HUMAN CREMATORIES
AIR GENERAL PERMIT EXAMPLE REGISTRATION WORKSHEET

Facility Identification Number - If known (seven digit number)

0010134 – 001 – AG

Registration Type

Check one:

INITIAL REGISTRATION - Notification of intent to:

- [x] Construct and operate a proposed new facility.
- [ ] Operate an existing permitted facility not currently using an air general permit (e.g., a facility proposing to go from an air operation permit to an air general permit). If the facility currently holds one or more air operation permits, such permit(s) must be surrendered by the owner or operator upon the effective date of this air general permit. (See "Surrender of Existing Air Operation Permit(s)" below.)
- [ ] Operates an existing facility not currently permitted or using an air general permit.

RE-REGISTRATION (for facilities currently using an air general permit) - Notification of intent to:

- [ ] Continue operating the facility after expiration of the current term of air general permit use.
- [ ] Continue operating the facility after a change of ownership.
- [ ] Make an equipment change requiring re-registration pursuant to Rule 62-210.310(2)(e), F.A.C.
- [ ] Any other change not considered an administrative correction under Rule 62-210.310(2)(d), F.A.C.

Surrender of Existing Air Operation Permit(s) - For Initial Registrations Only, if Applicable

All existing air operation permits for this facility are hereby surrendered upon the effective date of this air general permit; specifically permit number(s):

_____

General Facility Information

Facility Owner/Company Name (Name of corporation, agency, or individual owner who or which owns, leases, operates, controls, or supervises the facility.)

_____

Site Name (Name, if any, of the facility site; e.g., Plant A, Metropolis Plant, etc. If more than one facility is owned, a complete registration must be submitted for each.)

_____ Crevasse's Simple Cremation

Facility Location (Physical location of the facility, not necessarily the mailing address.)

Street Address: _____

City: _____ County: _____ Zip Code: _____

Facility Start-Up Date (Estimated start-up date of proposed **new** facility.)(N/A for existing facility.)

_____

Facility Contact

Name and Position Title (Plant manager or person to be contacted regarding day-to-day operations at the facility.)
Print Name and Title: Beau Crevasse - President

Facility Contact Telephone Numbers
Telephone: _____ Fax: _____
Cell phone: 352-316-2651
E-mail: Crevasse.beau@gmail.com

Facility Contact Mailing Address
Organization/Firm: Crevasse's Simple Cremation
Mailing Address: 6352 NW 18th Dr. Suite 6
City: Gainesville County: Alachua Zip Code: 32653

Correspondence Contact/Representative (to serve as additional Department contact)

Name and Position Title
Print Name and Title: Julie T. Bishop- Vice President

Correspondence Contact/Representative Telephone Numbers
Telephone: _____ Fax: _____
Cell phone: 352-222-5132
E-mail: juliebishop555@yahoo.com

Correspondence Contact/Representative Mailing Address
Organization/Firm: _____
Mailing Address: 6352 NW 18th Dr. Suite 6
City: Gainesville County: Alachua Zip Code: 32653

Government Facility Code (check only one)

- [x] **Facility not owned or operated by a federal, state, or local government.**
- [ ] **Facility owned or operated by the federal government.**
- [ ] **Facility owned or operated by the state.**
- [ ] **Facility owned or operated by the county.**
- [ ] **Facility owned or operated by the municipality.**
- [ ] **Facility owned or operated by a water management district.**

Emission Unit Details

MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	RATED CAPACITY
Matthews Cremation	Power Pak I (IE43-PPI)	TBD	150 lbs/hr.

Design Calculations

If this is an initial registration for a proposed new human crematory unit, provide design calculations to confirm a sufficient volume in the secondary chamber combustion zone to provide for at least a 1.0 second gas residence time at 1800 degrees F.

☒ Design calculations attached.

☐ Registration is not for proposed new human crematory unit(s).

Helpful Definitions

"Biomedical Waste" - Any solid or liquid waste which may present a threat of infection to humans, including nonliquid-tissue, body parts, blood, blood products, and body fluids from humans and other primates; laboratory and veterinary wastes which contain human disease-causing agents; and discarded sharps. The following are also included:

1. Used absorbent materials saturated with blood, blood products, body fluids, or excretions or secretions contaminated with visible blood; and absorbent materials saturated with blood or blood products that have dried.
2. Non-absorbent, disposable devices that have been contaminated with blood, body fluids, or secretions or excretions visibly contaminated with blood, but have not been treated by a method listed in Section 381.0098, F.S., or a method approved pursuant to Rule 64E-16, F.A.C.

"Department" or "DEP" - The State of Florida Department of Environmental Protection.

"Emissions Unit" - Any part or activity of a facility that emits or has the potential to emit any air pollutant.

"Facility" - All of the emissions units which are located on one or more contiguous or adjacent properties, and which are under the control of the same person (or persons under common control).

