

TECHNICAL SPECIFICATIONS

Work Scope: Replacement of Existing Rooftop 100% Outdoor Air Handling Unit (AHU) (Qty. 1)

Jobsite Location:

Northeast Florida State Hospital (NEFSH), Bldg. 57
7487 State Road 121 South, Macclenny, Florida 32063
Site Contact: Chuck Jerris, NEFSH Bldg. 1, Telephone (904) 259-6211 Ext. 1105

Receipt of Sealed Bids:

Sealed bids shall be due to the Site Contact at NEFSH Bldg. 1 by September 27, 2010 at 2:00 p.m.
Bid protest period shall run 72 hours (excluding Saturdays, Sundays & holidays) from posting of bids.

Special Conditions of Bidding and Procurement:

Owner reserves the right to reject any and all bids, and to cancel procurement without placing an order. Procurement funds are currently on hold pending settlement of a prior claim against the Department. Authorization to perform Work shall be by Direct Order from the Department of Children and Families. Payment is conditioned upon delivery & installation of work product meeting Owner's approval.

Special Conditions of Delivery and Installation:

Contractor shall be responsible for field-measurement of existing roof curb and AHU fit-up to roof curb. Removal & replacement of rooftop AHU shall be coordinated with favorable weather conditions. All work to be completed within 90 days after issuance of a Direct Order.

Existing AHU Heating: Hot-water heating coil, originally sized for a heating load of 259.8 MBH at entering water temperature (EWT) of 170°F, and outside air entering at 14°F.

Existing AHU Cooling: Face-split chilled-water cooling coil section, originally sized for a total cooling load of 491.6 MBH (nominal 40 ton) at EWT of 46°F and outside air entering at 95°F /79° w.b.

Existing AHU Fan: Bottom-discharge dual-cage centrifugal fan, originally sized to provide 5,760 CFM at 1.85 in. w.g. External Static Pressure.

Existing Power Supply: 208 Volts, 60Hz, 3 Phase.

New Dehumidifier Heat Pipe: Heat pipe not present in existing system. The replacement AHU shall be fitted with a new heat pipe system consisting of a three-row precooling coil mounted upstream of the CHW cooling coil, coupled with a three-row reheating coil mounted downstream of the CHW coil.

- *Basis of selection:* Per attached proposal from Heat Pipe Technology, Inc. (Gainesville, FL). Selection details may be obtained from Chris Fowler at Nelson & Co. (904-807-9899 Ext.3005).
- *Heat Pipe Installation:* The OEM shall first ship the new AHU to Gainesville, FL to be fitted with a new heat pipe system at the Heat Pipe Technology, Inc. factory.
- *System Benefit:* Up to eight tons of sensible outside air precooling can be realized, resulting in better dehumidification with a simultaneous reduction of cooling load at CHW coil.
- *System Cost:* The addition of two three-row heat-pipe coils to the airstream increases the fan static pressure requirement by 0.6 in. w.g.

Component Arrangement: Progression of air flow through new AHU components shall be as follows:

- #1 – Outside air intake hood with bird screen
- #2 – Filter section w/ 4" pleated media Filters (MERV 8)
- #3 – ARI-certified 260-MBH hot-water heating coil w/ access door, having design EWT of 170°F
- #4 – Heat-pipe precooling coil w/ integral stainless steel drain pan, accessible from access door
- #5 – ARI-certified 490-MBH chilled-water cooling coil (unsplit) w/ stainless steel drain pan and access door, having design EWT of 45°F
- #6 – Temperature control sensor positioned to sense CHW coil leaving air temperature
- #7 – Heat-pipe reheat coil, accessible from access door
- #8 – Fan module w/ access doors on both sides, housing a bottom-discharging spring-isolated fan capable of providing 5,800 CFM at 2.5 in. w.g. external static pressure.

Casing for all AHU Sections: Shall be solid double-wall w/ 2-inch insulation. Color shall be acceptable to Owner's site representative.

