

A

HVAC & Human Body

The health and efficiency of any HVAC system lies primarily in the stability of its ducts, and when you consider that about 40% of all power used in any building is taken up by the comfort systems, it really drives a point in having a balanced and tight system.

It doesn't matter if there's a high efficiency unit pushing conditioned air through leaky ducts. If that air isn't reaching all of the vents, the high efficiency unit is going to be just as expensive to run as a low efficiency unit.

At Safid, we compare HVAC systems to the human body. Imagine that the central unit is the heart, and the ducts are the veins. Your heart might be powerful, but if your veins are clogged or don't function properly, you're not going to be a very healthy person. Same thing with an HVAC – the ducts are essential to a properly functioning system.

Our R&D department tests every product thoroughly before introducing it, to secure its efficiency in view of maintaining an optimal Indoor Air Quality along with all the components of the HVAC system.

Whereas our State-of-the-art Lab works under international standards, and our tests are done based on high industry guidelines, we are in a position to assure that our products are the best in-class

We look forward to new challenges in 2014



WHAT'S INSIDE:

p1 Editor's Note

p2 Happenings: MOH Presentation
End of Year 2013
Project Qatar 2014

p3 Certifications: SRL – Sound Research
Laboratory

p4 Sector Focus: Air Filters

p5 A PRODUCT in SPOTLIGHT:
Kitchen Hoods

6
p&7 From our PORTFOLIO
CMA Tower

Happenings

Ministry Of Health Presentation

As part of educating our community on the importance of the HVAC systems (And particularly the advantages of the spiral ducting over the classic rectangular ducting). Safid held a presentation at the Ministry of Health (Assistant Deputy for Engineering Affairs). Major accredited consultants and contractors were present and showed particular interest. Mr. Ghaith Saredidine,



Safid Business Development Manager, lead the seminar in the presence of our CEO, Mr. Jamal Jawhari, and our Sales and Marketing Teams.

Representatives from Klimak (Air Handling Units) and P3 (Duct Panels) had part in the presentation along with Safid team to provide to our clients a total Engineered Air Solution

Samples and branded giveaways and collaterals have been distributed as well to the attendees and the small reception done at the end of the presentation was a good opportunity for further discussions

End of Year 2013 Raffle Draw

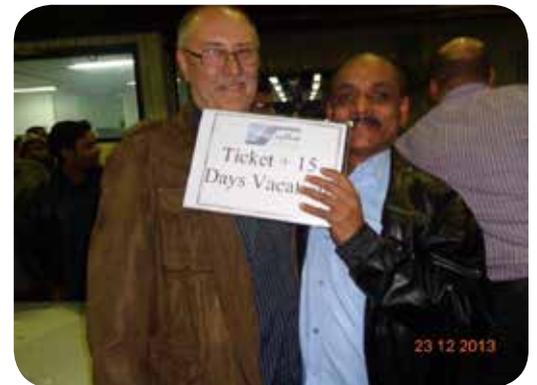
SAFID family had an amazing time during the End of Year Open Day that took place at our Riyadh factory. Basketball match, Badminton tournament, and many other fun games made our day a memorable one.

A fresh kick start for the year 2014!

The Open Day started with the sports' tournament, and heated-up with the fun games that were especially prepared for the occasion. A lot of valuable prizes were awarded.

The highlight of the day was the "family Spirit" that warmed up the hearts of all the attendees.

To finish the day in beauty, a dinner was organized to wish for all a new successful year 2014



Project Qatar 2014 MARK YOUR CALENDAR

Safid will be participating in Project Qatar 2014 that will take place on 12 – 15 May 2014 at the Qatar National Convention Center. Featuring its latest products along with a lot of State-of-the-art solutions.

Your attendance will be highly appreciated

Stand No. A145



Beside the exhibition, Safid is proud to be the Associate Sponsor of the HVAC Tech Qatar Conference that will be held in parallel with Project Qatar 2014 on 14-15 May 2014. Safid team is to give a 30 minutes presentation during the opening day of the conference

We ARE CERTIFIED:

SRL - Sound Research Laboratory

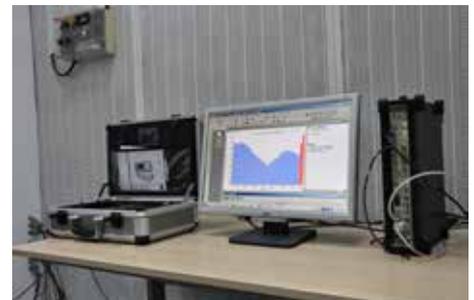


Founded in 1967, SRL is an independent noise and vibration consultancy and test laboratory. The company is one of the UK's major consulting companies focusing on building acoustic, they provide an innovative acoustic and airflow testing laboratory. It works within the UKAS quality system and has Department of Trade and Industry approval (DTI is a UK government body) for tests to European and International standards.