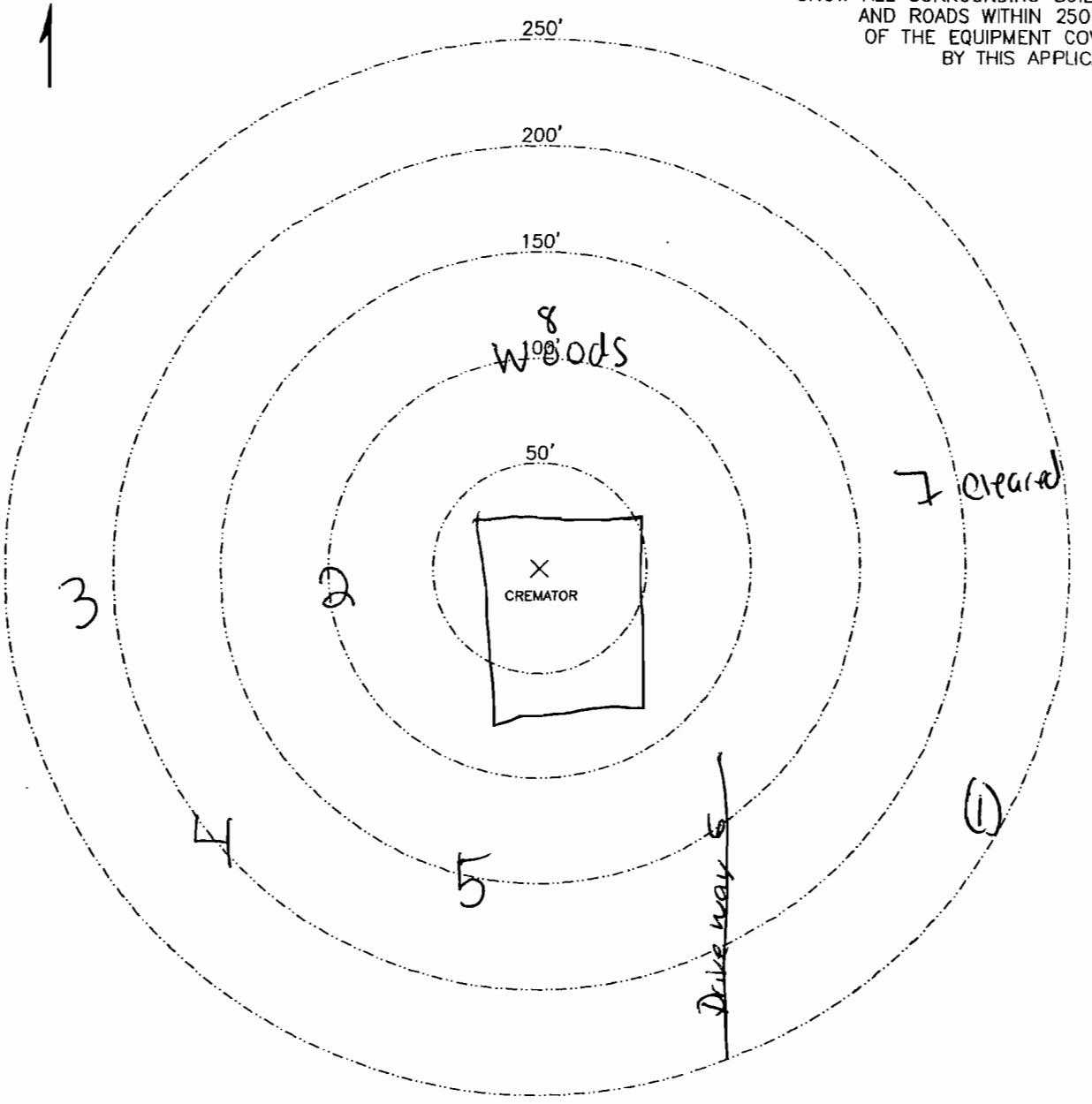
"Human Crematory" - Any combustion apparatus used solely for the cremation of either human or fetal remains

"Owner" or "Operator" - Any person or entity who or which owns, leases, operates, controls or supervises an emissions unit or facility.

PLOT PLAN

NORTH

SHOW ALL SURROUNDING BUILDINGS AND ROADS WITHIN 250 FEET OF THE EQUIPMENT COVERED BY THIS APPLICATION.



STRUCTURE	DESCRIPTION
(1)	Building
(2)	Building
(3)	Build.s
(4)	Build.s
(5)	Buildns
(6)	Drive
(7)	cleared
(8)	woods
(9)	
(10)	

INSTRUCTIONS

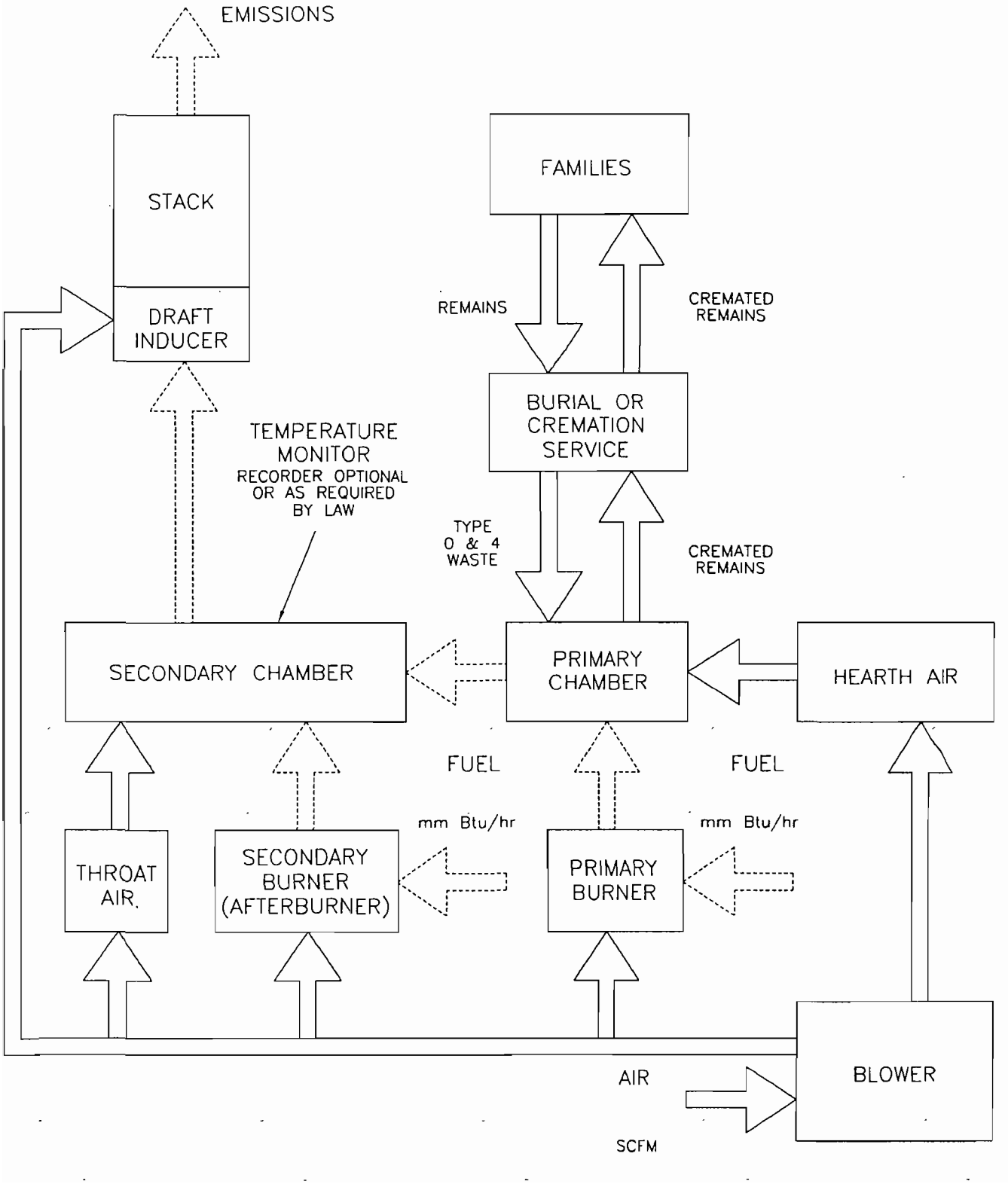
1. INDICATE LOCATION AND TYPE OF BUILDING BY THE USE OF SMALL NUMBERED CIRCLES WITH THE DESCRIPTION BELOW.
2. SHOW ROADS AS LINES REPRESENTING THE ROAD EDGES. INDICATE STREET NAMES AND HIGHWAY NUMBERS.
3. SHOW WOODED OR CLEARED AREA BY APPROXIMATE BOUNDARY LINES AND THE WORDS "WOODS," "CLEARED," "CORNFIELD," ETC.

