2.0 FLUID BED DRYER SPECIFICATION

2.1. Performance Data

The fluid bed dryer would be designed for the following capacity:

Parameters		
Feed Rate	4,244	lb/hr
Feed Moisture Rate	20	% wt
Product Rate	3,500	lb/hr
Product Moisture Content	3	% wt
Evaporative Capacity	744	lb/hr
Dryer Air Inlet Temperature	375	°F
Dryer Exhaust Temperature (average)	200	°F
Cooler Inlet Air Temperature	Ambient	
Dryer Exhaust Volume	9,500-12,700	ACFM
Cooler Exhaust Volume	3,800	ACFM
Total Installed Motors-Dryer	126	HP
Total Installed Motors-Cooler	25	HP
Normal Absorbed Power-Dryer	71	BHP
Normal Absorbed Power-Cooler	16	BHP
Heat Duty (-10°F)	3.2	MMBtu/hr
Natural Gas Consumption	162	lb/hr

Notes:

1. Moistures are on a wet basis and free moisture content.
2. Gas consumption based on a natural gas heat value of 19,695 Btu/lb. LHV

15 lbs pressure on burner

2.2. Material Properties

Material Specific Heat (assumed)	0.43 Btu/lb·°F
Bulk Density	32 lb/ft^3

2.3. Utilities

The following utilities will be required for the fluid bed :

Description	Condition
Fuel Source	Natural Gas
Electrical power - motors	480V, 3 ph, 60 Hz (up to 200 HP) 4160V, 3 ph, 60 Hz (above 200 HP) 120V, 1 ph, 60 Hz (controls)
Compressed Air	90 psig

A breakdown of the installed and anticipated absorbed motor HP requirements is provided below. Refer to Appendix A for more detail.

Description	Installed Power	Absorbed Power
Fluid bed	126 HP	87 HP