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Paper Machine and Room Ventilation Systems Guidelines

Scope

This Technical Information Paper provides an overview of principles and guidelines for designing and optimizing paper machine process air systems and room ventilation systems.

Safety precautions

Normal safety precautions should be taken when working around operating machinery, hot surfaces, and steam systems. Safe work practices should always be followed during evaluation, inspection and maintenance of these systems.

Application note

This Technical Information Paper provides general descriptions and guidelines for designing air systems and estimating airflow requirements for paper machine and machine room ventilation systems. Engineers with experience in paper machine and machine room air handling should be consulted for specific design work and to address specific operating problems.

Calculations are presented in both Imperial and SI units. Refer to Table 1 for Imperial to SI conversions. Two sample calculations are included at end of this TIP: one for a linerboard paper machine and one for a copy grade paper machine.

It should be noted that the cost of following these principles may appear high. However, the risk of not following these principles is far greater. Infrastructure repairs, higher operating costs, reduced machine room comfort, and lower production efficiency often result from deficiencies in the air and ventilation system design.

Ventilation principles

Purpose and benefits

Ventilation air is used to improve drying uniformity and capacity, improve the working environment, reduce maintenance of roof and building equipment, reduce product contamination, and extend process equipment life. Ventilation air represents a significant resource in the production of paper and board. The amount of air required to produce a ton of paper can be 75 tons or more, depending on the grade of paper.