Job:	Kirk in the	e Hills boilers 1 & 2						
Engineer:								
Contractor:	ctor: Western Mechanical Contractors							
Prepared By:		Date: 12/7/12						
Model:		Indoor/Outdoor: Indoor						
			-					

96% Thermal Efficiency at Full Rate; Up to 99% at Part Load

100% Factory Fire Tested

Maximum Outlet Water Temperature: 225°F

Minimum Acceptable Inlet Water Temperature: 50°F

**Full Safety Diagnostics with History** 

#### Footprint: Less Than 10.8 ft<sup>2</sup>

Limited Twenty-Five-Year Thermal Shock Warranty

Limited Ten-Year Primary Heat Exchanger Warranty

Limited Five-Year Secondary Heat Exchanger Warranty

Full Electronic Modulation, Constant Ratio 4:1 Turndown

#### Modulating Controller with LCD Display

#### **Status Display Lights**

## Heat Exchanger

#### Headers

- Cast Iron Standard
- Bronze Option A-1
- ASME H Stamped; 160 PSIG MAWP
- National Board Listed
- Fin Tubing
  - Copper Standard
- Cupro Nickel Option A-3
- ASME Powder-Coated Tube Sheet
- Silicone High Temp O-Rings
- ASME Pressure Relief Valve
   60 PSIG Standard
   <u>75</u> PSIG Optional
- 150 PSI Air Vent, Auto
- T&P Gauge, Shipped Loose
- Stainless Steel Secondary Heat
- ExchangerStainless Steel Evaporator Plate
- Boiler Pump: 120V, 1Ø, 60Hz;
- Cast Iron Standard

#### Control

- 120V, 60Hz, 1Ø, Power Supply
- 120/24V 60Hz Transformer
- Ignition Module
   3-Try Standard
   Single Try
- Single-Try Option C-6
   Hot Surface Ignition (HSI)
- Remote Flame Sensor
- Fixed High Limit, Manual Reset, 240°F
- On/Off Power Switch
- Flow Switch
- Blocked Vent Pressure Switch
- Combustion Air Proving Switch
- Freeze Protection

#### Control (cont.)

- Pump Switch
- Pump Time Delay
- Diagnostics Panel with LCD Display, 2 lines, 20 characters
- Modulating Temperature Control
- Water Temperature Sensors (3)
- Cold Water Protection
- Blocked Condensate Switch

#### Burner

 Ultra-Low NOx: Less than 20 PPM (Natural Gas Only)

#### Gas Train

- Fuel
- ☑ Natural Gas
  ☐ Propane
- Zero Governor Regulator
- Dual-Seat Combination Valve
- Electronic Modulating Firing Mode (H7)

#### Construction

- Indoor/Outdoor Construction
- Enclosed Front Controls
- PolyTuf Powder Coat Finish
- Rear Connections (Water, Gas, Vent, Electrical, Comb. Air, Cond. Drain)
- Combustion Air Filter
- Design Certified ANSI Z21.13/CSA 4.9

#### Venting

- Vent Termination

   Outdoor or Indoor, Vertical Option D-11
- Indoor, Horizontal Option D-15
   Extractor Optional
- By others
- Not required

# XTherm<sup>™</sup>- Type H

Heating Boilers Models 1005-2005



#### **Multi-Boiler Digital Temp Controllers**

	- J
B-36	TempTracker Mod+,
	2-4 Boilers, OA Reset
B-37	TempTracker Mod+,
	5-10 Boilers, OA Reset
B-38	TempTracker Mod+,
	11-16 Boilers, OA Reset
B-45	Multi-Mod Platinum,
	2-4 Boilers, OA Reset
B-46	Multi-Mod Platinum EMS,
	2-4 Boilers, OA Reset
B-47	Multi-Mod Platinum BACNet,
	2-4 Boilers, OA Reset
B-48	Multi-Mod Expansion Module,
	1-8 Additional Boilers
Options	
D-32	PVC Vent Adapter
	(Includes 200°F Manual High
	Limit) Maximum return water
	temperature allowed 170°F.
□ F-10	Low Water Cut-Off, Remote
	Probe
⊠ I-1	High Limit, Auto Reset, Adj.,
	100-240°F
🛛 I-2	High Limit, Manual Reset, Adj.,
	100-240°F
🛛 S-1	Low Gas Pressure Switch,
	Manual Reset

S-2 High Gas Pressure Switch, Manual Reset

Γ

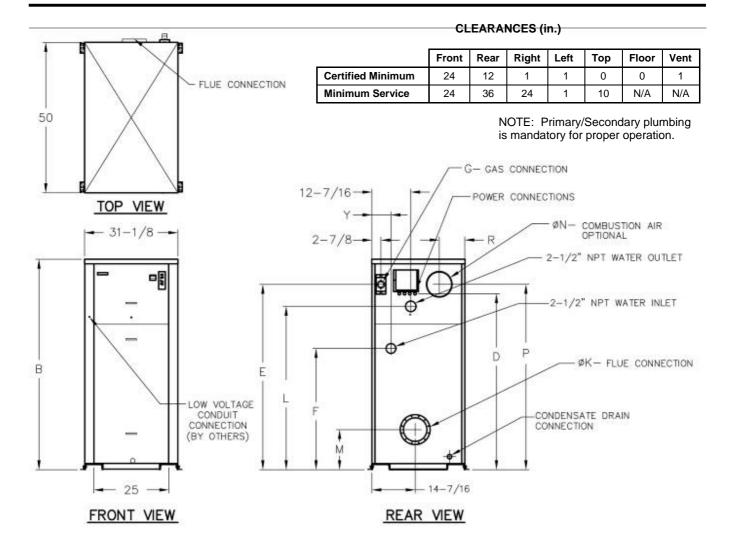
Z-12 Condensate Neutralizer Kit

#### Regulatory Agency Requirements CSD-1

Raupak

## XTherm – Type H Models 1005-2005

### Model <u>H-2005</u>



Madal	Dimensions (in.)											Ship	Total			
Model (H7-)	MB	IUH	В	D	Е	F	G*	K	L	М	Ν	Р	R	Y	Weight (Lbs.)	Amps**
	Input	Output	Height				NPT	Flue Ø			C/A Ø					
1005	999	959	55-1/8	45	47-1/8	36-1/2	1-1/4	6	40-1/16	11-1/2	6	47-1/8	8-1/16	6-1/16	1065	22
1505	1500	1440	67-1/8	57	59-1/16	38-1/2	1-1/4	8	52-1/16	12-5/8	8	59-1/8	8-3/16	6-1/16	1234	26
2005	1999	1919	81-1/8	71	71-3/16	38-1/2	2	8	64-1/16	12-5/8	8	73-1/8	8-3/16	6-1/4	1461	35

Note: Ratings shown are for elevations up to 4,500 feet. For installations at elevations above 4,500 feet, please consult the factory for additional instructions.

\* For Propane Gas, all models are 1

\*\* Supply breaker must have delayed trip.

