



# *How You Can Impact the World Through Filtration*

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# **HOW YOU CAN IMPACT THE WORLD THROUGH FILTRATION**

**by**

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# **How did we get here?**

**A Look at the Past to View the Future:  
100 Years of Preparation for Exploiting  
the Opportunities Ahead for the Filtration  
and Air Cleaning Industry (FAC)**

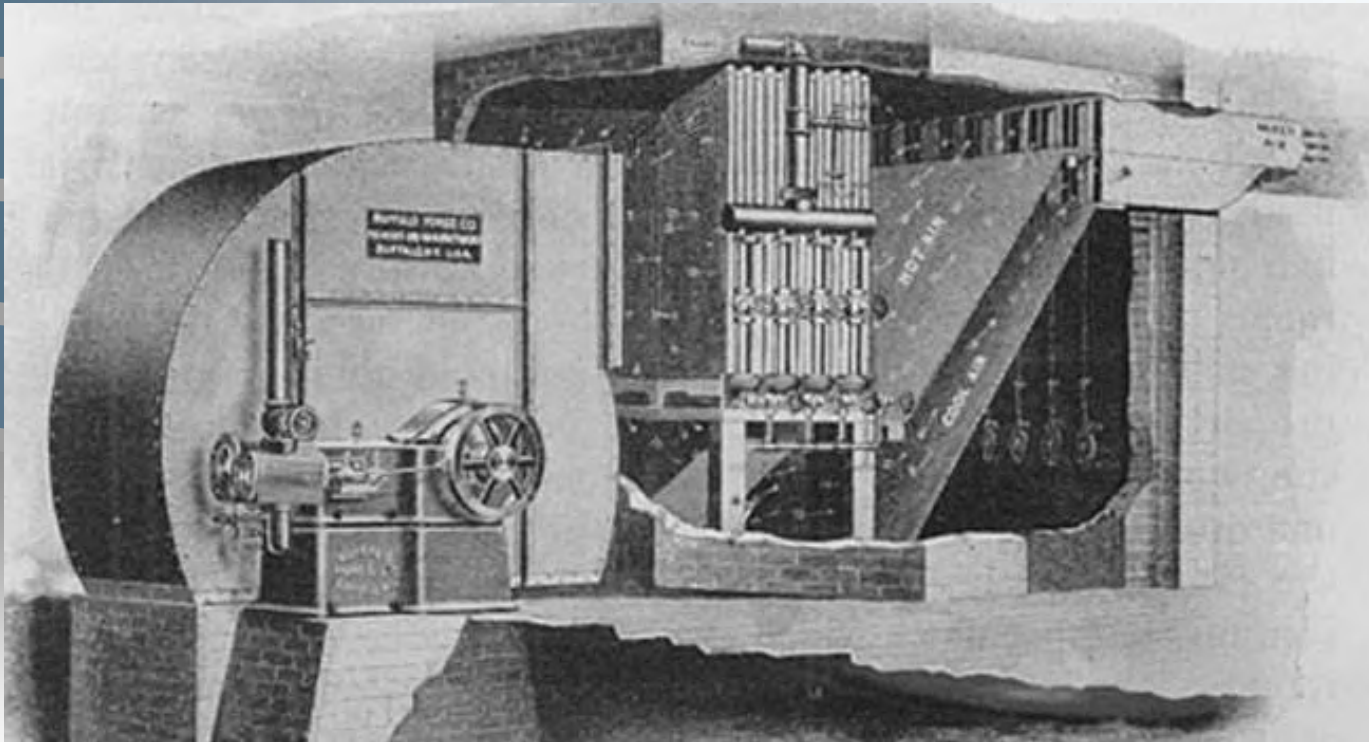
# Setting the Stage for Growth

- **A glance backward at the contributing players and drivers of invention and contribution to FAC**
- **Caveat: overview only—you can fill in the gaps with your own experience**
- **Caveat: names and brands are factual and not endorsements**

