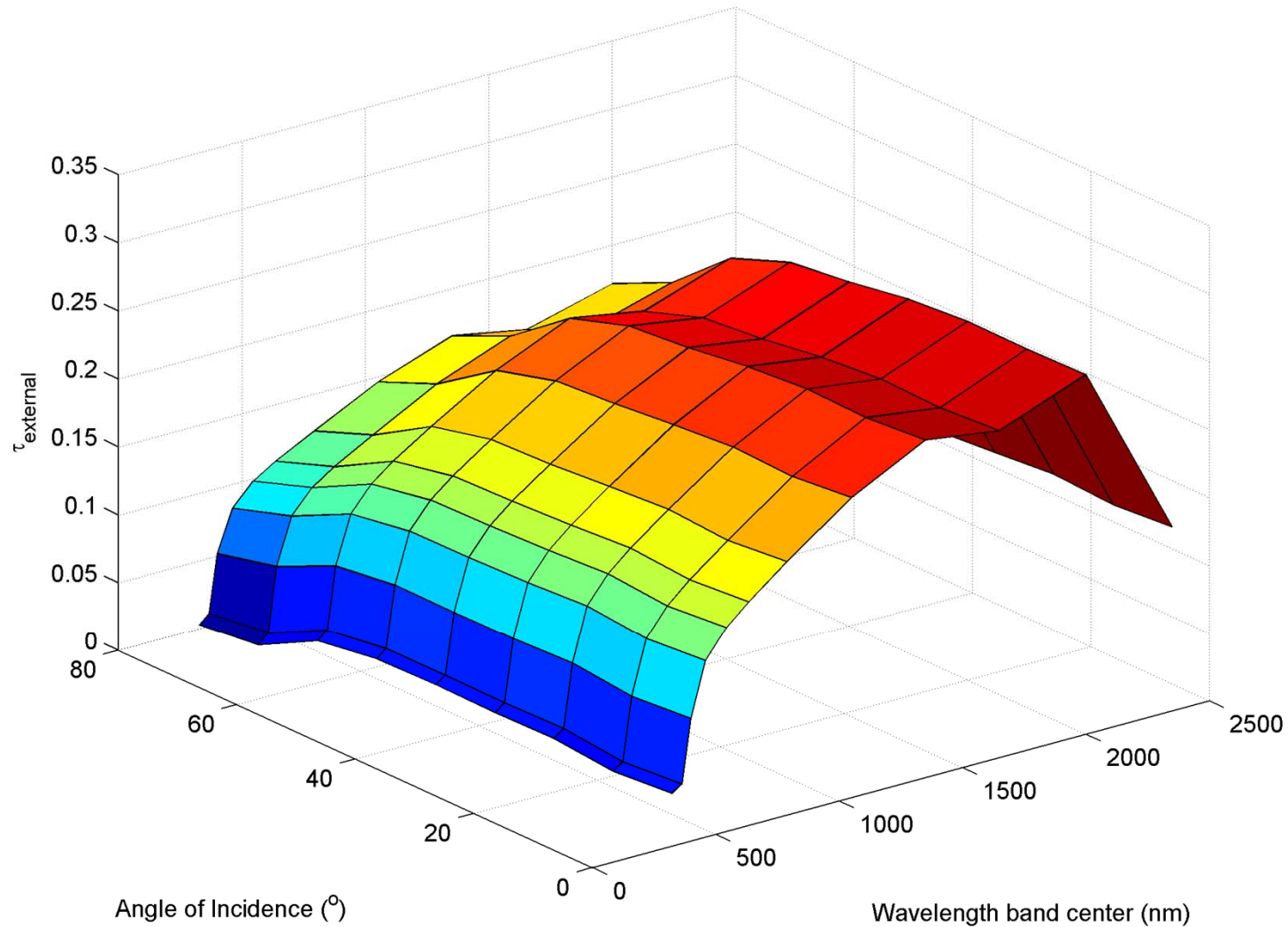


# Getting to Attachment Optical Data



# Spectral and Directional Data “100 Shades”



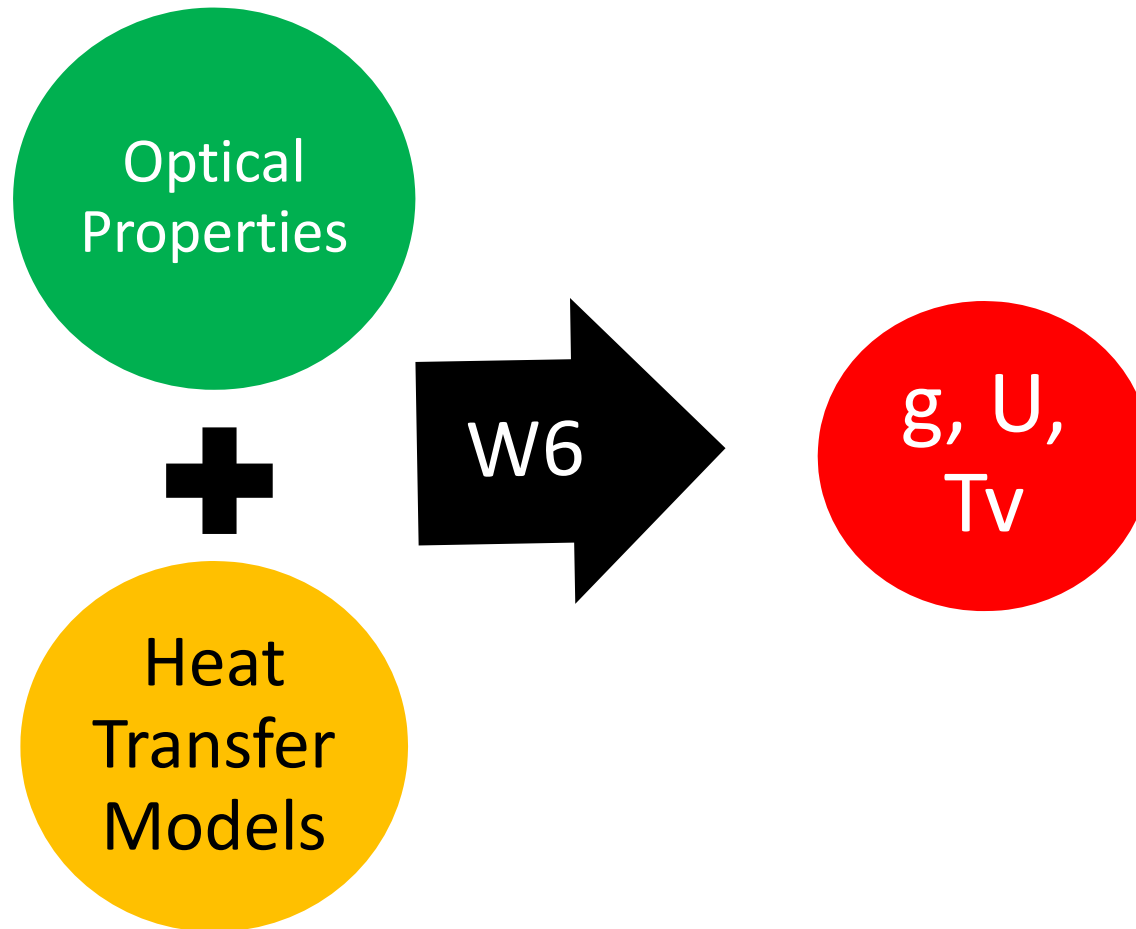
# Materials Testing

- “100” shades tested for pilot project
- Improved accuracy with modified spectrophotometer technique
- 1000 shades x \$1000/shade = 1 million bucks!
- Solutions:
  - generic shade materials
  - Higher efficiency. 9 scans 3x\$ of 3 scans?
  - Lower cost test lab
  - Mfgs acquire spectrophotometers

# Standards Choices

- EN 14500 written for this purpose
  - Long and complicated
  - Not the best guidelines for accuracy
  - No EU representation
- Modify and extend existing specular standards
  - EN 410
  - ISO 9050
  - ASTM E903
- Start from scratch

