

Impact of building materials on indoor environment and indoor air

What is the trend?



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Marianne Balck:

“What materials are we using in our projects, and what are the consequences?”

As a society, we are increasingly aware of the importance of building in an environmentally friendly and future-proof way. When we break it down, it's ultimately about building in a way that is healthy for our planet and those of us who live on it. As continuous advances in research tell us more about our building materials and how they affect us in our daily lives, we are quickly realising that this is a never-ending task. Our role at Byggvarubedömningen will therefore be important in guiding our member companies to make sustainable and healthy choices about building materials based on up-to-date information.

If we go back to the early days of Byggvarubedömningen, asbestos was one of the major reasons why we as an organisation came into being. Once the problems associated with asbestos had been identified, the industry realised the high cost of the material, in both economic and health terms. And this in turn demonstrated the importance of working proactively on such issues. To simply ask ourselves the question: what materials are we using our projects, and what are the consequences?

Studies suggest that on average we spend 90% of our time in indoor environments. Which makes it extremely important that we know what materials we are using – and where. This is why, for many years now, Byggvarubedömningen has been developing criteria for building materials that are used in indoor environments, and looking more at emissions – substances the materials emit – to get a clearer picture of what materials we are using when building our homes, schools and workplaces.

Byggvarubedömningen is unique in the EU in the way we conduct environmental assessments of building products based on Life Cycle Criteria. The assessments have provided us with data on what materials we are using when building our buildings, which we share in this report. Spoiler alert: we have some pleasing figures to present!

“If we go back to the early days of Byggvarubedömning, asbestos was one of the major reasons why we as an organisation came into being.”



Marianne Balck, Environmental Toxicologist at Byggvarubedömningen

“If we go back to the early days of Byggvarubedömning, asbestos was one of the major reasons why we as an organisation came into being.”

This is Byggvarubedömningen

Byggvarubedömningen is a non-profit economic association that assesses and provides information about building materials assessed for sustainability. Our vision is to encourage the development of a non-toxic, healthy built environment that assumes its responsibility for both current and future generations.

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Our history goes back to the turn of the millennium, when the industry was experiencing major challenges, health risks and expensive remediation work linked to PCBs and asbestos. Because despite a high level of awareness of the problems, there was in general a low level of knowledge about the issue. The industry needed more knowledge about non-toxic and sustainable construction, and Byggvarubedömningen was born.

Byggvarubedömningen was formed by merging the two associations Milab and ByggdMiljö. This saw Sweden's biggest and most important property owners launching a standard for the environmental assessment of building materials. Those involved drew up assessment criteria against which products were to be assessed, and created a database that would enable all assessments to be gathered in one single place.

Since Day One, the entire basic premise of Byggvarubedömningen has been to make it easier for actors in the construction industry to make sustainable, non-toxic material choices. Quite simply, to make complex information easily understandable and accessible to Sweden's contractors, property companies, municipalities, regions and others.

Our assessments

All the products we assess are presented in our online service. They are presented there in three levels: **Recommended** (green), **Accepted** (yellow) and **To be avoided** (red). This means that even those who are not familiar with these complex areas can make smart, sustainable material choices. Our logbook tool is the place where users collate chemical products and goods, where actors can collaborate on material choices and log what has been used in each specific construction project. All the data entered into the logbooks will make it possible in future to trace substances of which we currently have little knowledge and that may prove to have harmful properties. A way for us and our users to assume responsibility for both current and future generations.

Byggvarubedömningen is constantly growing, and is developing the construction and property industry to become more sustainable. The number of members, assessments and logbooks is increasing continuously, and together we are making it easier to build sustainably!

Since mid-2016, we have been performing assessments in accordance with new assessment criteria. We have now compiled our data from the

Our assessment symbols



Recommended



Accepted



To be avoided



THE 4 PILLARS

How Byggvarubedömningen works – step by step

Assessment



The material supplier submits the documentation we need based on our criteria for chemical content and life cycle aspects. It is also voluntary to assess products according to our social criteria for Sustainable Supply Chains.

Database



The products are published and searchable in our database, in which it is clearly visible what assessment the product has received in terms of chemical content, life cycle aspects and overall assessment. The user can search the database by product name, material supplier, content of a certain substance, to avoid certain substances or classifications, and by products that comply with a given certification.

Logbook



In the logbook, users list their construction projects and which building products are used in each project; this can involve both renovations and new production projects. The logbook is a tool that allows the user to examine the products used during construction based on the client's list of requirements. Multiple actors within a project can use the logbook to collaborate on material choices.

Traceability



In addition to complying with building certification standards such as the Miljöbyggnad/ Green Building Certification programme, BREEAM or the Nordic Swan Ecolabel, the purpose of the logbook is to know what has been used in the buildings – and where. This is partly to be able to recycle products and materials correctly in connection with renovation or demolition, and partly to identify any regulation of substances that will come in the future.

years 2017–2023 linked to the criteria Emissions and Volatile Organic Compounds (VOCs) in building materials. In this report, we present what we have been able to discern from the information we have gathered.

We go further than legislation requires

EU legislation contains some regulations for hazardous substances in materials. One problem is that materials are not classified in the same way as chemical products. This makes it difficult for anyone who is not familiar with the subject to determine which products actually are non-toxic. To make it possible to achieve even, comparable assessments for all building products, both chemical products and materials, we therefore assess them all in the same way.

Our members want to go further than legislation requires when it comes to toxic substances in building products. And we want to make it easy for them to identify those products in a simpler way – no one should have to be an expert to know which products are non-toxic.

The regulations under which we assess building materials

We have criteria for chemical content and life cycle aspects. The criteria for chemical content are based

on the Swedish Chemicals Agency's PRIO criteria for hazardous properties. PRIO is a tool that helps companies find and replace hazardous substances in their goods or chemical products. The criteria are divided into phase-out criteria for substances with serious properties that need to be phased out, and prioritised risk reduction criteria for hazardous properties that should be risk-assessed if they have to be used. PRIO has a database of substances that satisfy the properties, and PRIO is aimed at all industries, not just the construction industry. The concentration limits in Bygghälsörens criteria are based on the EU's CLP Regulation, which regulates the classification and labelling of chemicals, and REACH, which regulates the registration, evaluation, authorisation and restriction of chemicals.

The life cycle criteria encompass areas throughout the life cycle that we and our members consider important, and are based on sources including legislation, industry standards or data from environmental product declarations (so-called EPDs).

