



Health & Safety Department Safety Section

Document Title	Technical Guidelines for Paint Spray Booths
Document Code	DM-HSD-GU42-PSB2
Version #	V 4.0
Issue Date	09/05/2024
Superseded Issue Date	04/10/2021

 حكومة دبي GOVERNMENT OF DUBAI	Organization Unit:	Health & Safety Department	الوحدة التنظيمية:	 بلدية دبي Dubai Municipality
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Document History Log

Any modification to the document must be reviewed and approved
as per the corporate policies and procedures of document control

Version #	Date	Prepared/reviewed by	Modifications summary
4.0	09/05/2024	Safety Section	Adding the new logo of both Dubai Government & Dubai Municipality

Issue Date: 09/05/2024	OPEN DATA / بيانات مفتوحة	Version #: 4.0
Superseded Issue Date: 04/10/2021		Page 2 of 9





 حكومة دبي GOVERNMENT OF DUBAI	Organization Unit:	Health & Safety Department	الوحدة التنظيمية:	 بلدية دبي Dubai Municipality
	Document title:	Technical Guidelines for Paint Spray Booths	اسم الوثيقة:	
	Doc Ref:	DM-HSD-GU42-PSB2	رمز الوثيقة:	

Table of Contents

1	Purpose	.....	4
2	Scope	.....	4
3	Definitions	.....	4
4	Guidelines	.....	5
4-1	General	.....	5
4-2	Spray Booth	.....	6
4-3	Operations and Maintenance	.....	8
4-4	Powder Coating	.....	9
4-5	Personal Protective Equipment	.....	9
5	References	.....	9

 حكومة دبي GOVERNMENT OF DUBAI	Organization Unit:	Health & Safety Department	الوحدة التنظيمية:	 بلدية دبي Dubai Municipality
	Document title:	Technical Guidelines for Paint Spray Booths	اسم الوثيقة:	
	Doc Ref:	DM-HSD-GU42-PSB2	رمز الوثيقة:	

1 Purpose

Spray painting or coating operations poses a health hazard, a fire hazard, and the potential for solvent emission to adversely impact on neighbors resulting in unsafe conditions. Dubai Local Order No. 61 of 1991 requires employers to take adequate precautions to ensure safe working conditions. This technical guideline aims to lay out all the standard procedures that must be in place to ensure the health and safety of workers and the public against possible risks arising from the use of paints in paint spray booths.



2 Scope

This technical guideline applies to all establishments and undertakings involving paint spray booth activities in the Emirate of Dubai

3 Definitions

Definition	Meaning
Paint spray booth	A controlled environment used for spraying paint onto objects, designed to minimize exposure to hazardous paint fumes and overspray, ensuring worker safety and preventing environmental contamination.
Industrial paint spray	The process of applying paint or coating to surfaces within industrial settings, typically using specialized equipment such as spray guns or automated systems to achieve efficient and uniform coverage.
Baffle plates	Metal or plastic panels strategically placed within a paint spray booth to redirect airflow, capture overspray, and enhance the removal of paint particles and fumes, thereby improving ventilation and safety for workers.

Issue Date: 09/05/2024	OPEN DATA / بيانات مفتوحة	Version #: 4.0
Superseded Issue Date: 04/10/2021		Page 4 of 9

 حكومة دبي GOVERNMENT OF DUBAI	Organization Unit:	Health & Safety Department	الوحدة التنظيمية:	 بلدية دبي Dubai Municipality
	Document title:	Technical Guidelines for Paint Spray Booths	اسم الوثيقة:	
	Doc Ref:	DM-HSD-GU42-PSB2	رمز الوثيقة:	

Water curtain	
	A safety feature in paint spray booths consisting of a continuous sheet of water flowing vertically, which intercepts overspray particles and solvent vapors, effectively trapping them and preventing their release into the surrounding environment.

4 Guidelines

4-1 General

4-1-1 Great care shall be taken when mixing, decanting, and transferring paint/solvents where operations involving paints/ solvents producing flammable vapors are carried out:

- Naked flames and lighted cigarettes shall not be permitted.
- All paint/solvent spillage should be mopped up without delay.

4-1-2 Any rags or other combustible material contaminated with paint/solvent should be disposed of in a metal container with metal lid. The container should be emptied regularly. Spraying should be carried out in a properly designed booth with suitable ventilation. Airflow into the booth must be adequate to maintain capture velocity and overcome opposing air currents.