Google earth

miles 100

km 100

PROCESS FLOW DIAGRAM
CREMATOR



SPECIFICATIONS- Model Power-Pak I

1.	Equipment Type	Model Power-Pak I
	A. Model No.	IE43-PPI
	B. Underwriters Laboratories Listing and File No.	87E8; MH14647
2.	Dimensions	
	A. Footprint	12' – 6 ½ " x 4' – 11" (3.82 m x 1.50 m)
	B. Maximum Length	14' – 8" (4.47 m)
	C. Maximum Width	6' -1" (1.85 m)
	D. Maximum Height	8' - 4" (2.54 m)
	E. Chamber Loading Opening	25 ¾ " H x 39 ½ " W (654 mm x 1003 mm)
3.	Weight	23,400 lbs. (10,614 kg)
4.	Utility/Air Requirements	
	A. Gross Gas Input, Natural or LP Gas	2,000,000 BTU/hr. (2,110,112 kJ/h) 3,000,000 BTU/hr. (3,165,168 kJ/h) if operating temperature is greater than 1,600° F (871° C)
	Running Gas Pressure, Natural Gas	11 inches (279.4 mm) water column or greater
	Running Gas Pressure, LP Gas	11 inches (279.4 mm) water column or greater
	B. Electrical Supply	230 volt, 3Ø or 1Ø, 50/60 hz (other available)
	C. Air Supply	2,500 cfm (70.8 standard m^3/min)
5.	Incineration Capacity	150 lbs./hr. (68 kg/h)
6.	Typical Loading Capacity of Waste Types	750 lbs. (340.2 kg)
7.	Construction and Safety Standards	Incineration Institute of America, Underwriters Laboratories, Canadian Standards Association
8.	Steel Structure Construction	
	A. Frame	2" (51 mm) square tubing
	B. Front/Rear Plates	3/8" (9.5 mm) plate
	C. Floor Plates	3/16" (5 mm) plate
	D. Outer Side Casing	12 gauge (3 mm) plate
	E. Inner Side Casing	12 gauge (3 mm) plate
9.	Stack Construction	
	A. Inner Wall	3" (76 mm) castable
	B. Outer Wall	12 gauge (3 mm) stainless steel sheet with welded seams. (unlined stack available)
10.	Draft Nozzle Construction	Schedule 40 type 316 s.s. pipe, welded connections
11.	Main Chamber Door Construction	
	A. Steel Shell	3/16" (5 mm) steel, welded with reinforcement
	B. Outer Refractory	1" (25 mm) insulating block
	C. Inner Refractory	4½" (110 mm) insulating firebrick

SPECIFICATIONS- Model Power-Pak I

12. Primary Chamber Wall Construction
    - A. Outer Casing Wall ..... 12 gauge (3 mm) sheet
    - B. Inner Frame/Air Compartment ..... 2" (51 mm) air compartment
    - C. Inner Casing Wall ..... 12 gauge (3 mm) sheet
    - D. Outer Refractory Wall ..... 3" (76 mm) insulating block
    - E. Inner Refractory Wall ..... 4½" (114 mm) firebrick

13. Secondary Chamber Wall Construction
    - A. Outer Casing Wall ..... 12 gauge (3 mm) sheet
    - B. Inner Frame/Air Compartment ..... 2" (51 mm) air compartment
    - C. Inner Casing Wall ..... 12 gauge (3 mm) sheet
    - D. Outer Refractory Wall ..... 4" (102 mm) insulating block
    - E. Inner Refractory Wall ..... 4½" (114 mm) firebrick

14. Refractory Temperature Ratings
    - A. Standard Firebrick ..... 3,100° F. (1704° C)
    - B. Insulating Firebrick ..... 2,600° F. (1427° C)
    - C. Castable Refractory (Hearth) ..... 2,550° F. (1399° C)
    - D. Castable Refractory ..... 2,550° F. (1399° C)
    - E. Insulating Block ..... 1,900° F. (1038° C)
    - F. Bonding Mortar ..... 3,200° F. (1760° C)

15. Chamber Volumes (not including external flues, stacks or chimneys)
    - A. Primary Chamber ..... 64 cubic feet (1.8 m^3)
    - B. Secondary Chamber ..... 74 cubic feet (2.1 m^3)

16. Emission Control Features
    - A. Secondary Chamber with Afterburner ..... Included
    - B. Opacity Monitor and Controller with Visual and Audible Alarms ..... Optional Upgrade Package
    - C. Microprocessor Temperature Control System ..... Included

17. Operating Temperatures
    - A. Primary Chamber ..... 32° F. - 1,800° F. (0° C - 982° C)
    - B. Secondary Chamber ..... 1,400° F. - 1,800° F. (760° C - 982° C) as required

18. Secondary Chamber Retention Time ..... > 1 second

19. Ash Removal ..... Door functions as a heat shield. Sweep out beneath front door into hopper that fills collection pan.

SPECIFICATIONS- Model Power-Pak I

20. Safety Interlocks
    - A. High Gas Pressure ..... Optional
    - B. Low Gas Pressure ..... Optional
    - C. Blower Air Pressure ..... Included
    - D. Door Position ..... Included
    - E. Opacity ..... Optional Upgrade Package
    - F. Motor Starter Function ..... Included
    - G. Chamber Temperature ..... Included
    - H. Motor Overload ..... Included
    - I. Flame Quality ..... Included
    - J. Burner Safe Start ..... Included

22. Burner Description ..... The nozzle mix burners used on this cremation equipment are industrial quality and designed for incinerator use.

23. Ultraviolet Flame Detection ..... Ultraviolet flame detection has proven to be the most reliable means of flame safety. The system is completely sealed in a quartz capsule to eliminate problems, caused by moisture and dust created in the cremation process, which effect flame rod detectors.

