



The Business Case for Improving Air Quality in Construction

Invest in Air Quality to Improve Respiratory Health, Grow Revenues and Reduce Project Costs

Politicians, the media and the public agree the environment is a top priority of our times and much attention is focused on global warming and greenhouse gas emissions, particularly CO₂. But an increasingly urgent global health issue is the direct impact of poor air quality on respiratory diseases, particularly in big cities.

The pollutants which directly damage respiratory health are different from those which impact global warming, but no less critical, such as NO₂ from operation of diesel engines, uses of combustion engines like generators, excavators, bulldozers, loaders, mobile

cranes etc. and particulates like PM_{2.5} and PM₁₀ from dust, diesel engine exhaust of vehicles and heavy equipment. Unlike CO₂, these pollutants rapidly and directly harm humans in the communities where pollution levels are highest.

"The true cost of climate change is felt in our hospitals and in our lungs. The health burden of polluting energy sources is now so high, that moving to cleaner and more sustainable choices for energy supply, transport and food systems effectively pays for itself,"

Dr Maria Neira, WHO Director of Public Health, Environmental and Social Determinants of Health.

Analysis by the UK government has found the major threat to respiratory health is posed by traffic emissions, particularly commercial vehicles with the most dangerous pollutants NO₂ gas and particulates (PM₁₀ and PM_{2.5}). All can cause serious, irreversible heart and lung damage. The biggest contributor is logistics operations supporting big cities, including deliveries for commercial construction sites.

Local government, local communities and customers are speaking loudly with regulation and their vendor selection:

The challenges to construction companies of not taking action are significant:

- Increased cost of community engagement due to inability to identify specific pollution sources and actions taken to manage and reduce pollution
- Lost revenue from lost project bids due to limited track record for improving air quality and an undifferentiated approach.
- Increased projects costs due to long work stoppages from pollution triggers with limited ability to understand the root cause
- Reputation damage/community backlash
- Limited visibility on delivery pollution levels and specific sources

For the businesses who are able to quickly take targeted action to cut air pollution, they are seeing strong economic gains, in addition to the health benefits. Notably, unlike CO₂'s impact on global warming, reducing pollutants like NO₂, PM_{2.5} and PM₁₀ can have a very immediate impact on respiratory health on a site and in the local community. A focus on reducing pollution for respiratory health improves business impact in 5 main ways by offering:

1. Increased bid win rates through clear evidence of site pollution management and reduction
2. Reduced cost and increased effectiveness of community engagement
3. Reduced duration of work stoppages by identifying the source in real time
4. Enable small compliance and sustainability teams to make a big impact
5. Rapid return on investment

78% of Londoners think tackling air pollution should be a priority

London Councils' survey, 2020

1. Increase Bid Win Rates

Demonstrating effective visibility and action to mitigate the sources of pollution and delivery impact on a site can increase revenue by giving businesses a competitive advantage in tendering at both the PPQ stage and the ITT stage. Having a strong, proven track record and data set can have a greater than 7% impact on win rate at each stage.

This is due to an increasing number of clients demanding a partner who will keep air pollution to a minimum during the build phase so they can achieve their net zero targets and reduce local community health issues.

Contractors with a proven track record of reducing site and delivery pollution and other sustainable practices win more business.

2. Improve Community Engagement and Reduce Costs

Engagement with the local community is strengthened by having evidence of air pollution triggers and breaches, their sources, mitigations and resulting reductions. It's easy to say that more data about site pollution doesn't help community engagement and can actually hurt it, but that is when you only know that a breach occurred. If you also have the pollution source, the mitigation actions taken and the resulting pollution reduction, it is proven to improve community engagement.

The ability for environmental teams to easily identify pollution sources means they can resolve problems quickly before they become problems and empower community engagement teams to work more effectively and efficiently with the local community, building trust and reducing cost.

Better engagement and lower costs

3. Reduce Work Stoppages

Construction sites experience repeated work stoppages due to pollution triggers and breaches. In one example, a major construction site in central London reported multiple air pollution triggers weekly. Stoppages averaged 4 to 6 hours for each, at a cost of tens of thousands of pounds per incident.

By identifying pollution issues before they become triggers or breaches and by identifying the source of the trigger or breach, work stoppages can be reduced and the duration can be significantly reduced.

4. Small Teams Can Make a Big Impact

Identifying pollution sources is currently impossible, or takes significant time, with air pollution monitoring alone. Environmental and compliance teams are understaffed and overworked, often having single teams covering multiple sites.

Investing in a system to identify specific triggers and breaches on a site in real time and the vehicle or delivery activity causing that trigger or breach enables a small team to be more efficient and effective. It also enables them to take immediate targeted action, and so improve air quality, supporting teams in meeting international standards ISO 9001 and 14001.

5. Rapid Return on Investment

Reducing site-based CO₂ emissions is a critical, expensive and long term investment to slow global warming which is well under way and we need to continue to drive this forward.

Reducing site based NO₂, PM_{2.5} and PM₁₀ pollution is a critical investment to improve site and local respiratory health, but the results are much faster. Reducing these pollutants from a site can have a very rapid impact on respiratory health and a business' bottom line.

Significantly reducing NO₂, PM_{2.5} and PM₁₀ by identifying the source and taking mitigating actions every week and every day will slow the damage to the respiratory health of operatives on site and the health of the

local community almost immediately. It will reduce the cost and increase the effectiveness of community engagement and it will build a data set of mitigations and resulting pollution reductions which will help win more business in the future.

Future Proofing Businesses

The environmental agenda is already critical for ambitious businesses, and the respiratory health agenda in urban areas is rapidly accelerating legislation, consumer action and local action to improve air quality in the communities where people live.

The number of low emission zones in the UK is growing fast:

- Oxford recently (March 2021) joined London, Norwich and Bath in implementation
- Other schemes are under consideration in such major cities as Birmingham, Bristol, Manchester, Newcastle, Sheffield, Bradford, Edinburgh, Glasgow, Aberdeen and Dundee
- Campaigns for more legislation to further toughen air quality standards are gathering pace among politicians, pressure groups and in the media (such as The Times newspaper's Clean Air For All campaign, which calls for the introduction of clean air zones, particularly targeting vehicles)
- 79% of consumers change their purchasing preferences based on social responsibility, a figure which has been increasing year on year

Companies which can transparently and robustly demonstrate they are dealing with the problem of poor respiratory health due to air pollution generated by their operations will be better placed than competitors to thrive in the years to come.



About EMSOL

EMSOL are proud to partner with the construction industry to improve air quality, working alongside household names such as the Mace, HS2, SCS, Hansons, Balfour Beatty, and the City of London Corporation. Our system quickly and dramatically reduces air pollution by identifying air quality triggers and breaches, as well as their sources, and identifying targeted mitigations in real time. EMSOL's own research found a 7-10% gain in the PPQ phase of the bid process among construction companies who use our system to reduce air pollution reduction and even higher win impact rates during the ITT phase of the bid process.



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