



**Federal Aviation
Administration**

International Aircraft Materials Fire Test Working Group Meeting

Full-Scale Testing of OSU- and non-OSU-Compliant Seat Paneling

Presented to: International Aircraft Materials Fire Test
Working Group, Atlantic City, NJ

By: Tim Marker, FAA Technical Center

Date: October 19-20, 2015

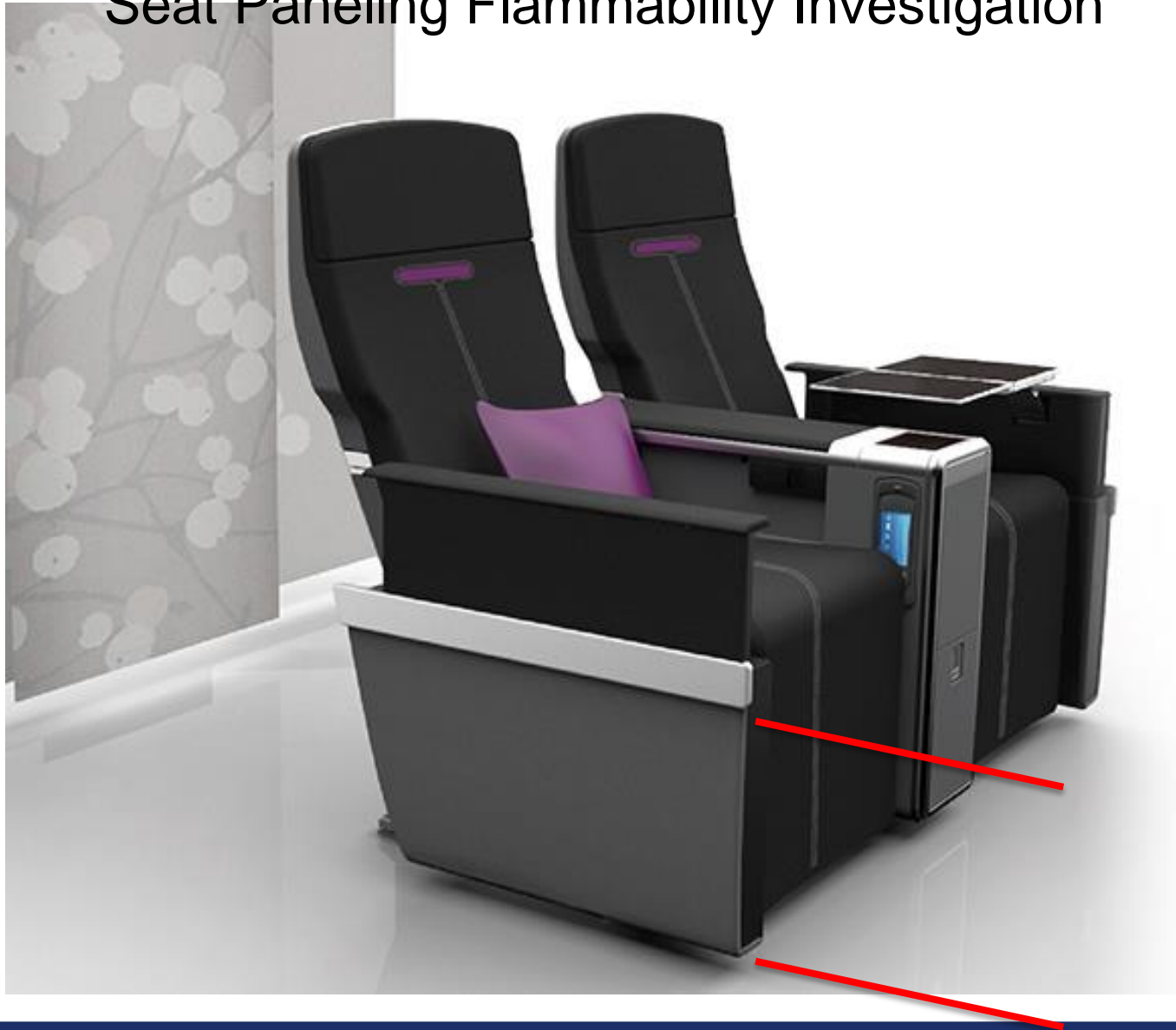


Seat Paneling Flammability Investigation

ARAC Task to determine feasibility of allowing non-OSU compliant panels on lower portion of business class seats (floor to 15 inches in height)



Seat Paneling Flammability Investigation



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Objective: Determine feasibility of allowing non-OSU-compliant materials in the lower area of first- and business-class seats

Methodology: Conduct Full-Scale tests to determine impact on survivability when using OSU-compliant panels versus non-compliant panels.