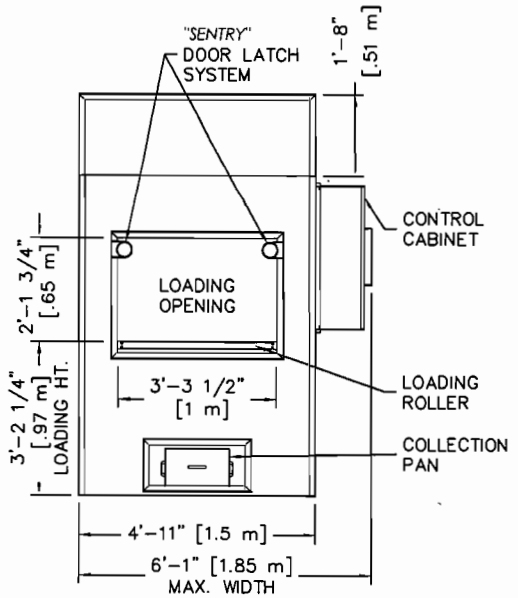
24. Operating Panel Indicating Lights
    - A. Safe Run ..... Included
    - B. Door Closed ..... Included
    - C. Pollution Alarm ..... Optional Upgrade Package
    - E. Afterburner On (Secondary Burner) ..... Included
    - H. Afterburner (Secondary Burner) Reset ..... Included
    - I. Cremation Burner Reset ..... Included
    - H. High Fire Cremation Burner ..... Included
    - H. Low Fire Cremation Burner ..... Included
    - J. Hearth Air ..... Included
    - K. Throat Air Off ..... Included

25. Automatic Timer Functions
    - A. Master Cycle ..... Included
    - B. Hearth Air ..... Optional Upgrade Package
    - C. Throat Air ..... Optional Upgrade Package
    - D. Pollution Monitoring ..... Optional Upgrade Package
    - E. Cremation Burner Hi - Low ..... Optional Upgrade Package
    - F. Cool Down ..... Included

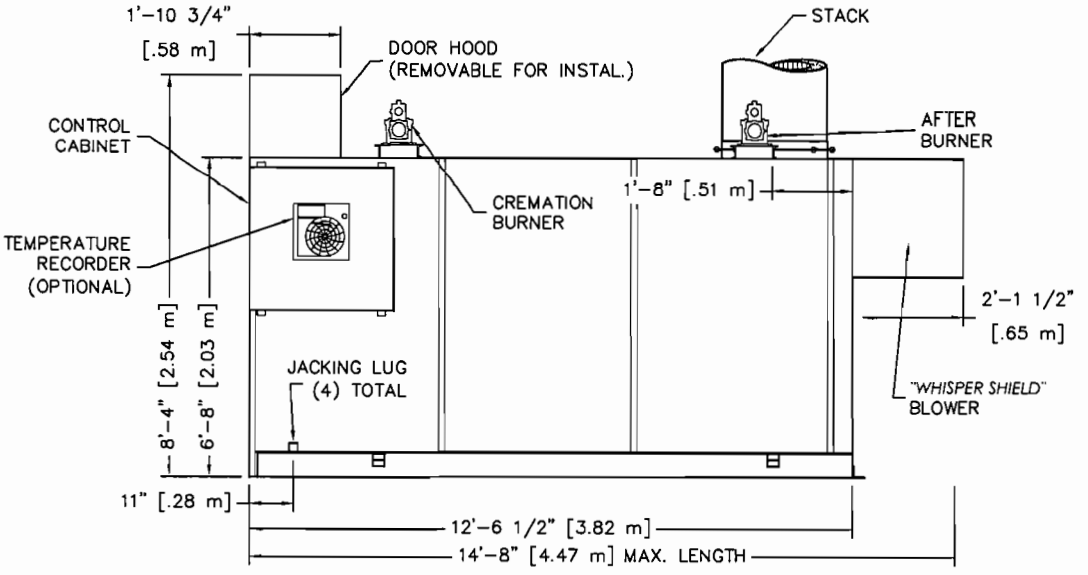
26. Exterior Finish
    - A. Primer ..... 2 coats rust inhibiting
    - B. Finish ..... 2 coats textured finish

SPECIFICATIONS- Model Power-Pak I

27.	Start-Up and Training	Startup of cremation equipment and training of operators to properly operate and maintain the equipment is performed on-site under actual operating conditions. Included is a comprehensive owner's manual, with details on the equipment, its components and proper operation.
28.	Environmental Submittals.....	Complete technical portion of state environmental permits. Engineering calculations, technical data, existing stack test results and equipment blueprints provided.



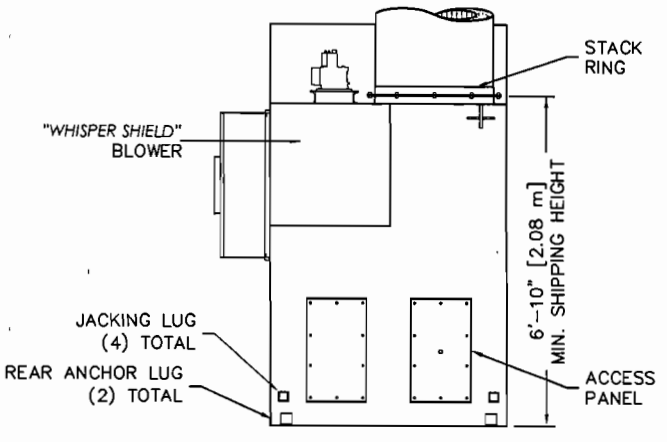
FRONT
ELEVATION



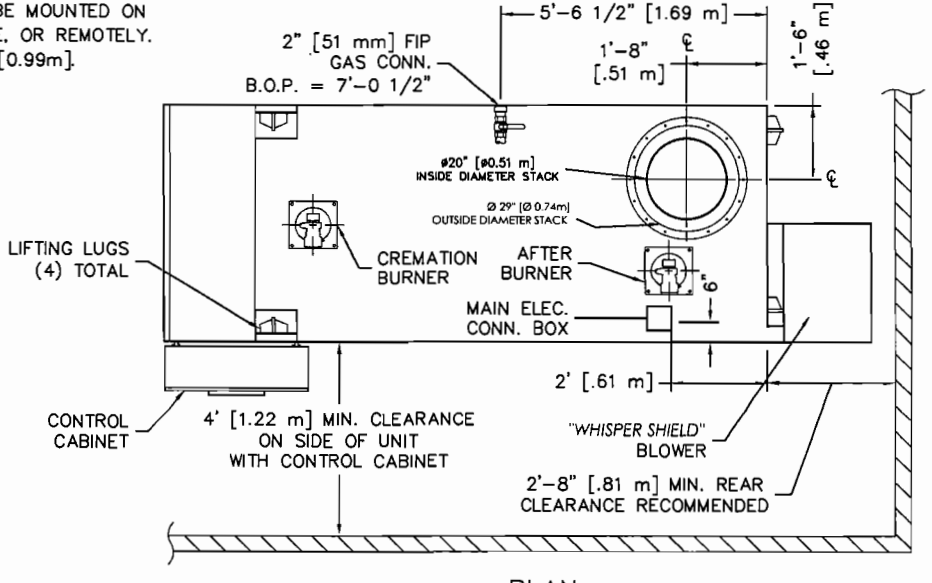
RIGHT SIDE
ELEVATION

NOTES:

1) CONTROL CABINET CAN BE MOUNTED ON THE LEFT OR RIGHT SIDE, OR REMOTELY.
2) CHAMBER WIDTH IS 39" [0.99m].



