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ANSI/CAN/UL/ULC 4402:2022

STANDARD FOR SAFETY

Indoor Air Quality in Buildings and Facilities Utilized for the Cultivation and Post-Harvest Processing of Cannabis

Approved American National Standard
ANSI

ANSI/UL 4402-2022

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UL Standard for Safety for Indoor Air Quality in Buildings and Facilities Utilized for the Cultivation and Post-Harvest Processing of Cannabis, ANSI/CAN/UL/ULC 4402

First Edition, Dated July 29, 2022

Summary of Topics

This First edition of ANSI/CAN/UL/ULC 4402 dated July 29, 2022 has been issued to reflect the latest ANSI and SCC approval dates and to incorporate the proposal dated July 2, 2021, October 22, 2021, February 11, 2022 and May 13, 2022.

The requirements are substantially in accordance with Proposal(s) on this subject dated July 2, 2021, October 22, 2021, February 11, 2022 and May 13, 2022.

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ANSI/UL 4402-2022

JULY 29, 2022

ANSI/CAN/UL/ULC 4402:2022

Standard for Indoor Air Quality in Buildings and Facilities Utilized for the Cultivation and Post-Harvest Processing of Cannabis

First Edition

July 29, 2022

This ANSI/CAN/UL/ULC Safety Standard consists of the First Edition.

The most recent designation of ANSI/UL 4402 as an American National Standard (ANSI) occurred on July 29, 2022. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page, Preface or SCC Foreword.

This standard has been designated as a National Standard of Canada (NSC) on July 29, 2022.

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Preface

This is the First Edition of ANSI/CAN/UL/ULC 4402, Standard for Indoor Air Quality in Buildings and Facilities Utilized for the Cultivation and Post-Harvest Processing of Cannabis.

UL is accredited by the American National Standards Institute (ANSI) and the Standards Council of Canada (SCC) as a Standards Development Organization (SDO). ULC Standards is accredited by the Standards Council of Canada (SCC) as a Standards Development Organization (SDO).

This Standard has been developed in compliance with the requirements of ANSI and SCC for accreditation of a Standards Development Organization.

This ANSI/CAN/UL/ULC 4402 Standard is under continuous maintenance, whereby each revision is approved in compliance with the requirements of ANSI and SCC for accreditation of a Standards Development Organization. In the event that no revisions are issued for a period of four years from the date of publication, action to revise, reaffirm, or withdraw the standard shall be initiated.

In Canada, there are two official languages, English and French. All safety warnings must be in French and English. Attention is drawn to the possibility that some Canadian authorities may require additional markings and/or installation instructions to be in both official languages.

Comments or proposals for revisions on any part of the Standard may be submitted at any time. Proposals should be submitted via a Proposal Request in the On-Line Collaborative Standards Development System (CSDS) at https://csds.ul.com.

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This Edition of the Standard has been formally approved by the UL Standards Technical Panel (STP) on Indoor Air Quality In Buildings And Facilities Utilized For The Cultivation, Production And Processing Of Cannabis, STP 4402.

This list represents the STP 4402 membership when the final text in this standard was balloted. Since that time, changes in the membership may have occurred.

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STP 4402 Membership

	GEOGRAPHICAL REPRESENTATION							TOTAL	%
	National	Atlantic and East Coast	Ontario / Quebec	Prairies and West	U.S.A.	China	Australia		
Commercial/ Industrial User				1				**1**	8.33 %
General Interest		1			2			**3**	25.00 %
Government	1							**1**	8.33 %
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Supply Chain			1		1			**2**	16.67 %
TOTAL	**2**	**1**	**1**	**1**	**5**	1	1	**12**	**100 %**
Associate Members									

"In developing the requirements of Clauses 7.2.2.1 and 8.2.2.1, the members of STP 4402 considered several different factors, including but not limited to:

– Conventional ventilation rates intended to limit the strength of odours;

– Regulations for maximum CO_2 exposure for workplace safety;

– The maintenance of minimum oxygen levels whenever a space is occupied;

– The cost of CO_2 enrichment versus the use of makeup air;

– Whether the use of CO_2 and O_2 sensors is widespread in the industry;

– The flexibility of conventional building environment control systems with respect to time-of-day, light/dark cycles, control of gas concentrations, presence or absence of occupants of the conditioned space, and humidity control; and

– The control of safe concentrations of particulates and VOCs, especially during cleaning operations.