Model	Rat	e of Flow (0	GPM)	Maximu	Im Flow	Minimur	n Flow*	Boiler Pump	
(H7-)	20°F 🗖	30°F 🗖	40°F ⊡*	GPM	🗖 (°F)	GPM	<b>□T</b> (°F)	Нр	Amps
1005	95	63	47	113	17	47	40	1/2	7
1505	N/A	96	71	113	25	71	40	3/4	11
2005	N/A	N/A	95	116	33	95	40	1	14

\* Closed systems only

Job:	Kirk in the	e Hills boiler 3						
Engineer:								
Contractor:	Western	Western Mechanical Contractors						
Prepared By:	A. Deal	Date: 12/7/12						
Model:	H-1505	Indoor/Outdoor: Indoor						

96% Thermal Efficiency at Full Rate; Up to 99% at Part Load

**100% Factory Fire Tested** 

Maximum Outlet Water Temperature: 225°F

Minimum Acceptable Inlet Water Temperature: 50°F

**Full Safety Diagnostics with History** 

#### Footprint: Less Than 10.8 ft<sup>2</sup>

Limited Twenty-Five-Year Thermal Shock Warranty

Limited Ten-Year Primary Heat Exchanger Warranty

Limited Five-Year Secondary Heat Exchanger Warranty

Full Electronic Modulation, Constant Ratio 4:1 Turndown

#### Modulating Controller with LCD Display

#### **Status Display Lights**

## Heat Exchanger

#### Headers

- Cast Iron Standard
- Bronze Option A-1
- ASME H Stamped; 160 PSIG MAWP
- National Board Listed
- Fin Tubing
  - Copper Standard
- Cupro Nickel Option A-3
- ASME Powder-Coated Tube Sheet
- Silicone High Temp O-Rings
- ASME Pressure Relief Valve 🛛 60 PSIG – Standard 75 PSIG – Optional
- 150 PSI Air Vent, Auto
- T&P Gauge, Shipped Loose
- . Stainless Steel Secondary Heat Exchanger
- Stainless Steel Evaporator Plate
- Boiler Pump: 120V, 1Ø, 60Hz; Cast Iron – Standard
- Bronze Option

#### Control

- 120V, 60Hz, 1Ø, Power Supply
- 120/24V 60Hz Transformer
- Ignition Module 3-Try – Standard
- Single-Try Option C-6 Hot Surface Ignition (HSI)
- Remote Flame Sensor .
- Fixed High Limit, Manual Reset, 240°F
- On/Off Power Switch
- Flow Switch
- Blocked Vent Pressure Switch
- Combustion Air Proving Switch
- Freeze Protection

#### Control (cont.)

- Pump Switch
- Pump Time Delay
- Diagnostics Panel with LCD Display, 2 lines, 20 characters
- Modulating Temperature Control
- Water Temperature Sensors (3)
- **Cold Water Protection**
- Blocked Condensate Switch

#### Burner

Ultra-Low NOx: Less than 20 PPM (Natural Gas Only)

#### Gas Train

- Fuel Natural Gas
- Propane
- Zero Governor Regulator
- Dual-Seat Combination Valve
- Electronic Modulating Firing Mode (H7)

#### Construction

- Indoor/Outdoor Construction
- **Enclosed Front Controls**
- PolyTuf Powder Coat Finish
- Rear Connections (Water, Gas, Vent, Electrical, Comb. Air, Cond. Drain)
- Combustion Air Filter
- Design Certified ANSI Z21.13/CSA 4.9

#### Venting

- Vent Termination Outdoor or Indoor, Vertical – Option D-11
- Indoor, Horizontal Option D-15 Extractor - Optional
- By others
- Not required

# XTherm<sup>™</sup>- Type H

**Heating Boilers** Models 1005-2005



#### Multi-Boiler Digital Temp Controllers

TempTracker Mod+,
2-4 Boilers, OA Reset
TempTracker Mod+,
5-10 Boilers, OA Reset
TempTracker Mod+,
11-16 Boilers, OA Reset
Multi-Mod Platinum,
2-4 Boilers, OA Reset
Multi-Mod Platinum EMS,
2-4 Boilers, OA Reset
Multi-Mod Platinum BACNet,
2-4 Boilers, OA Reset
Multi-Mod Expansion Module,
1-8 Additional Boilers
1-0 Additional Dollers
PVC Vent Adapter
PVC Vent Adapter (Includes 200ºF Manual High
PVC Vent Adapter (Includes 200ºF Manual High Limit) Maximum return water
PVC Vent Adapter (Includes 200°F Manual High Limit) Maximum return water temperature allowed 170°F.
PVC Vent Adapter (Includes 200ºF Manual High Limit) Maximum return water
PVC Vent Adapter (Includes 200°F Manual High Limit) Maximum return water temperature allowed 170°F. Low Water Cut-Off, Remote Probe
PVC Vent Adapter (Includes 200°F Manual High Limit) Maximum return water temperature allowed 170°F. Low Water Cut-Off, Remote
PVC Vent Adapter (Includes 200°F Manual High Limit) Maximum return water temperature allowed 170°F. Low Water Cut-Off, Remote Probe High Limit, Auto Reset, Adj.,
PVC Vent Adapter (Includes 200°F Manual High Limit) Maximum return water temperature allowed 170°F. Low Water Cut-Off, Remote Probe High Limit, Auto Reset, Adj., 100-240°F

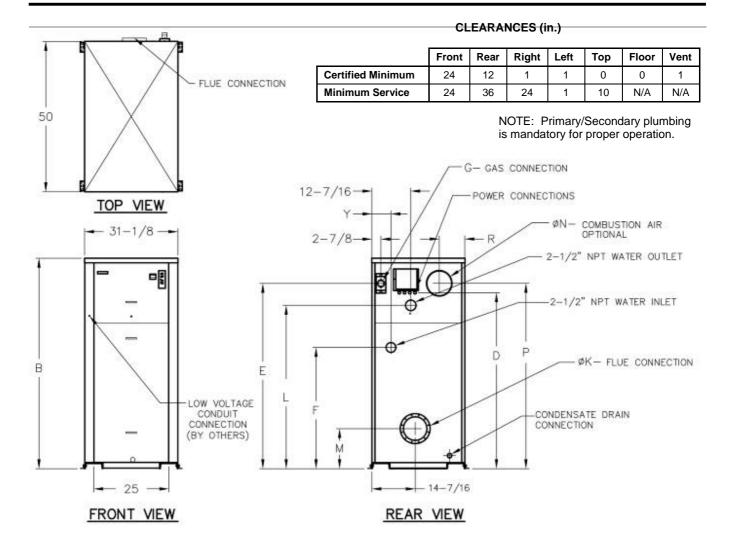
- Manual Reset S-2 High Gas Pressure Switch.
- Manual Reset 🛛 Z-12 Condensate Neutralizer Kit

#### **Regulatory Agency Requirements** 🖾 CSD-1

Raunak

## XTherm – Type H Models 1005-2005

### Model <u>H-1505</u>



Madal	Dimensions (in.)											Ship	Total			
Model (H7-)	MB	IUH	В	D	Е	F	G*	K	L	М	Ν	Р	R	Y	Weight (Lbs.)	Amps**
	Input	Output	Height				NPT	Flue Ø			C/A Ø					
1005	999	959	55-1/8	45	47-1/8	36-1/2	1-1/4	6	40-1/16	11-1/2	6	47-1/8	8-1/16	6-1/16	1065	22
1505	1500	1440	67-1/8	57	59-1/16	38-1/2	1-1/4	8	52-1/16	12-5/8	8	59-1/8	8-3/16	6-1/16	1234	26
2005	1999	1919	81-1/8	71	71-3/16	38-1/2	2	8	64-1/16	12-5/8	8	73-1/8	8-3/16	6-1/4	1461	35

Note: Ratings shown are for elevations up to 4,500 feet. For installations at elevations above 4,500 feet, please consult the factory for additional instructions.

