Developing a Mobile Thermal Disposal System for On-Site Construction Wood Waste

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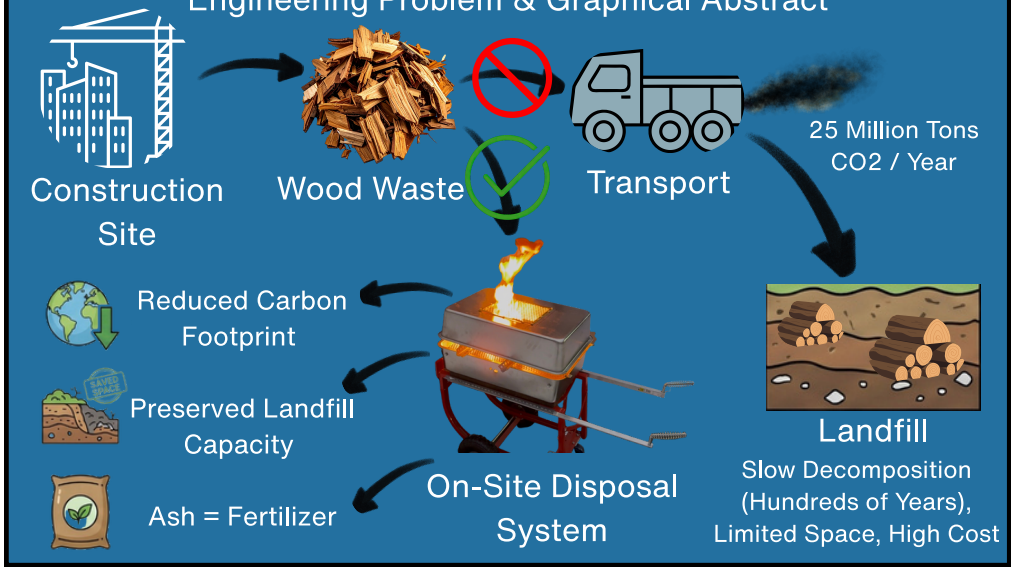
Save Millions of Tons of Emissions: Burn Wood Waste On-Site

Engineering Problem & Graphical Abstract



Data (Results from Test 1)

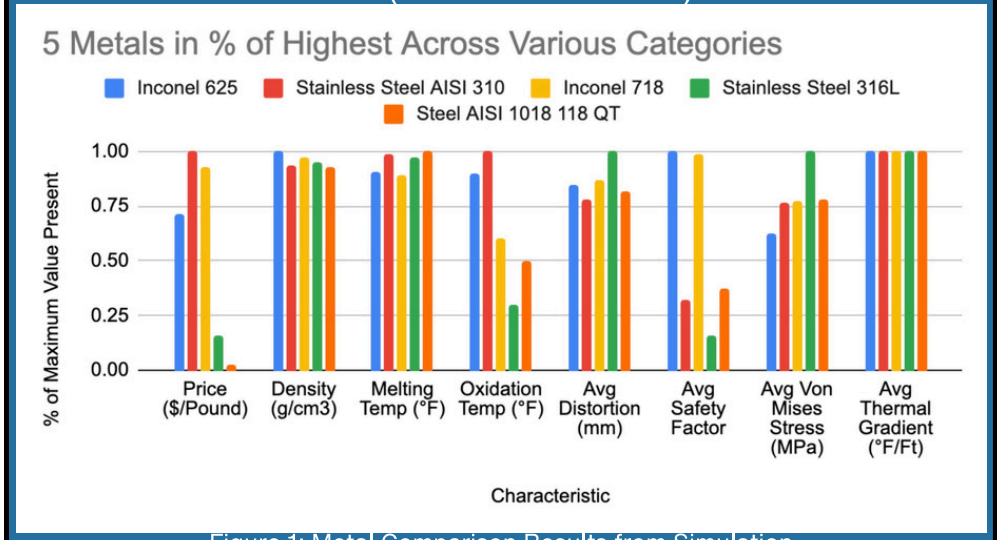
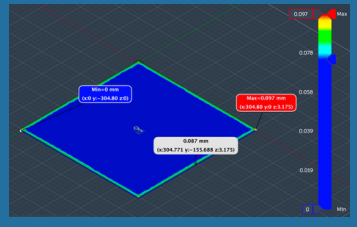
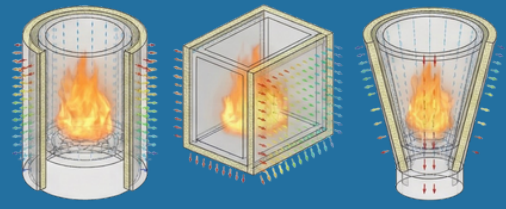


Figure 1: Metal Comparison Results from Simulation

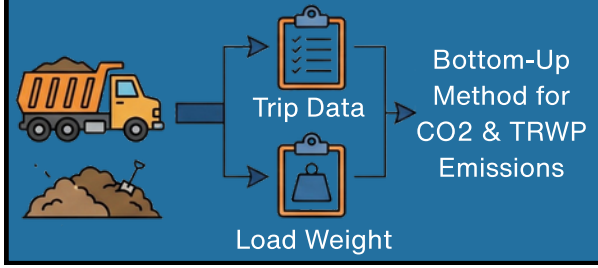
Material Selection Simulation



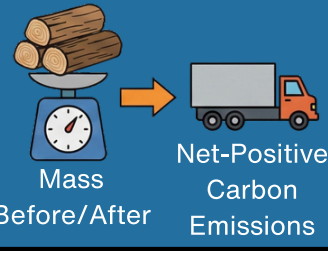
Burn Chamber Geometry



Current Emissions Calculation



Physical Prototype Testing



Interpretation and Conclusions

- Steel AISI 1018 118 QT is least expensive
- The densities are almost identical (price to build is proportional to $/pound).
- Stainless Steel AISI 310 is the most well-rounded for melting and oxidation temperatures.
- Steel AISI 1018 118 QT has the least distortion
- Inconel 625 has highest safety factor (withstand pressure)
- Inconel 625 gets the least affected by von mises stress (least thermal strain).
- The thermal gradient is identical. (should not play a role in the final metal decision).

Project will be built out of Steel AISI 1018 118 QT