TARiHTE DOĞAL HAVALANDIRMA, TARiHi BiNALARDA DOĞAL HAVALANDIRMA VE FiLTRASYONU

Havalandırma (Ventilation)

- Ventilation, ventilatio, ventus! Vind, loft, luft!
- "Havalandırma" kelimesi, 1660 yılında "kapalı bir alandaki kötü havayı yeni ve temiz havayla değiştirme" işlemi olarak tanımlanan rüzgar anlamına gelen Latince ventilatio'dan gelmektedir.

Havalandırma

- Ventilation, ventilatio, ventus! Vind, loft, luft!
- Hem rüzgar hem de çatı anlamına gelen İsveççe vind kelimesi de ventustan türetilmiştir. Eski İsveççe'de vind, bir binanın en yüksek kısmı, çatının altındaki cereyanlı olduğu yerdi. İsveççe'deki "çatı katı" kelimesi, İsveççe hava - luft ve koku - lukt için kullanılan kelimelerle de ilgilidir.

Orta Çağda Havalandırma

- Orta Çağ boyunca hava, ateş, toprak ve su ile birlikte dünyayı oluşturan dört maddeden biri olarak kabul edildi. Nefes almanın amacı, ateş ile dolu olan kalbi soğutmaktı. Dahası, şu anda, zayıf, durgun havanın hastalıklara ve hatta ölüme neden olan gizemli gazlar içerdiği yaygın olarak biliniyordu.. 1700'lerde kasabalar büyümeye başladığında ve konut koşulları daha sıkışık ve sıhhi çözümler yetersiz hale geldiğinde, sağlık sorunları giderek daha şiddetli hale geldi.

Madenlerde Havalandırma

- Madenler giderek daha derin derinliklere kazıldıkça bu kolaylıkla gözlemlendi. Madenciliğe devam etmeye yönelik ekonomik teşvikler, sonunda 1500'lerin ortasında bir dizi teknik olarak gelişmiş havalandırma çözümlerine yol açtı.

Havalandırma : İhtiyaç

- Hastalıkların hava yoluyla taşınmasının anlaşılması ile havalandırma ihtiyaçları çok hızlı arttı. 1700’ lerde, temiz havanın aslında bayat iç mekan havasından daha sağlıklı olduğuna dair bilimsel kanıtlar vardı. Kötü havanın ayrıca yüksek konsantrasyonlarda karbondioksit, nem içermesinin, insanlar, meşaleler ve yakıt lambaları gibi çeşitli kaynaklardan yayılan kirleticiler içerdiği biliniyordu.

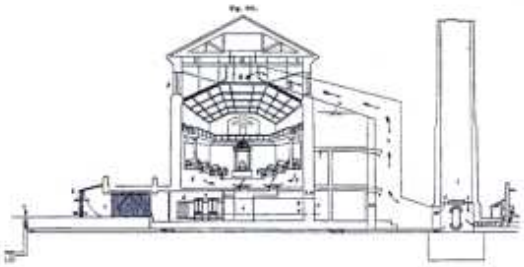
David Boswell Reid's Ventilation of the Houses of Parliament

Neil Sturrock and Peter Lawson-Smith

The Victorian Web literature, history, & culture in the age of Victoria

In October 1834, a serious fire destroyed most of the Parliament Buildings and when a Commons Committee was established to enquire into the ventilation and acoustics of a new building, Reid's work in Edinburgh was brought to its attention. A Temporary House of Commons was speedily erected to Reid's design with Lord Sudeley acting as architect.

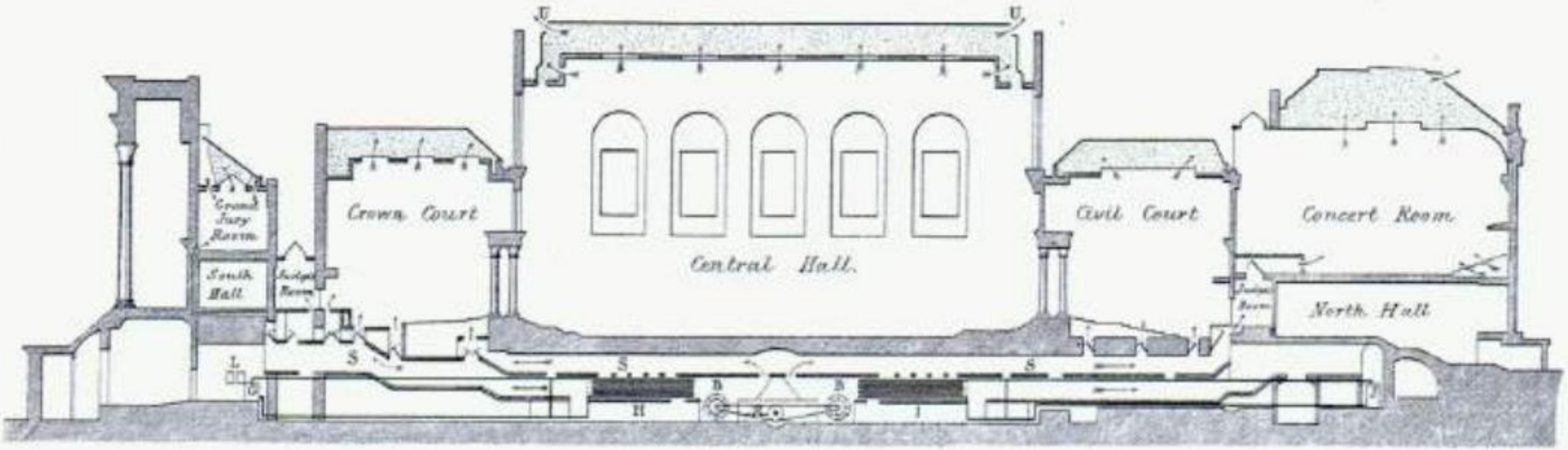
In the system employed in the Temporary House, which was actually in use for some fifteen years, air was drawn in from New Palace Yard (although Reid's original design involved the use of a high turret), whence it passed into a basement plenum chamber, where it was heated or cooled. The air then passed through numerous apertures in the floor, upwards through the Chamber and eventually into a false ceiling connected to a downcast shaft. The vitiated air then became the combustion air for a furnace at the base of a chimney 120 ft (36 m) high (fig.3). This was probably the first instance of what we would now call 'displacement ventilation'.