\* For Propane Gas, all models are 1

\*\* Supply breaker must have delayed trip.

Model	Rat	e of Flow (0	GPM)	Maximu	Im Flow	Minimur	n Flow*	Boiler Pump	
(H7-)	20°F 🗖	30°F 🗖	40°F ⊡*	GPM	🗖 (°F)	GPM	<b>□T</b> (°F)	Нр	Amps
1005	95	63	47	113	17	47	40	1/2	7
1505	N/A	96	71	113	25	71	40	3/4	11
2005	N/A	N/A	95	116	33	95	40	1	14

\* Closed systems only

Performance Engineering Group B- Priority S1 P1 P2	P3									
Raypak X-Therm Start-Up Form	<del>م. د.</del>									
Job Name Kirk in the Hills Job Location 1340 W. Long Lake RD Bloomfield hills, MI	Date 6-21-13									
Installer Contact Person Western Mech John Hamby Start -up Contractor Contact Person	Phone Number 586 - 854 - 6198 Phone Number									
P.E.G. Scott S	734-266-5300									
Ray Pak 117-2005 1212350084 TPC	Application of Boiler									
OK Boiler Room Ves										
Hot to neutral 123.8 Hot to Ground 123.9 Neutral to Ground 53 MU										
Size Location Wall Are motorized dampers present? No Present?										
Mig's Specs Are Mig's No	installed? No -									
CONTROL SETTINGS Auto Reset High Limit 220 Manual Reset High Limit 240 Tankstat Setpoint NA Setpoint	TPC									
GAS TYPE PRESSURE RELIEF VALVE BOILER	OPERATION									
	Light 🗌 Heavy 🗹 xierate 🗌 Sudden Loads 🗌									
PRESSURE SETTINOS: Nat 10.5" max, Pro 13.0" max										
Supply Gas (Static) Supply Gas (Static) Supply Gas (Static) Supply Gas Supply Gas	Pressure <u>57 w</u>									
SAFETY CONTROL TESTS (Check all that apply & NOTE SETTING)										
Flew Switch Ignition Control Lockour Auto High Limit Manual Rooot High Limit Low Ges Pressure Switch High Gas Pressure Switch										
Type Metal Fab Draft Inducer NA Il Used, Approximate 23+Elbows Is Vent Pipe Yes No Provided to the second to the s	Size 8"									
Is the boiler gas train vented property? Yes IN O What is the location of the vent termination?	it Cap angle Cut									
BOILER TEMPERATURE RISE AT at Full Fire 29 Comments: Draft Reading048 (03 to09)										
Does condensate line have neutralizer? Yes 🗹 No 💭 Has condensate line off of secondary heat exchanger been run to	o drain? Yes 🗹 No 📋									
EMISSION: (Analyzer readings) CO <sub>7</sub> CO 8.5-9.0 (N) % 9.5-10.0 (P) CO CO CO CO CO CO CO CO CO CO	Less 100 ppm									
Excess Air 33 % Mrg'e Spec % 0, 5.3 % Mrg'e Spec	%									
NDx PPM Spec PPM Temperature 114 •F Mig's of File	-									
BOILER PUMP Manufacturer HP Amp Draw 13, Z Location Inlet	Outlet									
Model Votage //O Mfg. Amp Spec /9.0 1Phase	3Phase									
INJECTION PUMP	1011 min									
Manufacturer HP Amp Draw Location Inlet										
Model Voitage Mig. Amp Spec IPRASE	3Phase									
Manufacturer HP Amp Draw Location Inlet	Outlet									
Model Valtage M/g. Amp Spec 1Phase	3Phase									
MISCELLANEOUS Was a service manual present on the job site? Yes 🖸 No 📋 Was an owner representative present on startup? Yes 🗹 No 🗌 Name										
	Dly 🖸 : 0º Mass ]									
Diff Mod Dly Pump Dly 3:00 Degree										
This equipment has been properly started and is operating satisfactorily at this time. Yes $\Box$	No 🗖									
Technician's Signature X Seott Havene Date 6-21-13 Owner/Rep's Signature X	Date									

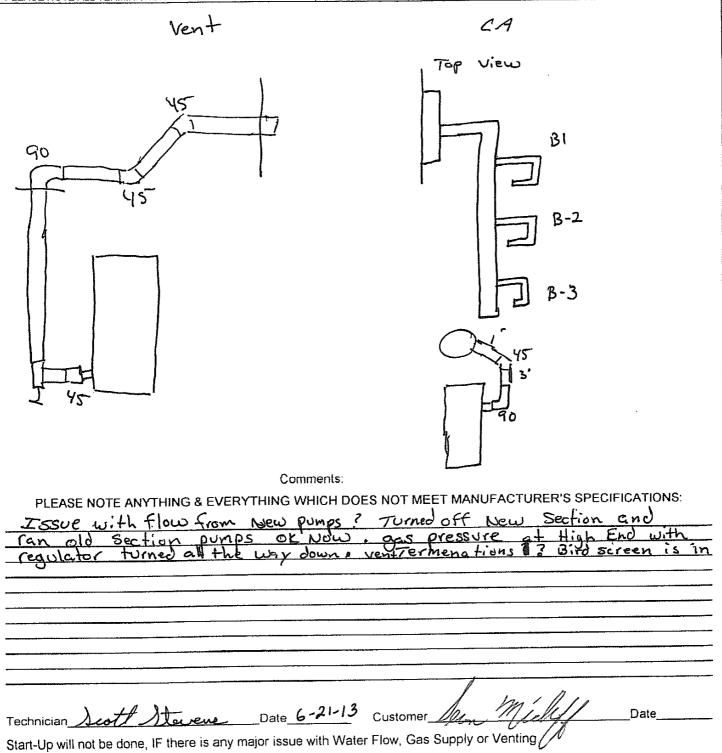
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# B-1

# Performance Engineering Group Raypak X-Therm Start-Up Form

#### HOW IS BOILER VENTED?

PLEASE SKETCH BOILER'S INSTALLED VENTING SYSTEM. ALSO, DOCUMENT VENT SIZE, VENT LENGTH INCLUDING ALL 45'S AND 90'S. PLEASE NOTE ALL TERMINATION POINTS WITH CLEARANCES (INTAKE FROM EXHAUST, AND ALL OTHER CODE/MFG REQUIREMENTS).