Better building materials help public health

Using newly-acquired knowledge, the construction industry has gained control over previous problem substances in our indoor environments. But with better knowledge and the ability to identify substances that are harmful to health, we have also found new areas of concern in modern times. While 20 years ago we were talking about radon and asbestos, issues facing us today include VOCs and emissions. This year's report will largely focus on these substances, how they have been used in recent years and their impact on our health. →

Our members

Our membership currently consists of 75 companies and organisations, ranging from architectural firms to municipalities, regions, property-owning and property-managing companies, government agencies, contractors, actors in the civil engineering industry, and more. All share the same ambition: to contribute to a more sustainable construction and property industry, and with a commitment to influence the work of Bygghälsörens.



When Byggarubedömningen was established in 2006, PCBs (toxic and persistent substances) and asbestos were two major problem areas in the construction industry. Problem areas with a cost to public health in particular, but also to the construction sector, which, with new knowledge of these substances, was presented with large, expensive inventories and remediation work. This was why Byggarubedömningen was born, when the industry's need for proactive control of what building materials actually contained became extremely clear.

When it comes to the impact of building materials on the indoor environment and indoor air, Byggarubedömningen has developed a life cycle criterion. The reason the criterion was developed was that we needed to look not only at the content of hazardous substances in the materials, but also at the hazardous substances emitted from the materials, so-called emissions. Emissions are something that can affect everyone, but not everyone may know what they are and why it is important to monitor them.

Byggarubedömningen also has a criterion for chemical content, so-called volatile organic compounds (also known as VOCs). The difference from emissions is that an emissions analysis measures, among other things, the VOCs emitted from a material, but when we look at the VOC criterion, we examine the actual content of these substances in each separate building material.

What is included in the term “indoor environment”?

The air is a big part, and that's often the first thing you think of when it comes to indoor environment. But light, noise, view, odour and temperature can also be linked to the indoor environment and potential problems. According to the Swedish National Board of Housing, Building and Planning, we spend about 90% of our time indoors, which of course makes it extremely important that the indoor environment is healthy.

The effects of a poor indoor environment can of course vary, given the wide range of problem areas. For example:

- **Poor natural light:** Can have an adverse effect on circadian rhythms, which are fundamental to our good health and well-being. Disrupted circadian rhythms can be linked to poorer sleep quality. For example, good sleep and recovery reduce the risk of cardiovascular disease, obesity, diabetes, impaired performance and learning, and mental health problems.
- **Toxins in building materials and poor air quality:** May result in or trigger conditions including asthma, skin problems, fatigue, eye irritation and headaches.

Volatile organic compounds – so-called VOCs

VOCs are organic compounds – molecules containing carbon – that have a boiling point of 250 degrees Celsius or below. They are commonly found in indoor environments and are often present in various furnishing materials, building materials and chemical building products. VOCs have classifications, and these are captured in Byggarubedömningen's VOC criterion. This criterion focuses on a product's content of these substances. The criterion provides our customers with an easy overview of which products satisfy the criterion. If a project was intending to use a product that does not satisfy the criterion, it may be useful to investigate whether it is possible to find a product that does satisfy with the criterion and also meets the other requirements and needs of the project.

So there are major health benefits to be gained when it comes to various changes in the indoor environment, not least in terms of building materials. For more than 15 years, Byggarubedömningen's logbooks have been collecting information on how the industry has changed its use of building materials related to indoor environments. We are therefore now finally able to present their development and study the trend, which we present in this report focusing on the years 2017–2023.

Emissions

Emissions are substances released from the surface layer of a material, rather than the actual content of the material. Indoor air can contain many of these substances, a large proportion of which may come from building materials. Even newly produced building materials are covered in this respect, as most volatile substances are emitted at the beginning of a material's life cycle. One of Byggarubedömningen's life cycle criteria is therefore about emissions, a criterion that was developed more than 15 years ago, but is being continuously developed and updated as we receive new substances and acquire new knowledge. The Emissions criterion includes the level of VOCs emitted from a surface layer that is in contact with indoor air. To satisfy this criterion, the supplier needs to submit an emission report or certificate that meets the requirements.



Industry report

Substances harmful to health in indoor environments 2017–2023

This year's report focuses on toxic substances in building materials that affect our indoor environment, and more specifically our indoor air. We present here statistics on the trend in products that can have an adverse impact on indoor air quality between 2017 and 2023 – and why. This is what the statistics show!

Logbooks

Since 2017, we have seen a steady increase in the number of logbooks started all the way until 2022. In 2023, however, we see a break in the trend, with a fall in the number of logbooks for the first time in this period. This was partly expected due to interest rate levels and the recession that took hold in Sweden during that period. That said, it is still a good figure for the number of logbooks given the current global situation, and the figure for 2023 is still higher than the figures for 2021 and earlier.

Substances that affect our indoor air

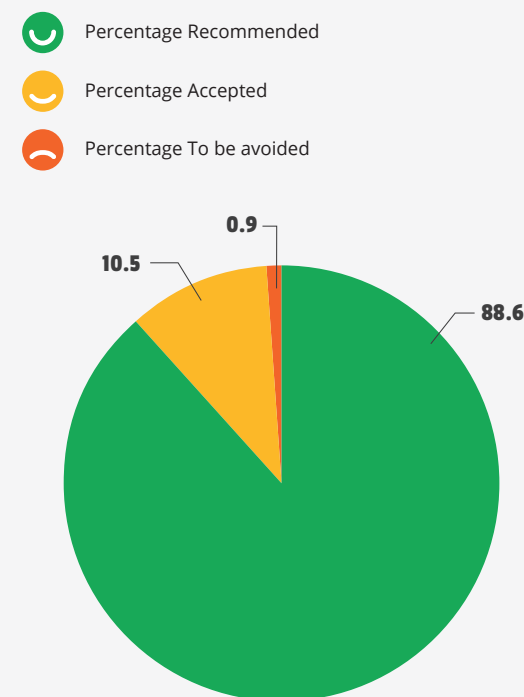
Between 2017 and 2023, the number of products assessed as **To be avoided under the chemical criterion VOCs (volatile organic compounds)** fell by **74%**. One reason for this is that paints now more often contain water-based rather than oil-based solvents. Oil-based paints contain higher levels of VOCs, stronger solvents and smell stronger than water-based paints. This product development is not only good for those of us who live and spend time indoors, but also for decorators and craftspeople who work with the paints.

The average number of products per logbook assessed as **To be avoided on the Emissions Life Cycle Criterion was halved (fell by 52%) between 2017 and 2023**. A product may be rated To be avoided for the Emissions criterion due to levels being exceeded or because there is no information about emissions. About 75% of the products rated To be avoided on the logbook criterion are so because levels are exceeded, and about 25% are rated To be avoided because there is either inadequate or no information about emissions.