4-1-3 Firefighting equipment should be readily available in hand.

4-1-4 When working with paint which may contain lead, special precautions shall be followed to prevent absorption through skin, swallowing or inhalation of the fumes.

4-1-5 When working in confined spaces, where ventilation is restricted, respiratory protection and the provision of breathing apparatus shall be provided.

4-1-6 Adequate washing facilities, including hand cleansers, shall be made available. Workers shall be instructed to use such facilities before any lunch break and after work.

Issue Date: 09/05/2024	OPEN DATA / بيانات مفتوحة	Version #: 4.0
Superseded Issue Date: 04/10/2021		Page 5 of 9

 حكومة دبي GOVERNMENT OF DUBAI	Organization Unit:	Health & Safety Department	الوحدة التنظيمية:	 بلدية دبي Dubai Municipality
	Document title:	Technical Guidelines for Paint Spray Booths	اسم الوثيقة:	
	Doc Ref:	DM-HSD-GU42-PSB2	رمز الوثيقة:	

4-2 Spray Booth

4-2-1 Construction

- Spray booth shall be:
 - Substantially constructed of steel or other non-combustible material, securely and rigidly supported.
 - Designed to sweep air currents toward the exhaust outlet.
- The interior surfaces of spray booths shall be smooth and continuous without edges to prevent pocketing of residues and facilitate cleaning and washing without injury.
- Spray booths should be fitted with filters, baffles, or water curtains to arrest overspray.

Application rate	Recommended overspray control
Less than 2 liters/hour	Water curtain, fibers, baffles
2 to 4 liters/hour	Water curtain, fiber
More than 4 liters/hour	Water Curtain

Baffle plates are acceptable only for small paint rates or where paint is applied electrostatically.

4-2-2 Floor

The floor surface of a spray booth and operator's working area shall be of non-combustible material of such character as to facilitate the safe cleaning and removal of residues

4-2-3 Distribution or baffle plates



Baffle plates must be properly arranged to promote even flow and fully cover the booth face area, to collect the overspray before it enters the exhaust duct. It shall be of non-combustible material and readily removable or accessible on both sides for cleaning.

4-2-4 Filter type overspray collectors

Dry type spray booths, over-spray dry filters or filter rolls shall conform to the following:

- The air velocity of not less than 30 to 75 linear m/min over the open face of the booth shall be maintained to collect the overspray in spraying operations.
- Maintenance procedures should be established or follow the manufacturer's recommendation on operation to ensure replacing filter pads before excessive restriction to air flow occurs.

Issue Date: 09/05/2024	OPEN DATA / بيانات مفتوحة	Version #: 4.0
Superseded Issue Date: 04/10/2021		Page 6 of 9

	Organization Unit:	Health & Safety Department	الوحدة التنظيمية:	
	Document title:	Technical Guidelines for Paint Spray Booths	اسم الوثيقة:	
	Doc Ref:	DM-HSD-GU42-PSB2	رمز الوثيقة:	

- Filter pads/rolls should be inspected after each period of use and clogged filter pads/rolls shall be discarded and replaced.
- All discarded filter pads/rolls shall be placed in a closed metal container and immediately set aside to a safe well-detached location.
- A dial gauge or manometer should be fitted to indicate static pressure drop across the filters.

4-2-5 *Water curtain*

Water curtain or water wash spray booth fitted with water curtain shall conform with the following:

- The average draft velocity over the open face of the booth shall be not less than 30 m/min.
- Water circulation rate shall be not less than 150 liters/1000 m³ of exhaust air.
- Sprays must function properly, and water must fully cover the down comer plate.
- Mist eliminator shall be installed before the exhaust stack.
- The manometer should be fitted to indicate negative pressure between the entertainment and distribution plates.

4-2-6 *Exhaust Stack*

- The gaseous laden air shall be exhausted through a vertical stack having a minimum height of 1.5 meters or higher in sensitive locations above the maximum roof level of the process building, as per standard.
- The exhaust gas velocity should not be less than 8m/sec.



4-2-7 *Separation of Spray Booths*

- Each spray booth shall be separated from other operations by not less than 3 meters or by a greater distance and partition or wall as to reduce the danger from hazardous operations.
- There shall be no open flame or spark producing equipment or operation in any spraying area within 6 meters unless separated by a non-combustible partition.

