



Always the best climate for

# HEALTHY HOMES

How to meet indoor Air Quality planning requirements for new residential developments

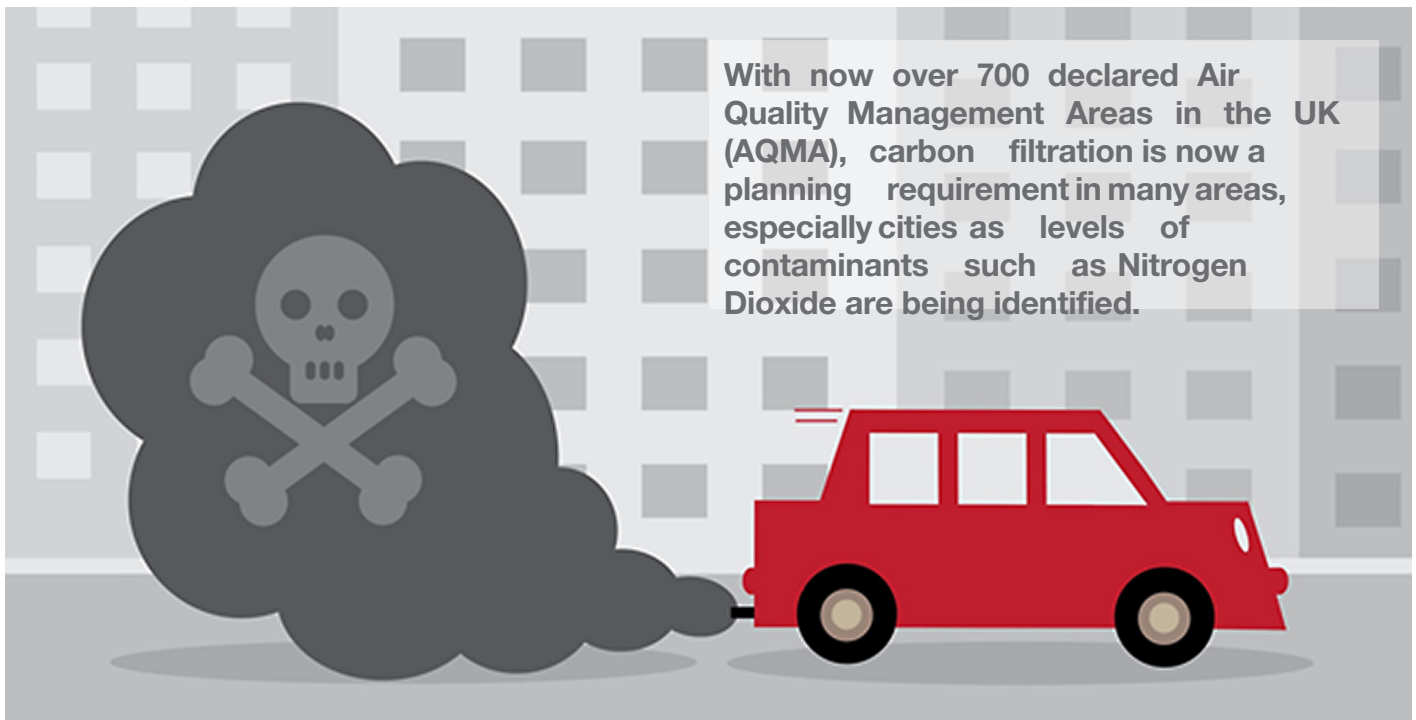
## The Air Quality Situation

The state of the nation's Air Quality and its impact on our health is at the top of the agenda.

In a recent report, DEFRA estimates that NO<sub>2</sub> pollution causes up to 23,500 premature deaths and that traffic pollution is contributing to a rising number of children with asthma.

External air impacts indoor air through opening windows, doors and through purposely installed ventilation systems.

Given that we spend up to 70% of our time indoors, the quality of indoor air is crucial.



With now over 700 declared Air Quality Management Areas in the UK (AQMA), carbon filtration is now a planning requirement in many areas, especially cities as levels of contaminants such as Nitrogen Dioxide are being identified.

## What are the Regulatory requirements for Air Quality?

The EU Directive 2008/50/EC (The Café Directive) European Union for Air Quality and Clean Air for Europe 2008 sets stringent NO<sub>2</sub> levels for designated AQMA's where indoor air NO<sub>2</sub> levels will exceed 40ug/m<sup>3</sup>.