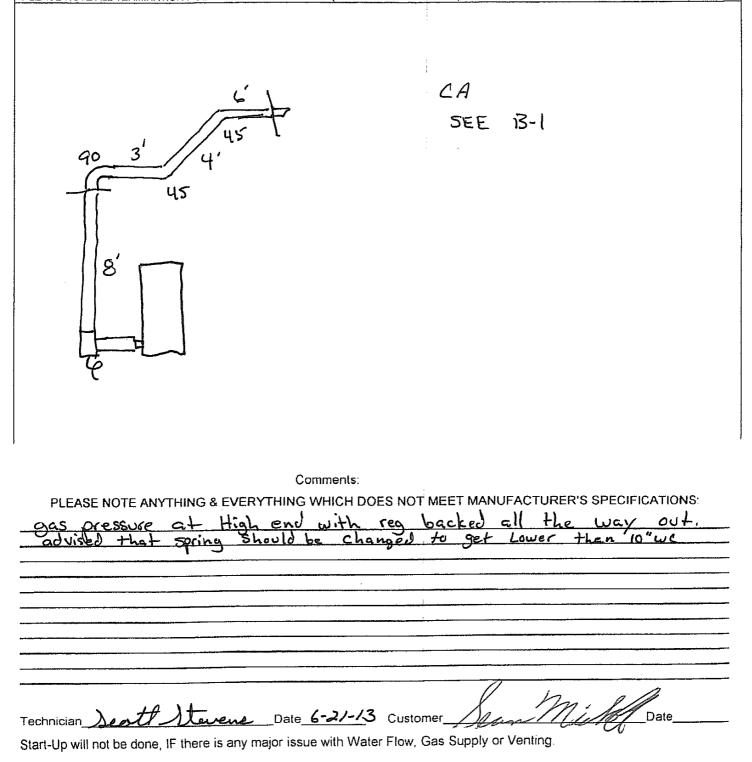


P.E.G.     Soci+t     Soci-t     Soci-t <th colspan="11">B-2</th>	B-2											
Add News     Job Losson     Job Losson     Dev     Grand Paran       Marked Kirk in Hae (H; IIS)     19N0 W-Long Lake RD Bloomfald hills, MT     Grand Paran       Marked Kirk in Hae (H; IIS)     19N0 W-Long Lake RD Bloomfald hills, MT     Grand Paran       Marked Kirk in Hae (H; IIS)     19N0 W-Long Lake RD Bloomfald hills, MT     Grand Paran       Marked Kirk in Hae (H; IIS)     19N0 W-Long Lake RD Bloomfald hills, MT     Grand Paran       Marked Kirk in Hae (H; IIS)     Marked Kirk in Hae (H; IIS)     Solution Paran       Marked Kirk in Hae (H; IIS)     Marked Kirk in Hae (H; IIS)     Solution Paran       Marked Kirk in Hae (H; IIS)     Marked Kirk in Hae (H; IIS)     Marked Kirk in Hae (H; IIS)       Marked Kirk in Hae (H; IIS)     Marked Kirk in Hae (H; IIS)     Marked Kirk in Hae (H; IIS)       Marked Kirk in Hae (H; IIS)     Marked Kirk in Hae (H; IIS)     Marked Kirk in Hae (H; IIS)       Marked Kirk in Hae (H; IIS)     Marked Kirk in Hae (H; IIS)     Marked Kirk in Hae (H; IIS)       Marked Kirk in Hae (H; IIS)     Marked Kirk in Hae (H; IIS)     Marked Kirk in Hae (H; IIS)     Marked Kirk in Hae (H; IIS)       Marked Kirk in Hae (H; IIS)     Marked Kirk in Hae (H; IIS)     Marked Kirk in Hae (H; IIS)     Marked Kirk in Hae (H; IIS)       Marked Kirk in Hae (H; IIS)     Marked Kirk in Hae (H; IIS)     Marked Kirk in Hae (H; IIS)     Marked Kirk in Hae (H; IIS)       Marked Kirk in Hae (H; IIS)			The second s			Pr	iority	S1	P1	P2	P3	
Kirk in the It:IIS     1940 W. Long Lake RD Bloomfield Wills, MI     C-21/-3       Manifed     Const Paran     Proce Nation       Barding     Dish     Henry Y       West Statut     Model Number     Scott Paran       Ray Reg L     Dish     Henry Y       West Statut     Model Number     Scott Paran       Ray Reg L     Model Number     Scott Paran       Ray Reg L     Model Number     Scott Paran       Name Statut     Model Number     Name Statut       Name Statut     Name Statut     Name Statut       Name Statut     Name Stat		-Thern	And the owner of the owner of the owner of the owner.	<u>-Up</u>	Form							
Western Mech       John Hamby       Set John Hamby       Set John Hamby         Start Hamby       John Hamby       Set John Hamby       Set John Hamby         PES. 5.       Scott HS       Scott HS       Start Hamby         Ray Ray (Internet Mendiatore       Month Nursee       Social Hamby       Start Hamby       Proceediator Hamby         Ray Ray (Internet Mendiatore       Month Nursee       Social Hamby       Start Hamby       Proceediator Hamby         Ray Ray (Internet Mendiatore       Month Nursee       Social Hamby       Proceediator Hamby       Market Start         Wester Frait       H2 - 20005       Multiple of Construct Topologic Start       Proceediator Hamby       Market Start         Wester Frait       H2 - 2000       Multiple of Construct Topologic Start       Market Start </td <td>Kirk in the 1-</td> <td>ills</td> <td></td> <td>J.Long</td> <td></td> <td></td> <td>eld hill</td> <td>s, MI</td> <td>-</td> <td></td> <td>6-21-</td> <td>13</td>	Kirk in the 1-	ills		J.Long			eld hill	s, MI	-		6-21-	13
P.E.G.     Scott S     734-246-5300       Enginemit Mundackurer     Model Number     Seriel Internet     ID del Control Type     Adelasticu of Baler       Condition of Equipment Internetion     OL     What Type of Environing is Equipment Internetion     ID the Equipment Control Type     Adelasticu of Baler       Condition of Equipment Internetion     OL     What Type of Environing is Equipment Control Type     ID the Equipment Control Type     Adelasticu of Baler       Condition of Equipment Internetion     OL     What Type of Environing is Equipment Control Type     ID the Equipment Control Type     Adelasticu of Baler       With Type of Environing is Equipment To Environ     Location     Up the Internetion     ID the Equipment Control Type     ID the Equipment Control Type     Adelasticut Control Type       Mark Table     Mark Table Control Type     Mark Table Control Type     Internet Control Type     Internet Control Type     Internet Control Type       Mark Table Table Control Type     Mark Table Table Control Type     Internet Control Type     Inter		1ech					у				586-854	1-6198
Bildheader         Model Number         Desire Cache Type         Application of Sequence of Desire           Row Roll         # 7 - 2005         [2 / 2 / 3 500 / 50 - 1000 mm]         TPC         # 7 - 2005           Willing Test         Diversition         Balance Cache Type         Application of Sequence II/7         # 7 - 2005           Willing Test         Diversition         Balance Cache Type         If the Sequence II/7         # 7 - 2005           Willing Test         Diversition         Balance Cache Type         # 7 - 2005         # 7 - 2005           Willing Test         Diversition         Balance Cache Type         # 7 - 2005         # 7 - 2005           Massage         Diversition         Balance Cache Type         # 7 - 2005         # 7 - 2005           Massage         Diversition         Balance Cache Type         # 7 - 2005         # 7 - 2005           Massage         Diversition         Balance Cache Type         # 7 - 2005         # 7 - 2005           Massage         Diversition         Balance Cache Type         # 7 - 2005         # 7 - 2005           Massage         Diversition         P - 2005         # 7 - 2005         # 7 - 2005         # 7 - 2005           Massage         Diversition         P - 2005         # 7 - 2005         # 7 - 2005         # 7	P.E.(	5 •										5300
Condition of Equipment Frankfuller Condition of Equipment Frankfuller Condition of Equipment Frankfuller Condition of Equipment Frankfuller Market Sector Frankfuller Condition of Equipment Frankfuller Condition Equipment Frankfuller Conditin Equipment Frankfuller Condition Equipment Frankfuller C	Equipment Manufacturer	Mode		~	Serial Numbe	er		E	oiler Control T	уре		
Voltage Test Hot to neutral   12.3. B       Hot to Ground   12.3. B       Neutral to Ground   36, mu       Name doe Neutral for Neutral for		H	7-200	5	1212	35008	ŝsī		TPC	-	HTG	
Interto       12.3.2.       Hato Ground       12.3.2.       Neutral to Ground       3.6. mod         Maxay All Maxay All Mal	Condition of Equipment / Insta	OK		What	Type of Environme	Boiler	In? Roor	n	Is the Equipm			
Name         Ducked (common)         Leading         Light         And models         Market bern much bern	Voltage Test Hot to neutral   123.8   Hot to Ground   123.8   Neutral to Ground   3   mu											