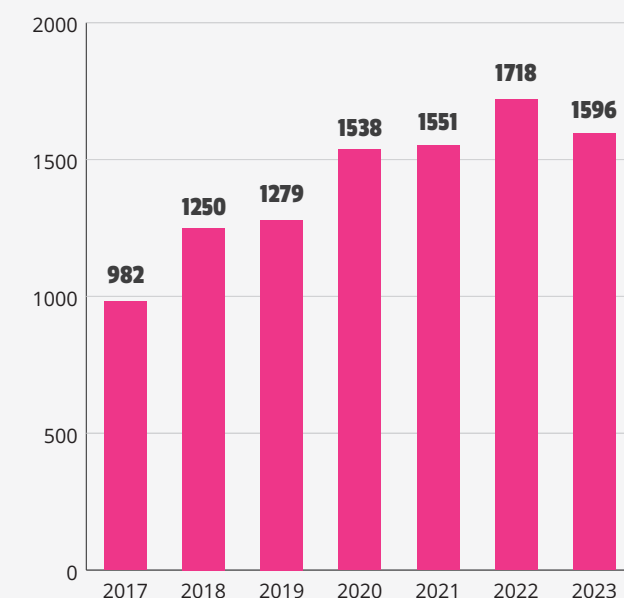
It should be added that to some extent we still need building materials with the assessment To be avoided, as the simple fact remains that there are not always products available to use as replacements that meet the technical building requirements. At the same time, we can see that almost 90% of products assessed for emissions are labelled as Recommended.

On the following pages, we present the trend in the number of logbooks and how the use of products with VOCs and emissions developed between the years 2017 and 2023.

Percentage of products assessed for emissions, i.e. in contact with indoor air, in all logbooks with starting years 2017–2023.

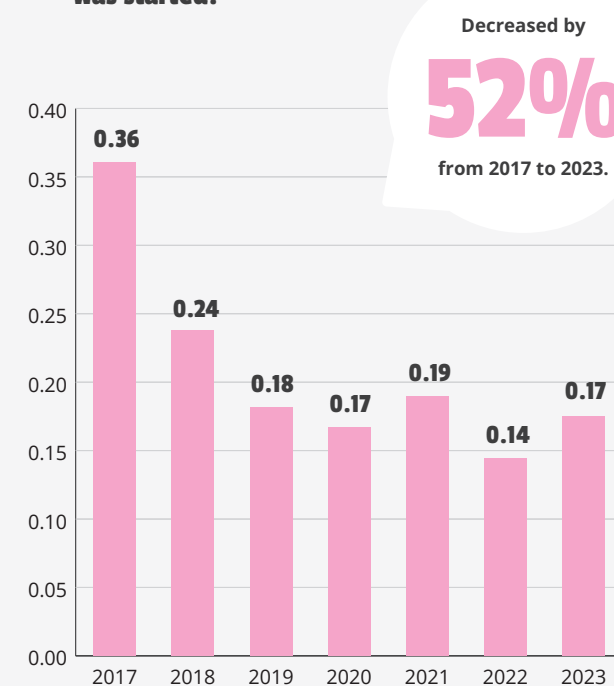


Number of logbooks started per year, 2017–2023.



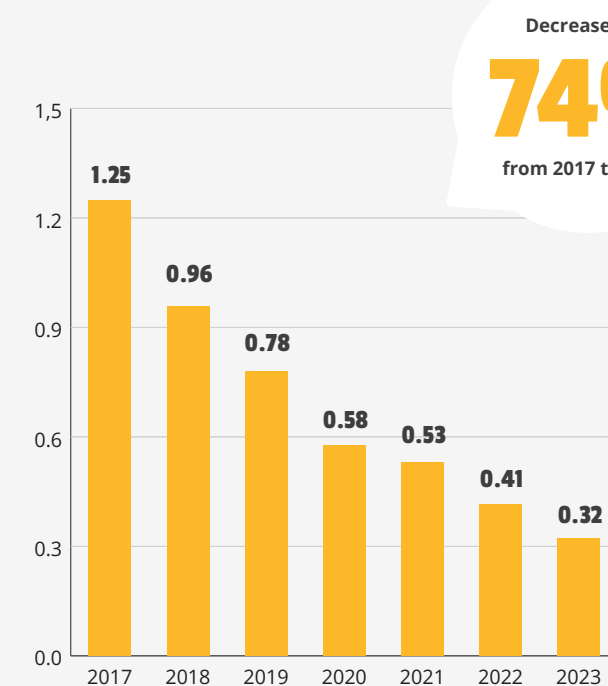
The number of logbooks increased by **63%** from 2017 to 2023.

Average number of products per logbook assessed as To be avoided for the Emissions criterion, based on the year in which the logbook was started.



Decreased by **52%** from 2017 to 2023.

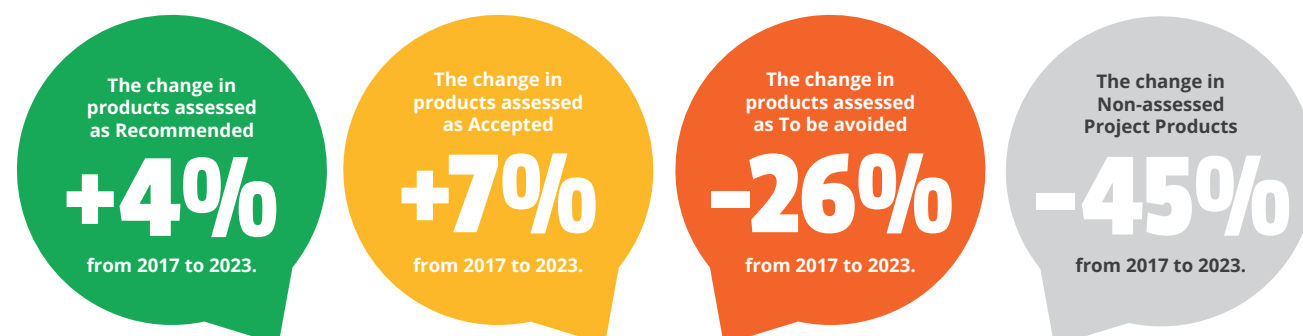
Average number of products per log book assessed as To be avoided for the VOC criterion.