In order for air quality not to exceed these levels, high grade NO<sub>2</sub> filtration is acceptable as a mitigation solution in order to comply with the directive.

## Ventilation and Indoor Air Quality

Both are inextricably linked. Part F of the Building Regulations sets out ventilation rates for new dwellings via 4 methodologies

1. Intermittent Extract Fans
2. Passive Stack
3. Continuous Mechanical Extract
4. Continuous Supply and Extract with Heat Recovery

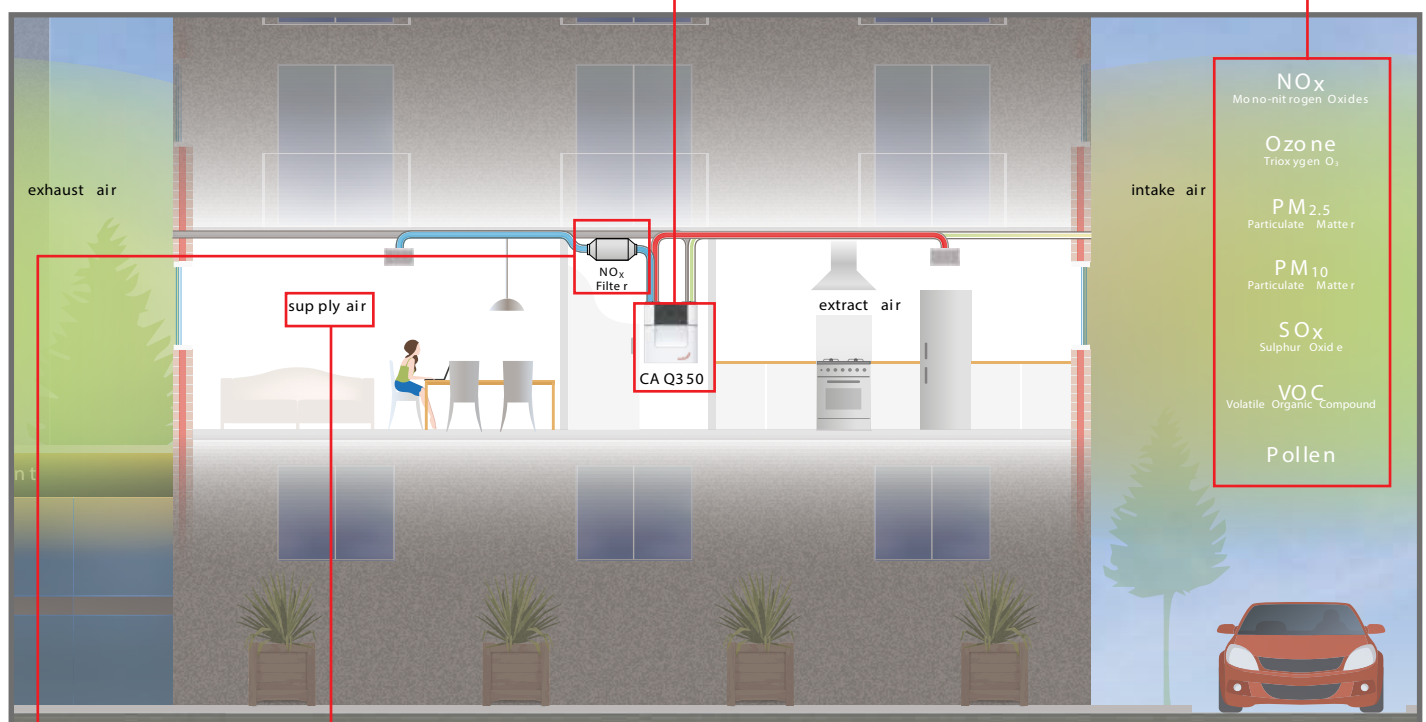
Where planning requirements also need to be met, Heat Recovery Ventilation is the most suitable option as it can be integrated with high grade filtration



## How are NO<sub>x</sub> filters integrated into Ventilation Strategy

Where high levels of NO<sub>2</sub> have been identified (in AQMA's) and a planning restriction is in place, additional high grade carbon filtration will be required. This will usually be required for new dwellings from ground up to and including the third floor.

Whole House Heat Recovery Ventilation is the most appropriate ventilation strategy for air quality issues as it is a balanced whole house system which can be controlled and air can be filtered. It is widely considered to improve indoor air quality and reduce the symptoms of respiratory illnesses as well as provide energy savings to homeowners throughout the year.



