HVAC Worked Example Pack

Tool group: Cooling Load, TR to CFM, Fabric Duct Velocity

This worked example shows the expected input logic, result interpretation, and verification checks for a common MEP planning scenario.

Sample inputs

Input	Value
Room area	120 m2
Room height	3.2 m
Outdoor temperature range	38-44 C hot
Floor exposure	Top floor / roof exposed
Cooling load	18 TR
Supply air rule	400 CFM/TR

Expected result interpretation

Result	Planning interpretation
Cooling load capacity	Use the calculated TR as preliminary capacity before detailed heat-load software.
Supply airflow	TR x CFM/TR plus ventilation and margin gives the planning airflow.
Fabric duct velocity	Check inlet velocity and surface velocity against comfort limits and manufacturer data.

Verification notes

- Do not size final HVAC equipment from area alone.
- Confirm outdoor design conditions, occupancy, glazing, roof exposure, infiltration, and ventilation code.
- Use manufacturer selection for coils, fans, diffusers, fabric duct, and controls.

Official references to verify: ASHRAE, NFPA, IEC, IET BS 7671, ICC/IPC, CIBSE, local GCC/Saudi/UAE Civil Defense, and project specifications as applicable.