

1.0	<b>Low Emitting Materials: Adhesives and Sealants</b>	404.02
	For all buildings, including new applications in existing buildings, all adhesives, adhesive bonding primers, adhesive primers, sealants and sealant primers used in the building should not exceed allowed limits of Volatile Organic Compound (VOC), these materials must be accredited / certified from Dubai Central Lab or any source approved by Dubai Municipality	Villas
		Residential/ Commercial
		Public Buildings
		Industrial

## 2.0 Intent/Goal

- Ecology and Planning
- Building Vitality – Hazardous Materials**
- Resource Effectiveness: Energy
- Resource Effectiveness: Water
- Resource Effectiveness: Materials and Waste

## 3.0 Background

Good indoor air quality can have a positive effect on construction workers' and building occupants' comfort, health, and productivity. Many building products and materials include compounds that have an adverse impact on indoor air quality as well as contributing to outdoor pollution. The most prominent of these compounds are Volatile Organic Compounds (VOCs).

Volatile organic chemicals form vapours at normal temperature and pressure, some of which can cause odour and health problems. VOCs are typically used as or included in certain paint additives, aerosol spray can propellants, fuels (such as gasoline, and kerosene), petroleum distillates, dry cleaning products and many other industrial and consumer products ranging from office supplies to building materials.

The use of adhesives and sealants with high VOC components can expose building users to contaminants that are emitted from these products. The use of low-emitting materials minimise the impacts on indoor air quality. While the harm caused by the use of products with high levels of VOC will affect the final users of the building, the greatest harm is often to those who install or apply these products during construction.

As awareness of the negative health impacts of VOCs grows, there are international moves to restrict the use of building and furnishing materials which emit these harmful compounds. The availability of low emitting products in Dubai is growing rapidly and local manufacturers and suppliers are now producing and stocking such products.

## 4.0 Applicability

### 4.1 Type

Main Typology Criteria	Typology Subdivisions	New	Existing	Typology Subdivisions	New	Existing
Villa		✓	✓			
Residential/Commercial	Residential	✓	✓	Commercial	✓	✓
	Apartments	✓	✓	Hotels	✓	✓
	Offices	✓	✓	Resorts	✓	✓
	Labour Accommodation	✓	✓	Restaurants/Food Outlets	✓	✓
	Student Accommodation	✓	✓	Laboratories	✓	✓
Public Buildings	Healthcare Facilities	✓	✓	Retail Outlets	✓	✓
	Educational Facilities	✓	✓	Post Offices	✓	✓
	Government Buildings	✓	✓	Banks	✓	✓
	Worship Houses	✓	✓	Museums	✓	✓



	Petrol Stations	✓	✓	Cinema/theatres	✓	✓
	Shopping Mall	✓	✓	Historical/heritage Buildings*	✓	✓
Industrial	Workshops	✓	✓			
	Factories	✓	✓			
	Warehouses	✓	✓			

## 5.0 Outcome/ Benefit

The use of low-VOC materials will help provide satisfactory indoor air quality. Minimising the amount of indoor air contaminants resulting from the construction and fit-out of buildings will reduce impacts to the health and well-being of building occupants. Healthy building occupants are more productive and have less illness-related absenteeism.

## 6.0 Guidance

### 6.1 General

Many countries are starting to impose maximum levels of VOC for the materials which can be used in buildings. Many major building developers in Dubai are also imposing restrictions on what products can be used.

Should it be considered that adhesives and sealants which have a higher VOC content than allowed by this regulation must be used for special applications in a building, approval for their use must be obtained from Dubai Municipality before they can be used. It is important that if high VOC products are used, all health and safety precautions be taken. Some major building developers in Dubai are already imposing restrictions on what products can be used. These restrictions are also driving the increased availability and use of low VOC materials in Dubai.

This regulation does not apply to adhesives and sealants used on the exterior of a building.

The VOC limits are for adhesives and sealants as supplied, before the addition of any water.

Adhesives and sealants manufacturers should supply material specification data sheets which specify the VOC levels of these products.

### 6.2 Technical Data and Specifications

All adhesives, adhesive bonding primers, adhesive primers, sealants and sealant primers used in the interior of a building must comply with the maximum Volatile Organic Compound (VOC) limits listed in Table 404.02(1).

Table: 404.02 (1) - Maximum VOC Limits of Adhesives and Sealants

Maximum VOC Limits - Grams per litre (g/l) less water			
Architectural Applications		Specialty Applications	
Indoor Carpet Adhesives	50	PVC Welding	510
Carpet Pad Adhesives	50	CPVC Welding	490
Wood Flooring Adhesives	100	ABS Welding	325
Rubber Floor Adhesives	60	Plastic Cement Welding	250
Subfloor Adhesives	50	Adhesive Primer for Plastic	550
Ceramic Tile Adhesives	65	Contact Adhesive	80
VCR & Asphalt Adhesives	50	Special Purpose Contact Adhesive	250
Drywall & Panel Adhesives	50	Structural Wood Member Adhesive	140
Cove Base Adhesives	50	Sheet Applied Rubber Lining Operations	850
Multipurpose Construction Adhesives	70	Top & Trim Adhesive	250
Structural Glazing Adhesives	100		
Substrate Specific Applications		Sealants	
Metal to Metal	30	Architectural	250
Plastic Foams	50	Non-Membrane Roof	300
Porous Materials (except wood)	50	Roadway	250
Wood	30	Single-Ply Roof Membrane	450