The NO<sub>x</sub> high grade filters are placed within the supply air network. Air enters the dwelling and is filtered via the Heat Recovery System (G4) and then through the high grade carbon filter to remove the hazardous particles.

Supply air is provided to the habitable rooms in the dwelling via a ceiling grille. The Heat Recovery provides continuous fresh air to the dwelling throughout the year and utilises the heat transfer (up to 96%) in colder months.

A post G3 filter also ensures an additional level of filtration before entering the room.

## NO<sub>x</sub> Filtration Details

- High grade NO<sub>x</sub> filtration to help meet the requirements of Air Quality Planning Regulations
- Five options to suit all MVHR models – including Zehnder ComfoAir Q and Greenwood Vireo units
- Sized to minimise additional energy consumption from the system
- Long life span between 2-5 years
- **Unique Feature to Zehnder**  
NO<sub>x</sub> Filters – Integrated Sight Glass for easy and quick maintenance review on site



### Unique Filter View Panel

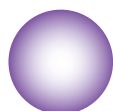
The filter cartridge is made up of a series of G3 and Carbon Filters. The Carbon Filter has colour cell grading to show when it needs replacing.

The Zehnder NO<sub>x</sub> filter has a unique glass panel located as shown on the base. This eliminates the need to open the entire front panel to check the filter status.

On-site just simply and quickly open the access hatch and view the colour status.



Filter in new/  
good condition



Filter in used  
condition with some  
life remaining



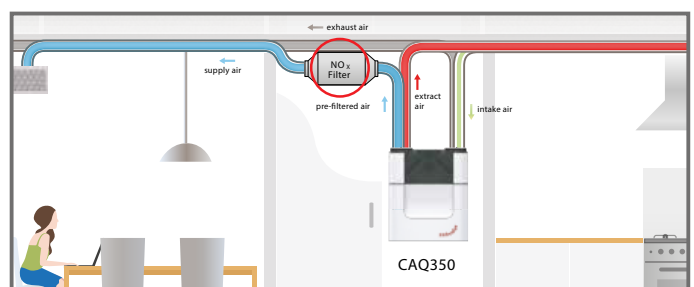
Filter needs  
replacing

## Heat Recovery Ventilation and NO<sub>x</sub> filters

MVHR is a holistic whole house solution and installed performance is based on all components. Adding additional components such as NO<sub>x</sub> filters can introduce additional noise if not designed effectively.

### Key considerations for NO<sub>x</sub> filter specification;

- Sizing: Size correctly to minimise impact on airflow and noise levels in the home
- Location: Position post MVHR Unit for maximum life and in a horizontal orientation
- Certified: Ensure the filter meets the levels of filtration required





## Product data

Zehnder can provide solutions to service all property sizes with five unit options