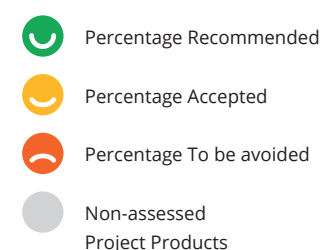
Decreased by **74%** from 2017 to 2023.

Logbooks – facts and trend, 2017–2023

- An average logbook contains **about 100 products**. A logbook for a totally new building generally contains far more products than a tenant adaptation, which refers to existing premises that are renovated.
- We can see that the number of logbooks started per year increased from about 980 in 2017 to about 1,600 in 2023. In total, Byggarubedömningen currently has **more than 11,000 active logbooks**, which can then be archived and saved when they have been completed.
- The conclusion we can draw from this is that the number of logbooks has almost doubled, while **the use of products containing the toxic substances investigated has halved**. A clear, gratifying acknowledgement that Byggarubedömningen is a popular system that continues to grow.



The total assessment levels of all products, presented as a percentage, in all logbooks starting in years in the period 2017–2023.





Phasing out toxins and phasing in recycling

Tarkett leads the way for the flooring industry

As a global actor in the manufacture of flooring, Tarkett also has a major responsibility for health and sustainability. The flooring industry has long struggled with issues related to phthalates used as plasticisers in vinyl flooring. Some phthalates can cause problems such as hormone disruption. Tarkett currently has 120 products assessed by Byggvarubedömningen.

"We were the first to go totally phthalate-free," says Thibault d'Ortoli, Nordic Sustainability Manager at Tarkett.

With operations in more than 100 countries and 12,000 employees worldwide, Tarkett is one of the largest global producers of flooring. It is a wide-ranging business operation that presents both an opportunity and an obligation to protect the environment and health. **Thibault d'Ortoli** is Nordic Sustainability Manager at Tarkett, working on the company's climate goals and, as it turns out, much more besides.

"My background is as a chemist, and I've been working with environment-related substances for many years. In my role at Tarkett, it's my job to ensure that the Nordic region delivers so that we can achieve our global climate and circularity goals. But I also hold internal and external training sessions on various sustainability issues, discuss with customers and partners the benefits of recycling old flooring material, and contribute various communication initiatives to show that we really do recycle," he says.

Higher demand for non-toxic materials

Since the turn of the millennium, the winds of change have been blowing in the industry. Purchasers of construction projects have been specifying increasingly strict requirements for non-toxic materials, and Tarkett has been one of the companies leading the way by phasing out toxic substances in its flooring production. Phthalates is a collective term describing a group of chemical compounds that are effective plasticisers in vinyl flooring – but some are harmful to humans. This is why Tarkett has been phasing out harmful phthalates since the early 2000s, and since 2011 has been producing totally phthalate-free homogeneous vinyl flooring. As phthalates are spread to dust and indoor air, for example, this is a positive development for the indoor environment and human health.

"We put a lot of effort into finding alternative plasticisers for our vinyl floors. For example, we're now using the bio-based plasticiser castor oil instead. We were the first to phase out phthalates completely, and today you wouldn't be able to sell a vinyl floor containing phthalates in Sweden. It certainly feels good that we can be part of an important journey of change," says Thibault d'Ortoli.



Thibault d'Ortoli, Nordic Sustainability Manager at Tarkett.

In addition to replacing toxic substances, Tarkett has gone one step further. Through its Restart collection and recycling programme, the company developed a groundbreaking technology for recycling vinyl, linoleum and textile flooring. This made it possible to clean off residual glue and filler before recycling the material and making new floors from the old ones.

"For us to be able to recycle an old homogeneous vinyl floor, it must have been produced after 2011, otherwise there's a risk that it contains phthalates. We recycle waste left over from the installation of the floor, and we also take care of old floors that have been taken out. They are then sent to our factory in Ronneby, where we take care of the entire recycling process. From washing to the production of totally new flooring," says Thibault d'Ortoli.

"We need to collaborate more"

Although the recycling process is a great success, Thibault d'Ortoli believes that there is still room for improvement. And he points out that the goodwill of the industry and Tarkett's customers – in anticipation of other, tougher incentives – is a key to being able to upscale recycling even more.

"At present, about 30% of all plastic installation waste is collected. This is a perfectly decent figure, but we want to improve it significantly. But we can't do it alone, ultimately we need help from our customers to reduce our carbon footprint, and there aren't enough incentives linked to this yet," he says, adding with a degree of self-awareness:

"At the same time, we know that our Restart programme can also be improved. It's not perfect yet and we need to work on being more flexible. We must collaborate more in the construction sector, because many of us want to improve."

Have your initiatives in substitution and recycling affected your business in any way?

"These things are difficult to quantify in purely financial terms. It's difficult to put a monetary value on sustainability work. But given that sustainability is integrated into most corporate strategies these days, it's obviously good for us. Companies want to work with us because we're a reliable, service-oriented supplier to our customers, and also because we have a solid sustainability and health mindset."

What potential for improvement do you see in your business going forward?

"The task of finding new and better raw materials is an ongoing process to further reduce our climate impact. We've not yet reached our target of 30% recycled material in our products on average, but we need to collect more recyclable flooring material. We also want to be able to recycle more products than we can today. So we'll need to invest in our processes and infrastructure, but for that to be possible, there needs to be greater demand from the industry for products with a high proportion of recycled materials. EU legislation and national initiatives are under way that can act as a catalyst for this. We hope that change will come, it's starting to become urgent if the construction industry is going to make the circular transition."



Survey

What does the public say?

In this report, we've spoken to experts and member companies, and presented statistics. But what does the public actually say: is indoor air an issue that the average person thinks about? We enlisted the help of research company Norstat to see whether issues relating to indoor air are a concern for Swedes.

Swedes can be divided into three distinct segments: those who are interested, those who do not care and those who rely on laws and government agencies to ensure they live in healthy environments. From the survey data, we can see that relatively few (13%) are concerned about indoor air quality, but 37% find the subject interesting. Figures that can be interpreted to mean that we Swedes think the subject is important, but that we also have great faith in letting someone else ensure that the indoor environments we live in are healthy.

When asked *where* they have concerns, a large proportion of respondents say that they do have concerns somewhere, but only one fifth (21%) say that they do not have any concerns about any indoor environment. This means that around 80% are actually concerned about the indoor environment.

While almost half feel concern on public transport, and 36% at the workplace. People quite simply feel more comfortable with the air quality in their homes than in places where they spend time with many other people. We do, however, see lower levels of concern

in gyms, shops and schools, which can probably be linked to the fact that we spend shorter periods of our days there and that schoolchildren are not part of the main target group in this survey.

