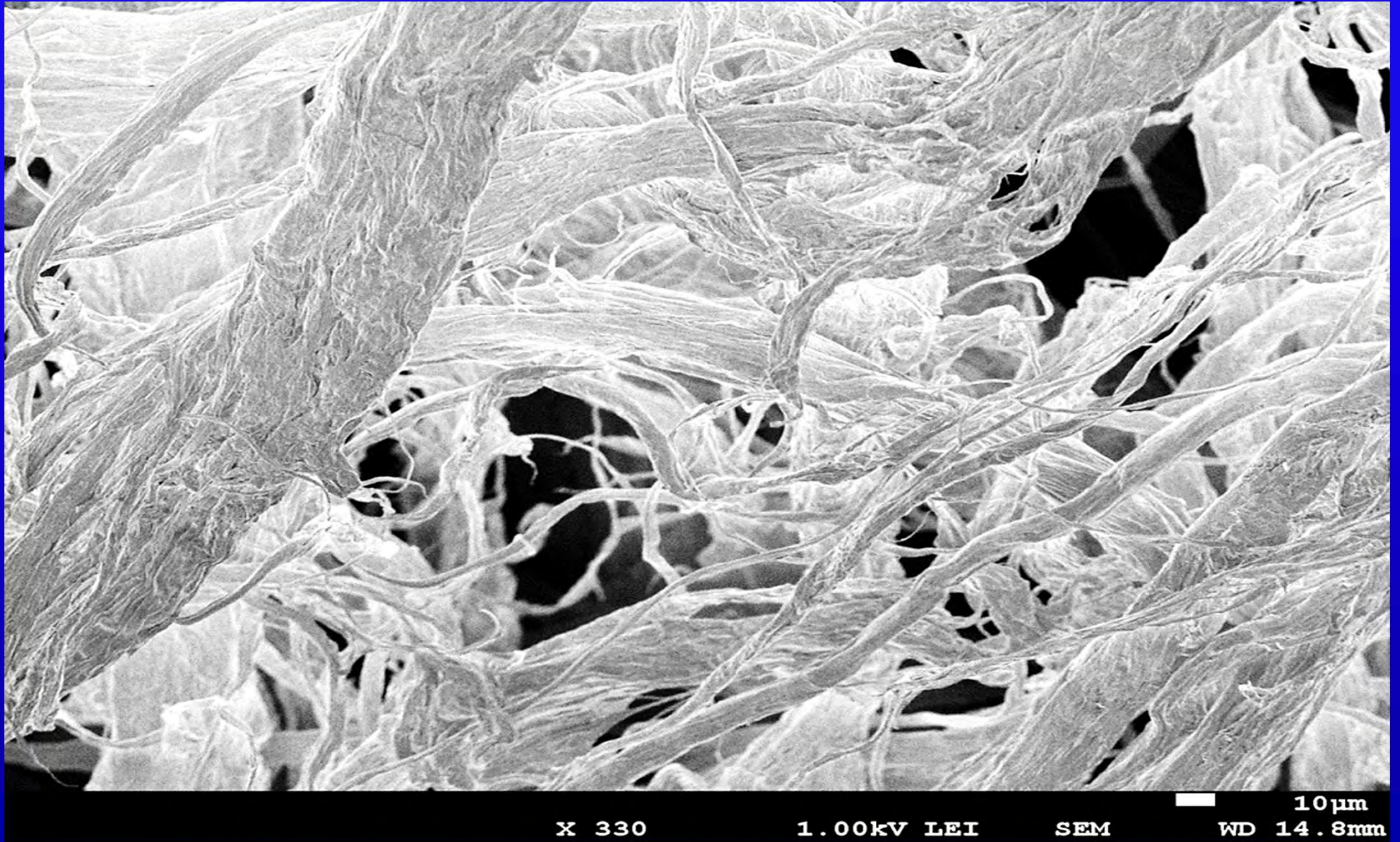


**Improving Impact Resistance in  
Architectural Stone and Stucco  
with Short Stuff<sup>®</sup> Grades  
ESS50F and E505F**

