

ENERGY REDUCTION OPPORTUNITIES

Reduce Bldg Exhaust Volume

Exhaust fan control bldg 2 maintenance – damper for winter use
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Shut off roof ventilators above dryer hoods –Boxboard

Bldg 8 basement exhaust – shut off – use as a natural draft intake
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Bldg 7 basement exhaust – shut off – use as a natural draft intake
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Improve air flow from bldg 130 to 111

Vent screw press exhaust building air inside building 14, or hoods and slow fans down

Bldg 121A ink room exhaust fan - Shut off

Throttle machine exhaust fans (VFD on Exhaust Fan)
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Bldg 7 and 10 3 rd floor exhaust – shutter unneeded exhausts

Improve Air Make Up Volumes

Shut down or reduce air make up to Box Board rejected fiber collection room

Introduce raw air to process warmed mill areas:

Cor Med Refiner Basement

BB bldg 8, 9 and 10 basement

Cor Med coat Hanger

Reduce Space Heating Loads

Shut off 4 of 6 radiators in Cor Med water room.
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Shut off 2/3 of the radiators in bldg 1.
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Shut off radiators behind tanks in bldg 111

Eliminate radiant heaters in 121 mezzanine break/ storage room
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Shut off / eliminate radiators on 3rd floor bldg 11

Shut off/ eliminate unit heaters on dock area of bldg 11A

Shut off selected unit heaters in Warehouse 1

Remove unit heaters from garage

Install smaller unit heater in grounds keeping garage stall

Eliminate heat to dock 7 in bldg 108 (4 unit heaters)

Eliminate unit heater in bldg 118 by web tanks
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All unit heaters shutdown but not physically removed from service must have traps drained and left with trap drains

Elevator penthouse heaters- Reduce or control. Also lock to ensure access closure.
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Leave heat off in baler building- Drain all systems back. Leave electric heater on in oil tank
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ENERGY REDUCTION OPPORTUNITIES

Upgrade or Install Pipe Insulation

Implement MN Tap study

Additional opportunities:

No. 4 mach outside roof

Cold soda outside roof

Engine room outside roof

Bldg south of webs

Under dock in gas room

Pipe chase to garage

Steam meter installations

Baler steam lines between bldg 132 and baler bldg

Bldg Insulation

Bldg 1 and 2 roof panel insulation

Bldg 121 window improvements

Bldg 122 window improvements

Reduce Heat Load From Air Make up Units
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Bldg 7 3 rd floor - Shutdown makeup air for this space
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Bldg 1 No. side - Shutdown makeup air for this space
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Bldg 129 No. pulper unit - shutdown makeup air for this space – requires distribution modification on So. unit
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Bldg 132 north unit - reduce heating load

Bldg 132 west unit - reduce heating load
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Bldg 121 cormed dry end mezz or minimize temp to 55

Bldg 8 – Main unit behind No.1 dryers

Improve Air Make Up Temperature Controls

Upgrade controls and modify air make up control schemes to control to building temperatures

Bldg 16 over pulper – Requires new steam source

Bldg 132 SE x 2

Increase temperature set back in mezzanine and carton offices to 45 degrees

Set all thermostats to an agreed to temperature and install locks on existing thermostats

Flash steam heat recovery – Vent steam air heating condensers
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Bldg 121 So. Pressure power pump

Bldg 121 No. basement flash tank

Broughton receiver (process)

Bldg 7 2nd floor

Bldg 1

Bldg 113 No. Side (under no. 4 mach) Basement- Tie to 10 lbs system

Bldg 111 (Cor Med Stock Prep) – supply new unit heater in bldg 129
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Assess feasibility of operating low pressure steam system in Cor Med-

ENERGY REDUCTION OPPORTUNITIES
Water Usage Reduction and Heating Opportunities
Mill Effluent
Reduce mill wastewater effluent flow.
Cor Med Vacuum Compressor Cooling Loop
Heat recovery on cooling loop will decrease evaporation and makeup water usage.
Non Contact Cooling Water
Reduce and / or recover non contact cooling warm water and inject it directly into process make up water pump suctions where feasible.
Eliminate water heating loop from No.5 wet end dryer receiver vent and direct flash steam to preheat PV air.
Replace bldg 121 water heater with electric on demand unit.
Other
Install / Adjust set back controls on no 1 machine steam system to reduce venting during web breaks. This will also allow for reduced venting off of Broughton receiver.
Expand low pressure steam system in bldg 2 from power plant water room
Add ceiling fans
Introduce heated air from No. 1 machine make up to the wet end of No. 1.
Introduce heated air from No. 2 machine make up to the wet end of No. 2.
Introduce warm air from No. 2 machine make up to mill shipping- approx 20,000 CFM
Recirculate IR exhaust on No. 2 machine to VA system
Assess feasibility of recirculating coater oven exhaust into No. 2 VA system
Assess feasibility of recirculating No. 1 coater oven exhaust into No.1 PM VA system
Reduce paper machine VA air temperatures to minimums- target 190- 200 degrees; by shutting coils off and/ or adding controls to modulate steam flow.
Recover heat from vacuum pump cooling loop
Evaluate vacuum pump efficiency- boroscope-repair replace as necessary
Assess and optimize sheet run modifications in press sections
Upgrade steam meter system for usage tracking and optimization
Assess and optimize dryer operating procedures in mills. Control box board machines to dryer exit temperature.
Install new dryers in No. 2 machine 4 th section to eliminate wet back edge which will reduce drying demand load.
Assess and optimize steam showers in Cor Med
Assess and optimize hydro heaters in Cor Med
Assess feasibility of heat pumps extracting latent heat from process sewers.
Recover heat in dryer hood exhaust to heat pocket ventilation air, general ventilation and reduce process heat loads