The temporary House of Commons. [Click on thumbnail for larger image]

Lord Sudeley, Chairman of the Commissioners who selected the design for the New Houses of Parliament, said in the House of Lords "The ventilation of the [Temporary] House of Commons was complete and perfect ' and the first plan of systematic ventilation ever carried out in this or any other country". In a written report he stated 'To the skill, zeal and determination of Dr Reid, it is owing that the members of the House of Commons can now pursue their senatorial duties without a sacrifice of either health or comfort. To him we owe the solution of the problem, that, by a proper system, ventilation may be obtained in the most trying and difficult circumstances' (Harris in Reid, 1858). In 1835, Sir Benjamin Hawes, Chairman of the Committee on Acoustics and Ventilation, which had originally recommended Reid's appointment, wrote to Reid 'You have facilitated public business, and prolonged the lives of public men' (Harris in Reid, 1858).

Fig. 1. *Longitudinal Section of St. George's Hall, Liverpool.*



Scale 1/200th.

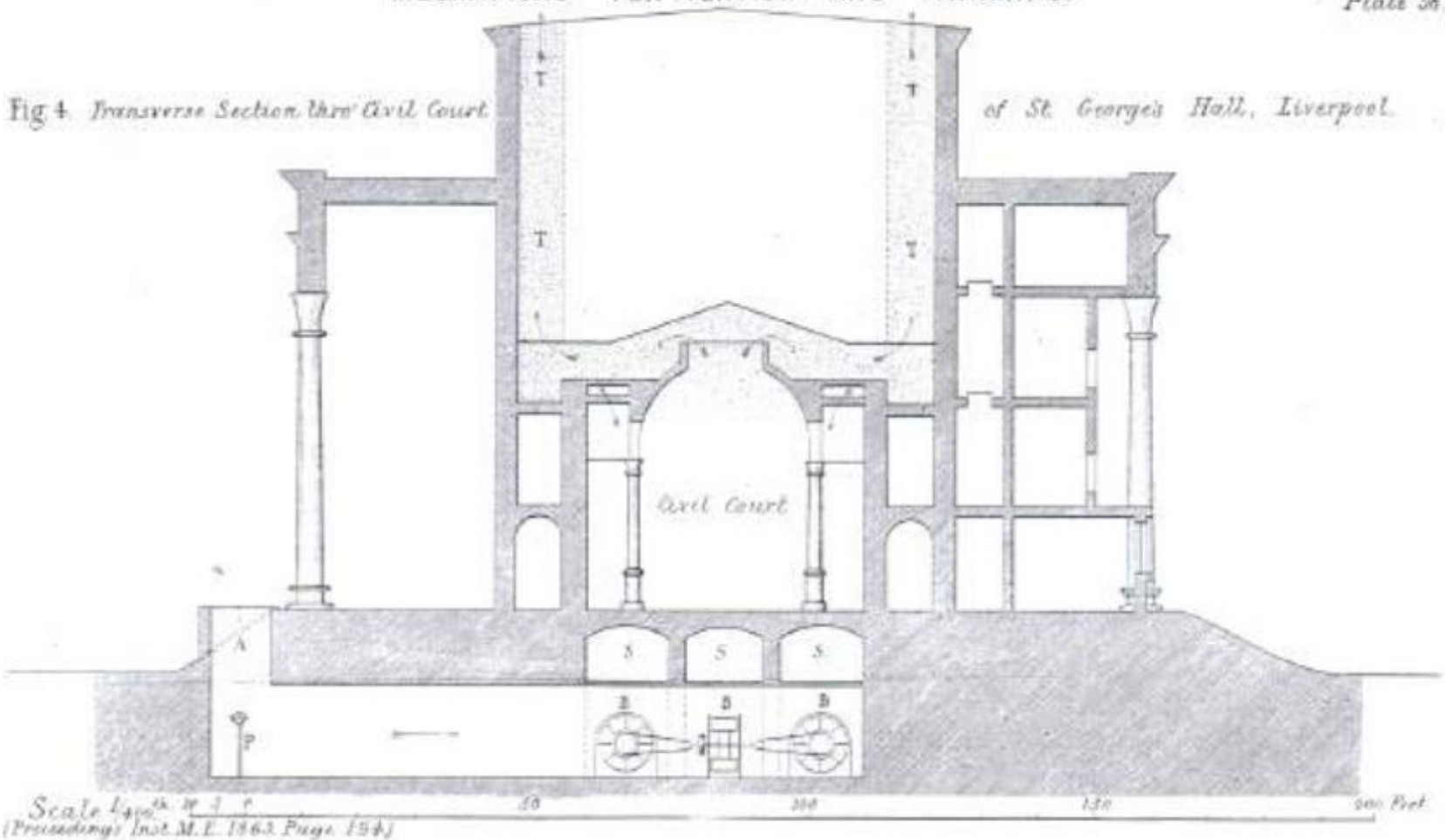
100 50 0 100 200 300 400 Feet.

(Proceedings Inst. M.E. 1863. Page 194.)

MECHANICAL VENTILATION AND WARMING.

Plate 56.

Fig 4. Transverse Section thro' Civil Court of St. George's Hall, Liverpool.

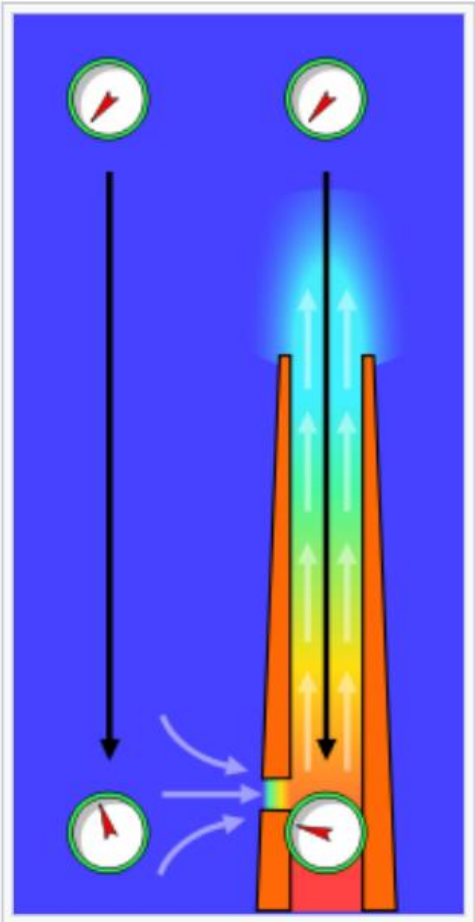


Scale 1/400th

(Proceedings Inst. M.E. 1863 Page 154)

Tarihte Havalandırma

Baca Etkisi



Tarihi Binalar

- Bazı tarihi yapılar veya arkeolojik alanlar söz konusu olduğunda, binanın tarihi bağlamını değiştireceği için özellikli mekanik hava filtrasyon sistemlerinin kurulması tavsiye edilmez. Böyle bir filtreleme sistemi, mekanik ekipman yeri , kanal sistemi vb gibi aksesuarlar nedeniyle sahanın fiziksel görünümünü değiştirebilecektir.