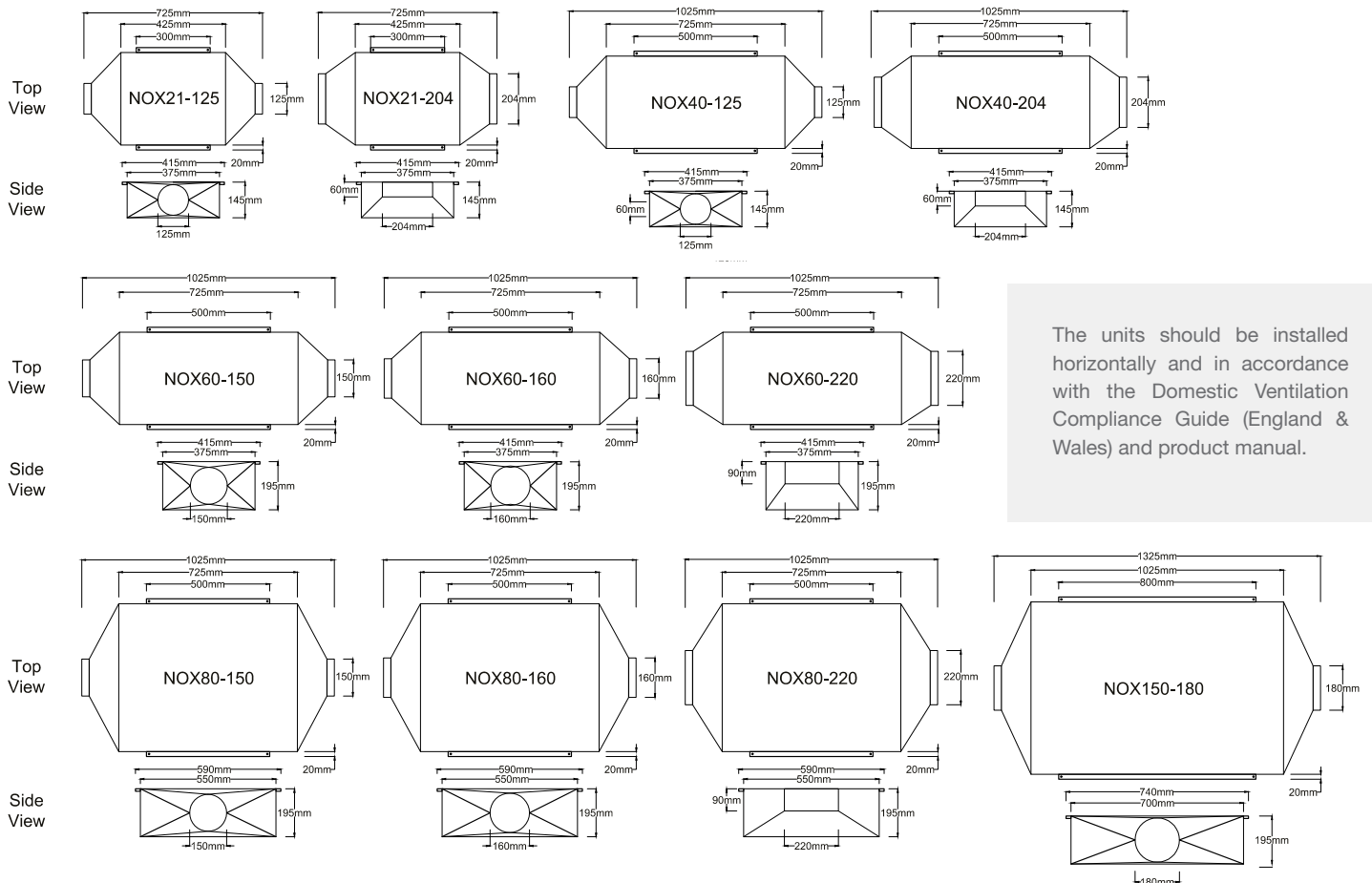
*Compatible with Greenwood Vireo HR155WM, Vireo HR185WM and Zehnder ComfoAir Q 350/450 and 600*

Unit Option	Size L x W x H (mm)	Spigot connections (mm)	Weight (net)	Access Panel Recommended (mm)	Airflow (l/s)
NOx21	425 x 375 x 145	125 / 204 x 60	21kg	475 x 425	21l/s
NOx40	725 x 375 x 145	125 /204 x 60	26kg	775 x 425	40l/s
NOx60	725 x 375 x 195	150 / 160 / 220 x 90	28kg	775 x 425	60l/s
NOx80	725 x 550 x 195	150 / 160 / 220 x 90	42kg	775 x 600	80l/s
NOx150	1025 x 700 x 195	180	62kg	1075 x 750	150l/s

	Sound Attenuation Spectrum NOx 21 – NOx150							
Frequency Hz	63	125	250	500	1K	2K	4K	8K
With G3 Pre filter	6dB	4dB	2dB	2dB	2dB	3dB	8dB	5dB

	Pressure Drop Performance						
Airflow	8l/s	13l/s	21l/s	40l/s	60l/s	80l/s	150l/s
NOx21	8.8Pa	9.9Pa	34.8Pa				
NOx40				34.8Pa			
NOx60					34.8Pa		
NOx80						34.8Pa	
NOx150							34.8Pa

## Dimensions



The units should be installed horizontally and in accordance with the Domestic Ventilation Compliance Guide (England & Wales) and product manual.

## Accessories and Spares

The NOX filters must be maintained for the best performance. Replacement G3 filters and active carbon filters are available.

### G3/Carbon Filter Service Packs

NOX21FIL      NOX60FIL      NOX150FIL  
NOX40FIL      NOX80FIL

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Zehnder Group UK Ltd  
Registered office: Unit 4,  
Watchmoor Point, Camberley  
Surrey GU15 3AD  
Registered in England No.2296696

## Contact Information

If you need to speak to someone or have a question to ask us, there are several ways of getting in touch.

Phone

**Head Office:** 01276 605800

Customer Services: 01276 408404

Technical Services: 01276 408402

Fax

**Head Office :** 01276 683315

Email: [orders@zehnder.co.uk](mailto:orders@zehnder.co.uk)

Website: [www.zehnder.co.uk](http://www.zehnder.co.uk)

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