SRL's relationship with Brüel&Kjær dates back to the formation of the company in 1967. A wide range

of microphones, preamplifiers, calibrators, analyzers and sound level meters are used, together with a range of software. Brüel&Kjær products are used extensively for all noise and vibration measurement and analysis.

SRL is one of the leading and most experienced acoustic consultancies. It focuses on design,



consultancy and testing in all areas of noise and vibration. SRL has a reputation for a practical, cost-effective approach to problems, and for providing cost-effective solutions.

The Directive demands a guarantee of limit values of sound power on a variety of powered indoor and outdoor machinery. As a Notified Body, SRL



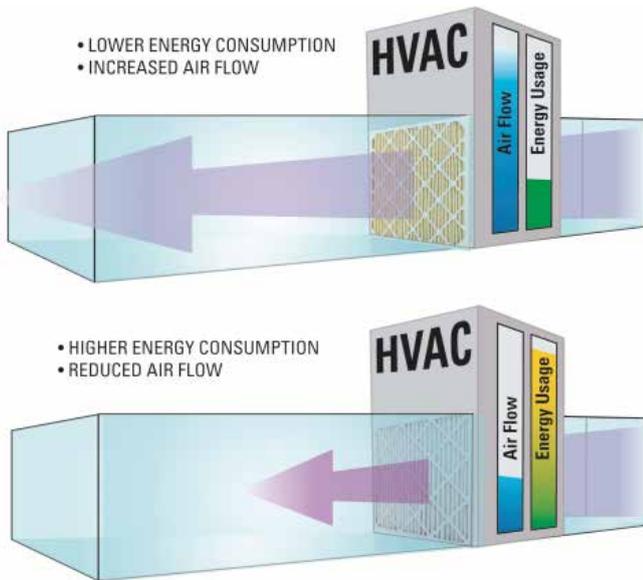
is authorized to audit the measurements made by other consultants or manufacturers that make their own tests.

Architects and construction companies depend on SRL to get an in-depth understanding of acoustics. As they provide a creative, cost-effective solutions use the latest measurement equipment and computer modelling programs.

Safid state-of-the-art Acoustic Laboratory has a gross area of 625sqm and accredited by Brüel&Kjær; and as some of our products like the sound attenuators are tested at SRL, we can prove the same results at our laboratory with a small tolerance ($\pm 1-2$ db). Our Acoustic Lab is set to determine the sound power level and measuring of fan pressure level.

Visit our State-of-the-art Acoustic Laboratory at our Company Head-Office – Riyadh, KSA

Sector Focus – HVAC Air Filters



HVAC filters have become increasingly important because they have a significant impact on indoor air quality and energy efficiency. A dirty filter hurts the unit's energy efficiency and causes the HVAC system to be overworked.

A recent study by the American Society of Heating, Refrigeration and Air Conditioning Engineers has shown that dirty filters can reduce HVAC efficiencies by 10 percent or more.

How to choose the right HVAC filter?

You need to be aware of the different HVAC filters available as well as their minimum efficiency reporting value (MERV), a measure of the effectiveness of the filter.

Here are some of the different options you have:

Fiberglass air filters - Very thin and feature just a basic flat panel surface for trapping air particles. Fiberglass filters were developed to protect your HVAC unit, not to improve indoor air quality.

Polyester and pleated air filters - Polyester and pleated filters are pretty similar to fiberglass filters, but they tend to have superior dust-trapping ability. These HVAC filters remove up to 45 percent of the air pollutants.

Washable air filters – Washable air filters are the worst HVAC filters. These filters usually have a very low MERV rating. They easily collect fungus and bacteria, which can escape and circulate. **High-efficiency** particulate absorption or HEPA - **High-efficiency** HVAC filters can remove up to 85 percent of the air pollutants from a home or building space. They boast a MERV rating between 14 and 16 (16 is the highest rating). Often made using pleated filter paper or synthetic

polyester fibers, HEPA Filters can trap very small particles of dust, pollen, mold and other irritants. Hospitals, or other "clean-room" environments use these industrial air filters to remove even the bacteria from the air.

In examining the lifetime of a filter a typical pressure drop curve undergoes three phases of interest:

1. In the initial stage, the curve is linear; this linearity signifies that particles are depositing within the fibrous structure, and a rise of the filter pressure drop is negligible (the stationary phase). Otherwise, it is regarded as a non-stationary phase (See Figure 2).
2. Transition: Departure from linearity suggests the start of filter cake formation (See Figure 3).
3. The pressure drop curve becomes linear again due to cake formation on the filter surface. Dust cake layer (Figure 4) acts as an additional layer of filtration and generates an aerodynamic drag, which increases the mechanical compression on the layers closer to the filter surface, which, in turn, reduces their thickness and permeability [3].