Pasif Havalandırma

- Bu nedenlerle tarihi binalarda pasif havalandırma ve filtrasyon sistemleri özellikle tercih edilmektedir.

Budist Tapınağı

Aerosol Science & Technology

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Passive Filtration of Airborne Particles from Buildings Ventilated by Natural Convection: Design Procedures and a Case Study at the Buddhist Cave Temples at Yungang, China

Christos S. Christoforou , Lynn G. Salmon & Glen R. Cass

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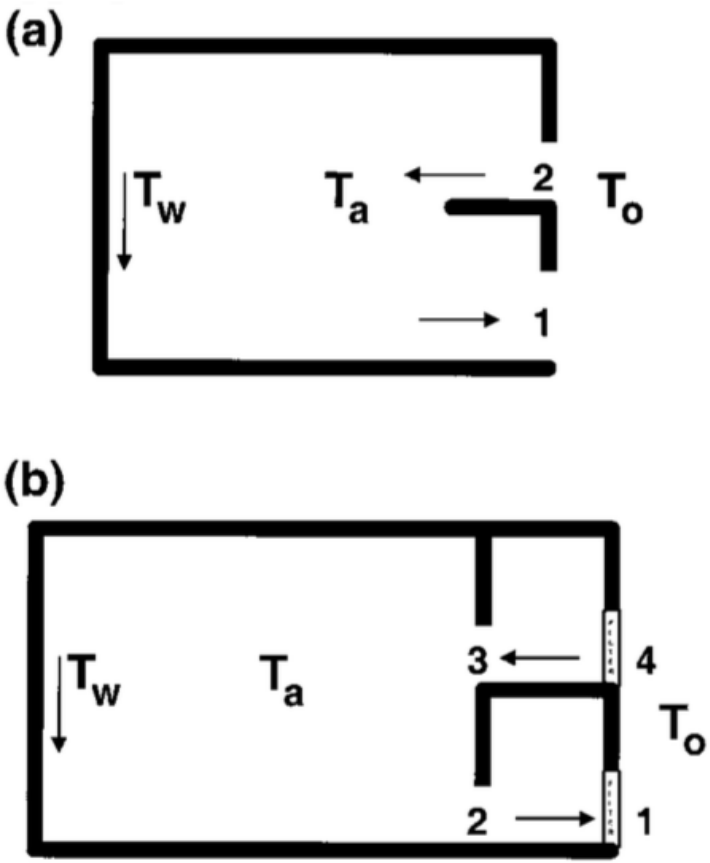
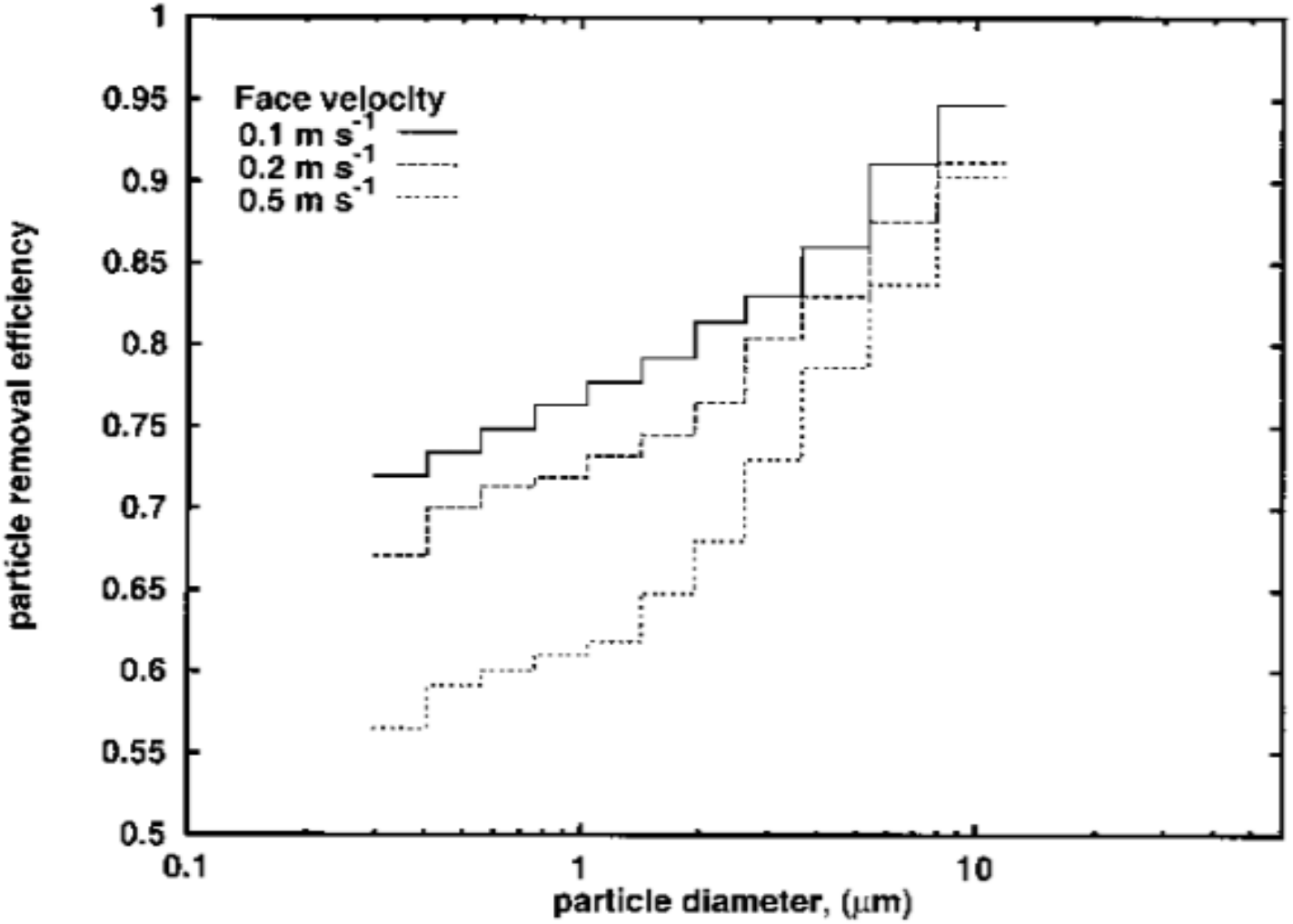
Pasif Hava Yönlendirme