# 100 Years Ago: WWI—The Gas Mask (1918)

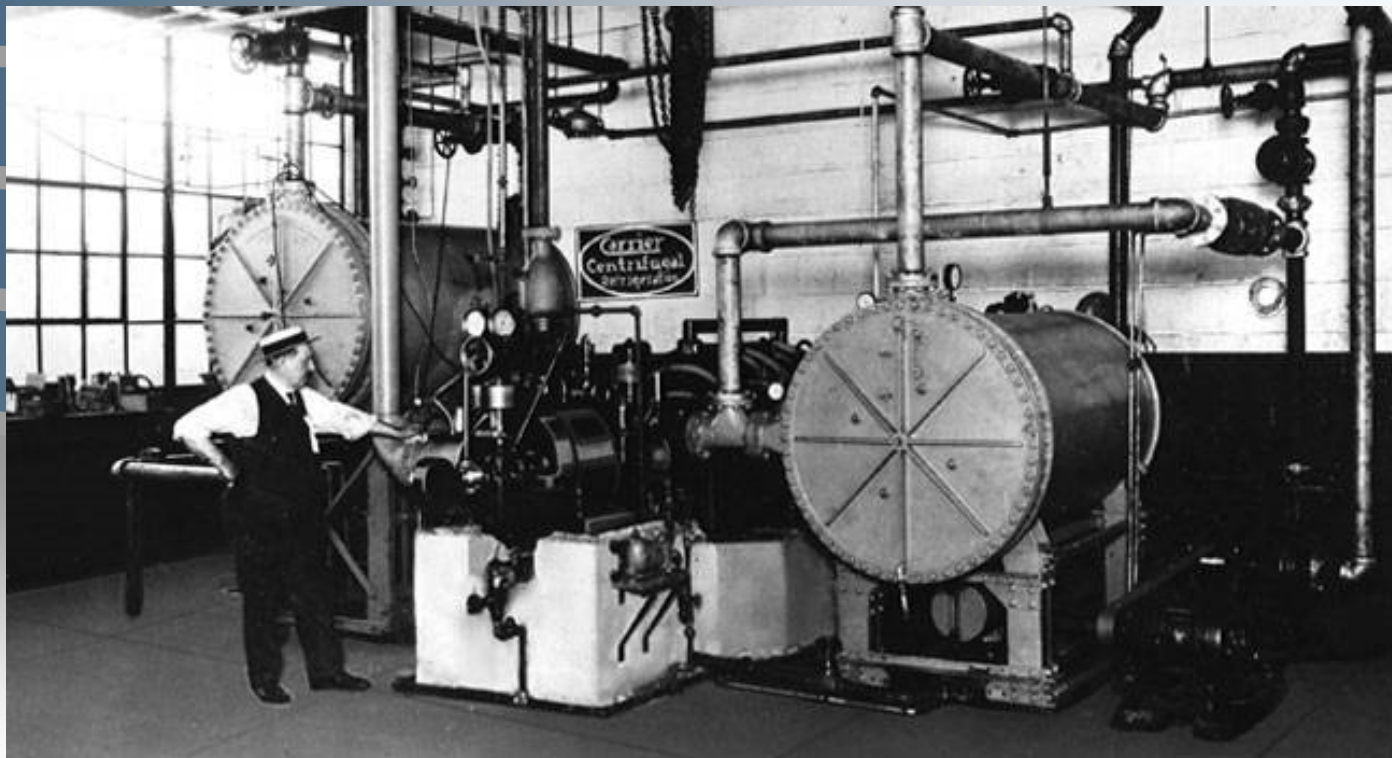


# 90 Years: the Carrier Healthy Air Machine (1902)





# Followed by the Centrifugal Moving Air Machine (1922)

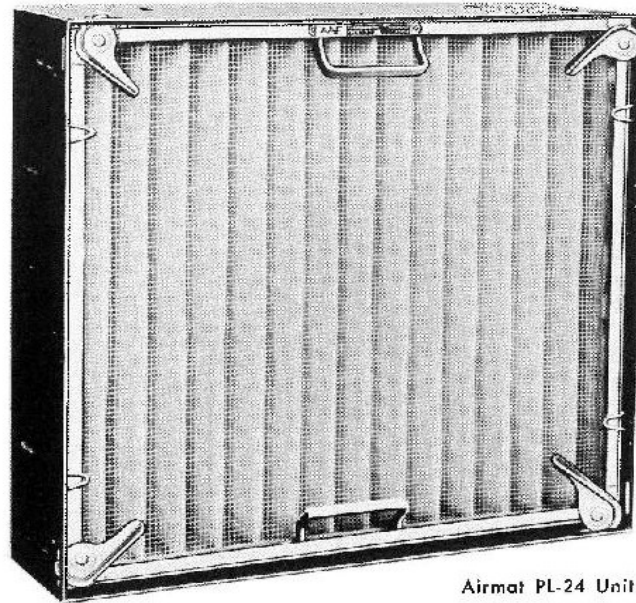


# 80 Years: “Fiberglas” Furnace filter (1936)





# 80 Years: Extended Media Filter—AAF PI-24 (1936)



## 80 Years: The NBS Test (1938)



# 70 Years: WWII—the HEPA and the HEGA (1943)



# 65 Years: Hill-Burton Act (1946)



# 60 Years: the Cambridge pocket filter (1963)





# 60 Years: the Farr J-12 Earliest Pleat

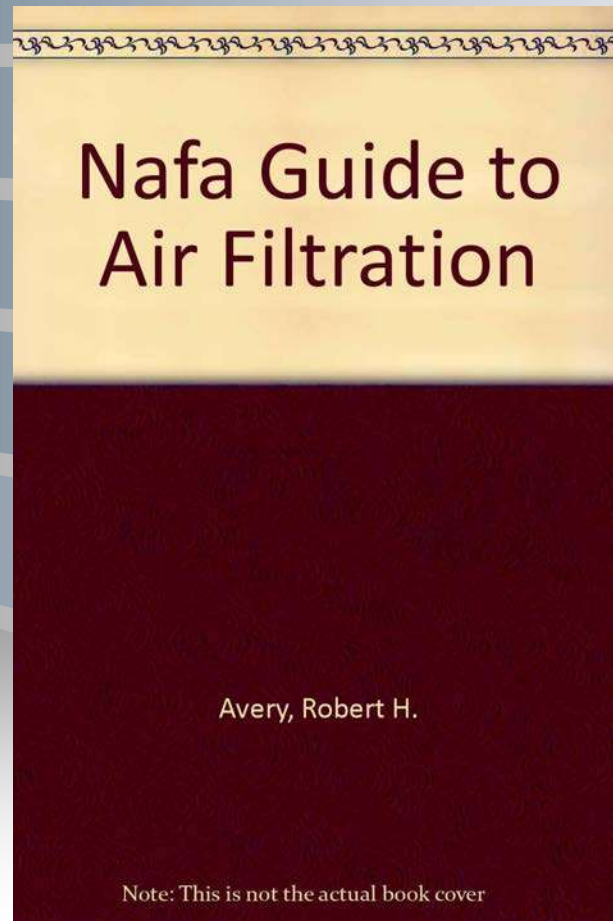
## (1963)



# 50 Years: Chemisorption/PURAFIL (1973)



# 40 Years: NAFA (1941)



# 35 Years: IAQ/SBS/Std. 62-89



## 25 Years: the Mini-Pleat





## 20 Years Standard 52.2-1999



# **Within Memory of Most in the Room**

- **9/11**
- **Test Standard 145.1**
- **Test Standard 145.2**
- **Test Standard 62.1 IAQ Method Revisions**
- **Leed Compliance Criteria**
- **Sustainability Criteria**

**A Reminder of How Far We  
Have Come: What the architect  
said about the priority and  
importance of specifying air  
cleaning and filtration  
equipment--that it was.....**

**But there are those who say....**

# TODAY: The Tools at Your Disposal

- **Complete range of FAC products**
  - Size from 1” upward
  - Pressure drop
  - Life cycle cost
  - Efficiency
- **Credible and research/based TM's**
  - 52.2
  - 145.1 an 145.2

