

# SEARCH AND RESCUE BRIDGE

Sketch Model Presentation

# Search and Rescue Bridge



- Design
  - Portable bridge used to cross rivers during SAR operations
  - Lightweight
  - Quickly and easily deployed and retracted
- Currently: Rope bridge or avoid river
- Nationwide SAR equipment allocation: \$30 million to \$120 million

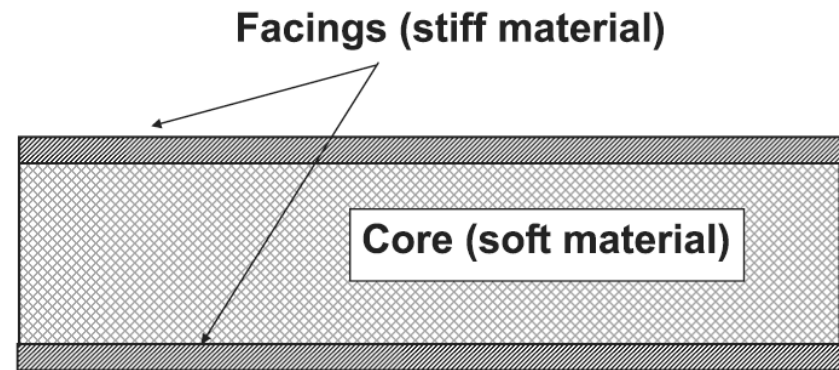
# Requirements



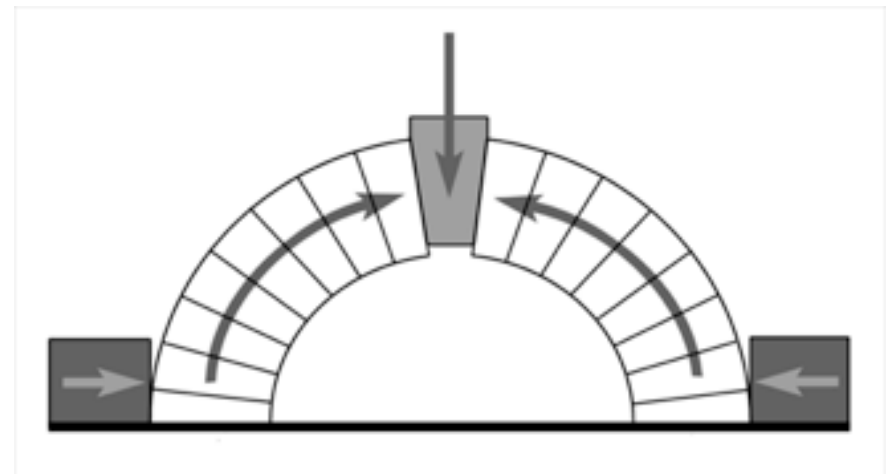
- Estimated 1,250 pound capacity
  - 4 people with packs and one body in a litter
- Deploy from one side of river
- Quick set-up
- Modular