***MINIFIBERS, INC.***

# Short Stuff®



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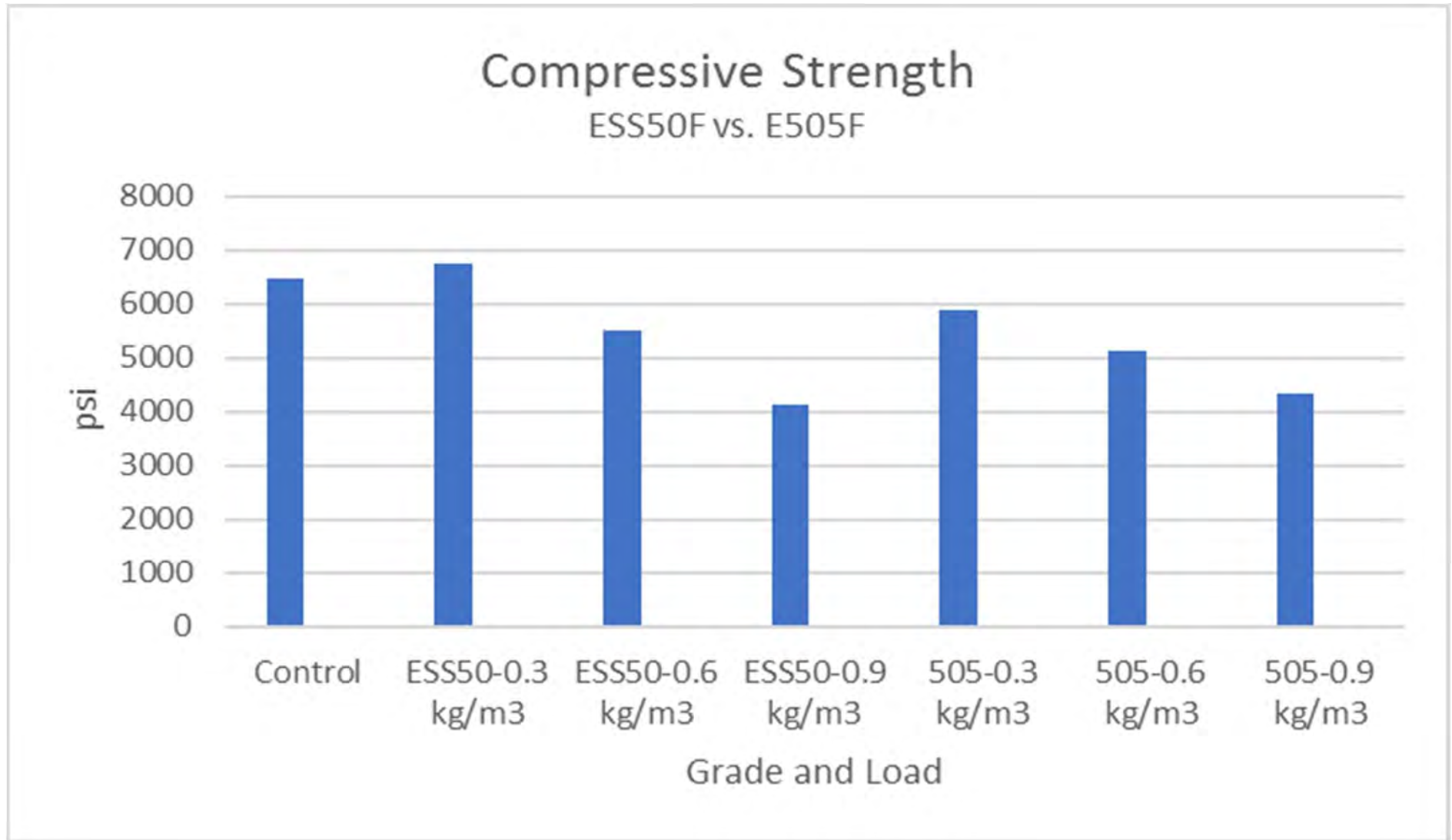
# Testing at MTSU

- An architectural stone mix was tested for:
  - Compressive strength
  - Impact Resistance