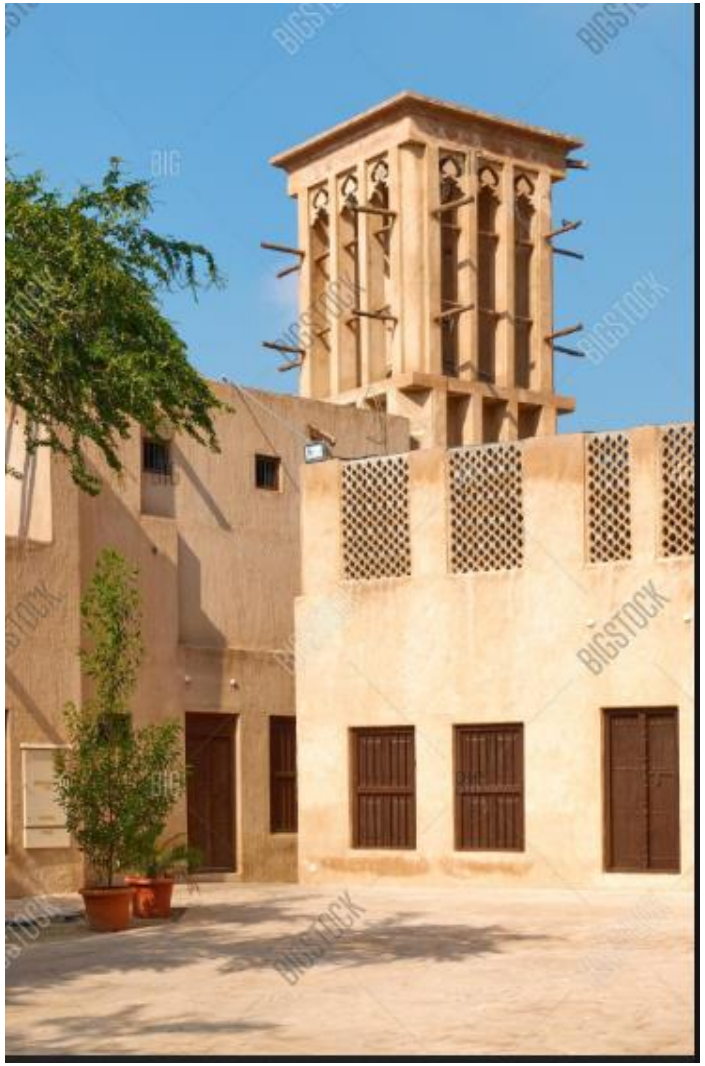


Partikül Büyüklüğü

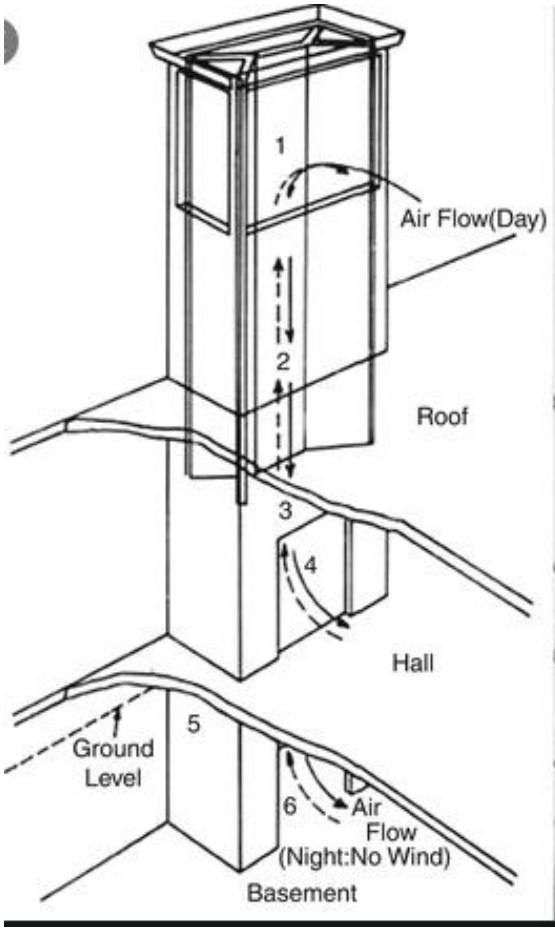


Doğal Havalandırma Tarihi

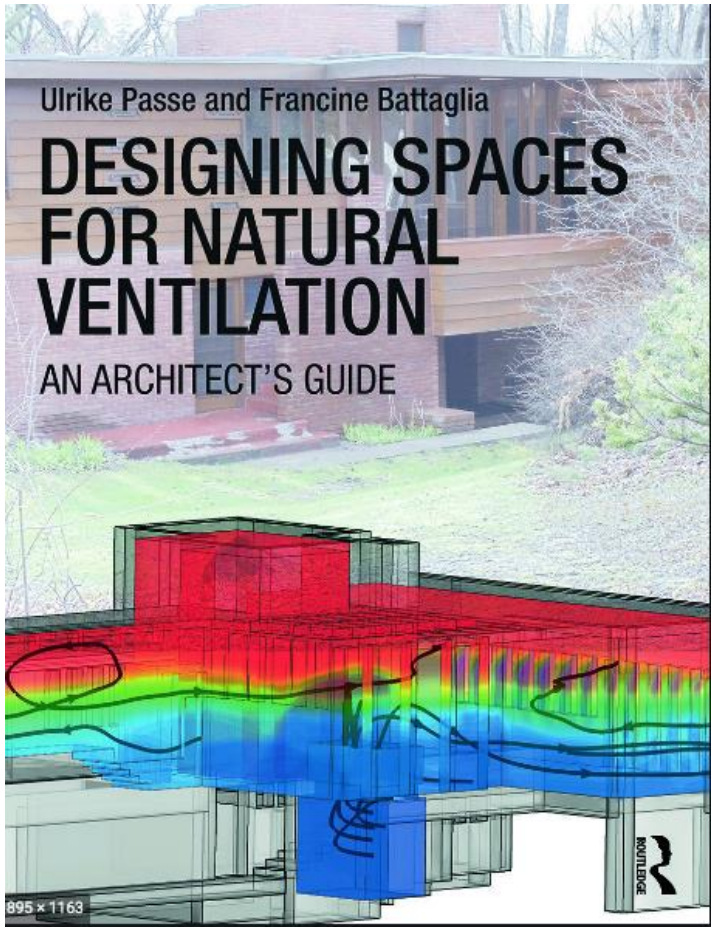
Rüzgar Bacaları



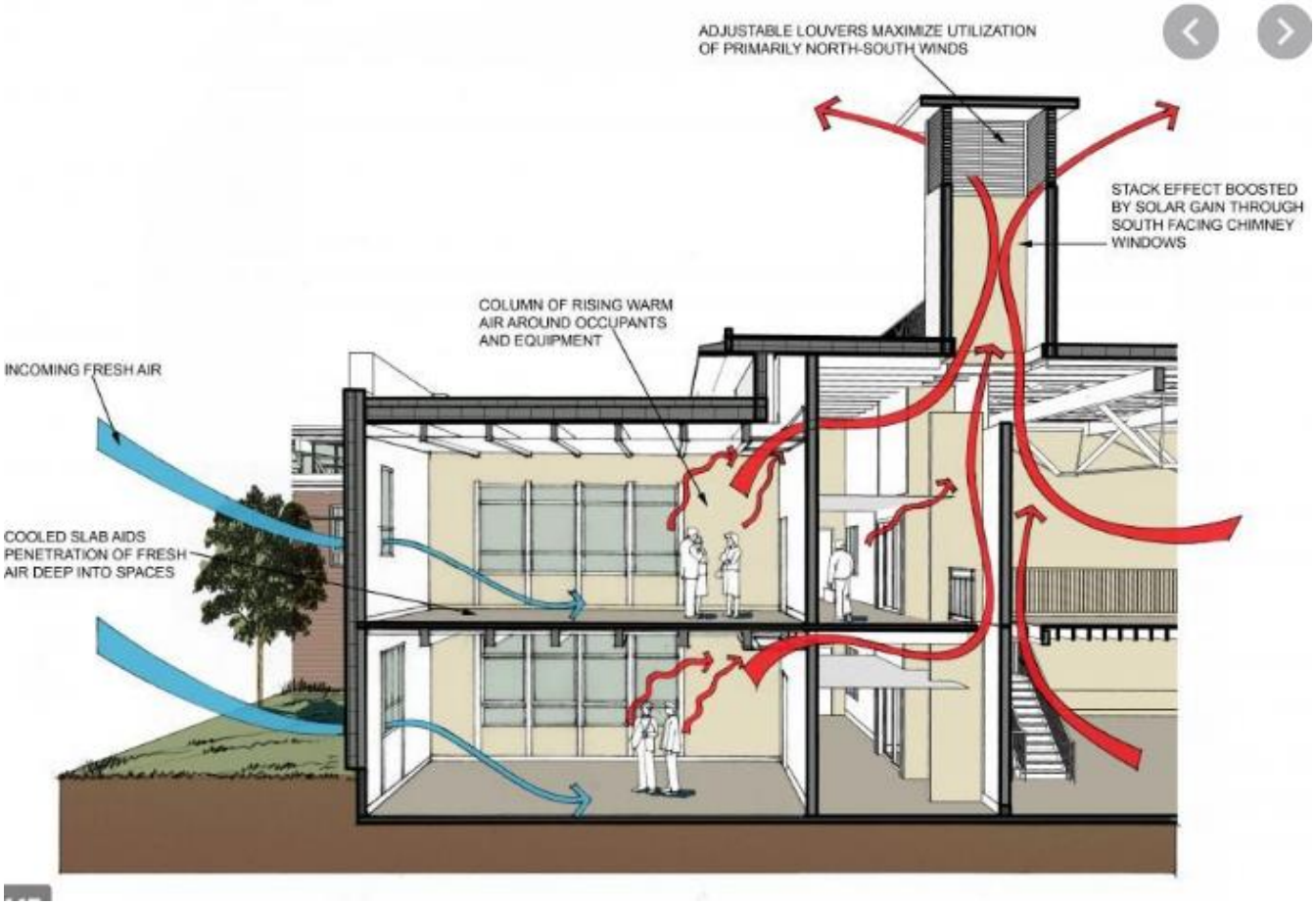
Hava Akış Yönü Değişikliği