May Space       App Mig:       Yee       Hu an ord switch better       Yee         CONFOLD SETTINGS       Add Real Fig.       Marchad Fisch 2/4/0       Tenctal Sequent       Heating Control         Add Real Fig.       CAS TYPE       One       PRESSURE RELEW MARE       Space       DELCA OPERATION         March Real Fig.       CAS TYPE       One       PRESSURE RELEW MARE       Space       DELCA OPERATION         March Real Fig.       CAS TYPE       One       PRESSURE RELEW MARE       Space       DELCA OPERATION         March Real Fig.       CAS TYPE       One       PRESSURE RELEW MARE       Space       DELCA OPERATION         March Real Fig.       Space       -1.1       March Real Fig.       Space       DELCA OPERATION         Copy Oracl Fig.       Space       -1.1       March Real Fig.       Differer       Type         March Real Fig.       Space       -1.1       March Real Fig.       Space       Type         March Real Fig.       Space       -1.1       March Real Fig.       Space       Type         March Real Fig.       Space       -1.1       March Real Fig.       Space       Type         March Real Fig.       Space       March Real Fig.       March Real Fig.       Space       Type												
Ander Resting 200       Marcel 240       Tanktal Separati       Heating Control       TPC         Image: Separation of the second separation of the secon		Mfg's Specs     Yes     Has an end switch been Yes     Yes       Mfg's Specs     Specs met?     No     installed?     No										
CAS TYPE     Other     PRESSURE RELIEF VALVE     System     DOLE OPERATION       PRESSURE SETTINGS Net 19.5" max, Pre 30 max     Pre 10 ma	CONTROL SETTINGS											
Other       Other       Pail       GC       DripLeg       System       Docesting       Modernia         Supply Cast (0, 5,												
Second Case			ሆ 🗋	ther	PSI 60	Drip Leg Installed	yes	Working			Light 🛄	· = 1
Image: Second and the part of the p												
AMETY CONTROL TESTS (Direct all bas apply 6 MOTE SETTING)       Autor High Linit       Menual Read High Linit       Low Gas Pressure Synich       High Gas Pressure Synich         Flow Details       Instance Connect Lectoral       Autor High Linit       Menual Read High Linit       Low Gas Pressure Synich       High Gas Pressure Synich         ENTINO       Type Meddel Fab       Draft Inducer       If Used, Approximate       23 ' + Ellow       It Vent Pipe       Yes       State         Is the bolier gas train vended property?       Yes [ "No ]       What is the location of the vent mentation?       Used]       Type of Vent Cae Angle. Cut         Does condensate line have neutralizer?       Yes [ No ]       Has condensate line off of secondary heat exchanger been run to drain?       Yes [ No ]         Does condensate line have neutralizer?       Yes [ No ]       Has condensate line off of secondary heat exchanger been run to drain?       Yes [ No ]         Does condensate line have neutralizer?       Yes [ No ]       Has condensate line off of secondary heat exchanger been run to drain?       Yes [ No ]         Does condensate line have neutralizer?       Yes [ No ]       Mig's Spec       5.0 %       Mig's Spec       %         No       PPM       Mig's Spec       9.5-10.0 (P)       0;       5.0 %       Mig's Spec       %         No       PPM       Mig's Spec       9.												
CNTNO       Provide if Call       Construction       If Used. Approximate       23' + Ellows       If Used. Approximate       Save       Construction       No       Provide if Used. Approximate       Save       Construction       No       Provide if Used. Approximate       Save       Construction       No       Provide if Used. Approximate       No       Save       Construction       No       Provide if Ellows       No       No       No       No       Sove       Sove       No	SAFETY CONTROL TESTS (Check all that apply & ROTE SETTING)											
Type       Models												
Is the boling raps train windle group fif?       Yes [] *No []       termination?       Uq []       Type of Vent Cap       Angle Cut         OILER YEMPERATURE RISE       225       comments:       Draft Reading C. 4 (03 to09)       Does condensate line have neutralizer?       Yes [] *No []       Has condensate line off of secondary heat exchanger been run to drain?       Yes [] *No []         Does condensate line have neutralizer?       Yes [] *No []       Has condensate line off of secondary heat exchanger been run to drain?       Yes [] *No []         Co-       G-O       %       Mg*s Spec       8.5-9.0 (N) %       0.5-10.0 (P)       0.5       5.4       PPM       Mg*s Spec       Less 100       PPM         No.       PPM       Mg*s Spec       9.5-10.0 (P)       %       0.5       5.0       %       Mg*s Spec       %       No         No.       PPM       Mg*s Spec       PPM       Temporature       11       *       Spec       *       No       Mg*s Spec       %       No       Mg*s Spec       12.1       %       Mg*s Spec       12.1       %       No       Mg*s Spec       13.1       %       Mg*s Spec       13.1       %       Mg*s Spec       14.0       11.1       %       Mg*s Spec       13.1       %       Mg*s Spec       13.1       %	Typo Metail Fa					Height		Ellows	ls Vent Pipe Reduced		Size _	"
AT at Full File       28       Comments:       Draft Reading       0.9       (-0.3 to -0.9)         Does condensate line have neutralizer?       Yes       No       Has condensate line off of secondary heat exchanger been run to drain?       Yes       No         Mission:       (Analyzer reading)       %       Mig's Spec       8.5-9.0 (N)       %       0.5       54       PPM       Mig's Spec       4.6       <	Is the boiler gas train vented (	property? Yes	G-No 🛛		AAUST IS ID	e location of the terminat	ion? し	<u>a</u>		Type of Ven	Cap Angle	e cut
MISSION: (Analyzer readings)       %       Mig's Spec       8.5-9.0 (N) %       %       O       54       PPM       Mig's Spec       Less 100 PPM         Excess Air       31       %       Mig's Spec       9.5-10.0 (P)       %       O;       5.0       %       Mig's Spec       %         NOx       PPM       Mig's Spec       PPM       Flue       11       *       Mig's Spec       %         NOx       PPM       Mig's Spec       PPM       Flue       11       *       Spec       *       Mig's Spec       %         OILER PUMP       Mig's Spec       PPM       Mig. Amp Draw       //3./9       Location       Inlet       Outlet         Model       Votage       //O       Mig. Amp Draw       Location       Inlet       Outlet         Model       Votage       Mig. Amp D		Co:	1			·	· · ·					/
CO_       Yi       Mg's Spec       8.5-9.0 (N)       Yi       CO       54       PPM       Mg's Spec       Less 100       PPM         Bit       31       Yi       Mg's Spec       Yi       Op       5.0       Yi       Mg's Spec       Yi         NOx       PPM       Mg's Spec       PPM       Temperature       Yi       Mg's Spec       Yi       Mg's Spec       Yi         NOx       PPM       Mg's Spec       PPM       Temperature       Yi       Mg's Spec       Yi       Mg's Spec       Yi         NOx       PPM       Mg's Spec       PPM       Temperature       Mg's Spec       Yi       Mg's Spec       Yi         OLLER PUMP       HP       Amp Draw       13.19       Location       Inlet       Outlet         Model       Votage       1/0       Mg, Amp Spec       1/4.0       Inlet       Outlet         Model       Votage       Mg, Amp Spec       1Phase       3Phase       SPhase       SPhase         Votage       Mg's Amp Spec       1Phase       3Phase       Inlet       Outlet       SPhase			izer? Yes	Let No [	] Has cor	ndensate line	e off of seco	ndary hea	t exchanger	been run to	o drain? Yes	P No D
NOx       PPM       Mig's Spec       PPM       Mig's Temperature       Temperature       Inlet       Ourliet         Model       Voltage       Mig's Amp Spec       1/4 , O       Location       Inlet       Outlet         Model       Voltage       Mig's Amp Spec       1Phase       3Phase       1Phase       3Phase         Voltage       Mig's Amp Spec       1Phase       3Phase       1Phase       3Phase       1Phase       3Phase         Model       Voltage       Mig's Amp Spec       1Phase       3Phase       1Phase       3Phase       1Phase       3Phase         ISCELLANEOUS       Was a service manuel present on the job site?	··· <u>9.0</u>	%	<u> </u>	9.5		6	<u> </u>	7	M N	Mg's Spec	Less 100	PPM
Manufacturer       HP       Amp Draw       13.19       Location       Inlet       Outlet         Model       Votage       110       Mtg. Amp Spec       14.0       1Phase       3Phase         LIECTION PUMP       HP       Amp Draw       Location       Inlet       Outlet         Model       Votage       HP       Amp Draw       Location       Inlet       Outlet         Model       Votage       Mtg. Amp Spec       1Phase       3Phase       3Phase         VSTEM PUMP       Mg. Amp Spec       1Phase       3Phase       3Phase         Model       Votage       Mtg. Amp Spec       1Phase       3Phase         MSCELLANEOUS       Votage       Mtg. Amp Spec       1Phase       3Phase         Was a service manual present on the job site?       Yes       No       Name       Phase         emp-tracker Settings       Mode & Bir Target	NOx PPM	Mig's	_ ~		Flue	Migh	a <del></del>		. <u> </u>	Mg's Spec	··· · · · · · · · · · · · · · · ·	56
Model       Voitage				HP		Amo Down	12 19	1		Inlet	) Outlet	
LIECTION PUMP       HP       Amp Draw       Location       Inlet       Outlet         Model       Voltage       M/g. Amp Spec       1Phase       3Phase         YSTEM PUMP       HP       Amp Draw       Location       Inlet       Outlet         Model       Voltage       M/g. Amp Spec       1Phase       3Phase         Model       Voltage       M/g. Amp Spec       1Phase       3Phase         IISCELLANEOUS       Voltage       DHW Target       DHW Diff       Bir Max       Bir Min       Dif Qo. @ Mass         emp-tracker Settings       Mode       Bir Target       DHW Target       DHW Diff       Bir Max       Bir Min       Dif Qo. @ Mass         Diff       Mod Diy       Pump Diy 3:00       Degree       F <sup>b</sup> No       Inlet					 //O M	-						
Model       Voltage       Mg. Amp Spec       1Phase       3Phase         YSTEM PUMP         Manufacturer       HP       Amp Draw       Location       Inlet       Outlet         Model       Voltage       Mfg. Amp Spec       1Phase       3Phase         Model       Voltage       Mfg. Amp Spec       1Phase       3Phase         INSCELLANEOUS       Valtage       Mfg. Amp Spec       1Phase       3Phase         Was a service manual present on the job sile?       Yes       No       Name         emp-tracker Settings       Mode & Bir Target       DHW Target       DHW Diff       Bir Max       Bir Min       Dily O.@ Mass         Diff       Mod Dly       Pump Dly 3: OO Degree       F <sup>3</sup> No       No       Inlet												
WSTEM PUMP       HP       Amp Draw       Location       Inlet       Outlet         Model       Voltage       Mrg. Amp Spec       1Phase       3Phase         INSCELLANEOUS       Voltage       Mrg. Amp Spec       1Phase       3Phase         Was a service manual present on the job site?       Yes       No       Was an owner representative present on startup?       Yes       No       Name         emp-tracker Settings       Mode & Bir Target       DHW Target       DHW Diff       Bir Max       Bir Min       Diy O. O Mass       Diff         Diff       Mod Diy       Pump Diy 3: O Degree       F <sup>6</sup> No       No       Inlet       No	Manufacturer			HP		Amp Draw		Locat	ion ,	Inlet	Outlet	
Manufacturer       HP       Amp Draw       Location       Inlet       Outlet         Model       Voltage       M/g. Amp Spec       1Phase       3Phase         IISCELLANEOUS       Was a service manual present on the job site?       Yes       No       Was an owner representative present on startup?       Yes       No       Name         emp-tracker Settings       Mode & Bir Target       DHW Target       DHW Diff       Bir Max       Bir Min       Diy O. O Mass         Diff       Mod Diy       Pump Diy 3:00 Degree       F <sup>6</sup> No       No       Interview				Voltage	Mr	g. Amp Spec			11	hase	3Phase	
Model       Voltage       Mfg. Amp Spec       1Phase       3Phase         IISCELLANEOUS       Was a service manual present on the job site?       Yes       No       Was an owner representative present on startup?       Yes       No       Name         emp-tracker Settings       Mode & Bir Target       DHW Target       DHW Diff       Bir Max       Bir Min       Diy O. 00 Mass	SYSTEM PUMP Manufacturer			HP		Amp Draw		Locat	ion	Inlet	Outlet	
IISCELLANEOUS       Was a service manual present on the job sile?       Yes       Yes       No       Name         emp-tracker Settings       Mode       Bir Target       DHW Target       DHW Diff       Bir Max       Bir Min       Diy       Over Mass         Diff       Mod Diy       Pump Diy       3:00 Degree       F <sup>6</sup> F       F       No       No       Interview         His equipment has been properly started and is operating satisfactorily at this time.       Yes       No       Interview       Interview				_	M	· -	<u></u>		····			
emp-tracker Settings       Mode & Bir Target DHW Target DHW Diff       Bir Max Bir Min Diy O. 00 Mass         Diff Mod Dly Pump Dly 3:00 DegreeF <sup>3</sup> F <sup>3</sup> 'his equipment has been properly started and is operating satisfactorily at this time. Yes No	MISCELLANEOUS				······			·			······································	
Diff Mod Dly Pump Dly 3:00 DegreeF <sup>6</sup>											IN O. 90 Mart	
his equipment has been properly started and is operating satisfactorily at this time. Yes  No  No		-	-		*				011 1V	یا ل	w <u> </u>	
	This equipment ha	as been pro	operly star					at this ti	ime. Ye	s 🗌	No 🗆	
		4	· ·		-							