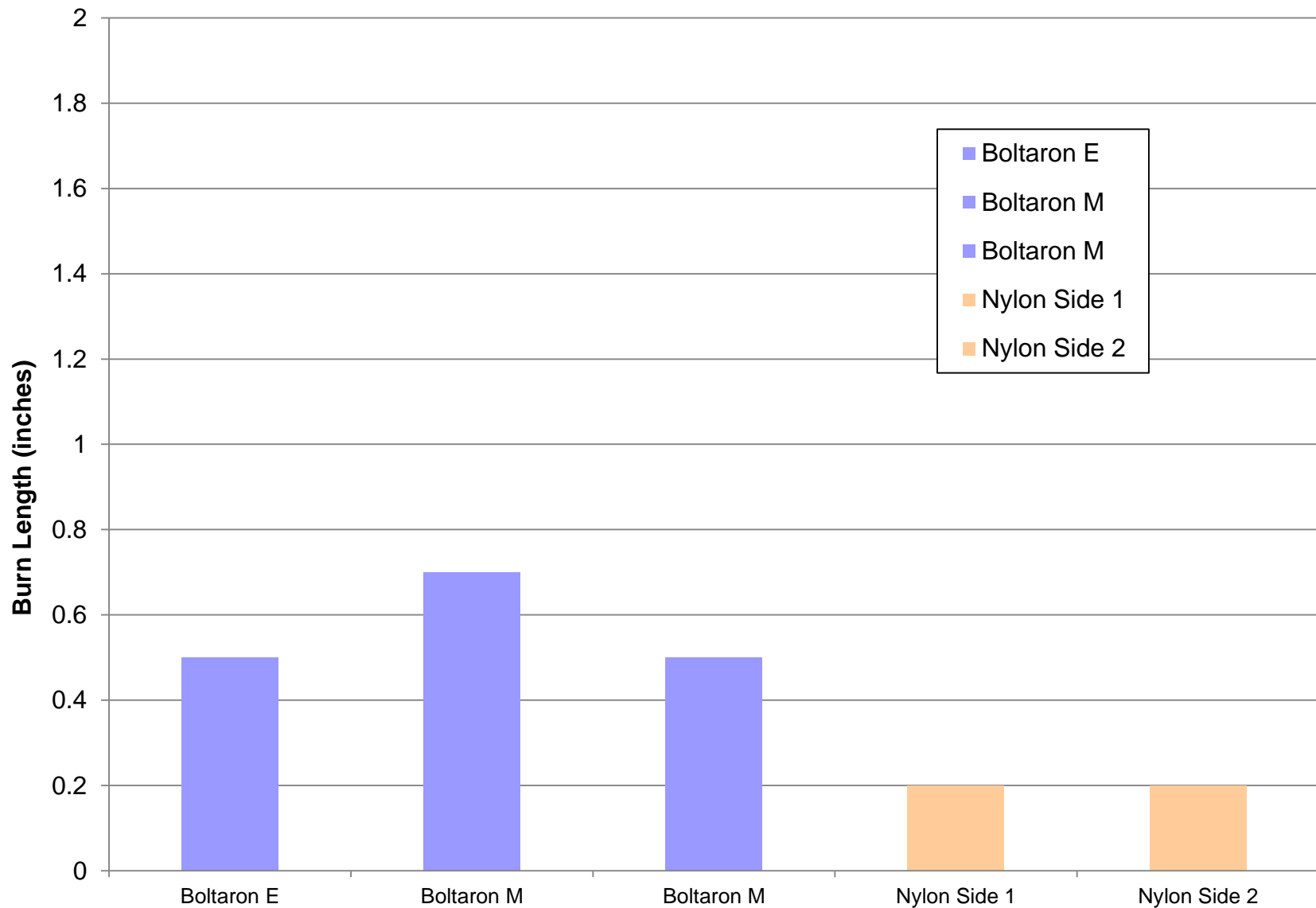
Full-Scale Test Seat Construction



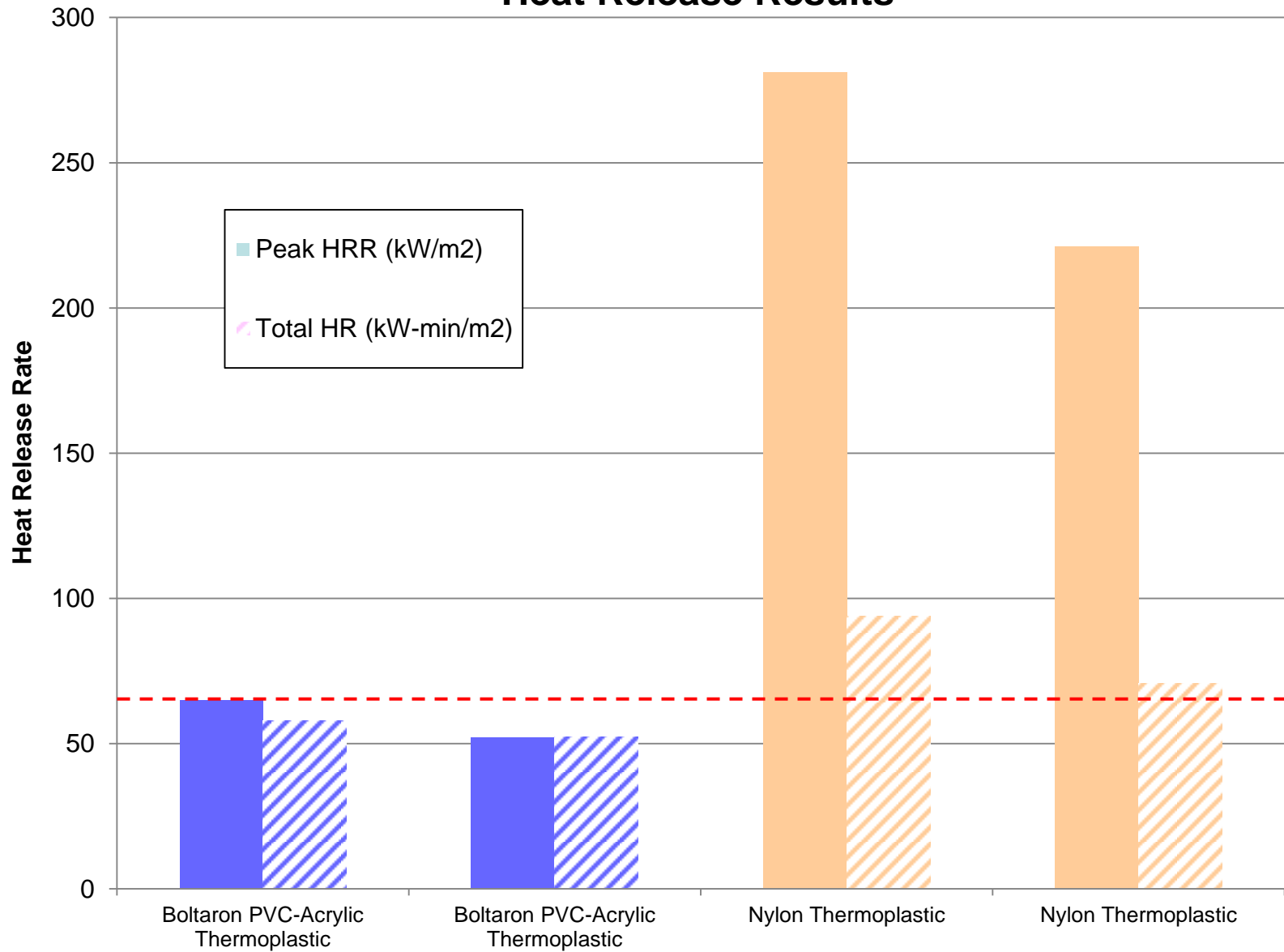
Full-Scale Test Seat Construction



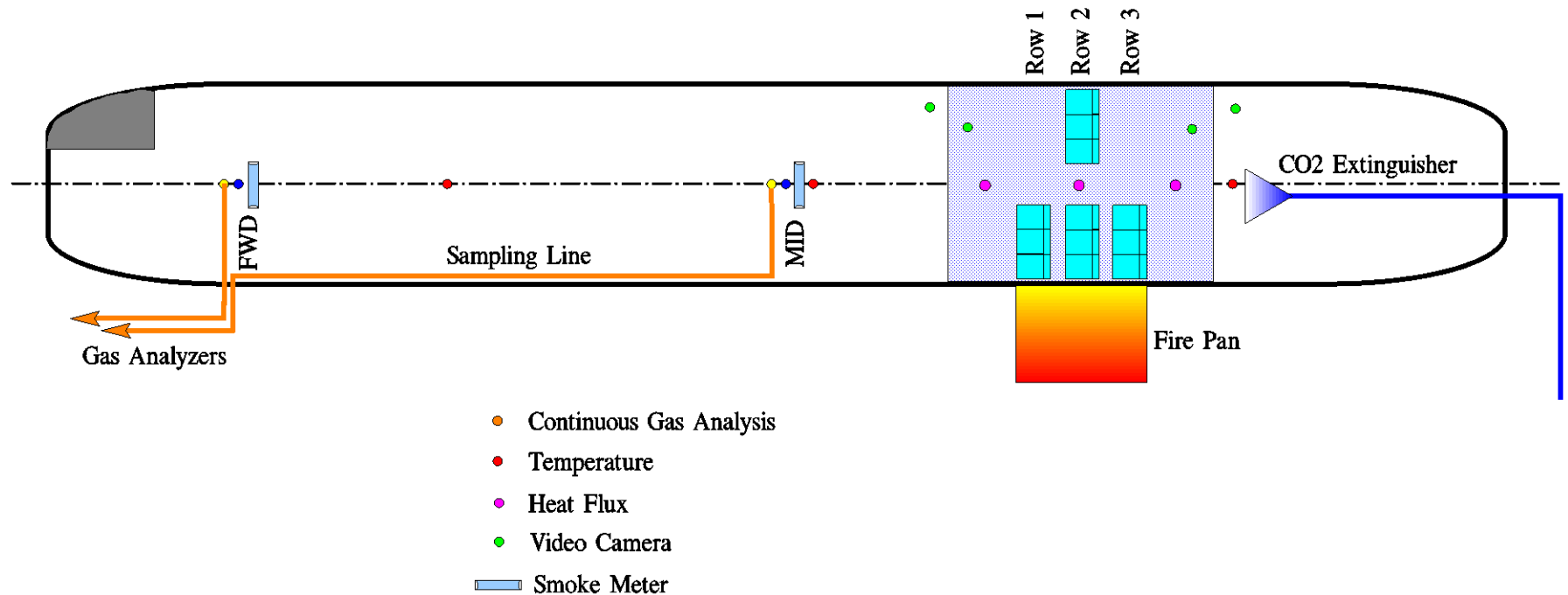
12-Sec Vertical Bunsen Burner Results



Heat Release Results



707 Full-Scale Test Article



Full-Scale Test Using OSU-Compliant Materials



Full-Scale Test Using OSU-Compliant Materials



Full-Scale Test Using OSU-Compliant Materials



Full-Scale Test Using OSU-Compliant Materials



Full-Scale Test Using OSU-Compliant Materials



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Full-Scale Testing of Seat Paneling
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Full-Scale Test Using OSU-Compliant Materials



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Full-Scale Test Using OSU-Compliant Materials