REAR
ELEVATION



PLAN
VIEW

Matthews CREMATION DIVISION
2045 Sprint Boulevard
Apopka, Florida 32703
USA

POWER-PAK 1

PLAN & ELEVATIONS INCL: CLEARANCES, REQUIREMENTS & RECOMMENDATIONS

DATE:	06-03-11	SCALE:	1/4"=1'
DRAWN:	JGogel	PLOT SCALE:	1:48
APRVD:		SHEET:	1 OF: 2
DWG FILE: PowerPak 1 - MarketingPlanElevS1			
DWG #:			0001046

CREMATOR CLEARANCES

	RECOMMENDED		MINIMUM	
TOP: (2)	2 FEET	[610 mm]	6 INCHES	[152 mm]
CABINET SIDE:	4 FEET	[1.22 m]	4 FEET	[1.22 m]
OTHER SIDE:	2 FEET	[610 mm]	6 INCHES	[152 mm]
FRONT:	9 FEET	[2.74 m]	8 FEET	[2.44 m]
REAR:	3 FEET	[0.91 m]	32 INCHES	[812 mm]
STACK:	9 INCHES	[229 mm]	9 INCHES	[229 mm]

1. FOR CLEARANCES OTHER THAN THOSE SHOWN, OR FOR SPECIAL REQUIREMENTS, CONSULT YOUR MCD REP.
2. FROM HIGHEST POINT ON UNIT.
3. CONTROL CABINET MOUNTS ON UNIT'S LEFT OR RIGHT SIDES, OR REMOTELY. (SEE PLAN VIEW, SHEET 1).
4. REAR OF UNIT REFERS TO THE "BACK PLATE", RATHER THAN THE BACK OF THE *"WHISPER SHIELD"*. (SEE PLAN VIEW, SHEET 1).

CREMATOR REQUIREMENTS

FUEL: A PRESSURE REGULATOR ADJUSTABLE TO 11" [279 mm] W.C. FOR NATURAL GAS, OR 11" [279 mm] W.C. FOR LP GAS.

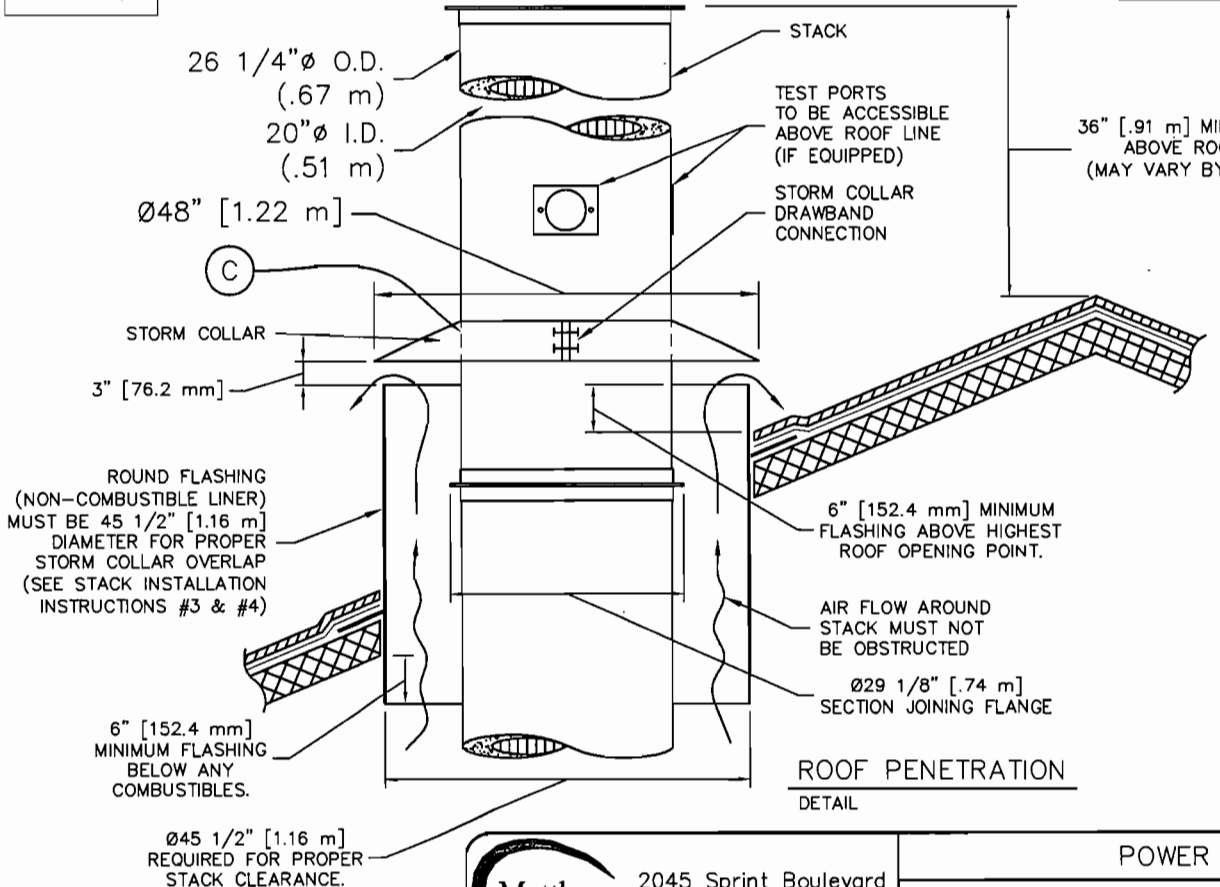
CAPACITY: RANGES FROM 2.0 TO 3.0 MILLION BTU/HR [2.1 TO 3.1 MILLION KILOJOULES/HR] DEPENDING UPON AMOUNT OF BURNERS.