Doğal Havalandırmaya Mimari Yaklaşım



Doğal Havalandırma Yolları



Doğal – Cebri Havalandırma

Taylor & Francis

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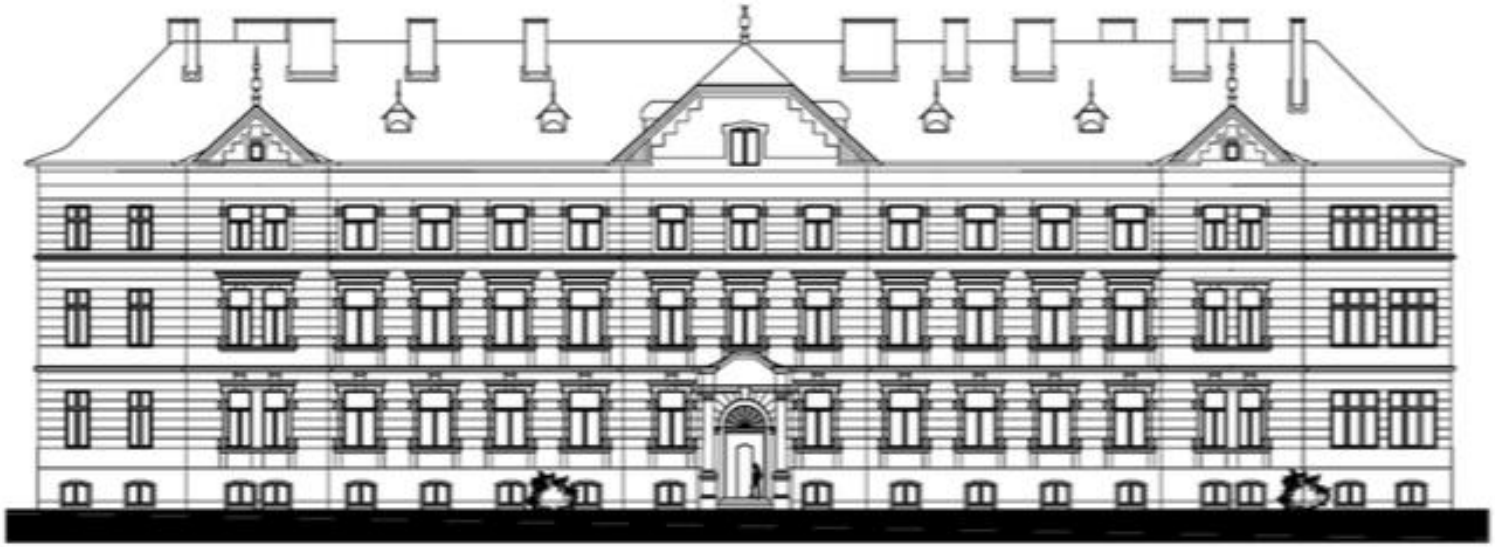
To link to this article: https://doi.org/10.1080/027868299304390