It became clear that those who are not interested rely on regulations and relevant government agencies to help ensure that indoor environments are safe. This tells us, among other things, that we at Byggarubedömningen have a large and important role to play in looking after their interests, in striving to achieve continuous improvements in indoor environments.

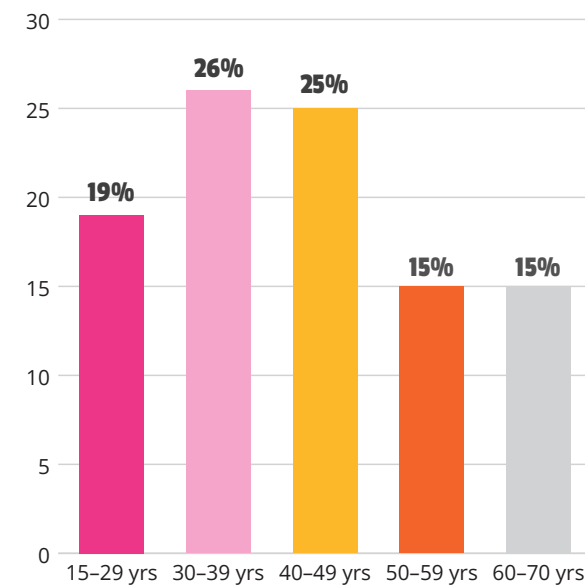
The survey in brief

Conducted by: Norstat (Norstat Express)

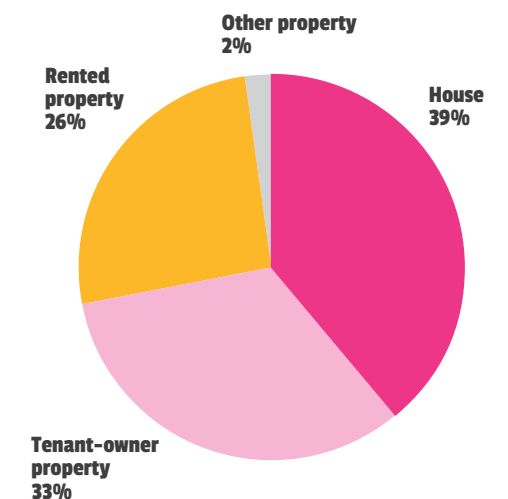
Type of survey: Digital, quantitative survey

Number of participants: 500 respondents

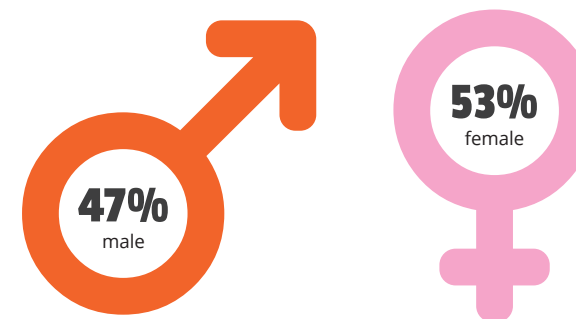
Age



Residence

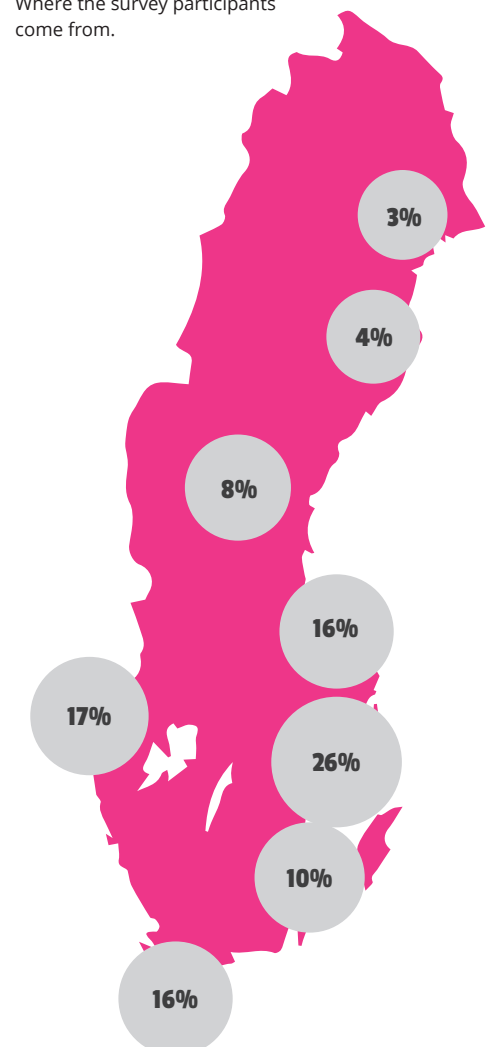


Gender

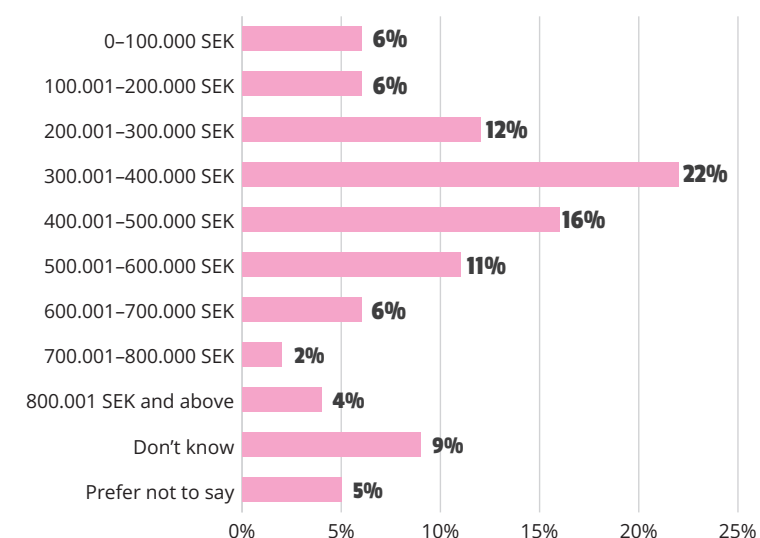


Geographical distribution

Where the survey participants come from.