ELECTRICAL: 230 VOLT, 3ø, (40A BREAKER) AND 115v (10A BREAKER), OR 230 VOLT, 1ø, (70A BREAKER) AND 115v (10A BREAKER) 50/60 HERTZ

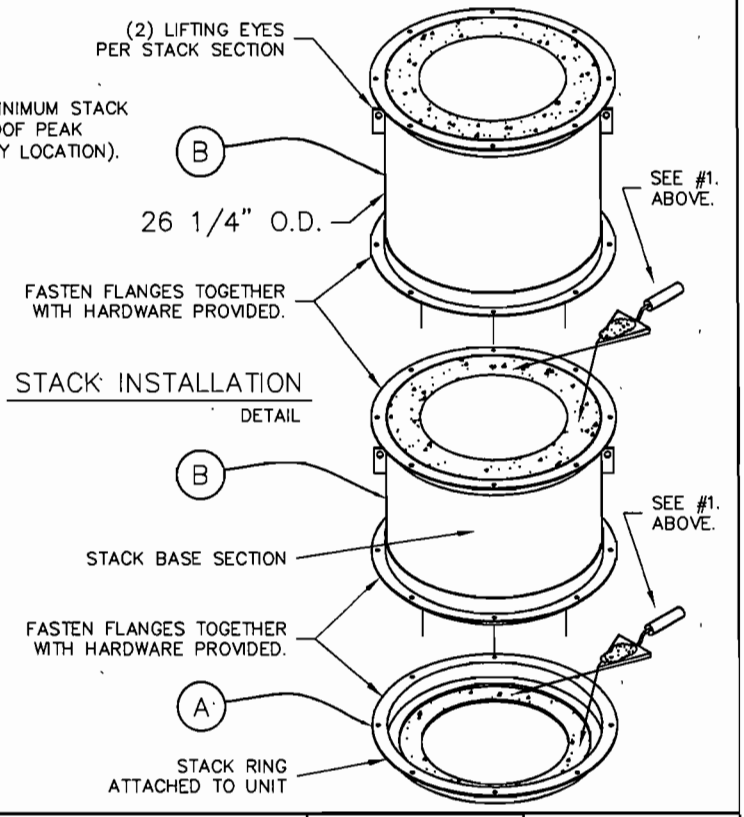
AIR: LOUVER NEAR THE REAR OF THE UNIT CAPABLE OF PASSING 2,500 CU FT/MIN [70.8 CU M/MIN] OF FREE AIR (36" X 36") [914 mm X 914 mm].

STACK INSTALLATION INSTRUCTIONS

1. APPLY A 1/2" THICK MORTAR JOINT TO EXPOSED REFRACTORY SURFACE IN STACK RING. LOWER THE BASE STACK SECTION (B) ONTO STACK RING (A) AND FASTEN WITH HARDWARE PROVIDED (NO MORE THAN (2) STACK SECTIONS SHALL BE LIFTED TOGETHER). REPEAT PROCESS FOR REMAINING STACK SECTIONS. IF SECTIONS OF VARYING LENGTHS ARE SUPPLIED, ASSEMBLE AS TO AVOID FLANGES & LIFTING EYES INTERFERING WITH RAIN COLLAR LOCATION.
2. INSTALL STORM COLLAR ON STACK, 3" [72 mm] ABOVE NON-COMBUSTIBLE LINER (FLASHING), ALLOWING FOR PROPER VENTILATION (SEE DETAIL).
3. APPLY A 1/4" [6 mm] BEAD OF HIGH-TEMPERATURE SILICON SEALANT (PROVIDED BY MCD) TO THE JOINT BETWEEN THE STORM COLLAR (C) AND THE STACK (B).
4. STORM COLLAR IS FURNISHED BY MCD. THE NON-COMBUSTIBLE LINER (FLASHING) TO BE PROVIDED BY THE OTHERS.
5. IF FIFTY PERCENT OF THE STACK LENGTH IS ABOVE THE ROOF, GUY WIRES MAY BE REQUIRED. CONSULT WITH YOUR MCD REP.
6. RAIN CAP NOT REQUIRED.



ROOF PENETRATION
DETAIL



STACK INSTALLATION
DETAIL

Matthews CREMATION DIVISION
2045 Sprint Boulevard
Apopka, Florida 32703
USA

POWER PAK I

STACK DETAILS, CLEARANCES & INSTALLATION INSTRUCTIONS. REFRACTORY STACK DETAIL

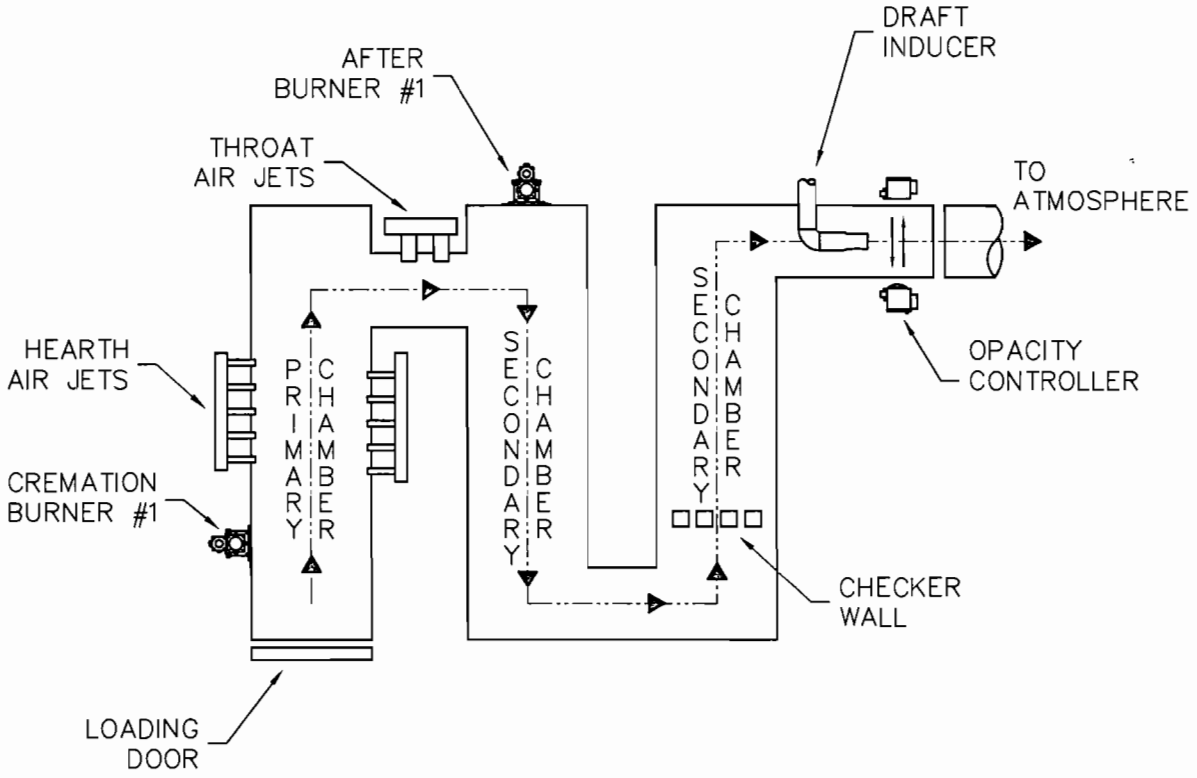
DATE:	07-01-11	SCALE:	1/2"=1'
DRAWN:	J.Gogel	PLOT SCALE:	1:24
APRVD:		SHEET:	2 OF: 2
DWG FILE:		PPI-MarketingStackRefS2	
DWG #:		0001045	