Slovakya 1908 Yapımı Bina



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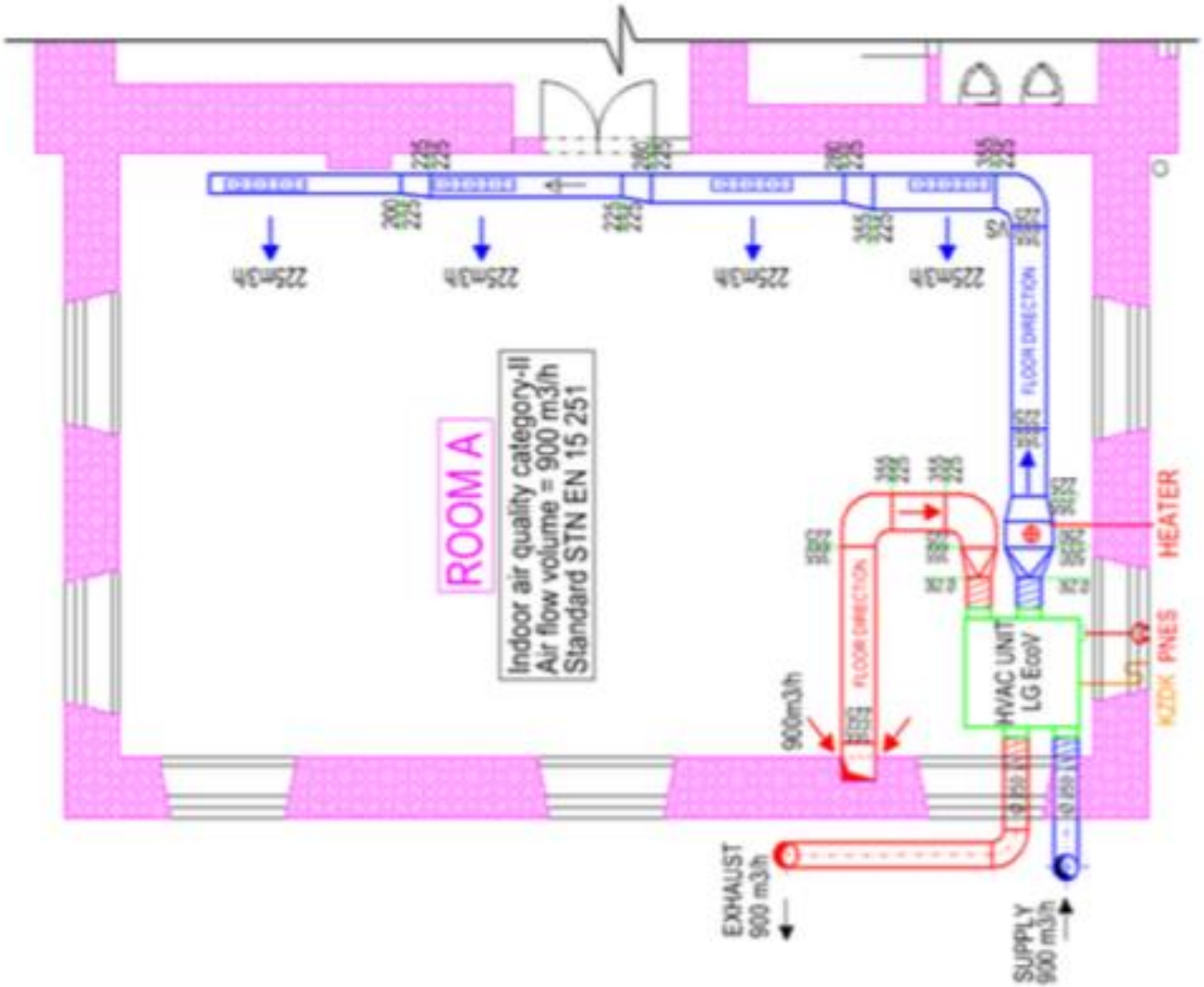
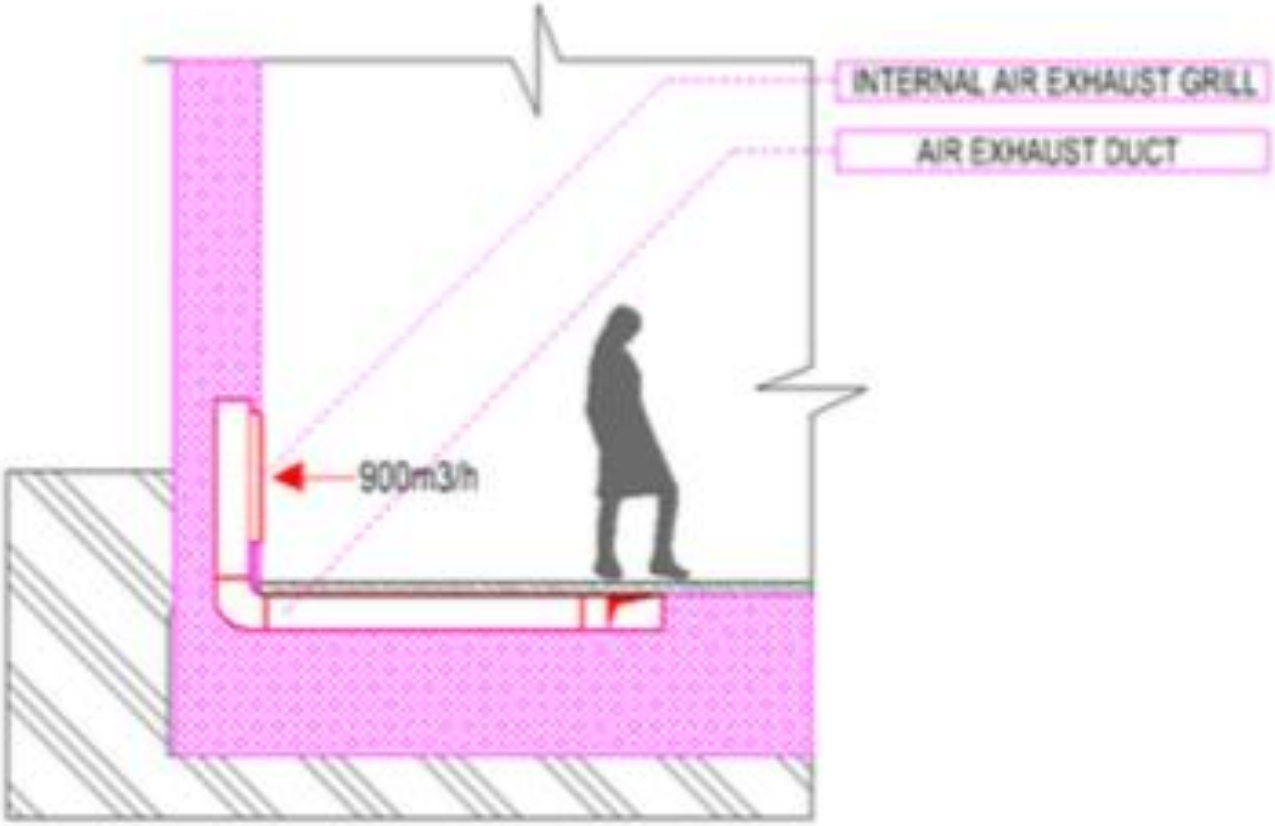
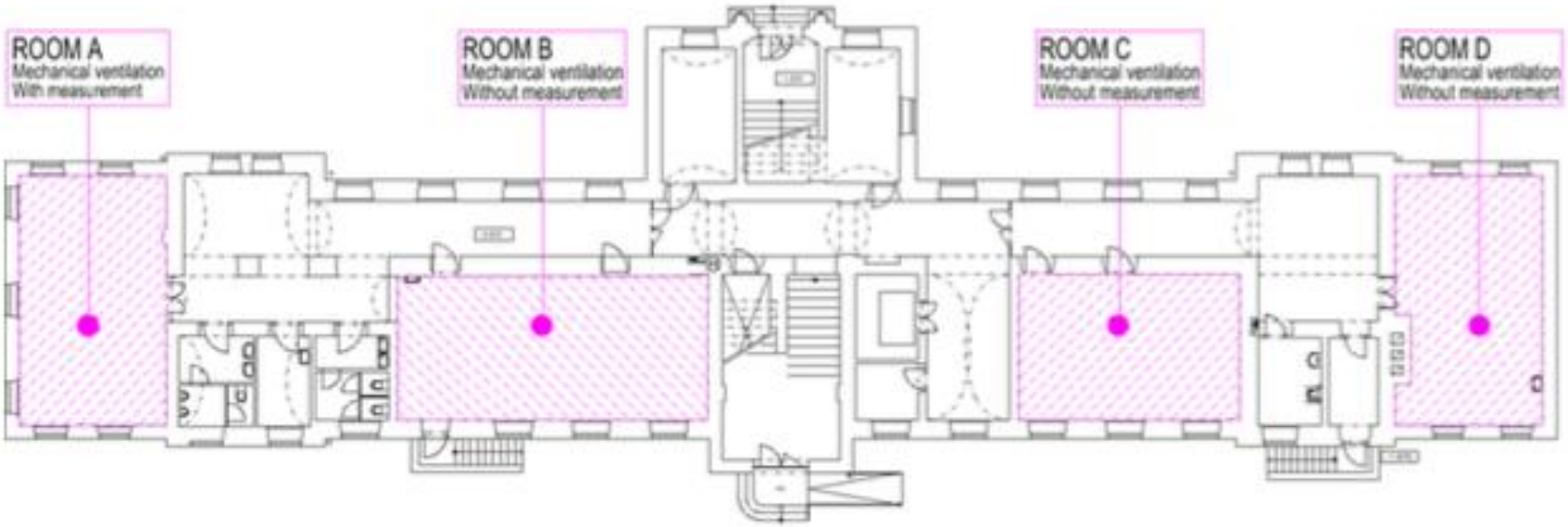


Hava Dağıtım Yolları



Ölçümler ve Alanlar



CO2 Konsantrasyonları

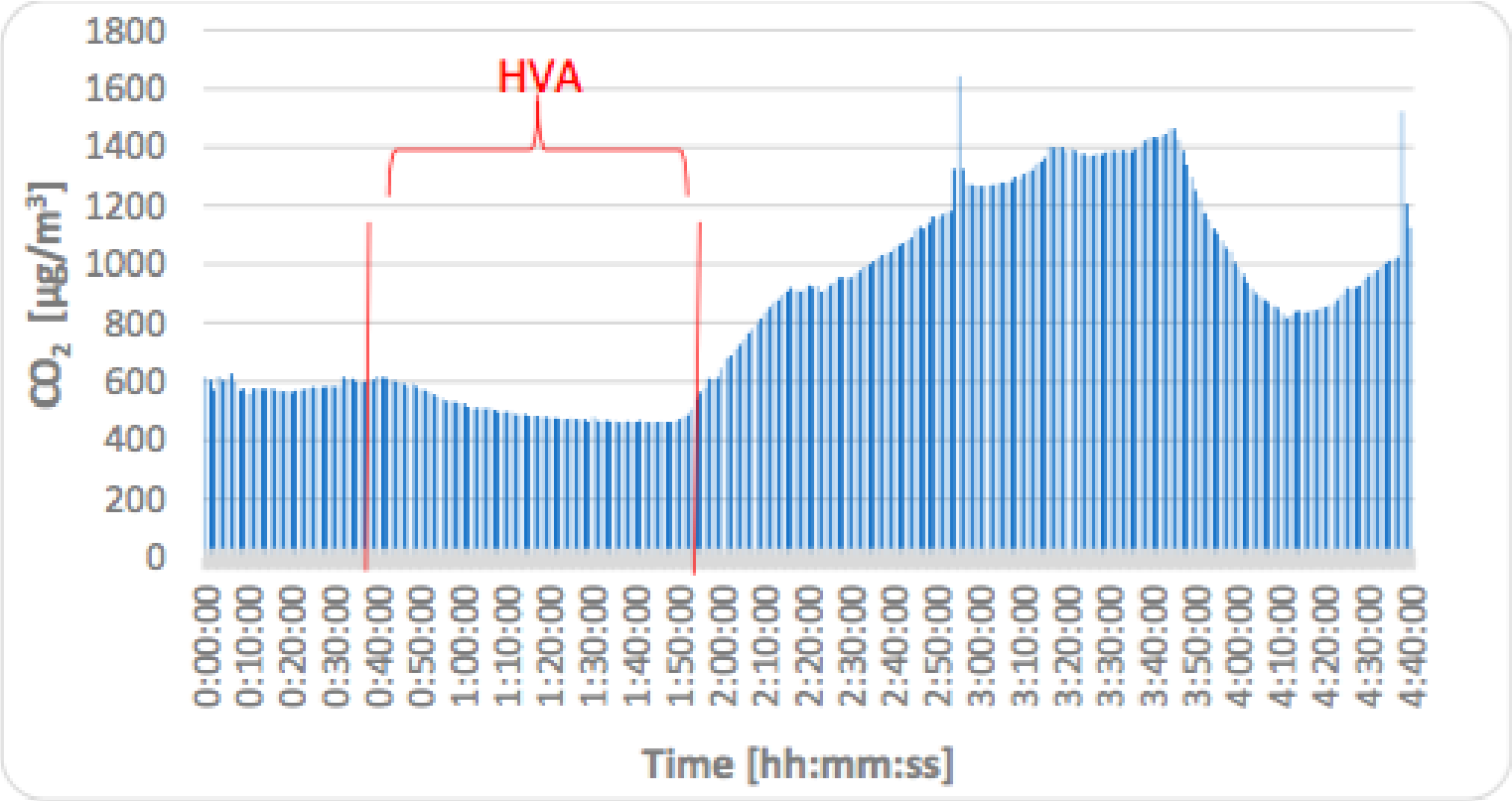


Figure 9. Course of measured concentrations of CO_2.

Partikül Sayısı

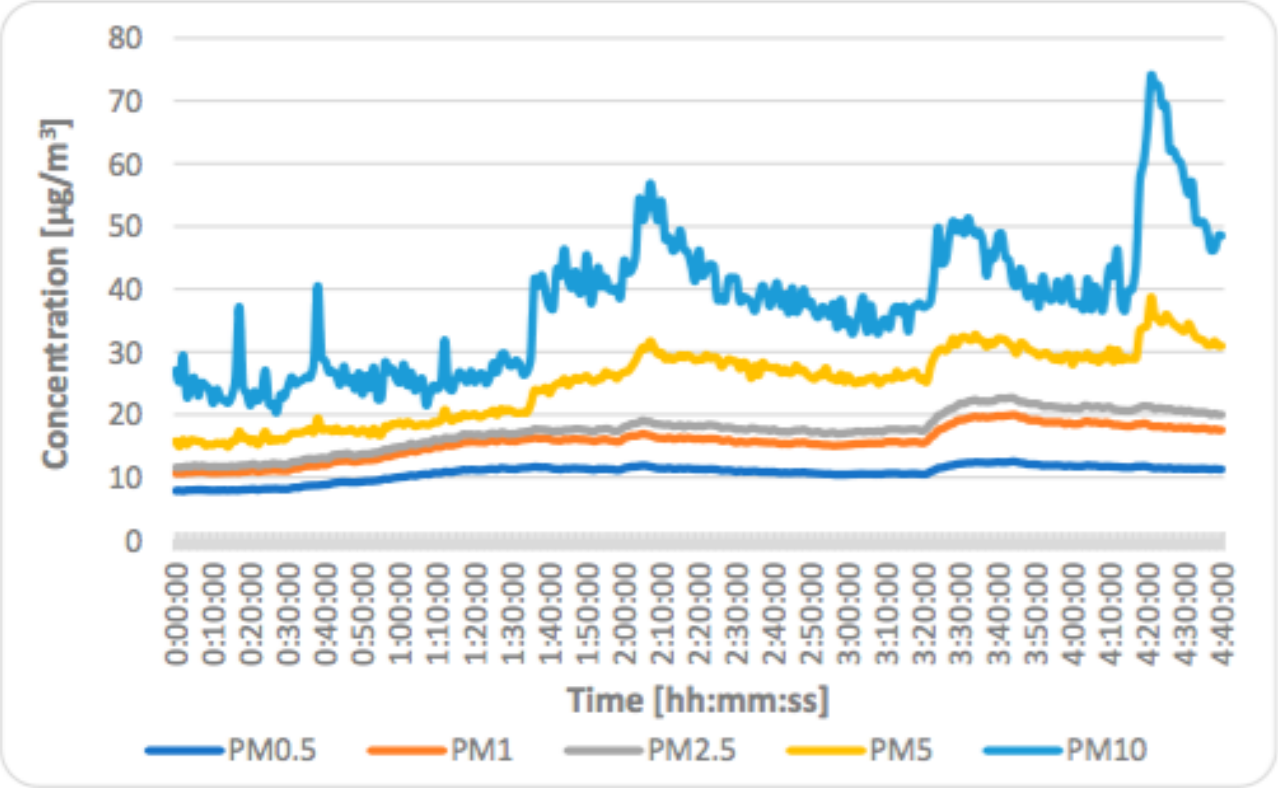


Figure 10. Course of dynamic changes of particulate matter concentrations.

- Teşekkürler
- Orhan Gürson
- GMDMOSKAY