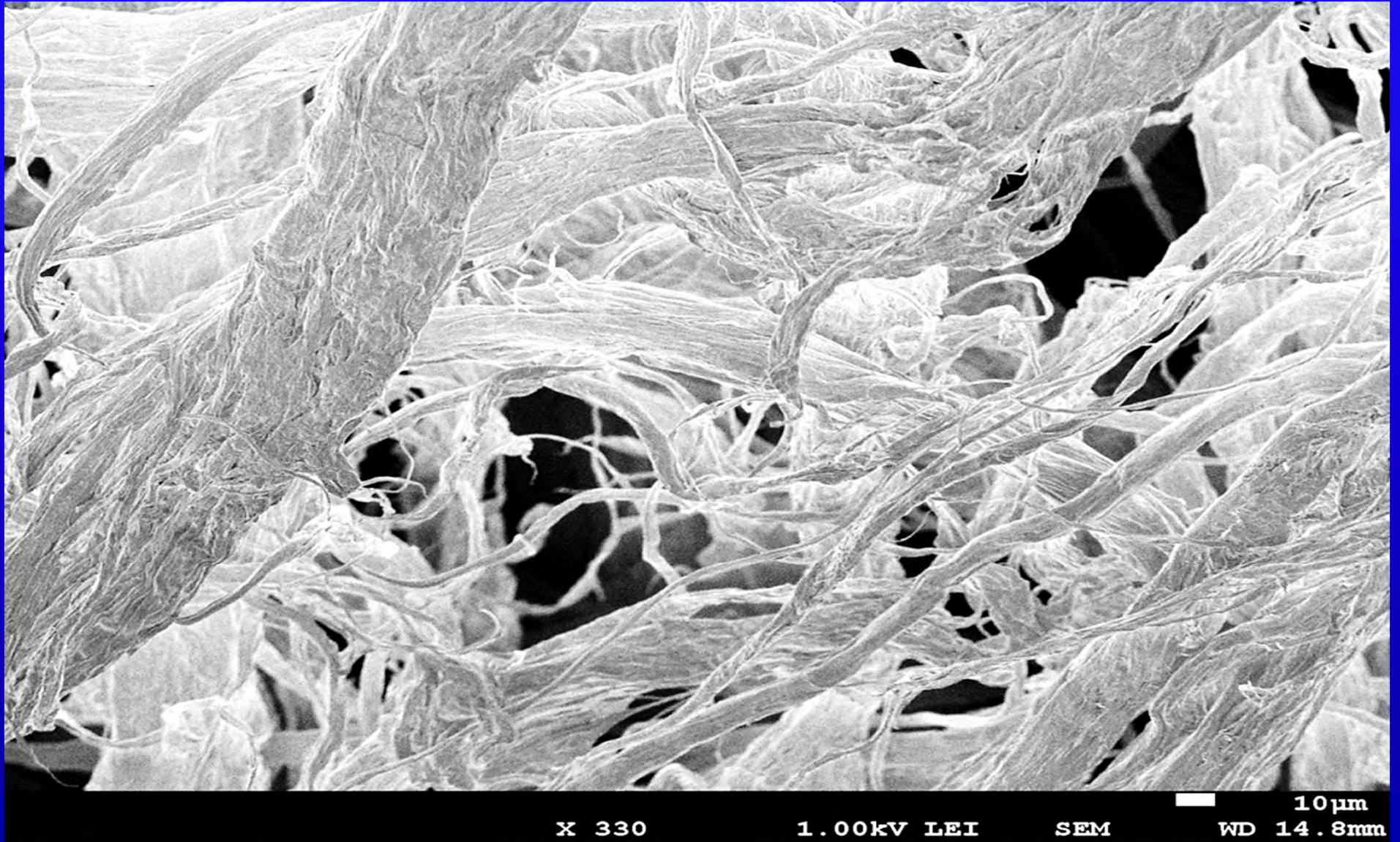


**Improving Impact Resistance in
Architectural Stone and Stucco
with Short Stuff[®] Grades
ESS50F and E505F**

MINIFIBERS, INC.