System Accessories:

- Motorized 3-way modulating control valve for hot water coil
- One (1) motorized 3-way modulating control valve for unsplit CHW coil
- Interior-mounted temperature sensor positioned to sense CHW coil leaving air temperature
- Control Interface to the Owner's building automation system (Trane Tracer Summit system)
- Premium Efficiency Fan Motor
- Heavy-duty fan bearings with extended grease lines
- Non-Locking Disconnect Switch
- Insulated hot water and chilled water piping connections

Control System Requirement:

All Modes: New temperature sensor shall sense air temperature leaving CHW coil as a control input.

Heating Mode: Three-way valve for hot water coil shall modulate to maintain heating setpoint.

Cooling Mode: Three-way valve for unsplit CHW coil shall modulate to maintain cooling setpoint.

All Modes: Setpoint shall be adjustable through the Owner's Building Automation System.

Owner's BAS: Trane Tracer Summit system (see attached controls diagram for Bldg. 57 controls)

Existing sensors: Position of existing duct temperature/RH sensor (TEH-2) remains downstream of fan module, in supply air duct. Relocate only if necessary to accommodate new AHU.

Included Services: Bid shall include the following items:

- Removal of existing piping & electrical connections
- Removal of existing fan motor from existing AHU for delivery to Owner
- Removal and disposal of existing AHU
- Furnish and install one (1) new CHW/HW AHU; includes piping and insulation
- Provide all necessary roof curb fit-up (including any new roof curbing or existing curb repair needed to properly accommodate new AHU)
- Provide flex boot for duct attachment to existing system
- Provide all associated conduit and wiring for a fully-functioning system (includes power for AHU & motorized valves)
- Interface unit control with existing building automation system (Trane Tracer Summit).
- Provide a properly-trapped condensate drain terminating at a roof drain located at least ten feet away from the AHU.
- Provide separately-trapped condensate drainage from the precooling heat-pipe coil's drain pan connection
- Provide basic O&M training to site personnel
- Provide one-year warranty on parts and labor

Attachments:

- 1) Three-row heat pipe proposal from Heat Pipe Technology, Inc. (Gainesville, FL)
- 2) AHU detail copied from original design documents
- 3) Trane Tracer Summit control drawing for existing AHU at Bldg. 57
- 4) Photograph of existing Bldg. 57 AHU

Project Name: NEFSH Building 57
 Equipment:
 Rep: Nelson & Company

Engineer:
 By: Chris Fowler
 Date: 7/1/2009

DEHUMIDIFIER HEAT PIPE PERFORMANCE

	Outside Air	Returned Air	Mixed Air (Standard)	Precool Heat Pipe	Cooling Coil	Reheat Heat Pipe
CFM	5,800		5,800			
DBT (°F)	96.00		96.00	80.89	55.00	70.36
WBT (°F)	79.00		79.00	75.15	54.00	59.94
RH (%)	47.78		47.78	77.01	93.96	54.71

Elevation: 0 (ft), Air Type: Standard

Pressure Drop (in-H2O)	0.31	0.29
Delta T (°F)	15.11	15.36
Temp. Effectiveness (%)	36.86	37.46
Energy Transferred (Btu/h)	97,745	419,648
Condensation (lbs/h)	0.00	232.37
Fin Height (in.)	32.50	32.50
Fin Length (in.)	54.00	54.00
Face Area (SF)	12.19	12.19
Face velocity (SFPM)	475.90	475.90
No. of Rows	3	3
Tube OD (in.)	1/2	1/2
Fins per inch	12	12
Fin Type	Standard	Standard

