

INSULTECH[®] ENERGY SURVEY SERVICES

Thermal Blanket Insulation



UNIV. CAMPUS – MECHANICAL ROOM
 Steam Reducing Stations
 Design: LT450TT - 1.5" thickness
 Fastener: "D" Ring Straps



BUILDING MECHANICAL ROOM
 Steam Condensate Tank
 Design: LT450TT - 1.5" thickness
 Fastener: Stainless Steel Wiretwists



BOILER HEAD
 Design: Steam Drum Retrofitted with Blanket
 Fastener: Stainless Steel Wiretwists



INSULTECH[®]

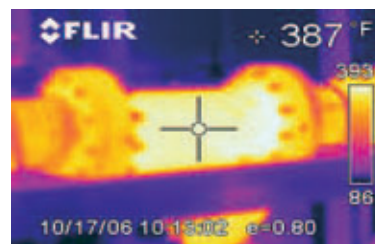
THERMAL BLANKET INSULATION

Introduction: *INSULTECH*[®] Blanket Insulation recently has introduced an insulation program, designed to improve insulation performance on existing steam systems, whereby the existing insulation has been removed and never replaced. *INSULTECH*[®] Blankets are proposed for these problem insulation areas for the purpose of immediate energy savings, with the many benefits of quick installation, quick removal and quick reinstallation. These problem insulation areas can now be addressed with a highly functional insulation system.

A Unique Insulation System: *INSULTECH*[®] Thermal Blanket Systems are now offered for the purpose of "Energy Savings" on steam valves and fittings. *INSULTECH*[®] Thermal Blanket is a high quality insulation, custom fit to match Gate Valves, Pressure Reducing Valves, Flanges, Strainers, Steam Traps, Heat Exchanger Heads, Boiler Heads, PRV Stations, Condensate Pumps and similar equipment. This blanket system is CAD designed to match each and every fitting. We guarantee the fit and the blanket will carry an 18 month warranty.

Payback on Investment is about 1 Year: A typical Energy Survey will show a payback period on investment of roughly 1 year. The enclosed Energy Survey Proposal shows an initial investment of \$23,523.25. A Payback Period of 8.24 Months. An Annual Savings of \$36,199.86 per Year and a Lifetime Savings of \$519,474.65. See 'Energy Survey Sample' on back cover.

Added Benefits: The *INSULTECH*[®] Blanket System will improve your steam system efficiency. Also, consider the lowering of ambient temperature in mechanical rooms, tunnels, manholes and the general work environment. *INSULTECH*[®] Blanket Systems will reduce the possibility of employee burns from steam fittings.



(Before) Bare Y Strainer



(After) Blanketed Y Strainer
 "Thermal Imaging Photography"

INSULTECH®

Thermal Blanket Insulation



HW REHEAT BOILER Exchanger Head, Valves & Fittings

Design: LT450SS - 1.5" thickness
Fastener: Stainless Steel Wiretwists



STEAM CONDENSATE PUMP & RECEIVER

Design: LT450TT - 1" thickness
Fastener: Stainless Steel Wiretwists and Velcro® Flaps



MAIN MECHANICAL ROOM – HP STEAM SUPPLY PRV STATION

Design: LT450TT – “Yellow” PTFE Fabric
Fastener: Stainless Steel Wiretwists and Velcro® Flaps

SHANNON ENTERPRISES OF W.N.Y. INC. INSULTECH® THERMAL BLANKET INSULATION

Re-install the blanket just one time and it has paid for itself: INSULTECH® Blanket Systems are a practical solution to problem insulation areas. If the blanket once installed is removed just one time, the blanket cost is justified by the cost associated with reinstallation of other insulation materials. The blanket can be removed and reused numerous times. The blanket will also minimize down time associated with reinsulation and removal. Blankets can be removed and reinstalled in minutes vs hours, for other insulation materials.