LEGEND OF SYMBOLS

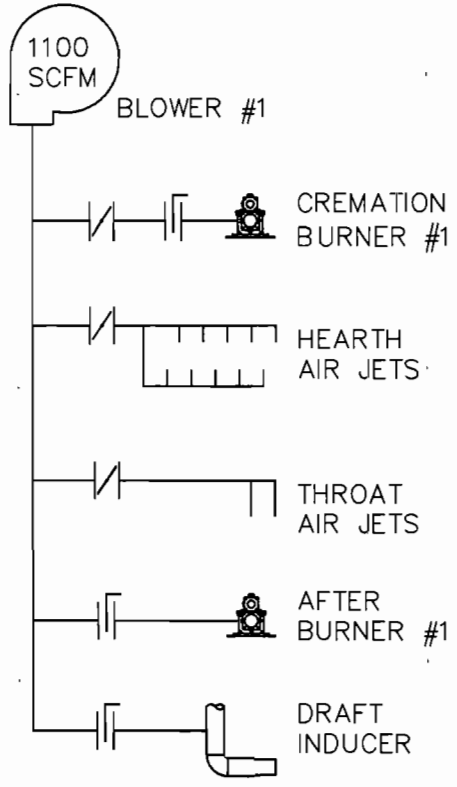
BUTTERFLY VALVE (ON/OFF)

FIXED BLADE BUTTERFLY DAMPER

FLOW DIAGRAM



AIR SCHEMATIC



Matthews CREMATION DIVISION
2045 Sprint Boulevard
Apopka, Florida 32703
USA

POWER PAK I

FLOW DIAGRAM & AIR SCHEMATIC

DATE:	07-01-11	SCALE:	1/4"=1'
DRAWN:	JG	PLOT SCALE:	1:48
APRVD:		SHEET:	1 OF: 1
DWG FILE:		PPIIFlowDiaAirSchem	
DWG #:		0000523	

Calculation Of Emissions

Potential to Emit

Matthews Cremation Division (MCD)
(formerly Industrial Equipment and Engineering Company (IEE))
Crematory Incinerator Model IE43-PPI

Total Incenerator Burn Capacity 150 lb/hr of remains (type 4) and associated containers (type 0)
Flue gas flow rate = 1100 dscfm 12 Hours/Day X 6 Days/Week X 52 Weeks/Year
(100 % Excess Air) = 3744 Hours/Year

Total Emission Rate = Incinerator Burn Rate X Emission Factor

Sulfer Dioxide (SO_2)

$$\frac{150 \text{ lb/hr} \times 2.5 \text{ lb/ton} \times 1 \text{ ton}}{2000 \text{ lbs}} = 0.188 \text{ lb/hr} = 0.351 \text{ TPY}$$

$$\frac{0.1875 \text{ lb/hr} \times 4.54E+05 \text{ mg/lb} \times 1 \text{ ppmv}}{1100 \text{ dscfm} \times 60 \text{ min/hr} \times 0.0283 \text{ m}^3/\text{f}^3 \times 2.61 \text{ mg/m}^3} = 17.46 \text{ ppmv}$$

Nitrogen Oxide (NOx - as Nitrogen Dioxide)

$$\frac{150 \text{ lb/hr} \times 3 \text{ lb/ton} \times 1 \text{ ton}}{2000 \text{ lbs}} = 0.225 \text{ lb/hr} = 0.4212 \text{ TPY}$$

$$\frac{0.225 \text{ lb/hr} \times 4.54E+05 \text{ mg/lb} \times 1 \text{ ppmv}}{1100 \text{ dscfm} \times 60 \text{ min/hr} \times 0.028 \text{ m}^3/\text{f}^3 \times 1.88 \text{ mg/m}^3} = 29.40 \text{ ppmv}$$

Hydrocarbons (TOC/VOC - methane)

$$\frac{150 \text{ lb/hr} \times 3 \text{ lb/ton} \times 1 \text{ ton}}{2000 \text{ lbs}} = 0.225 \text{ lb/hr} = 0.4212 \text{ TPY}$$

$$\frac{0.225 \text{ lb/hr} \times 4.54E+05 \text{ mg/lb} \times 1 \text{ ppmv}}{1100 \text{ dscfm} \times 60 \text{ min/hr} \times 0.0283 \text{ m}^3/\text{f}^3 \times 0.65 \text{ mg/m}^3} = 84.14 \text{ ppmv}$$

Lead (Pb) (6.62E-05 lbs/cremation)

$$\frac{150 \text{ lb/hr} \times 0.0000662 \text{ lb Pb}}{100 \text{ lb}} = 1E\text{-}04 \text{ lb/hr} = 0.0002 \text{ TPY}$$

Particulates (PM & PM_{10}) (Actual Levels lower as shown by test results)

$$\frac{150 \text{ lb/hr} \times 7 \text{ lb/ton} \times 1 \text{ ton}}{2000 \text{ lbs}} = 0.525 \text{ lb/hr} = 0.9828 \text{ TPY}$$

$$\frac{0.525 \text{ lb/hr} \times 7.00E+03 \text{ gr/lb}}{1100 \text{ dscfm} \times 60 \text{ min/hr}} = 0.06 \text{ gr/dscf}$$

Carbon Monoxide (CO) (Actual Levels lower as shown by test results)

$$\frac{150 \text{ lb/hr} \times 10 \text{ lb/ton} \times 1 \text{ ton}}{2000 \text{ lbs}} = 0.75 \text{ lb/hr} = 1.404 \text{ TPY}$$

$$\frac{0.75 \text{ lb/hr} \times 4.54E+05 \text{ mg/lb} \times 1 \text{ ppmv}}{1100 \text{ dscfm} \times 60 \text{ min/hr} \times 0.028 \text{ m}^3/\text{f}^3 \times 1.14 \text{ mg/m}^3} = 161.63 \text{ ppmv}$$

Notes:
1. Incinerator Emissions based on EPA emissions from Table 2.1-12 of AP-42 (5th Edition)
2. All conversion factors from AP-42 Appendix A.