# Getting to gUT

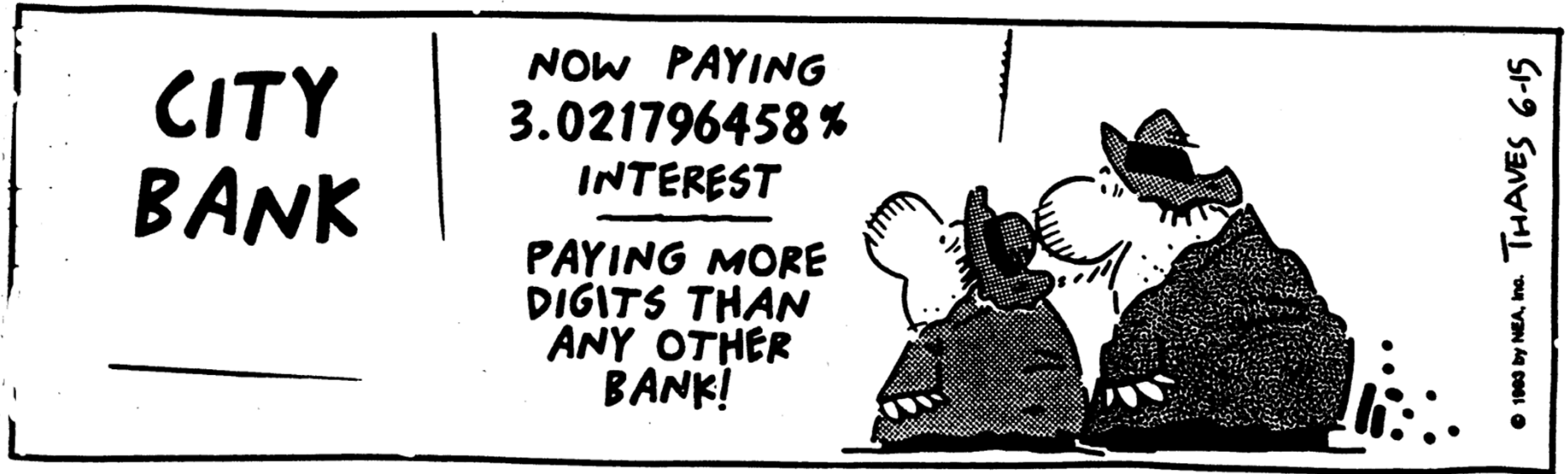


# Models for Window+Attachment

- Replace Matrix/ASHRAE report
- W6 –EN 13363-2 (Detailed)/ ISO 15099
- WIS - EN 13363-?
- EN 13363-1 (Simple)
  - Sonnergy
  - Canada Lab - excel
  - Make one of our own

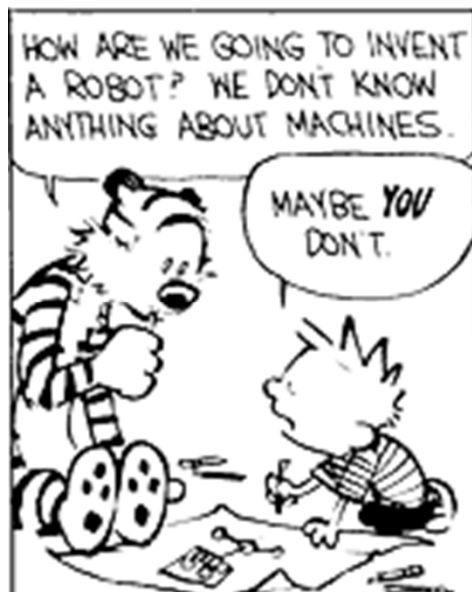
...rest satisfied with the degree of precision which the nature of the subject admits and [do]not seek exactness where only an approximation is possible  
- Aristotle (384 BC - 322 BC)

**FRANK & ERNEST** • Bob Thaves



# Helpful Projects

- Expanded master material list
- Generic material cross reference list
- Collect, verify and label sample sets
- Study of production variations
- Geometric definition of cellular shade variants
- ...maybe even a code module
- Detailed spec for test labs
- .....



IT'S EASY. THERE ARE JUST FOUR SIMPLE MACHINES TO ALTER FORCE: THE LEVER, THE PULLEY, THE INCLINED PLANE AND, UM, THE INTERNAL COMBUSTION ENGINE.