Short Stuff®



MINIFIBERS.COM

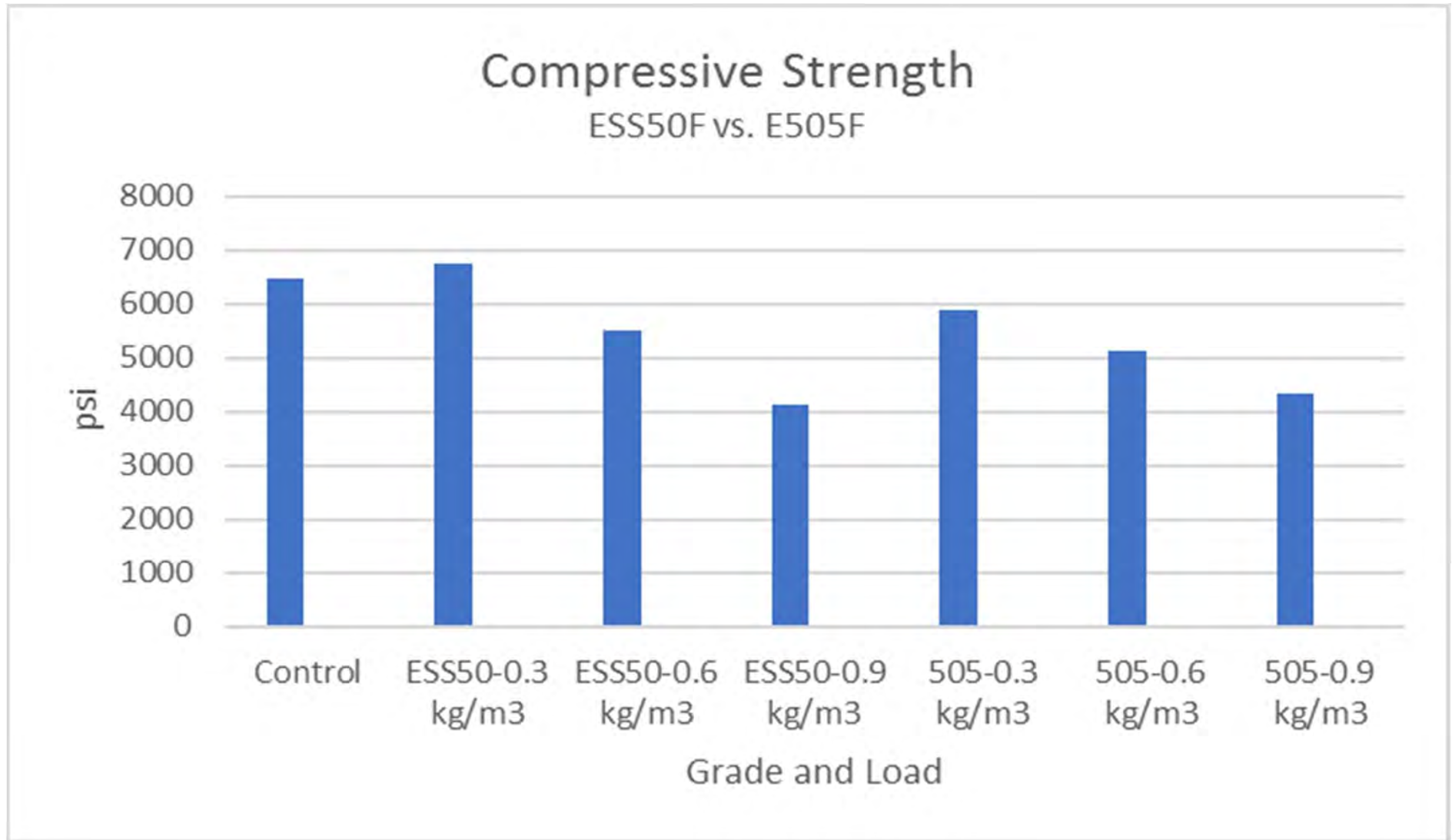
Testing at MTSU

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