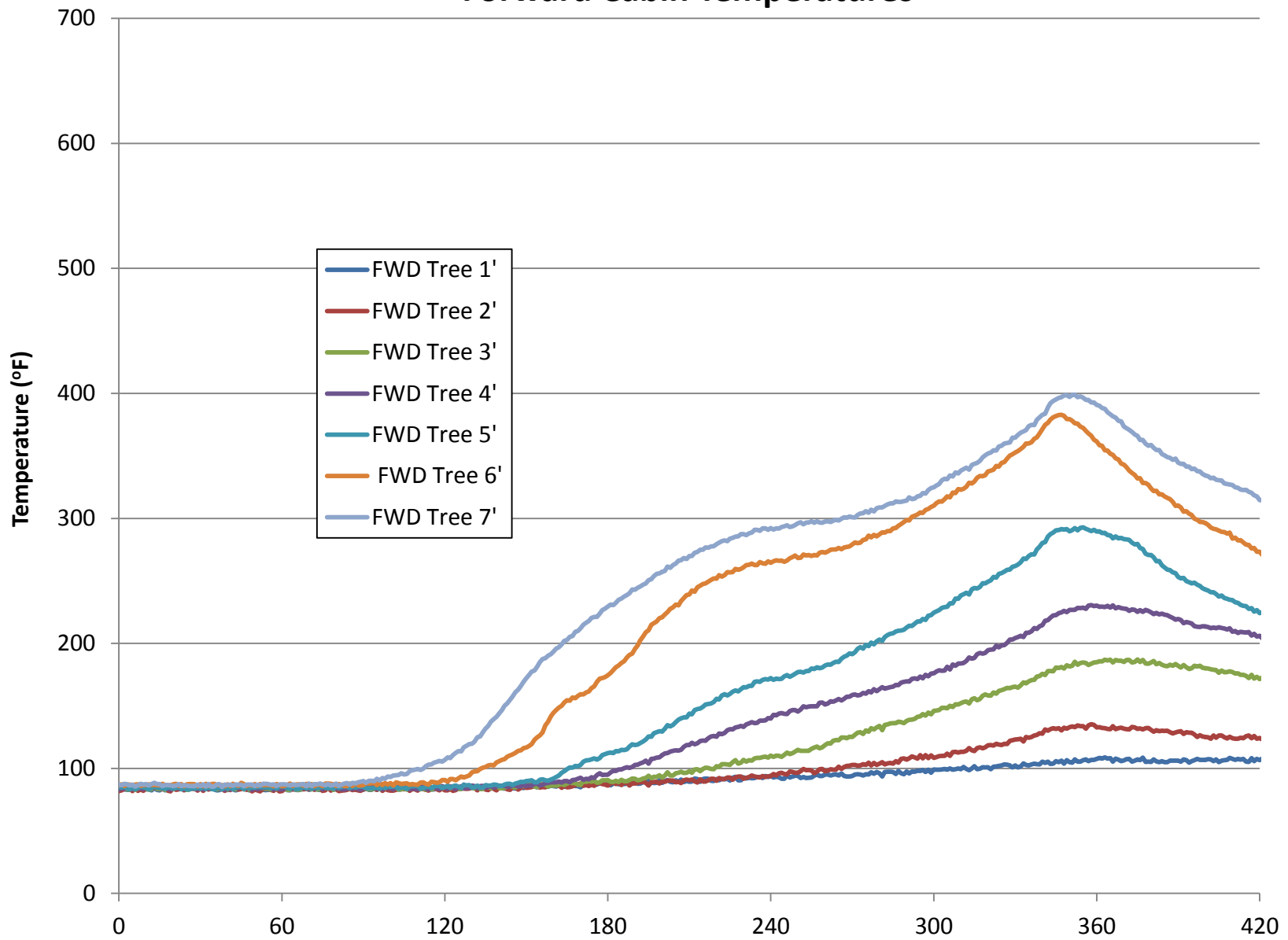
Full-Scale Test Using OSU-Compliant Materials



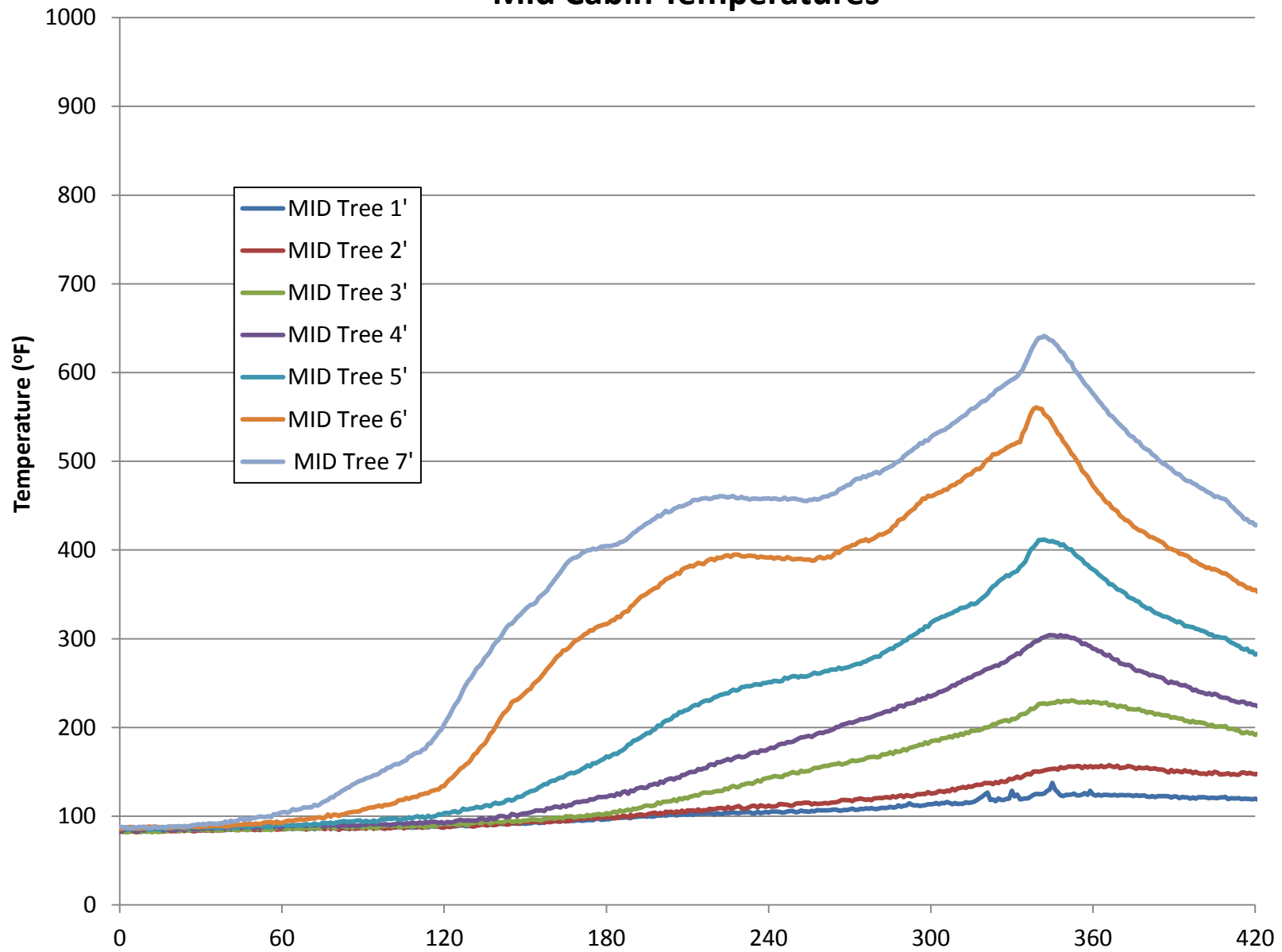
Full-Scale Test Using OSU-Compliant Materials