# Your Tools

- **Code minimum particulate filtration Standards of Care established by Standard 62's and accepted in all Codes**
- **Repeated affirmation of relationship of FAC to health, life/safety, and survival**
  - **Hill-Burton**
  - **IAQ**
  - **9/11**
- **Affirmation of comparability of filtration (extraction) to ventilation (dilution)**
- **Confirmation and acceptance of IAQP of 62.1 published by NAFA**



## **More Tools: Established Factors**

- **Field research proved MERV 13 is the minimal efficiency to protect wet coils in commercial property**
- **Medical research established MERV 14 as the minimal efficiency to minimize airborne bacteria**
- **Fed/Military established usage of HEPA/HEGA for CBR protection**

**You Are Thoroughly Equipped to Change  
the World!!**

**LET'S GET STARTED**

# **You Are Equipped to Change the World!!**

- **Change the most important first--your personal world and those in that circle**
  - **1. Where they sleep!**
  - **2. Where they work!**
  - **3. Where they go! The school, the club, the church, the**

# **You Are Equipped to Change the World!!**

- **Change your story: Don't sell filters—sell “filtration” and its outcomes:**
  - Clean air
  - Clean coils
  - Clean lungs
  - Improved health and well being
  - Improved occupant productivity
  - Protected and productive space

**Conclusion: Sell an “asset” with return on investment=ROI**

# **You Are Equipped to Change the World!!**

- **Change your understanding of your competition:**
  - It is not a competitive brand or type of filter
  - It is “ventilation” and dilution with: pre-contaminated, high latent, expensive air
- **Change your story to reflect:**
  - FAC (extraction) is more efficient than ventilation
  - FAC is more cost effective than ventilation

# Changing the World: the Opportunities

- **Standard 62**
- **IAQP**
- **Sustainability**
- **NET/Zero Energy Buildings**
- **LEED compliance**
- **Urban Outdoor Air**
  - **PM 2.5**
  - **Ozone**
  - **VOCs**



## **Your World: Existing Building Inventory/Your Customer List:**

- **Every building is either under ventilated or over ventilated=meaning a prospect for the IAQP...either non-compliant or wasting energy.**
- **Most building are non-compliant currently or eventually with minimum code particulate filter MERV efficiency**
- **Few buildings exceed minimum code compliant levels yielding inferior indoor environments**

## **Your World Is: Existing Building Inventory/Your Customer List:**

- **Non compliant with code minimum MERV efficiency per Standard 62.1**
- **Non compliant with code minimum ventilation rates/62**
- **Non compliant with ozone control in outdoor air/62**
- **Non compliant with PM 2.5 in outdoor air/62**

## **Your World Is: Existing Building Inventory/Your Customer List**

- **Most buildings have not applied the recommended “Best IAQ Practices” as prescribed by ASHRAE Guidelines.**
- **Most building have not applied the ASHRAE recommended risk assessment and protection techniques for survival of occupants exposed to “pandemic”, terrorists, and/or criminal acts involving CBR airborne threats.**

# **Yes! You Can Change Your World**

- **Recognize the business you are in**
- **Change your story and believe in it**
- **Recognize and exploit the tools of history**
- **Be knowledgeable about the opportunities**
- **Change the world circling around you**
- **Exploit the world you serve—your customer list**

# **Not Convinced What One Man Can Do? Lest you doubt....**

- **Wrote the first comprehensive ASHRAE Fundamentals chapter on Gas phase a/c in 1969**
- **Invested in ASHRAE research to develop TM for gaseous air cleaning in 1973**
- **Founded my rep firm at age 32 and the mfg co at 40**
- **President of ASHRAE at 52 youngest ever**
- **Chairman of Std. 52.2 in '93**
- **Wrote ASHRAE IAQ Guideline Chapters on FAC in '06**
- **NAFA Lifetime Achievement Award in '15**
- **And yes...I believe passionately in the importance of filtration and air cleaning in the human destiny.**