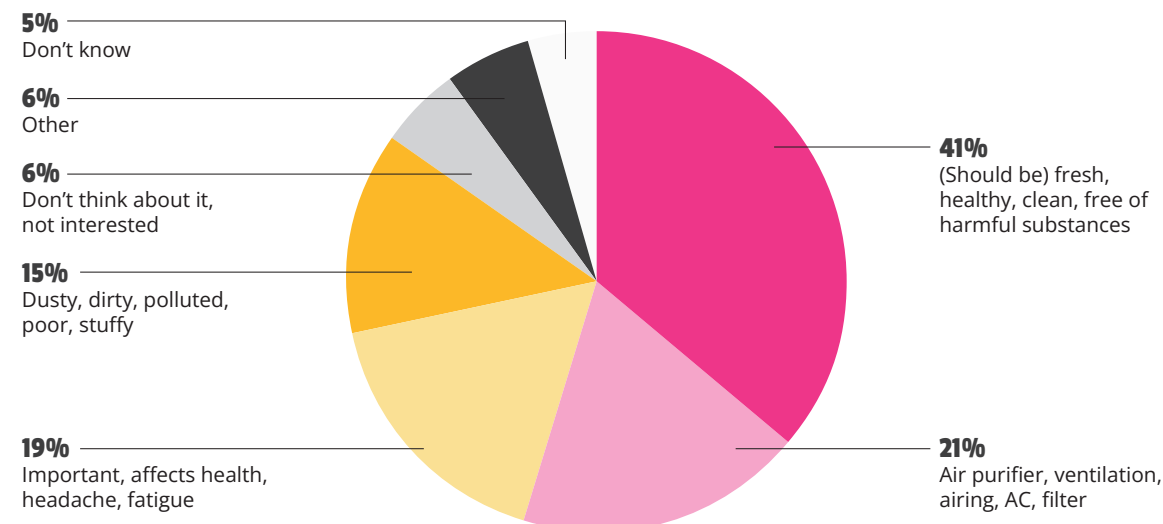
Personal annual income



QUESTION 1

What spontaneous thoughts, feelings or associations do you have when we talk about “indoor air quality”?

The spontaneous associations or thoughts that occur for the public when we talk about indoor air quality vary widely, from more positive to negative. **Only 6% said that they do not think about air quality** in general or that they are not interested in the issue.

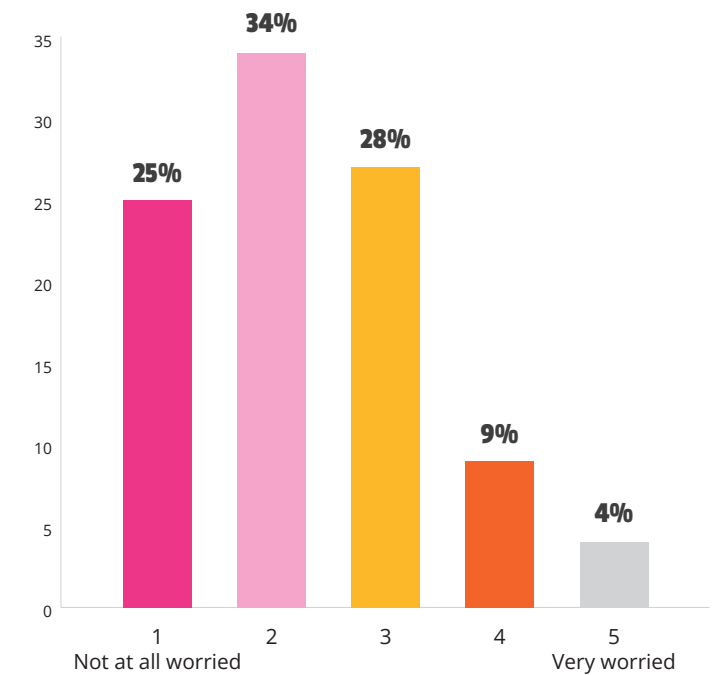


Multiple answers were possible

QUESTION 2

How concerned are you about the quality of the indoor air you breathe in your everyday life?

When we ask specifically how concerned people in general are about the quality of the air they breathe in everyday life, the majority tend to lean towards not being concerned. **1 in 4 say they are not at all concerned.**



“Having clean air in your home is important for your health. Hepa filters are good at removing particles and cleaning the air.”

Male, aged 24, South Sweden, living in tenant-owner property

“The amount of dust particles and impurities in the air.”

Female, aged 38, Stockholm, living in tenant-owner property

“Fresh and crisp.”

Male, aged 32, South Sweden, living in house

“Fresh air, preferably not with all windows closed. It's good to let a little air in.”

Female, aged 48, Central Norrland, living in house

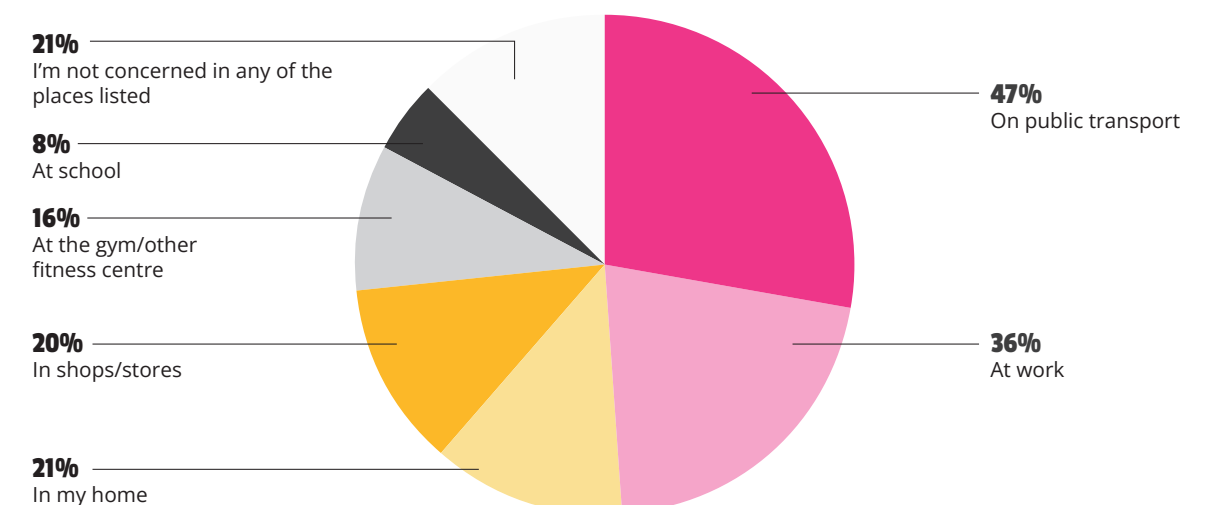
“The indoor air/environment is incredibly important and must be of high quality, for example for health and also for a good night's sleep.”