How do we initiate an Energy Survey? Your Project Representative will contact Shannon Enterprises to arrange a site visit. A Shannon Sales Engineer will meet with the customer and the Project Representative at the site to “Walk Through” the steam system. The Shannon Sales Engineer will tally a descriptive list of likely candidates for insulation. In essence, a “Shopping List” of fittings, valves, flanges and equipment. The survey may be 140 fittings or many many more depending on the extent of work required and the size of the system. Also, the survey may require added site visits to make sure that the proposal is inclusive of all the opportunities. We search for surface temperatures greater than 250 F.



BOILER ROOM – FEED WATER PUMP, PIPING & VALVES

Design: LT450SS - 1.5" thickness
Fastener: Stainless Steel Wiretwists and Velcro® Flaps

Energy Conservation Safety Noise Reduction

ENERGY SURVEY SERVICES

Installation: The Energy Survey Proposal will include installation. This assures the customer a quality fit and a blanket system installed in a timely fashion. The blanket system may be installed by an outside field service mechanic or by Shannon Enterprises. Either way, the blanket system will be retrofit to match to the existing insulation system with good thermal performance.



Valves & Fittings are Marked or Tagged & Measured for Design

What do we cover? The Energy Survey Proposal will include every opportunity on the steam system which represents a realistic payback, usually within an 18 month period. Our sole interest is "Return on Investment." The *INSULTECH*[®] Blanket System allows insulation considerations on piping, valves and equipment where otherwise bare surface conditions would be the norm. Our approach to Energy Savings is tangible, with a minimum 15 year service life and virtually no maintenance associated with the investment. The blanket is designed, manufactured and installed. All this can be completed as a "Turn-Key" Project. The *INSULTECH*[®] Blanket can be removed and reused for an estimated 15 year service life.



MECHANICAL ROOM – INSTANTANEOUS STEAM TO HOT WATER HEATER & CONTROL VALVE

Design: LT450TT - 1.5" thickness
Fastener: Stainless Steel Wiretwists and Velcro[®] Flaps



HIGH PRESSURE STEAM EXPANSION JOINT & PIPING

Design: LT450STF20 (Wet Manhole Design)
Fastener: Side Release Buckle Straps



BOILER ROOM – MAIN HP STEAM HEADER GATE VALVES & VALVE BONNETS

Design: LT450TT - 1.5" thickness
Fastener: Stainless Steel Wiretwists and Velcro[®] Flaps



BOILER TOP – MAIN HP STEAM SUPPLY

8" 300# Stop Check & Gate Valve
Design: LT450TT - 1.5" thickness
Fastener: Stainless Steel Wiretwists and Velcro[®] Flaps

INSULTECH[®] ENERGY SURVEY SERVICES

Thermal Blanket Insulation

Energy Survey Sample

Presented By:	Shannon Enterprises of W.N.Y., Inc.	Survey Date:	10/23/13
Presenter Contact:	Frank Kovacs - Ph/Email: 716-693-7954 / fkovacs@shannonent.com	Proposal Date:	11/01/13
Project Name:	Sample Steam System Inc. - Anywhere, USA	Avg. Operating Hours per Year:	LT450TT
Project Contact:	Mr. Energy Manager - Ph/Email: 555-555-5555 / EnergyMgr@steamsystem.com	Fuel Cost (\$/mmBTU):	\$9.60
Survey Completed By:	Shannon Employee - Ph/Email: 716-693-7954 / info@shannonent.com	Steam Cost:	\$12.80
Quote / WO#:	123456	Typ. Insulation Thickness (In.):	1.50