## B-2 Performance Engineering Group Raypak X-Therm Start-Up Form

#### HOW IS BOILER VENTED?

PLEASE SKETCH BOILER'S INSTALLED VENTING SYSTEM. ALSO, DOCUMENT VENT SIZE, VENT LENGTH INCLUDING ALL 45'S AND 90'S. PLEASE NOTE ALL TERMINATION POINTS WITH CLEARANCES (INTAKE FROM EXHAUST, AND ALL OTHER CODE/MFG REQUIREMENTS).



#### TPI709

TP1709

Date : Time :	21/063 07:28
Fuel :	Natural Gas
	Report
CO(PPM) OZ(%) CO2(%) Ratio(C CO Air Excess Net_Eff Temp_Cf Temp_Cf	: 0,000 0/C02): 0.0006 Free(ppm): 70 Air(%): 31 i(%): 99.4 i(%): 111
smoke :	1 2 3 4 5
Custom	er:Kirkinthe
Addres	<u>s</u> :
	)-2
Readin	9 Accepted by :

07:29, 21/06/13

÷

21/06/13 06:56 Date Time Fuel : Natural Gas ----- Report ------CO(ppm): 50 O2(%): 5.3 CO2(%): 8.8 Ratio(CO/CO2): 0.0005 CO Air Free(ppm): 67 Excess Air(%): 33 Net\_Effi(%): 39.3 Temp\_CH1(F): 114 Temp\_CH2(F): Open \_\_\_\_ Smoke: 1 2 3 4 5 customer : Kirkin The Hills Address : B -\_\_\_\_\_\_ Reading Accepted by :

06:57, 21/06/13

TPI709

\_\_\_\_\_

Date Time	:			21/	06/ 09:	13 52
Fuel	:	Naț	ura	1 G	as	
		Rep	ort			
CO(PP) OZ(%) COZ(%) Ratic CO Acs Net_P Temp_ Temp_		Veo	2) (pp %)	: 0 m): ;	5 8 .00 98 1 0p	62 35 •6 38
Smoke		· 1	 2	 3	 4	5
custo	mer	:	<u>K:</u>			
Addre	<u>s</u> e 25	:	3	<b>-</b>		
Readi	ng	Acc	ept	ed L	y :	
		09:	53,	21/	/06 <i>/</i>	/13

Jan Ke



Raypak • Ruud • thaw PAK

Your Hot Water Supply Resource

inches

June 25, 2013

Mr. John Hamby Western Mechanical Contractors jhamby@westernmech.com

Dear Mr. Hamby,

The start-up of the Raypak boilers and control system at the following location has been completed:

Kirk in the Hills Church - 1340 W. Long Lake Road - Bloomfield Hills, MI 48302

Model Number:	H7-2005
Serial Number:	1212350084 & 1212350085

The following areas were tested and reviewed:

#### Boiler installation

#### Venting

- Complies with manufacturer's installation instructions
  - Requires the following modifications:
    - Too small; required size is
      - Exceeds recommended length; correct size for this length is
    - Exceeds allowable number of elbows; maximum amount is
    - Requires Barometric Damper
    - Improper vent termination
    - Requires inducer/extractor
    - Other: Engineered Venting System by Partlan-Labodie.

Make-up Air

 $\boxtimes$ 

- Complies with manufacturer's installation instructions
- Requires the following modifications:
- Undersized; the minimum required size is
  - Damper interlock not functioning
- ] Obstructed inlet
- Other: FYI: Direct Vent Fresh Air to a Common Box Assembly

#### Gas Piping/Pressure

Complies with manufacturer's installation instructions

- Requires the following modifications:
  - Gas pipe undersized; the minimum required size is
  - Gas pressure too low; the minimum pressure is
  - Gas pressure too high, the maximum pressure is
  - Gas vent lines not terminated outside building
  - Gas vent lines too small; correct size should be
  - Gas vent line/bleed lines combined not allowed by fuel gas code
  - Other: FYI: Pressure a little high to start. Spring corrected and adjusted.

32995 Industrial Road • Livonia • Michigan • 48150 • ph 734.266.5300 • fx 734.266.5310

<ul> <li>Water Piping/Pumping</li> <li>Complies with manufacturer's installation instructions</li> <li>Requires the following modifications:</li> <li>Pipe size too small; proper pipe size is</li> <li>Improper pump location; relocate to</li> <li>Improper piping arrangement; see attached drawing</li> <li>Other:</li> </ul>
Equipment Access         Complies with manufacturer's installation instructions         Requires the following modifications:         Improper clearance to combustibles         Improper service access; minimum access required is         Front         Right side         Left Side         Other:
Electrical Complies with manufacturer's installation instructions Requires the following modifications: Inadequate voltage supply, proper voltage is Improper ground Inadequate circuit size, minimum circuit is amps Other:
Controls Complies with manufacturer's installation instructions Requires the following modifications: Improper sensor location Improper sensor wire used; correct wire is Other: FYI: TPC Control System

Enclosed you will find a copy of the startup form. Please forward a copy to the owner/engineer as required.

Respectfully,

James Tungint

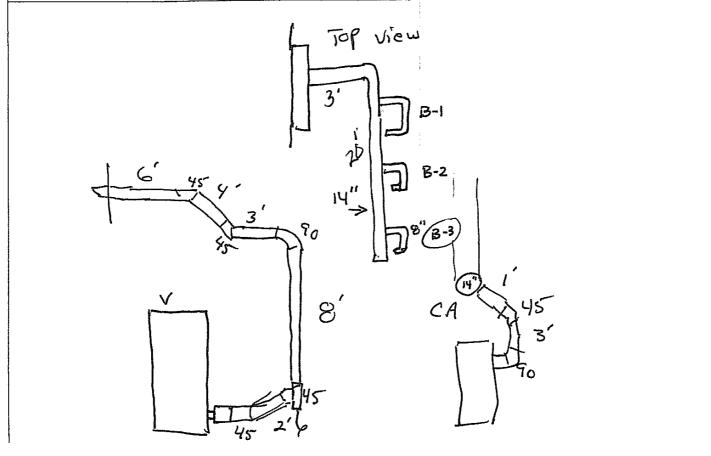
James I. Turnquist Performance Engineering Group, Inc.