For the First Edition of this Standard, the members agreed that requiring a continuous low-level ventilation rate represents a practical solution based on the information available. The members also agreed to develop proposals to revise the Standard, introducing more flexibility in meeting the criteria identified above in practical, realizable building environment control systems and plant growth operations. Users of this Standard interested in participating in this work are requested to contact Underwriters Laboratories Inc. at ULCStandards@ul.com."

International Classification for Standards (ICS): 13.040.30

For further information on UL standards, please contact:

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Phone: (613) 755-2729
E-mail: ULCStandards@ul.com
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This Standard is intended to be used for conformity assessment.

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The intended primary application of this standard is stated in its scope. It is important to note that it remains the responsibility of the user of the standard to judge its suitability for this particular application.

CETTE NORME NATIONALE DU CANADA EST DISPONIBLE EN VERSIONS FRANÇAISE ET ANGLAISE

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INTRODUCTION

1 Scope

1.1 This Standard provides minimum indoor air quality (IAQ) requirements and guidelines for a building or portions of a building utilized for cannabis cultivation, post-harvest processing as well as ancillary spaces.

Note: For the purposes of this Standard, ancillary spaces include areas that support the general operations required to run a cannabis facility. Examples include but are not limited to: Corridors, HVAC/Mechanical Rooms and Electrical Rooms.

1.2 This Standard recognizes the issues surrounding lead paint and asbestos in the built environment. Due to differing legal restrictions and licensure requirements, these materials are beyond the scope of this standard. It is the responsibility of the building owner and/or operator to assure compliance with all regulations applicable within the jurisdiction.

1.3 This Standard does not address: fumigation and insecticidal fogging, ozone generating air cleaning devices, ultraviolet germicidal irradiation (UVGI) exposure from air cleaning devices, nor exposure limits for hydrofluoroalkane (HFA-134a).

1.4 This Standard does not address cannabis related biogenic volatile organic compounds (BVOCs). These BVOCs include thiols (also called volatile sulfur compounds, or VSCs) as part of their natural biological cycles. The VOCs emitted by cannabis include terpenes with main constituents as isoprene, monoterpenes and sesquiterpenes. These terpenes are odorants with extremely low odor thresholds. At the time of this publication, the STP is not aware of any evidence that suggests health hazards are related to cannabis BVOC emissions at the typically observed concentrations.

1.5 This Standard does not include provisions for greenhouses.

2 General

2.1 This Standard provides minimum requirements and guidelines for the acceptable indoor air quality (IAQ) within a building or portion of a building utilized for the cultivation, production and processing of cannabis, in accordance with a Building Indoor Air Quality (BIAQ) Program. The intent of this standard is to minimize the risk that an indoor pollutant or condition can occur at levels harmful to the workers in these buildings.

3 Units of Measurement

3.1 Values stated without parentheses are the requirement. Values in parentheses are explanatory or approximate information.

3.2 Unless otherwise stated, all concentration levels are in parts per million by volume (PPM).

4 References

4.1 The documents shown below are referenced in the text of this Standard. Any undated reference to a code or standard appearing in the requirements of this Standard shall be interpreted as referring to the latest edition of that code or standard.

ASTM D6196, *Standard Practice for Choosing Sorbents, Sampling Parameters and Thermal Desorption Analytical Conditions for Monitoring Volatile Organic Compounds in Air*

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

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