QTY	Tag #	Description / Location	Ambient Temperature	Operating Hours	Bare Heat Loss (BTU/Hr)	Bare Oper. Cost (\$/Year)	Insulated Heat Loss (BTU/Hr)	Insulated Oper. Cost (\$/Year)
Main Boiler Room								
3	1,7,13	Gate/Globe Valve, 300#	90	8760	61236	\$6,866.27	5390	\$604.33
3	2,8,14	Stop Check Valve, 300#	90	5834	78019	\$5,826.10	7752	\$578.86
6	3,4,9,10,15,16	Steam Drum	90	5834	32448	\$2,423.06	3648	\$272.42
6	5,6,11,12,17,18	Mud Drum	90	5834	32448	\$2,423.06	3648	\$272.42
Steam Header								
6	19-24	Gate/Globe Valve, 150#	90	8760	51418	\$5,765.35	5781	\$648.18
4	25-28	Gate/Globe Valve, 150#	90	8760	23396	\$2,623.33	2630	\$294.93
2	29,30	Flange, 150#	90	8760	30958	\$3,471.31	3481	\$390.27
Steam Tunnel								
6	31-36	Exp. Joint, Single,	90	8760	35094	\$3,934.99	3945	\$442.40
4	37-40	Gate/Globe Valve, 150#	90	8760	23396	\$2,623.33	2630	\$294.93
3	41-43	Blind Flange Cap,150#	90	8760	5217	\$584.93	586	\$65.76
PRV Station to DeAerator (120 psi to 30 psi)								
1	44	Strainer,150#	110	8760	5399	\$605.38	607	\$68.06
1	45	Regulating Valve, 150#	110	8760	4699	\$526.91	463	\$51.95
1	46	Gate/Globe Valve, 150#	110	8760	5399	\$605.38	607	\$68.06
1	47	Flange, 150#	110	8760	3260	\$365.58	367	\$41.10
1	48	Gate/Globe Valve, 150#	110	8760	3712	\$416.20	366	\$41.03
PRV Station to HW Tank (30 psi to 15 psi)								
1	49	Strainer,150#	80	8760	2920	\$327.45	288	\$32.28
1	50	Regulating Valve, 150#	80	8760	2846	\$319.09	327	\$36.62
1	51	Gate/Globe Valve, 150#	80	8760	2920	\$327.45	288	\$32.28
1	52	Gate/Globe Valve, 150#	80	8760	1853	\$207.80	183	\$20.49
1	53	Gate/Globe Valve, 150#	80	8760	2148	\$240.86	247	\$27.64

Annual Energy Savings Summary		
Total Heatloss - Bare (BTU/HR):	3,162,801,327.35	
Total Heatloss - Insulated (BTU/HR):	334,687,259.96	
Heatloss Savings - w/ INSULTECH®:	2,828,114,067.39	

Detailed Financial Analysis		
Total Operating Cost per Year - Bare:	\$	40,483.86
Total Operating Cost - w/ INSULTECH®:	\$	4,284.00
Cost Savings - w/ INSULTECH®:	\$	36,199.86
Total Blankets / Blanket Assemblies:		53
INSULTECH® Blanket System Cost:	\$	21,363.25
Estimated Labor to Install:	\$	2,160.00
Total Project Cost:	\$	23,523.25
Payback (Months):		8.24
Lifetime Savings (15 Year Life):	\$	519,474.65

Heatloss Calculation	
Q = K (DT) / L + (K / Ht)	
Q = Heatloss (BTU/Hr. / Sq. Ft.)	
K = Bare Thermal Conductivity (STL and C.I. = 26.9)	
K = Insulated Thermal Conductivity (T.M.@300°F = .525)	
L = Insulation Thickness	
DT = Surface Temp - Ambient Temp.	
Ht = Combined Coefficients (300° F. = 3.2)	
(Radiation, Convection, & Conduction)	

Natural Gas (mm BTU)		2,828.11
CO2 (Tons)		165.59
NOx (lbs)		424.33
N2O (lbs)		6.13
SO2 (lbs)		1.59
PM10 (lbs)		5.22
VOC (lbs)		15.22
CO (lbs)		67.92
# 6 Fuel Oil (mm BTU)		2,828.11
CO2 (Tons)		252.60
NOx (lbs)		1,111.48
N2O (lbs)		*
SO2 (lbs)		3,170.21
PM10 (lbs)		201.94
VOC (lbs)		32.48
CO (lbs)		101.09
* (Amount is less than 0.05 lbs)		

Emission Savings

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Representation By:

