

**REDUCING HIGH SURFACE TEMPERATURES OF EXTERIOR A. C.
DUCTING
&
Eliminating A. C. unit overload shut-down and lowering Control Room
temperatures**

PROJECT

Concrete block Control Room is located within the Tender Shop Building of THE WEYERHAEUSER CANADA PULP MILL, Kamloops, B.C. Temperatures in the Tender Shop are a constant 43 deg. C to 52 deg. C (110 deg. F - 125 deg. F). Humidity is at approximately 95% all the time. Temperatures in the Control Room should ideally be at 25 deg. C (77 deg. F). Temperature in Control Room is maintained by an A.C. unit located on the roof of a structure adjacent to the Tender Shop. New Aluminum Ducting (60 X 60 cm/2'X 2'), suspended about 2 - 3 feet above the roof level, runs about 20 feet from the A.C. unit, entering the side of the Tender Shop. The ducting then runs, suspended, about another 70-80 feet to the control room.

PROBLEM

When ambient temperatures reach 30 deg. C to 40 deg. C (86 deg. F - 104 deg. F) during the summer months, surface temperatures of the ducting running where it runs across the roof, have been measured at 77 deg. C (170 deg. F)*. The result is warmer conditioned air and temperatures in the Control Room reaching 30 deg. C - 35 deg. C (86 deg. - 95 deg. F). The automatic shut-down of the A. C. unit due to overload and subsequent shut-down of the DCS (Electrical and Instrumentation Control Room) necessitated a stand-by, portable A.C. unit for Control Room to avoid DCS shut-down.

ATTEMPTED SOLUTION

At first, 2 1/2 cm (1 inch) fiberglass insulation board was installed on the interior walls of the section of ducting running across the roof. Lower temperatures in the control room were not experienced and surface temperature remained at 77 Degrees C (170 Degrees F.)!

WORKING SOLUTION

ProTek/USA's ProTek-ThermCote/IC a water-based insulating/reflective ceramic coating was sprayed onto the surface of the ducting section running across the roof at 0.7 mm (14 mils dry). With the ambient temperature at 32 deg. C (90 deg. F), surface temperatures of the ducting went from 77 deg. C (170 deg. F) to 32 deg. C (90 deg. F) and interior temperatures in the Control Room stabilized at 28 deg. C (82 deg. F), close to the ideal 25 deg. C (77 deg.F)! The coating also sealed all air leaks at the ducting joints.*

Plans are to also coat the ducting running through Tender Shop to the Control Room with ProTek/ThermCote/F, as well as the exterior walls and roof of the control room to further reduce the load on the A.C. unit.

* see 8/28/96 Weyerhaeuser Canada memo of Susan Dyer, P. Eng.