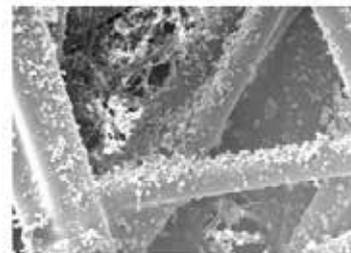


Figure 1: SEM (Scanning Electron Microscope) view of used cabin automotive air filter

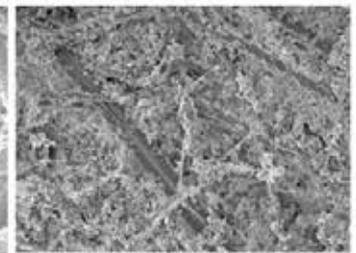


Figure 3: SEM of dust loaded filter has passed the depth filtration stage (transition stage)

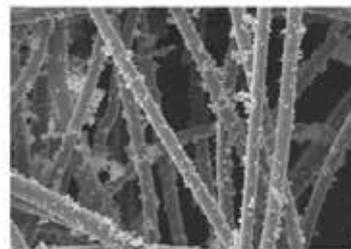


Figure 2: SEM representing the stationary stage of dust loading

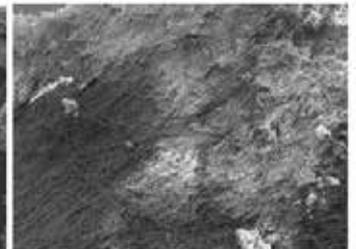


Figure 4: SEM of dust cake formation on the filter surface

BORN TO GATHER DUST

We all believe that air filters are born to capture dust and other contaminants. Dust-loaded and clogged filters need to be dealt with in a professional manner and methodically, especially during replacement and transportation, in order to ensure no further damage is done to the indoor environment and its human occupants.

A PRODUCT in SPOTLIGHT:

Bypass Kitchen Hoods

Restaurant and food service kitchen environments have become much better environments in which to work with the advent of commercial kitchen ventilation systems. Many commercial codes and regulations mandate compliance with clean air standards for safety and health.

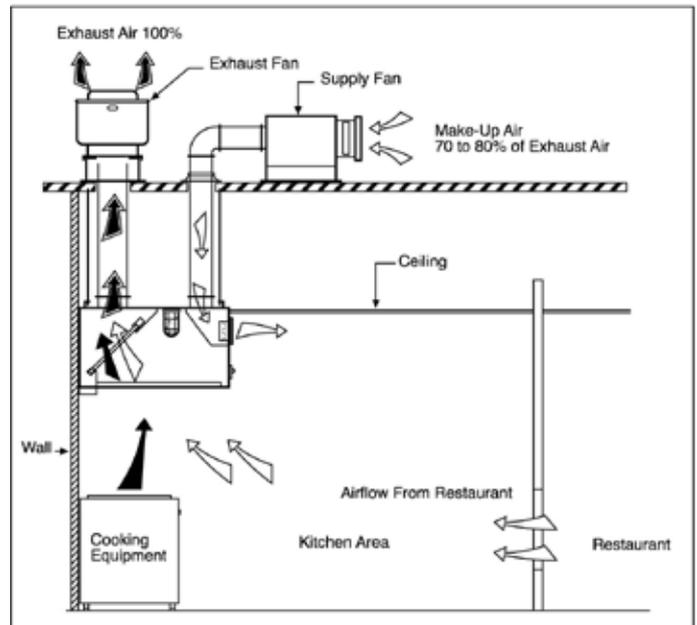
A Kitchen Hood is a device containing a mechanical fan that hangs above the stove or cooktop in the kitchen. It removes airborne grease, combustion products, fumes, smoke, odors, heat, and steam from the air by evacuation of the air and filtration. Commercial vent hoods may also be combined with a fresh air fan that draws in exterior air, circulating it with the cooking fumes, which are then drawn out by the hood.



It is a known fact that the heated surface of cooking equipment convects heat to air around. As this air warms up, the air density decreases and becomes lighter than the surrounding. The lighter air creates an upward thermal current known as convection flow. The convection flow takes up the contaminants that are released during the cooking process and the surrounding air replaces the void created by the thermal current as illustrated in Figure 1

In most exhaust hoods, a filtration system removes grease (the grease trap) and other particles. Although many vent hoods exhaust air to the outside, some recirculate the air to the kitchen. In a recirculating system, filters may remove odors in addition to the grease.

Commercial kitchen air quality depends on an effective kitchen ventilation hood installation for the removal of smoke, odors, and grease. Health and safety codes have made the kitchen ventilation hood a requirement in cooking areas. There are two main types of kitchen ventilation



hoods: Wall Type and Island Type

Another critical element in any kitchen ventilation system is the integration of ventilation fans.

An adequate kitchen ventilation system should achieve the following objectives:

- Remove cooking fumes at the source
- Remove excess hot air and introduce incoming cool clean air so that a comfortable environment is achieved.
- Provide sufficient air for complete combustion at fired appliances, and prevent the risk of carbon monoxide accumulating
- Be easy to clean, avoiding the build-up of fat residues and blocked air inlets which lead to loss of efficiency and increase risk of fire
- Be quiet and vibration free



Safid has a complete selection of commercial kitchen ventilation hoods and will assist you in determining the best fan to integrate with your system or kitchen area. Check our Kitchen Hoods Section, SAFID PRODUCTS & ACCESSORIES CATALOGUE, SECTION 7

From our PORTFOLIO

RIYADH | Capital Market Authority Headquarters - CMA Tower



The CMA Tower is the tallest of the five structures that make up the financial plaza of the King Abdullah Financial District.

At 400 meters tall, this 80 story high-rise world class office tower is to be the landmark project of the new King Abdullah Financial District in Northern Riyadh.

The team designed the iconic tower as the centerpiece of this new office district. It symbolizes the beginning of a new era of global financial leadership within Saudi Arabia's capital city. The Capital Market Authority will occupy 300,000 square feet of space in the top floors of the 76-story office tower.

Located in the heart of KAFD (King Abdullah Financial District) where the five tallest towers sit, created some serious logistical challenges in delivering the tower. KAFD is a dense urban development that has been designed to be pedestrian-friendly, both at ground level and through the sky walkways.

Representing timelessness and openness, the tower's transparency relates to the cultural and creates internal openness and provides access to natural light within the workplace.

A high-performance solar control system moderates the intense Saudi light and heat. An external layer of fins, ganties



and perforated panels provides shade, amplifying the thermal efficiency of the triple-pane, and unitized glazing. Together, these shading devices minimize solar gain and internal cooling loads, reducing HVAC requirements. Electrical energy is reclaimed through a photovoltaic array installation on the tower's roof.





The design uses the “cool” technologies of wireless communication, air-blown fiber optics and converged networks. The intelligent infrastructure merges voice, data and video networks to reduce costs, centralize management and boost productivity.

The podium structure at the base of the tower integrates public circulation with private amenity spaces, including dining facilities and a two-story auditorium.

Client: The Capital Market Authority
 Architect: HOK and Omrania & Associates
 Main Contractor: Saudi Bin Laden Group
 Safid Supplied: Full Ductwork & Accessories

The building combines architectural ingenuity with the very best in environmental credentials to achieve a Gold LEED standard.”

HOK designed the tower, which is expected to achieve LEED Gold certification, in collaboration with Omrania & Associates.

The main works has been awarded to the Saudi Bin Laden group who is working double shifts in order to meet the logistical challenges. Material procurement is being done efficiently, whereby materials are stored off-site and brought in during the night shift, when activity is relatively low; and together with their team and the consultant teams; the raft foundation of the CMA tower was poured in Q4 of 2010 which became the largest foundation pour recorded in the history of the kingdom.



Too cold in the office

Our VAV collection is the SOLUTION!



Find out more about Safid VAVs products in our
Air Devices & Terminals Catalogue - Section 10

Our Facilities and Locations

Kingdom of Saudi Arabia
Riyadh – Head Office
2nd Industrial Area
PO Box: 15300 Riyadh 11444
Tel: +966 11 498 2984
Fax: +966 11 498 2497
Email: safid@safid.com



Jeddah Office and Plant
PO Box: 23041 Jeddah 21426
Tel: +966 2 608 5170
Fax: +966 2 608 5172
Email: sales.jeddah@safid.com



Qatar
Gulf Facilities Trading & Contracting
Company – Office and Plant
PO Box: 24212 Doha – Qatar
Tel: +974 450 1152, +974 450 1168
Fax: +974 4607714
Email: Sales.doha@safid.com



Kuwait
Gulf Facilities General Trading &
Contracting Company – Office
PO Box: 37540 Al-Ras 24756 Kuwait
Tel: +965 571 9234, +965 575 7630
Fax: +965 571 9229
Email: indy@gft-kw.com



United Arab Emirates
Al Taqah A/C Systems Industrial
Center – Office and Plant
PO Box: 23419 Sharjah – UAE
Tel: +971 6 5344866
Fax: +971 6 534 6434
Email: sales.uae@safid.com



Safid Company Ltd.