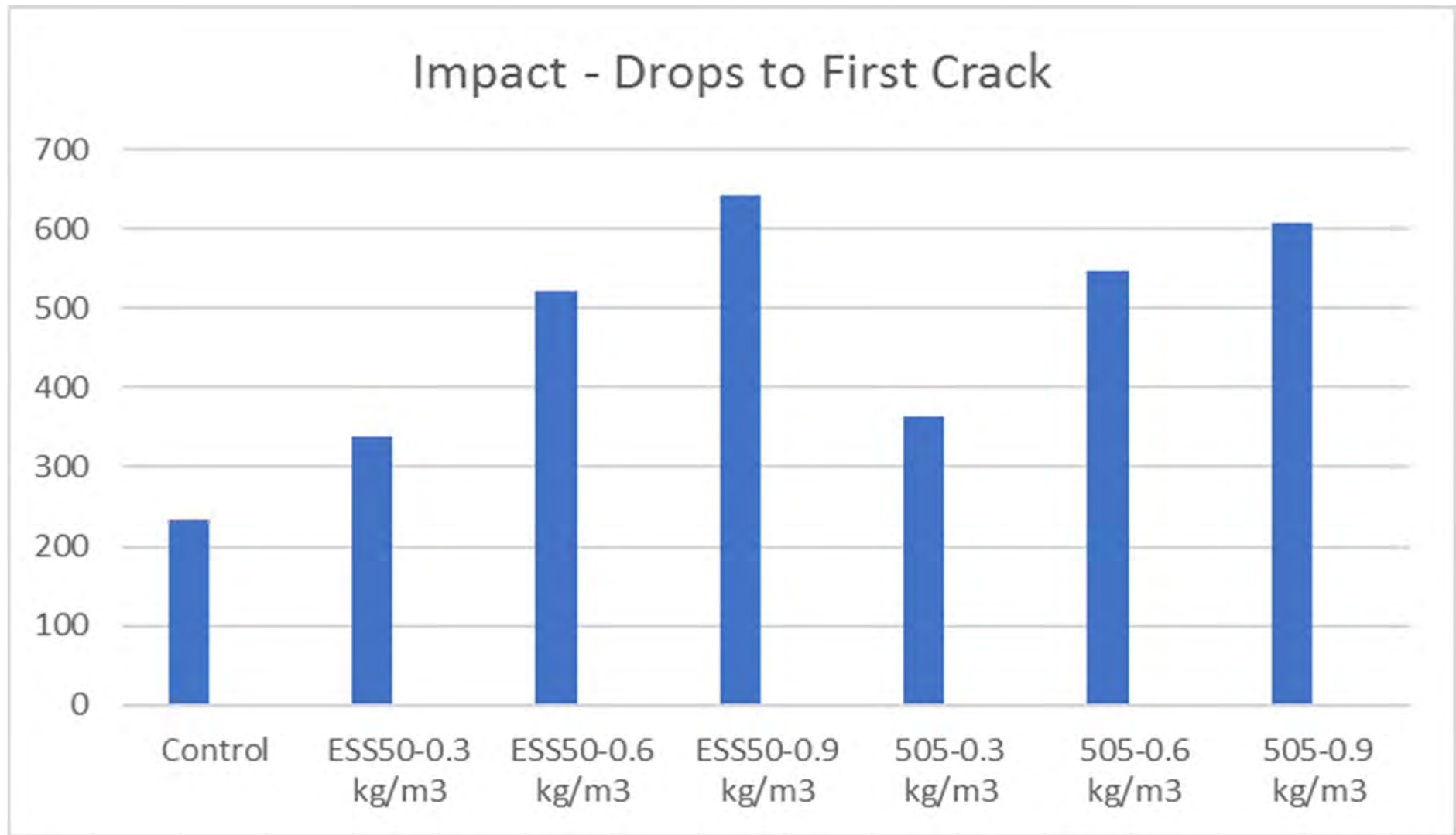
Mix Design kg/m³

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/m³, Short Stuff[®] 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