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## *MLM<sup>®</sup> vs. Conventional RTO Heat Recovery Media*

### **Random Media Problems**

Random media, in addition to high pressure drop, are also associated with common operational problems when used as the heat recovery media in RTO units. These problems include settling and nesting which leads to even higher pressure drop (and hence higher operating expenses), as well as degradation over time.



Note that several types of random media have been tried in this RTO, and have been preserved in the insulation.



Photo supplied courtesy of the city of Fitchburg, MA. These saddles were removed from their RTO to allow for retrofit to MLM<sup>®</sup>. Note some of the saddles had been ground to the consistency of sand. See case study [www.lantecp.com/casestudy/casestudy36.html](http://www.lantecp.com/casestudy/casestudy36.html).

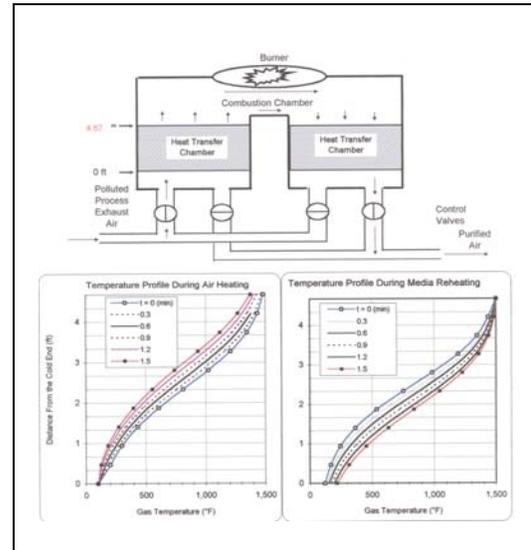
## Monolith / Honeycomb Thermal Stress

The heat recovery media within a RTO is subject to extreme fluctuations in temperature. This phenomenon is most pronounced in the central portion of the heat recovery beds. Note the temperature profile during a typical RTO heating and cooling cycle.

Note that temperature variation of  $\sim 300+$  °F (150 °C) is expected within this bed. And this variation takes place during each heating and cooling cycle.

Additionally, normal design practice for a RTO unit assumes that all combustion of organic compounds takes place within the combustion chamber. No combustion of organics is assumed to take place within the heat recovery media. But in reality, with temperatures of 1000+ °F within the heat recovery media, combustion of organics within the heat recovery media is a normal occurrence.

Monolith media has proven to be very susceptible to catastrophic damage due to thermal stress always present within any RTO. The following three photos are from several different RTO units.





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## **MLM<sup>®</sup> Multi-Layer Media<sup>®</sup> Survives in Normal RTO Service**

The following photo shows the first installed bed of MLM<sup>®</sup> within a RTO. This media is performing today as it was when first installed in 1996. To date, no MLM<sup>®</sup> media has been replaced due to the types of failures of saddles and monolith noted here so long as the MLM<sup>®</sup> was installed per the instructions of Lantec Products and the RTO operated per the design parameters provided to Lantec Products.