4-2-8 *Illumination*

- Illumination of spraying areas shall be through glass panels or other transparent materials.
- Adequate precautions shall be taken against accumulated residue on the exposed panels from getting heated up from the source of illumination.

Issue Date: 09/05/2024	OPEN DATA / بيانات مفتوحة	Version #: 4.0
Superseded Issue Date: 04/10/2021		Page 7 of 9

 حكومة دبي GOVERNMENT OF DUBAI	Organization Unit:	Health & Safety Department	الوحدة التنظيمية:	 بلدية دبي Dubai Municipality
	Document title:	Technical Guidelines for Paint Spray Booths	اسم الوثيقة:	
	Doc Ref:	DM-HSD-GU42-PSB2	رمز الوثيقة:	

- No portable electrical lamps shall be used in any spraying area during spraying operations. If used during cleaning or repair operations, they shall be of the type approved for hazardous locations.

All metal parts of spray booths, exhaust ducts and piping systems conveying flammable or combustible liquid shall be properly electrically grounded.

4-2-9 Ventilation

- All spraying areas shall be provided with mechanical ventilation adequate to remove flammable vapor, mist, or powders.
- Mechanical ventilation shall always be kept in operation while spray operations are being conducted and for a sufficient time thereafter.
- Each spray booth shall have an independent exhaust duct system discharging to the exterior of the building except that multiple spray booths in which identical spray material is used, may have a common exhaust.
- Air exhausted from spray operations shall not be recirculated.
- When necessary to facilitate cleaning, exhaust ducts shall be provided with several access doors.



4-2-10 Fire Protection

An adequate number of suitable portable fire extinguishers shall be installed near the spraying area.

4-3 Operations and Maintenance

- Spraying shall not be conducted outside of predetermined spraying areas.
- All spraying areas shall be kept as free from the accumulation of deposits of combustible residues as practicable, by cleaning.
- Scrapers, spuds, or other such tools used for cleaning purposes shall be of non-sparking material.
- Residue scrapings and debris contaminated with residue shall be immediately removed from the premises and properly disposed of. Metal waste cans shall be provided wherever rags and waste are impregnated with finishing materials.
- The use of solvents for cleaning operations shall be restricted to clean spray nozzles and auxiliary equipment. Employees should not clean their hands or other parts of the body with solvents.

Issue Date: 09/05/2024	OPEN DATA / بيانات مفتوحة	Version #: 4.0
Superseded Issue Date: 04/10/2021		Page 8 of 9

 حكومة دبي GOVERNMENT OF DUBAI	Organization Unit:	Health & Safety Department	الوحدة التنظيمية:	 بلدية دبي Dubai Municipality
	Document title:	Technical Guidelines for Paint Spray Booths	اسم الوثيقة:	
	Doc Ref:	DM-HSD-GU42-PSB2	رمز الوثيقة:	

- “No Smoking” signs shall be posted at all spraying areas and paint storage rooms.

4-4 Powder Coating

- The exhaust ventilation shall be enough to maintain the atmosphere below the lower explosive limit for the materials being applied.
- All non-deposited air-suspended powders shall be safely removed via exhaust ducts to the powder recovery cyclone in series with fabric filters.

4-5 Personal Protective Equipment

- In addition to the engineering controls to ensure that the atmosphere is free from suspended paint spray or powder, chemical cartridge respirators or masks shall be provided and used. Reference should be made to the Health and Safety Department Technical Guideline regarding Respiratory Protection.

<ul style="list-style-type: none"> ▪ Unified interactive platform that connects Dubai Government and its customers: The 04 Platform https://04.gov.ae/ ▪ ☎ Dubai Municipality - Call Center (24/7): 800900 	<ul style="list-style-type: none"> ▪ ✉ safety@dm.gov.ae ▪ ☎ Dubai Municipality - Call Center (24/7): 800900

5 References

- Dubai Occupational Health and Safety Regulations Local Order No. 61 of 1991
- Local Order No. 11 of 2003 regarding Public Health and Safety in the Emirate of Dubai

Issue Date: 09/05/2024	OPEN DATA / بيانات مفتوحة	Version #: 4.0
Superseded Issue Date: 04/10/2021		Page 9 of 9