CREMATOR MASS BALANCE

Matthews Cremation

PPI

THESE CALCULATIONS HAVE BEEN PREPARED TO EVALUATE THE COMBUSTION PROCESS IN THIS UNIT.

THE INCINERATOR INSTITUTE OF AMERICA HAS PUBLISHED THE FOLLOWING SPECIFICATIONS COVERING AVERAGE WASTES.

WASTE TYPE	TYPE 0	TYPE 4
BTU PER POUND	8500	1000
POUND ASH PER POUND WASTE	0.05	0.05
POUND MOISTURE PER POUND WASTE	0.1	0.85
POUND COMBUSTIBLES PER POUND WASTE	0.85	0.1
HOURLY CONSUMPTION OF WASTE (LBS)	10	140

1. MASS OF PRODUCTS OF COMBUSTION FROM CONTAINER

A. COMBUSTION AIR

$$\frac{8500 \text{ BTU/LB}}{100 \text{ BTU/CF OF AIR*}} \times 0.075 \text{ LB/CF OF AIR} = 6.38 \text{ LB/LB BURNED}$$

B. COMBUSTIBLES AND WATER VAPOR FROM CHART ABOVE = 0.95 LB/LB BURNED

C. TOTAL FLUE PRODUCT MASS PER LB BURNED = 7.33 LB/LB BURNED

2. MASS OF PRODUCTS OF COMBUSTION FROM BODY

A. COMBUSTION AIR

$$\frac{1000 \text{ BTU/LB}}{100 \text{ BTU/CF OF AIR*}} \times 0.075 \text{ LB/CF OF AIR} = 0.75 \text{ LB/LB BURNED}$$

B. COMBUSTIBLES AND WATER VAPOR FROM CHART ABOVE = 0.95 LB/LB BURNED

C. TOTAL FLUE PRODUCT MASS PER LB BURNED = 1.70 LB/LB BURNED

SPECIFICATIONS	
PRIMARY BURNER FUEL CONSUMPTION (MMBTU/HR)	0.5
SECONDARY BURNER FUEL CONSUMPTION (MMBTU/HR)	0.9
ADDITIONAL SECONDARY AIR SUPPLIED (CFM)	200
SEC. CHAMBER OPERATING TEMPERATURE (°F)	1800
SECONDARY CHAMBER VOLUME (CU. FT)	74
SEC. CHAMB. CROSS-SECTIONAL AREA (SQ. FT)	2.44
FLAME PORT AREA (SQ. FT)	2.95
MIXING BAFFLES AREA (SQ. FT)	1.36

*AIR AT STANDARD CONDITIONS

3. TOTAL FLUE PRODUCTS

A. MAXIMUM PRIMARY BURNER GAS USAGE

500000 BTU/HR x 4.8E-05 LBS/BTU = 24 LBS/HR

B. COMBUSTION AIR FOR PRIMARY BURNER

$$\frac{500000 \text{ BTU/HR}}{100 \text{ BTU/CF AIR}} \times \frac{1}{\text{Burner}} \times 0.075 \text{ LB/CF AIR} = 375 \text{ LBS/HR}$$

C. MAXIMUM SECONDARY BURNER GAS USAGE

900000 BTU/HR x 4.8E-05 LBS/BTU = 43 LBS/HOUR

D. COMBUSTION AIR FOR SECONDARY BURNER

$$\frac{900000 \text{ BTU/HR}}{100 \text{ BTU/CF AIR}} \times \frac{1}{\text{Burner}} \times 0.075 \text{ LB/CF AIR} = 675 \text{ LBS/HOUR}$$

E. PRODUCTS FROM TYPE 0 WASTE (CONTAINER)

7.33 LBS/LB BURNED x 10 LB/HR BURN RATE = 73 LBS/HOUR

F. PRODUCTS FROM TYPE 4 WASTE (TISSUE)

1.70 LBS/LB WASTE x 140 LB/HR BURN RATE = 238 LBS/HOUR

G. ADDITIONAL SECONDARY CHAMBER COMBUSTION AIR (THROAT AIR)

12000 CF/HR* x 0.075 LB/CF AIR = 900 LBS/HOUR

H. TOTAL FLUE PRODUCTS = 2328 LBS/HOUR

2. VELOCITY AND TIME CALCULATIONS

A. SCFM CALCULATION (PRODUCTS ASSUMED TO HAVE DENSITY CLOSE TO AIR)

$$2328 \text{ LBS/HR} \times \frac{13.35 \text{ STD. CU. FT/LB}}{60 \text{ MIN/HR}} = 518 \text{ SCFM}$$

B. TOTAL PRODUCTS ACFM @ 1800 °F

$$\frac{2260 \text{ °RANKINE}}{530 \text{ °RANKINE}} \times 518.1 \text{ CFM} = 2209 \text{ ACFM}$$

C. RETENTION TIME

$$\frac{74 \text{ CU. FT}}{2209 \text{ ACFM}} \times \frac{60 \text{ SECONDS}}{1 \text{ MINUTE}} = \textbf{2.01 SECONDS}$$

D. VELOCITY IN FLAME PORT

$$\frac{2209 \text{ ACFM}}{2.95 \text{ SQ. FT}} \times \frac{1 \text{ MINUTE}}{60 \text{ SECONDS}} = 12.5 \text{ FEET/SECOND}$$

E. VELOCITY AT MIXING BAFFLES

$$\frac{2209 \text{ ACFM}}{1.36 \text{ SQ. FT}} \times \frac{1 \text{ MINUTE}}{60 \text{ SECONDS}} = 27.1 \text{ FEET/SECOND}$$

F. VELOCITY IN SECONDARY CHAMBER

$$\frac{2209 \text{ ACFM}}{2.44 \text{ SQ. FT}} \times \frac{1 \text{ MINUTE}}{60 \text{ SECONDS}} = 15.1 \text{ FEET/SECOND}$$

Crevasse's Simple Cremation
6352 NW 18th Drive, Suitie 6
Gainesville, Florida 32653
352-222-5132

June 6, 2013

Florida Dept. of Environmental Protection

Enclosed are the documents to support the placement of a new human crematory in our facility. If you have any questions, please contact us at any time. The placement of the new crematory will be placed at the above address, but will be in unit 7. We currently own unit 6 and this will be our current mailing address until things are finalized with the final location of unit 7.

Thank you,

Julie T. Bishop

Julie T. Bishop
Vice President