Male, aged 51, North Central Sweden, living in house

QUESTION 3

In which of these places would you say you are more concerned about indoor air quality in your everyday life than others?

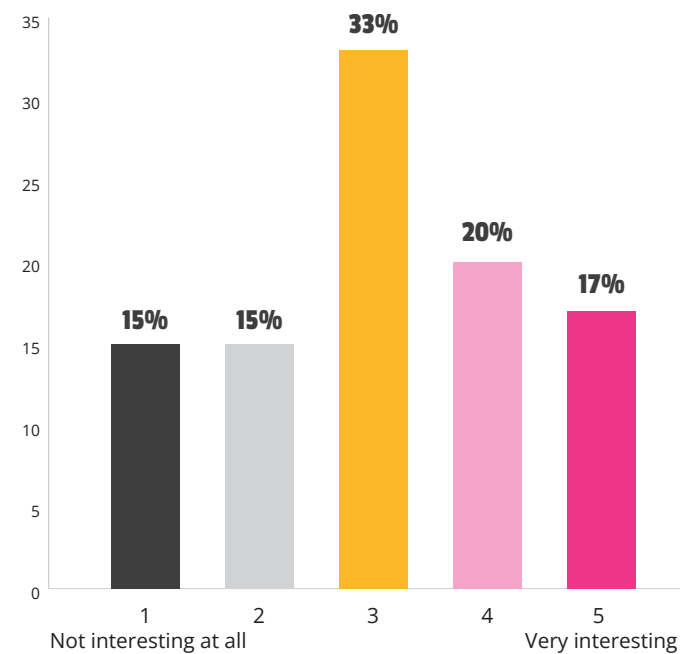
In contrast to question 2, 80% actually state that they are concerned about indoor air quality in their everyday lives, with an emphasis on public transport. Multiple responses were possible.



QUESTION 4

To what extent is this information of interest to you?

After respondents were given brief information* about how building materials can affect air quality, we ask to what extent the information is of interest. **37% indicate that the information is of interest** to them to some extent, which is more than the number who say that it is not of interest (30%). About one in three gives a neutral rating to the question.



**Indoor air quality in Sweden is generally good, but did you know that building materials can have a negative impact on the indoor environment and indoor air by emitting volatile organic compounds? These are substances that can affect our health, for example by irritating our eyes or affecting our airways.*

“I’m aware of it. In our house in Stockholm, there are building materials that need replacing. For example, particle board that emits formaldehyde. My wife has asthma.”

Man, aged 72, Stockholm, living in house

“Very informative text, gives you food for thought.”

Female, aged 52, Småland and the islands, living in house

“I wonder if that’s what is affecting us at home, with itchy eyes and nasal congestion.”

Female, aged 36, Stockholm, living in rented property

“When I renovate and consider new building work, I’m curious about good building materials.”

Male, aged 48, South Sweden, living in house



“Everyone benefits from a healthier indoor environment”

Since the 1950s, the Swedish Asthma and Allergy Association has been a driving force in creating a society that is better adapted for people with asthma, allergies and other hypersensitivities. One important element of this work has been the indoor environment, where the choice of building materials, ventilation and moisture play a crucial role.

The Swedish Asthma and Allergy Association has a mandate to improve the living conditions of everyone suffering from allergies or asthma. But it also works to increase public understanding of how we can create healthier indoor environments. Every year, a large proportion of the population is affected by respiratory problems, making issues relating to indoor climate and air quality an important feature of the association's work. Through their advocacy work, they strive to highlight the problems that often arise in connection with building materials and to disseminate information about the factors that contribute to a good indoor environment.

“Everyone benefits from a healthier indoor environment, not just those suffering from hypersensitivity. Creating good conditions for indoor air and material choices is something that benefits the whole of society,” says **Marie-Louise Luther**, policy expert at the Swedish Asthma and Allergy Association.

Help from digital checklist

Over the years, the Association has built up a wealth of knowledge around the factors that affect the indoor environment, and Marie-Louise Luther stresses that these issues are not only relevant to those with allergies or asthma, but also to other groups, such as children, who are more sensitive than adults. There are many factors that contribute to a good indoor

environment, from good ventilation to avoiding damp and building materials that can cause health problems. To make this possible, the Swedish Asthma and Allergy Association has developed various tools, including “Allergironden”, a digital checklist that helps schools, pre-schools and other public buildings to identify and address environmental factors that can cause health problems and allergic reactions.

“Allergironden is a tool that's been used in many schools to improve the indoor environment, among other things. By reviewing different aspects of the building, such as ventilation, cleaning and material



Marie-Louise Luther, policy expert at the Swedish Asthma and Allergy Association.

choices, you can develop an action plan setting out what needs to be done. It's about creating procedures for a better indoor environment for all.”

Making healthy choices easier

The Association has also been active in advocacy issues, for example, working to bring about government aid to upgrade the indoor environment in school buildings. Although the legal requirements for buildings have not always been sufficient, the Association has continued its work to raise the profile of the issues and create a greater understanding and awareness of the fact that a healthy indoor environment is essential for everyone's well-being.

Another aspect that the Association often highlights is the importance of reducing air pollution and avoiding damp and mould in buildings. Damp can cause serious problems, not only for those who already have allergies, but also for people who may develop respiratory problems, asthma or other health conditions. Marie-Louise Luther explains that there is a strong link between damp in buildings and the development of asthma, and that it is important to prevent problems at an early stage.

“If damp develops in a building, it can create a breeding ground for mould and other micro-organisms. It's important to address damage caused by damp immediately and properly, and to ensure that building materials do not emit harmful substances that can cause health problems. Building with good materials and having good ventilation are crucial to reduce the risk of allergy or hypersensitivity reactions and asthma symptoms,” she says.

Asthma and allergies are endemic diseases that affect a large part of the population. This is why it is important to create buildings and homes that are adapted to deal with these challenges. The Association wants more people to think about health when choosing building materials, and to make it easier for both consumers and construction companies to make healthy choices. This is where labels for building products, such as Asthma Allergy Nordic, have an important role to play. This label means that products have been tested to ensure that they do not contain harmful substances that can cause allergic reactions, eczema or asthma.

“It's important to choose materials that are tried and tested, and to avoid those with high levels of volatile organic compounds (VOCs) or other substances that can cause allergic reactions. There are many good materials to choose from, but

sometimes it can be difficult to know what's the best choice. So we're hoping that more building products will be clearly labelled, so that consumers are better informed,” says Marie-Louise Luther.