# Design Strategies

- Sandwich Beam Design
  - 3 joint variations



- Keystone Bridge Design



# Joint Shapes



# 145 lb limit



# 150 lb limit





>305 lb limit



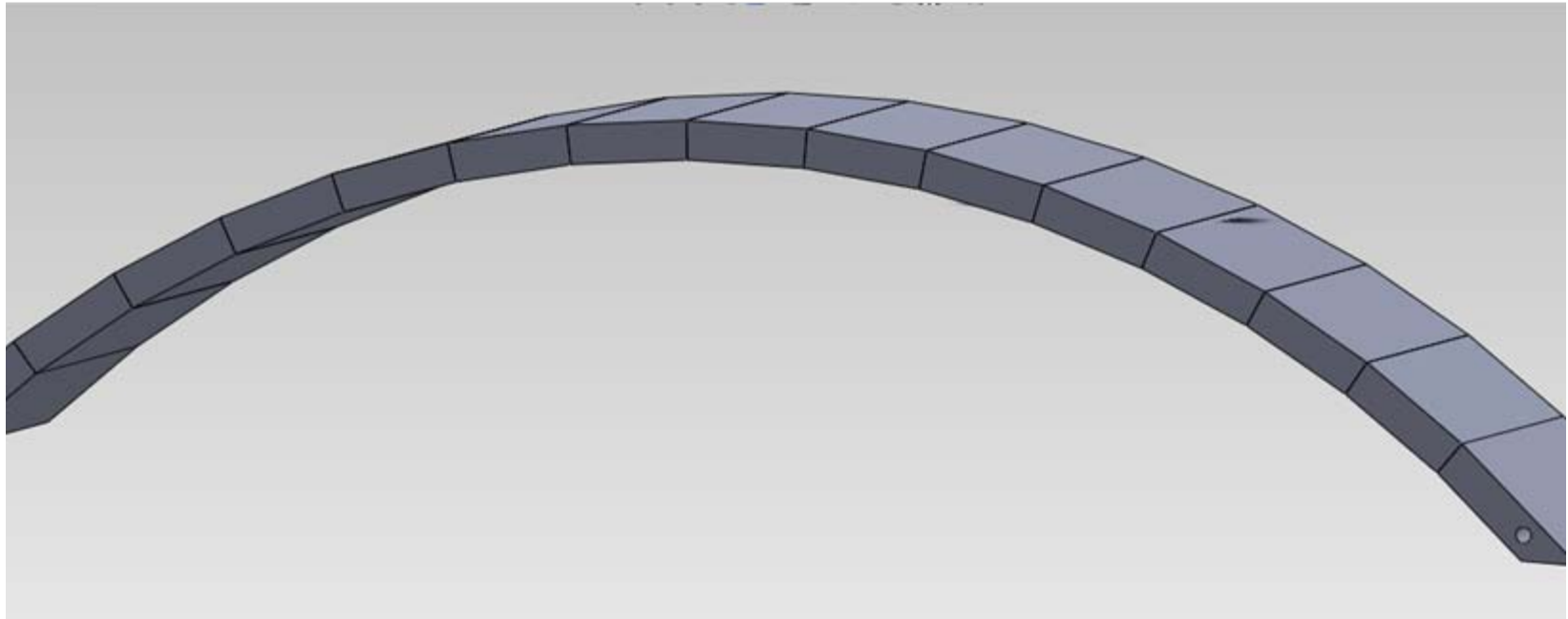


# Joint Shape Results

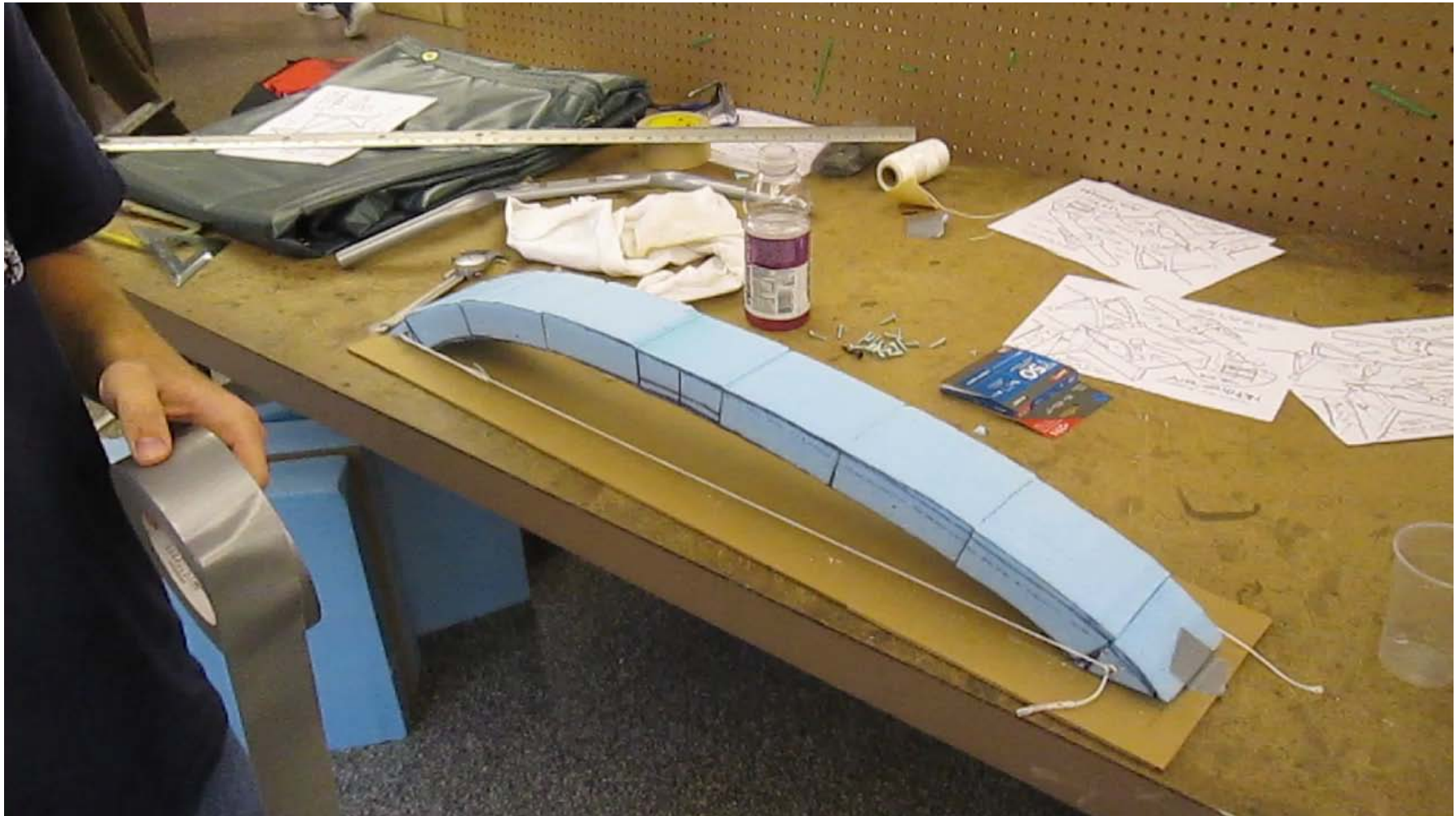


- Square tongue-in-groove is superior
- Adhesion between the core and the facings is very important

# Concept-Keystone Bridge



# Keystone Sketch Model



# Keystone with Surface Material



# Keystone Conclusions



- Precision of joints is very important
- Using rope to hold tension on bridge is effective
- Deployment of bridge from one side of river is greatest challenge

# The Takeaway



- Tests don't rule out concept
- Next steps:
  - Explore deployability
  - Explore implementation of joint shapes in keystone