Performance Engineering G	roup Priority S1	P1 P2 P3		
Raypak X-Therm Start-Up				
Job Name		Date		
	Lake RD Bloomfield hills, MI	6-21-13		
Installer	Contact Person	Phone Number		
Western Mech Start-up Contractor	John Hamby	586-854-6198		
P.E.G.	Scott S	Phone Number		
Equipment Manufacturer Model Number		737-266-5300 Boiler Control Type Application of Boiler		
Ray Pak 417-1505	12 12 350083	TPC HTG		
Condition of Equipment / Installation What	Type of Environment is Equipment in? Boiler Koom	Is the Equipment Serviceable?		
Voltage Test Hot to neutral 123   Hot to Ground 123	Neutral to Ground 49m	<u>yes</u>		
Make-up Air Common		Yes 🗌		
Available Dected	ocation Uall	Are motorized dampers present? No		
	re Mig's No 🗌 cs met? No	Has an end switch been Yes installed? No		
CONTROL SETTINGS		Hanting Captrol		
Limit <u>220</u> High Limit <u>240</u>	Tankstat Setpoint X/A	Heating Control Setpoint 7PC		
GAS TYPE P	PRESSURE RELIEF VALVE System			
	PSI 60 Drip Leg Ves Working Installed Ves Pressure			
PRESSURE SETTINGS: Nat 10.5" max, Pro 13.0" max	······································			
(Static) My Truc Spec	Manifold Pressure -1.4 Mfg's Spac +/2	Blower Tracking Pressure 7.57 w		
(Dynamic) 6.5 C Dirt yes Fan	Blower Pressure - 3. Y *** Blower Amps 4.1	Artos tel Fax		
SAFETY CONTROL TESTS (Clinick all that apply & NOTE SETTING)	and the second			
Flew Switch Ignition Control Lockout Auto High Limit	Manual Rosat High Limit Low C	ies Pressure Switch High Gas Pressure Switch		
Type Meterl Fab Dratt Inducer Model # NA	Il Used, Approximate Height 23 4 ElLaus	Is Vent Pipe Yes Size Size		
Is the boiler gas train vented property? Yes 🗂 No 🔲	What is the location of the vent termination?	Type of Vont Cap Angle Lut		
BOILER TEMPERATURE RISE AT at Full Fire 26 Commonts: Draft Reading	04B (03 to09)			
Does condensate line have neutralizer? Yes I No	· · · · · · · · · · · · · · · · · · ·	at exchanger been run to drain? Yes I No		
EMISSION: (Analyzer readings)				
<u> </u>	-10.0 (P)	PM Mig's Spec Less 100 PPM		
Excess Air % Mig's Spec		Mfg'\$ Spec%		
NOx PPM Spec PPM Tempera BOILER PUMP				
Manulacturer HP	Arrip Draw 6.63 Loc	ation (Inlet) Outlet		
Model Votage	110 Mig. Amp Spec 7.0	1Phase 3Phase		
INJECTION PUMP				
Manulacturer HP	Amp Draw Loc			
Model Voltage	Mig. Amp Spec	1Phase 3Phase		
SYSTEM PUMP Manufacturer CCO HP	Amp Draw Loc	nion inlet Outlet		
Manufactures 12,0		1Phase 3Phase		
MISCELLANEOUS	Mig. Amp Spec			
Was a service manual present on the job site? Yes 🗌 No 🗋 Was an owner representative present on startup? Yes 🗌 No 🗍 Name				
	HW Target DHW Diff BIr Max Pump Dly 3:00 Degree F°	Blr Min Dly O 100 Mass		
This equipment has been properly started and	I is operating satisfactorily at this	time. Yes 🔲 No 🗇		
Technician's Signature X Date	Owner/Rep's Signature X	Date		

## B- 3 Performance Engineering Group Raypak X-Therm Start-Up Form

#### HOW IS BOILER VENTED?

PLEASE SKETCH BOILER'S INSTALLED VENTING SYSTEM. ALSO, DOCUMENT VENT SIZE, VENT LENGTH INCLUDING ALL 45'S AND 90'S. PLEASE NOTE ALL TERMINATION POINTS WITH CLEARANCES (INTAKE FROM EXHAUST, AND ALL OTHER CODE/MFG REQUIREMENTS).



Comments:

PLEASE NOTE ANYTHING & EVERYTHING WHICH DOES NOT MEET MANUFACTURER'S SPECIFICATIONS:

Reg all the 61 DESSUIC 995 pring and Se Changed ing =hadge 001 Seatt-\_\_\_\_\_Date\_\_\_\_\_\_\_\_\_\_\_Customer\_\_\_ Date Technician Start-Up will not be done, IF there is any major issue with Water Flow, Gas Supply or Venting.

#### TPI709

TP1709 21/063 07:28 Date : Time : Fuel : Natural Gas ----- Report -----CO(ppm): 54 O2(%): 5.0 Ratio(CO/CO2): 0.0006 CO Air Free(ppm): 70 Excess Air(%): 31 Net\_Effi(%): 99.4 Temp\_CH1(F): 111 Temp\_CH2(F): Open 5moke : 1 2 3 4 5 customer :Kirk in the Hills Address : B-2 Reading Accepted by : ------07:29, 21/06/13

Date : 21/06/13 Time : 06:56	2
Fuel : Natural Gas	
Report	-
CO(PPM): 50 02(%): 53 CO2(%): 0.000 Ratio(CO/CO2): 0.000 CO Air Free(PPM): 6 Excess Air(%): 3 Net_Effi(%): 99. Temp_CH1(F): 11 Temp_CH2(F): 0Pe	23857334n
smoke : 1 2 3 4	5
customer : Kirki	h
The Hills	
Address : B -1	
Reading Accepted by	:

06:57, 21/06/13

1

48Y ....

Distantes



Raypak • Ruud • thaw PAK

Your Hot Water Supply Resource

June 25, 2013

Mr. John Hamby Western Mechanical Contractors jhamby@westernmech.com

Dear Mr. Hamby,

The start-up of the Raypak boilers and control system at the following location has been completed:

Kirk in the Hills Church - 1340 W. Long Lake Road - Bloomfield Hills, MI 48302

Model Number: H7-1505 Serial Number: 1212350083

The following areas were tested and reviewed:

#### Boiler installation

#### Venting

- Complies with manufacturer's installation instructions
  - Requires the following modifications:
    - Too small; required size is
    - Exceeds recommended length; correct size for this length is Exceeds allowable number of elbows; maximum amount is

inches

- Requires Barometric Damper
- Improper vent termination
- Requires inducer/extractor
- Other: Engineered Venting System by Partlan-Labodie.

Make-up Air

- Complies with manufacturer's installation instructions
- Requires the following modifications:
- Undersized; the minimum required size is
- Damper interlock not functioning
- Obstructed inlet
- Other: FYI: Direct Vent Fresh Air to a Common Box Assembly

#### Gas Piping/Pressure

Complies with manufacturer's installation instructions

- Requires the following modifications:
  - Gas pipe undersized; the minimum required size is
  - Gas pressure too low; the minimum pressure is
  - Gas pressure too high, the maximum pressure is
  - Gas vent lines not terminated outside building
  - Gas vent lines too small; correct size should be
  - Gas vent line/bleed lines combined not allowed by fuel gas code
  - Other: FYI: Pressure a little high to start. Spring corrected and adjusted.

#### Water Piping/Pumping

	Complies with manufacturer's installation instructions Requires the following modifications: Fipe size too small; proper pipe size is Improper pump location; relocate to Improper piping arrangement; see attached drawing Other:
Equ X	ipment Access Complies with manufacturer's installation instructions Requires the following modifications: Improper clearance to combustibles Improper service access; minimum access required is inches Front Right side Left Side Rear Other:
	complies with manufacturer's installation instructions         Requires the following modifications:         Inadequate voltage supply, proper voltage is         Improper ground         Inadequate circuit size, minimum circuit is         Other:
Cor ⊠□	trols Complies with manufacturer's installation instructions Requires the following modifications:

- Improper sensor wire used; correct wire is Other: FYI: TPC Control System

Enclosed you will find a copy of the startup form. Please forward a copy to the owner/engineer as required.

Respectfully,

James Tungiest

James I. Turnquist Performance Engineering Group, Inc.