Infinity Turbine LLC and **Global Energy LLC**

Container Kiln Builders Guide

By the Infinity Turbine and Global Energy Staff

Infinity Turbine LLC (since 2008)
Global Energy LLC (since 1992)

360 W Washington Ave 803, Madison, WI 53703

TEL +1 608-238-6001

Email: greg@infinityturbine.com and greg@globalmicroturbine.com

Website:

https://www.infinityturbine.com
https://globalmicroturbine.com

11. Challenges and Solutions
    - Common challenges in setting up and operating these kilns.
    - Possible solutions and troubleshooting tips.

12. Loading Systems and Operation
    - Carts, Rails, IBC Totes, Nets, Moving Floor, Continuous Feed
    - Batch versus continuous process flow.

13. Power Options
    - Grid, solar thermal and PV, battery, diesel, natural gas, and wood.
    - Heat pumps and ground source geothermal.

14. Heating the Dry Kiln with Wood or Biomass Heat
    - Overview of Biomass Heating
      - Definition and types of biomass suitable for heating (wood chips, pellets, etc.).
      - Advantages of using biomass as a renewable energy source.
    - Designing a Biomass Heating System
      - Criteria for selecting the right type of biomass heater (size, efficiency, etc.).
      - Integration of the biomass heating system with the shipping container kiln.
      - Considerations for storage and handling of biomass fuel.
    - System Components and Installation
      - Key components of a biomass heating system (combustion unit, heat exchanger, etc.).
      - Installation process and safety considerations.
      - Ventilation requirements for combustion and exhaust.
    - Operational Efficiency and Control
      - Optimizing heat distribution within the kiln for uniform drying.
      - Controlling temperature and emissions.
      - Maintenance routines to ensure efficiency and longevity of the system.
    - Environmental and Sustainability Aspects
      - Reduction in carbon footprint compared to fossil fuels.
      - Sourcing sustainable and local biomass resources.
      - Compliance with environmental regulations regarding biomass heating.
    - Economic Considerations
      - Cost analysis of setting up and operating a biomass heating system.
      - Comparing the operational costs of biomass heating with other energy sources.
      - Potential subsidies and incentives for using renewable energy sources.
    - Challenges and Problem Solving
      - Addressing common challenges associated with biomass heating systems (fuel quality, supply, etc.).
      - Strategies for troubleshooting and maintaining system efficiency.
    - Case Studies and Real•world Applications
      - Examples of successful implementations of biomass•heated dry kilns.
      - Lessons learned and best practices from existing setups.

15. Exploring Various Kiln Types
    - Conventional Lumber Dry Kiln
      - Description and function of conventional lumber dry kilns.
      - Design and operational principles.
      - Suitable scenarios and limitations of conventional kilns.
    - Firewood Drying Kiln
      - Specifics of kilns designed for drying firewood.
      - How firewood kilns differ from conventional lumber kilns.
      - Efficiency and capacity considerations for firewood drying.
    - Dehumidification Kiln
      - The concept and workings of a dehumidification kiln.
      - Advantages of using dehumidification for wood drying.
      - Appropriate use cases and energy requirements.
    - Vacuum Kiln
      - Introduction to vacuum kilns and their unique drying method.
      - Benefits and challenges associated with vacuum drying.
      - Types of wood products ideal for vacuum kiln drying.
      - Vacuum Kiln Commercial Scale
      - Vacuum Kiln Commercial Scale (using technology from vacuum bagging fiberglass and carbon fiber yachts)
    - Wood Products Dry Kiln
      - Overview of dry kilns designed for various wood products (e.g., furniture, crafts, potpourri, hemp).
      - Customization and adaptability for different wood product requirements.
      - Comparative analysis of performance and quality outcomes.
    - Comparative Analysis
      - Comparison of these kiln types in terms of efficiency, cost, and suitability for different wood types.
      - Decision•making criteria for selecting the appropriate kiln type.
      - Potential for integrating multiple kiln types within a single operation.

Expanded Information:

Furnace Type Kiln
Convention Kiln Schedules

Complete plans with parts list:

Global Energy 5,000 BF Container Kiln
Global Energy 15,000 BF Container Kiln

Note: in 1992, the first 15,000 BF Lumber Container Dry Kiln was build in Madison, Wisconsin by Global Energy, using a heat pipe (Furnace Type) heating system and a wood-fired Conifer Biomass Burner custom built.