The industry must shoulder more responsibility

The Association has also been working with the construction industry to improve building standards and guidelines, to ensure that building materials are not only environmentally friendly, but also healthy. Marie-Louise Luther finds it positive that the construction industry has become more aware of the environmental aspects, but that it is equally important to think about health.

“It's about thinking about both health and the environment. It's good that we've made such progress with environmental requirements, but we also need to think about how these materials affect health. The construction industry must shoulder more responsibility to ensure that building materials do not harm people,” she says.

Although progress has been made in many areas, there is still much to do.

“We want the construction industry to be clearer with its guidelines based on the building regulations, and to make it easier for both consumers and construction companies to make healthy choices,” says Marie-Louise, concluding:

“As long as we continue to prioritise issues relating to the indoor environment, material choices and ventilation, there's a good chance of improving the quality of life for everyone, including those with allergies and asthma.”

This is the Swedish Asthma and Allergy Association

Founded: 1956

Number of members: Approximately 12,000

Focus areas: Advocacy work with a particular focus on children, schools/pre-schools and contributing to research in the field of asthma and allergy.

Website: astmaoallergiforbundet.se



Summary

We've been investigating emissions from building products for 15 years – now the EU is learning from us

Byggvarubedömningen's main mandate has always been to establish traceability of chemical content in building products. Knowing what – and where – different substances have been used in construction projects is our most effective tool to future-proof buildings and the health of the people who live in them.

When it comes to the indoor environment, emissions from building materials are an important factor. Emissions from building products are one of a number of factors that can adversely affect indoor air quality, so it is very encouraging that fewer products with high emissions are being used in Swedish construction projects.

According to the Swedish National Board of Housing, Building and Planning, we spend 90% of our lives indoors, a figure that emphasises how important indoor air is for our well-being. Good air quality and non-toxic materials indoors can help prevent several symptoms such as asthma, skin conditions, fatigue and headaches.

Reports from the Public Health Agency of Sweden indicate more health-related problems in rental properties than in tenant-owner properties. People living in detached houses are the least likely to report problems. We can therefore see that property owners of apartment buildings have a big and important responsibility to renovate smartly, not only from an economic point of view, but also from a health perspective when it comes to which materials to replace and with what.

“We see positive trends in the impact of building materials on indoor air, but of course we want to be even better!”

Despite good progress, our work must continue

We see positive trends in the impact of building materials on indoor air, but of course we want to be even better! By staying at the forefront and maintaining a continuous dialogue with our members about their needs and opportunities, we can evolve and become even more precise in our specification of requirements and criteria. This can involve developing our existing services, or developing new ones. We then hope to be able to find new partnerships with other

actors so that we can continue to develop and offer even better base data to all involved in the construction industry. One current example is our collaboration with Plant in the area of climate data.

As we are unique in having this historical background, statistics and knowledge of emissions in building products, we want to spread the word. Our hope is that we can both contribute to increased knowledge in Sweden and also inspire other countries to work on these issues.

To inspire more countries, we want to share important knowledge about toxic substances in building materials, and one of the ways we do this is through involvement in different projects. For example, we are participating in the EU project NonHazCity3; please feel free to visit our website to find out more.

Today, the taxonomy sets higher requirements for certain emissions at EU level, and with an increased focus on this area, we have a much better platform to reach out with our message and our knowledge. In Sweden, we have a great advantage in the construction industry, as we already have information about both what different products contain and the volume of emissions released. This is a good example of how we are one step ahead of legislation, proactive and a role model in the issue at a global level. Byggarubedömningen's criterion for emissions has been in place for over 15 years, and we assess many more hazardous substances than the EU taxonomy requires.

Our tool is nothing without our users

Byggarubedömningen is the hub between purchasers and suppliers of materials. But without our users, we would be nothing. Our users and members are the ones who drive developments forward and ultimately decide what Byggarubedömningen should be and what we should focus on in the future. Suppliers of materials develop their products based on customers' requirements for chemical content and other sustainability aspects, but also on requirements for function, quality and technology. We continue to see a strong interest in improving, from both purchasers and suppliers of materials. A clear acknowledgement that our work is important and that we are on the right track. Together, we drive developments forward!

Tips – how to make a positive impact on your indoor environment

- Choose eco-labelled products when renovating or cleaning your home. Examples of these are the Nordic Swan Ecolabel, the Swedish Asthma and Allergy Association's labels, the EU Ecolabel or Good Environmental Choice.
- Ventilate and wait at least a few days (preferably a week) before spending time or sleeping in a newly painted room, to ensure that emissions are reduced as much as possible. One tip is to paint in the summer, paint one room at a time and wear long sleeves and a face mask.
- When it comes to ventilation, a mechanical supply and exhaust air system with heat recovery is very beneficial for indoor air. This extracts impure and humid air from the kitchen and bathroom and supplies fresh air to other rooms. For older buildings with poor ventilation and trapped air, it may be worth investing in an air purifier, setting up supply air vents and installing Pax fans in bathrooms.

The criteria we apply

We have based our criteria for chemical content on the Swedish Chemicals Agency's PRIO criteria for hazardous properties. In simple terms, this is a tool that helps companies find and replace hazardous substances in their products. We have then broken down the PRIO criteria to create our own criteria and set content limits for *Recommended* (green), *Accepted* (yellow) and *To be avoided* (red) based on the EU's CLP legislation. Read more about the Swedish Chemicals Agency's PRIO criteria in the separate fact box.



In addition to the PRIO criteria, Byggarubedömningen's criteria are based on two pieces of EU chemicals legislation:

- CLP, which regulates the classification, labelling and packaging of chemical substances and products.
- REACH, which regulates the registration, evaluation, authorisation and restriction of chemical substances.



The Swedish Chemicals Agency's PRIO criteria

The Swedish Chemicals Agency's PRIO criteria were developed in 2004 and have since been revised and updated in 2020. The criteria are divided into two parts:

- Phase-out criteria for substances with serious properties that need to be phased out.
- Prioritised risk reduction criteria for hazardous properties that should be risk-assessed if they are to be used.
- PRIO has a database containing examples of substances that satisfy these properties, and they are aimed at all industries, not just the construction industry.



This year's industry report from Byggvarubedömningen takes a closer look at the indoor environment and the use of toxic building materials. The report is based on the data we collected between 2017 and 2023. We explain in more detail about the trends we can see in the figures and speculate on what the future might hold for non-toxic indoor environments. Byggvarubedömningen's vision is to contribute to the development of non-toxic and sustainable construction for both current and future generations.

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