

CEN DUCTWORK STANDARDS. TC 156 WG 3 VENTILATION FOR BUILDINGS DUCTWORK

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ABSTRACT

This paper gives an overview of the work undertaken within CEN TC 156 WG 3 dealing with ductwork for ventilation in buildings.

KEYWORDS

Airtightness, Ductwork, European Standards, Working Group 3,

1 INTRODUCTION

CEN TC156 “Ventilation for buildings” deals with all aspects of ventilation for buildings. The scope covers the standardization of terminology, testing and rating methods, dimensioning and fitness for purpose of natural and mechanical ventilation systems and components for buildings subject to human occupancy; it includes both dwellings and non residential buildings.

Working Group 3 of CEN TC 156 deals with the following properties for ducts:

1. Airtightness at pressure level
2. Strength at pressure level
3. Resistance to external pressure
4. Surface area
5. Dimensions
6. Mechanical strength criteria
7. Pressure loss
8. Service temperature
9. Thermal resistance
10. Reaction to fire
11. Release of substances /Emission

2 ACTIVITIES AND TOPICS

The working group has been active in the past 25 years since 1989 with 2,2 meetings a year and the next meeting will be the 55th meeting in Paris. The group consists of ca 20 people and the participation varies between 8-15 persons from different countries, companies and branches like manufactures, test institutes, sales organizations and other comities.

The following extracts from WG 3's first meeting on 27th of April 1989 give the original intentions of the working group:

- To establish and define the various ductwork components used in ventilation of buildings and develop standards for aerodynamic and physical characteristics.
- To Establish standards for characteristics related to ductwork according to:
 1. Dimensions and tolerances.
 2. Definition of air tightness classes.
 3. Determination and presentation of air leakage.
 4. Establishing strength requirements for ductwork components.
 5. Determination, testing and presentation of strength of ductwork components.
 6. Determination and presentation of energy loss.
 7. Determination and definition of classes of corrosion protection.
 8. Identification of ductwork components.
- To establish a relevant, common terminology and illustrations for ductwork components.
- To take the hygienic aspect into consideration according to: "Provision of ductwork components for hygienic treatment of ventilation systems".
- Basic documents should be chosen in the following order, depending on availability:
 1. ISO Standards.
 2. Eurovent documents.
 3. National standards.
- Basic documents should be chosen in the following order, depending on availability:
 1. Dimensions and tolerances: ISO 7807, Eurovent 2/3, Eurovent 2/4.
 2. Definition of air tightness classes: Eurovent 2/2.
 3. Determination and presentation of air leakage: Eurovent 2/2, Eurovent document in preparation, based on Nordic standards, HVCA DW 143.
 4. Establishing of strength requirements: Eurovent document in preparation, based on Nordic standards, HVCA DW 143.
 5. Determination, testing and presentation of strength: Eurovent document in preparation, based on Nordic standards.
 6. Determination and presentation of energy loss: Test method in preparation by Cetiat.
 7. Determination and definition of classes of corrosion protection: Swedish document.
 8. Identification of ductwork components: HVCA document.

Most of these topics have been dealt with for the following duct systems:

1. Circular ducts made of sheet steel.
2. Rectangular ducts made of Sheet steel
3. Flexible duct
4. Ducts made of insulated duct board
5. Nonmetallic ducts.

The Working Group has produced a number of standards listed in the reference section below.

3 CONCLUSIONS

The world is getting more and more complicated and standards make it a little bit easier. The standards of CEN TC 156 Working Group 3 may not be very important for our life but they make it easier for the manufacturers to compete on equal conditions. They make perfect platform for more important standards for example the ones made to fulfil the Energy Performance for Building Directive and they are a small part of the European and National building legislation.

4 REFERENCES

- EN 1505:1997 Ventilation for buildings - Sheet metal air ducts and fittings with rectangular cross section - Dimensions
- EN 14239:2004 Ventilation for buildings - Ductwork - Measurements of ductwork surface area
- EN 12236:2002 Ventilation for buildings - Ductwork hangers and supports - Requirements for strength
- EN 12220:1998 Ventilation for buildings - Ductwork - Dimensions of circular flanges for general ventilation
- EN 13180:2001 Ventilation for buildings - Ductwork - Dimensions and mechanical requirements for flexible ducts
- EN 12237:2003 Ventilation for buildings - Ductwork - Strength and leakage of circular sheet metal ducts
- CR 14378:2002 Ventilation for buildings - Experimental determination of mechanical energy loss coefficients of air handling components
- EN 13403:2003 Ventilation for buildings - Non-metallic ducts - Ductwork made from insulation duct boards
- EN 12097:2006 Ventilation for buildings - Ductwork - Requirements for ductwork components to facilitate maintenance of ductwork systems
- EN 1507:2006 Ventilation for buildings - Sheet metal air ducts with rectangular section - Requirements for strength and leakage
- EN 1506:2007 Ventilation for buildings - Sheet metal air ducts and fittings with circular section - Dimensions
- EN 15727:2010 Ventilation for buildings - Ducts and ductwork components, leakage classification and testing
- EN 15780:2011 Ventilation for buildings - Ductwork - Cleanliness of ventilation systems