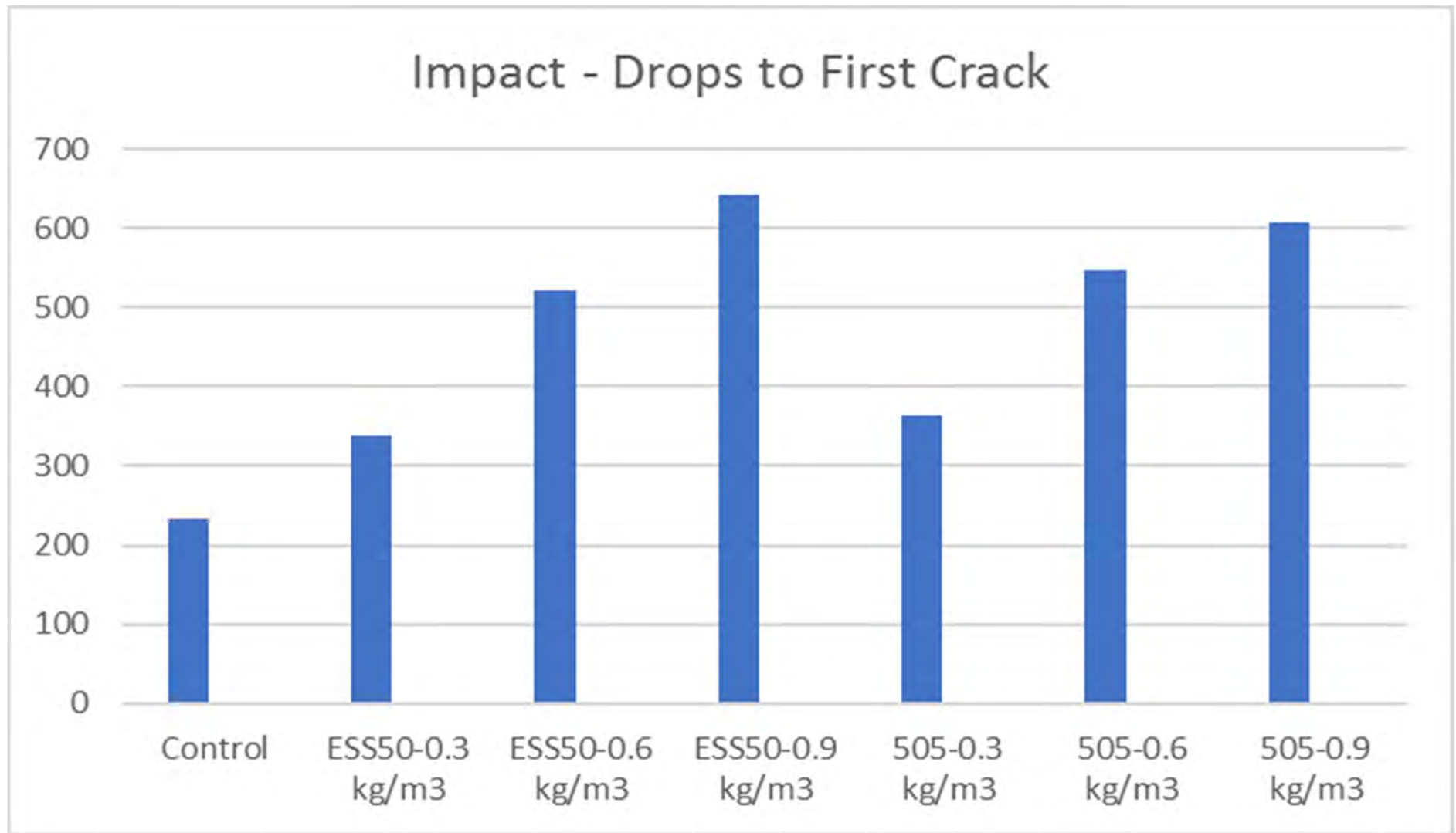
## Mix Design kg/m<sup>3</sup>

Portland Cement	569
Ohio River Sand	1,707
Water	144
Air	2%
w/c ratio	0.253

# Compressive Strength



# Impact Performance



# Conclusion

- Loaded at 0.3 kg/m<sup>3</sup>, Short Stuff<sup>®</sup> ESS50F improved impact resistance by over 50%
  - Compressive strength was unchanged
- Adding more ESS50F increased impact resistance dramatically, but decreased compressive strength
- Results with E505F were similar, but with less gain in impact resistance, and greater loss of compressive strength

**Short Stuff<sup>®</sup> Grades  
ESS50F & E505F  
are available from:**

***MINIFIBERS, INC.***

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