THE HEAD LOSS RATIO IN CONDITIONED AIR DISTRIBUTION: CASE STUDY OF AN OFFICE BLOCK

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ABSTRACT

Total frictional losses and losses through fittings were calculated for index runs of low velocity conditioned air distribution ductwork in three floors of an office building. Within the range of lengths of index duct run utilized, it was found that the average fraction of the total head loss which constitutes that through duct fittings was 0.60. In an earlier study a regression model equation was derived for estimating the fraction of total loss due to duct fittings in terms of length of ductwork. The estimated fraction, using that model, for the average length of duct run of 28.18m utilized in the present case study was 0.64. The closeness of the two fractions gives some agreement between the results of this study and the earlier one. The determination of the fraction of head loss due to fittings is found useful for quick estimation of the total pressure loss in conditioned air distribution systems, and hence facilitating the fan selection process.

Keywords: Fittings loss fraction, air distribution, office building.