Forward Cabin Temperatures



Mid Cabin Temperatures



Full-Scale Test Using Non-OSU-Compliant Materials



Full-Scale Test Using non-OSU-Compliant Materials



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Full-Scale Test Using non-OSU-Compliant Materials



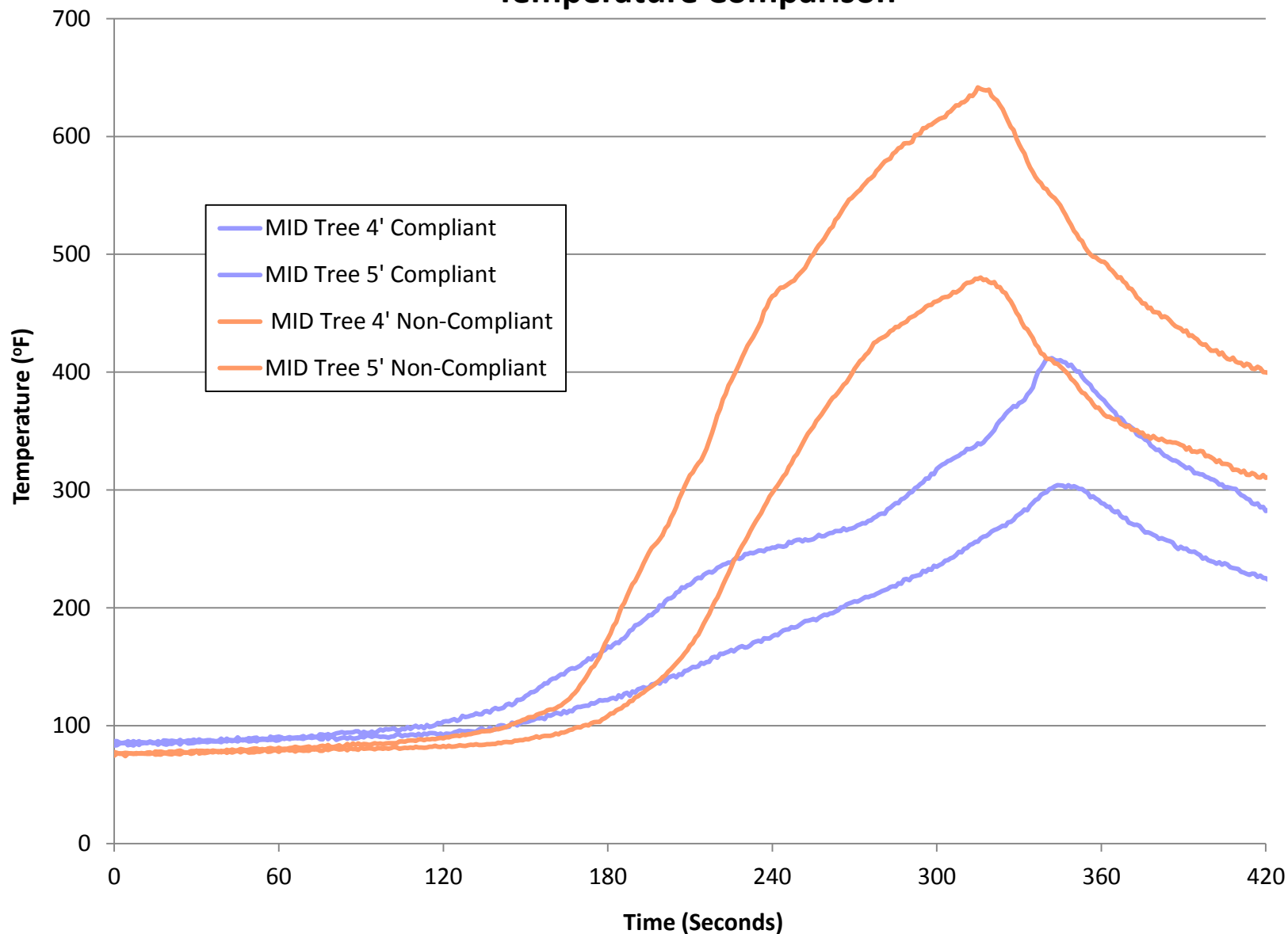
OSU-Compliant Materials



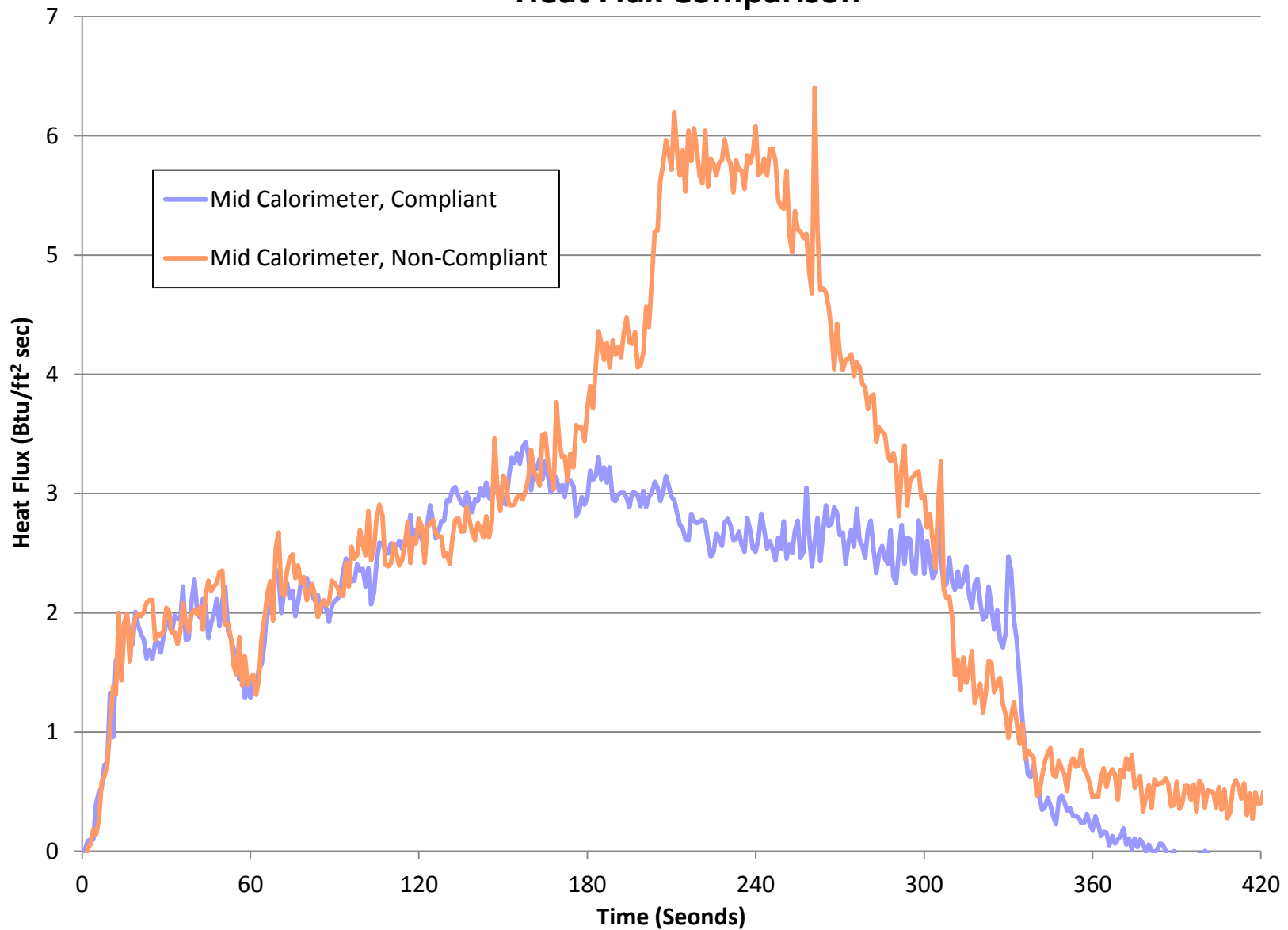
non-OSU-Compliant Materials



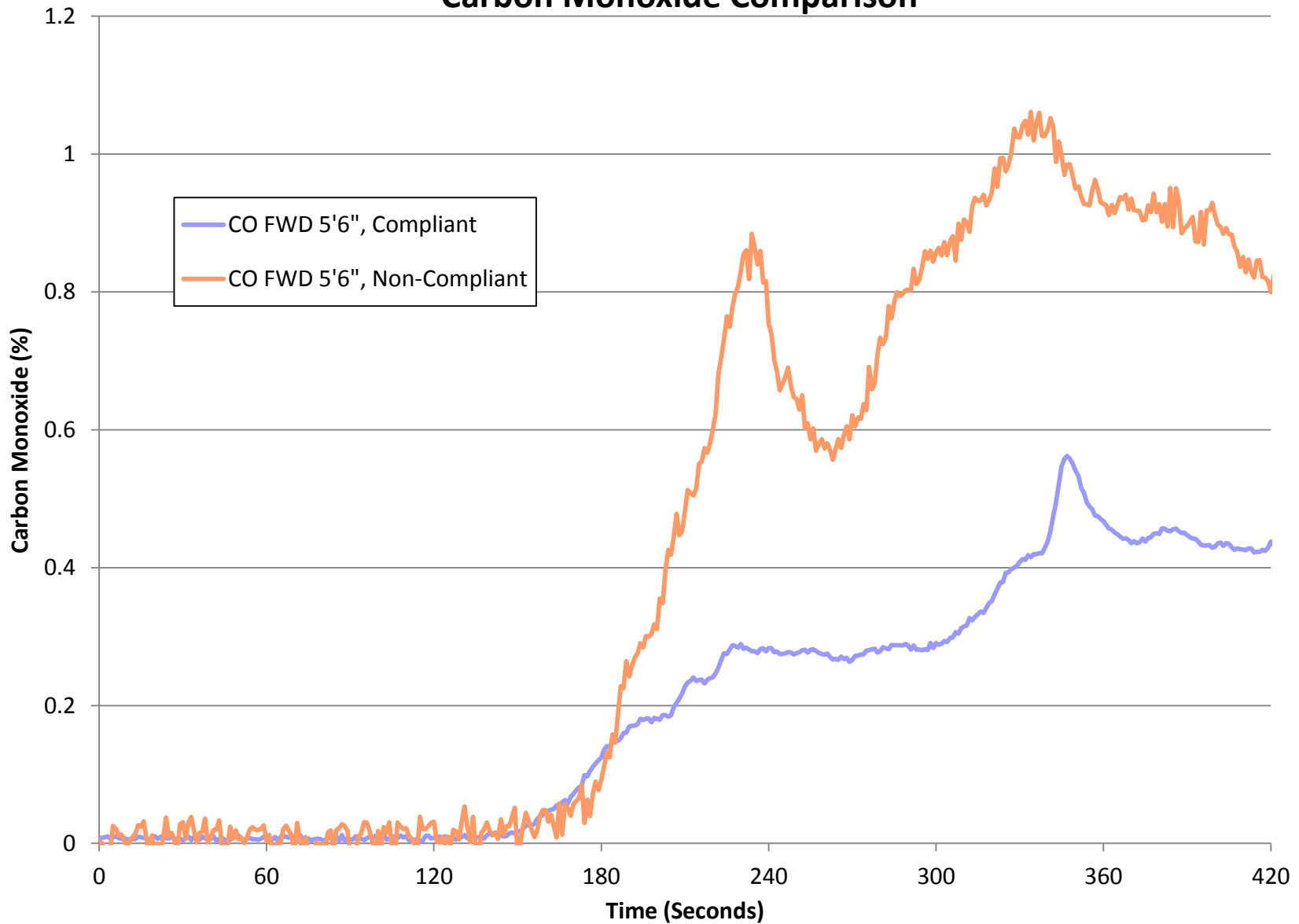
Temperature Comparison



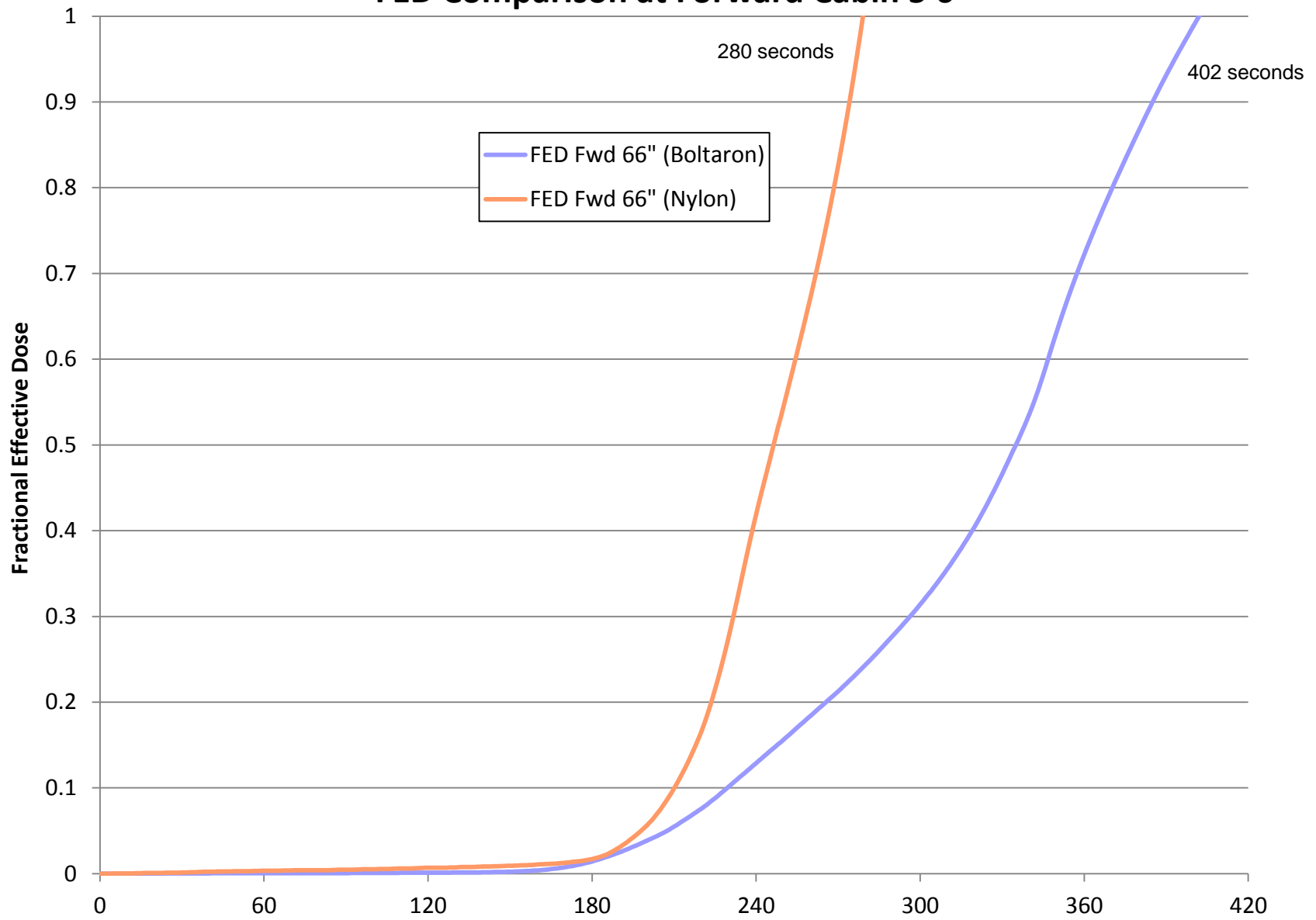
Heat Flux Comparison