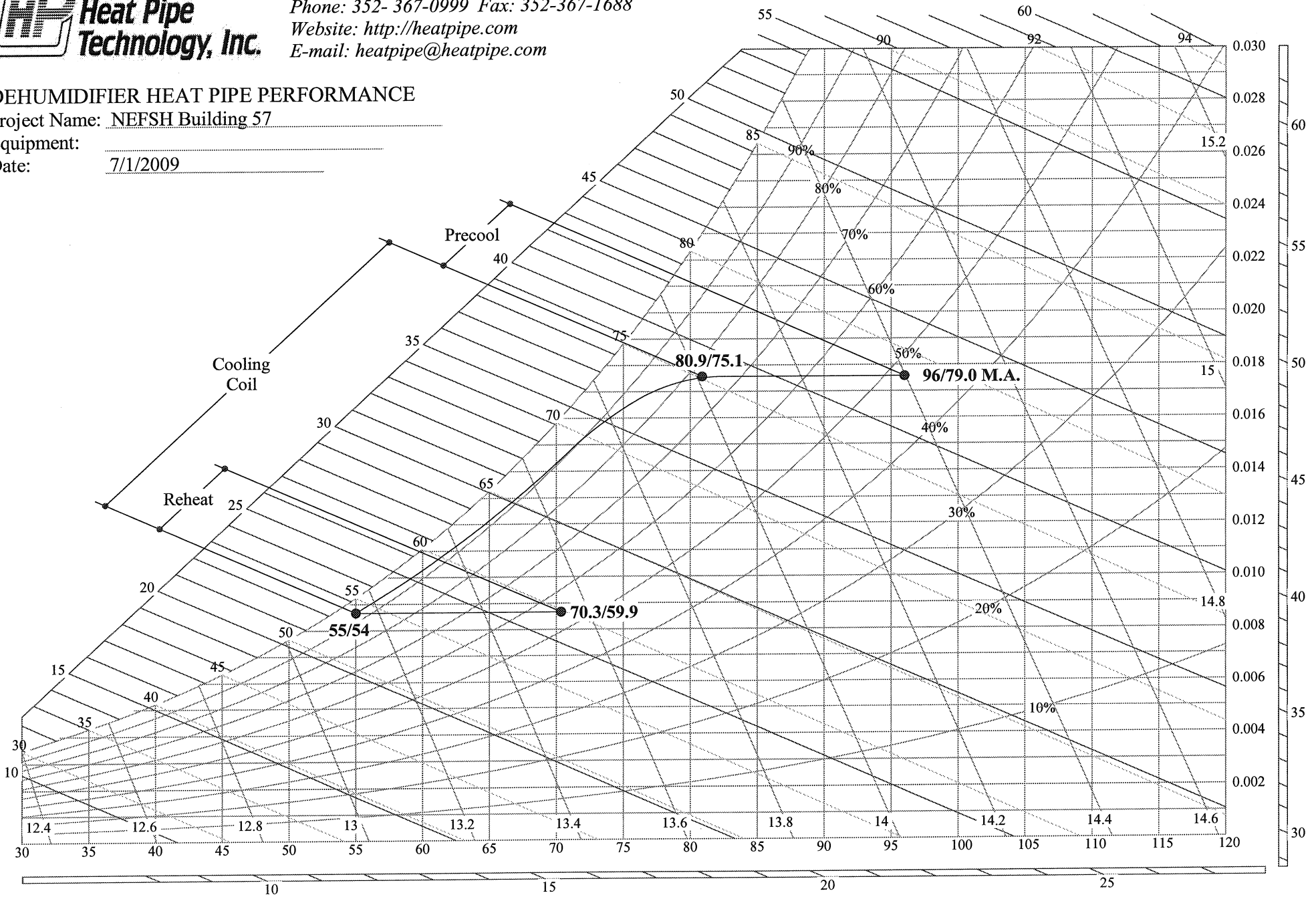
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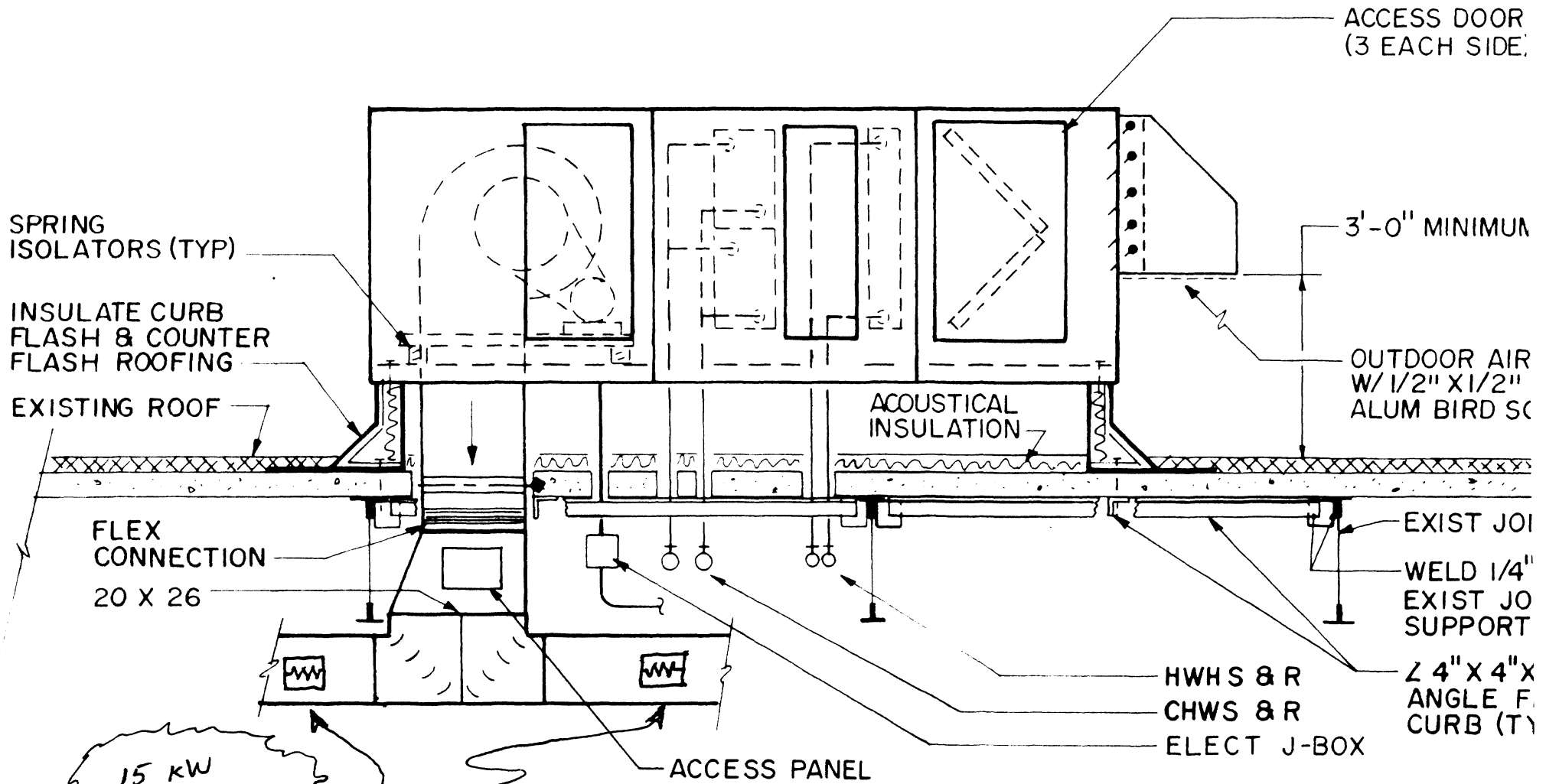


4340 NE 49th Ave. Gainesville, FL 32609
 Phone: 352- 367-0999 Fax: 352-367-1688
 Website: <http://heatpipe.com>
 E-mail: heatpipe@heatpipe.com

DEHUMIDIFIER HEAT PIPE PERFORMANCE

Project Name: NEFSH Building 57
 Equipment: _____
 Date: 7/1/2009

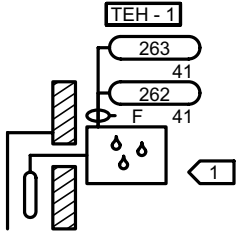




15 KW
ELECTRIC
STRIP HEAT
(RETROFIT)

**BLDG. 57 ~~NEW~~ ROOFTOP
100% OA AIR HANDLING UNIT**

SCALE: NONE



BLDG-57 OA AHU