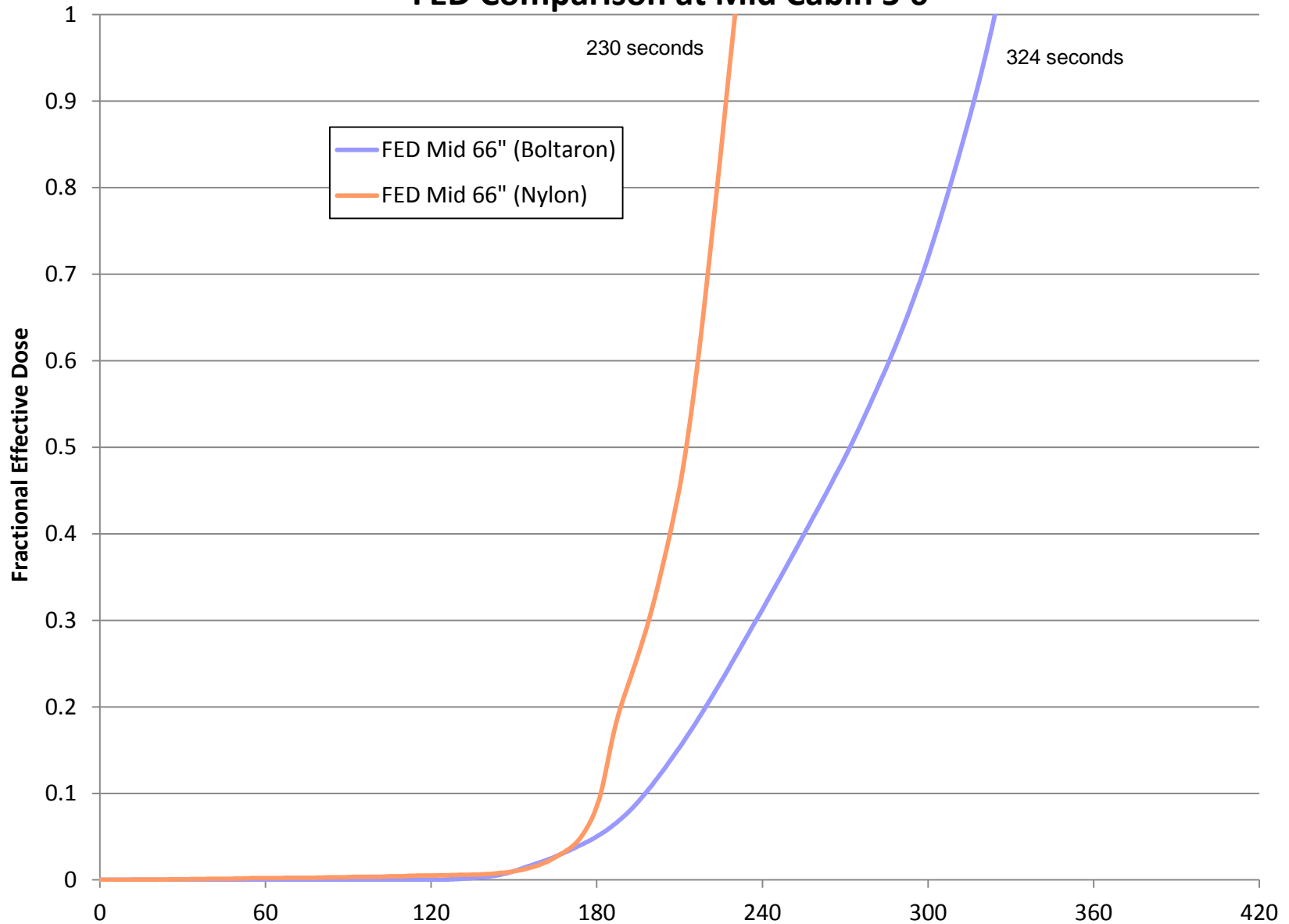
Carbon Monoxide Comparison



FED Comparison at Forward Cabin 5'6"



FED Comparison at Mid Cabin 5'6"



Seat Paneling Flammability Investigation

Preliminary Conclusions

Noticeable increases in temperature, smoke, and gases during test using non-OSU-compliant materials in the lower seating area.

Post-test inspection revealed increased material consumption when using non-OSU-compliant materials.

Additional hazards during test using non-compliant materials resulted in shorter time to reach incapacitation.