

March 18, 2016

1

UL 3036

GREENGUARD Certification of Residential Indoor Air Quality

Issue Number: 1

March 18, 2016

Summary of Topics

This First issue of GREENGUARD Certification of Residential Indoor Air Quality, UL 3036, covers the procedure and requirements for certain categories of residential buildings under the UL Environment program for Residential Indoor Air Quality (Res-IAQ).

Subject to these terms and conditions and those in any other agreements between you and Underwriters Laboratories Inc. (UL) and/or their representatives, you are hereby granted a limited, non-exclusive, non-transferable license to use the outline solely for your internal, non-commercial business purposes. The outline is not being sold, and other than the limited license granted herein UL retains all rights, title and interest (including exclusive ownership) in the outline and all copyright therein. UL reserves the right to regain possession of the outline from you at any time. When no longer needed, you agree to destroy the outline (if in hardcopy form) or delete and purge the outline from your files (if in electronic form). No part of the outline may be reproduced, modified, stored in a retrieval system, or transmitted in any form by any means, whether electronic, mechanical photocopying, recording, or otherwise without prior written permission of UL. You further agree not to create any derivative works from the outline or remove or alter any copyright or other proprietary notices in the outline. The limited license to use the Standard shall automatically terminate upon your breach of any of the terms and conditions herein or any other agreement between you and UL and/or their representatives.

UL provides this outline "as is" without warranty of any kind, either expressed or implied, including but not limited to, the implied warranties of merchantability or fitness for any purpose.

In no event will UL or any of their affiliates be liable for any special, incidental, consequential, indirect or similar damages, including loss of profits, lost savings, loss of data, or any other damages arising out of the use of or the inability to use this outline, even if UL or their authorized representative has been advised of the possibility of such damage. In no event shall UL's liability for any damage ever exceed the price paid for the license to use this outline, regardless of the form of the claim.

Users of the electronic versions of UL's outline agree to defend, indemnify, and hold ULI, their affiliates and each of their respective trustees, officers, employees, agents and representatives harmless from and against any loss, expense

liability, damage, claim, or judgment (including reasonable attorney's fees) resulting from any error or deviation introduced while purchaser is storing an electronic outline on the purchaser's computer system.

COPYRIGHT © 2016 UNDERWRITERS LABORATORIES INC.

CONTENTS

INTRODUCTION

1 Scope	4
2 Units of Measurement	5
3 Undated References	5
4 Glossary	5

CONSIDERATION OF DESIGN ELEMENTS

5 Design and Material Review	7
------------------------------------	---

DOCUMENT REVIEW

6 General	9
-----------------	---

BUILDING IAQ INSPECTION

7 General	9
7.1 Building IAQ Inspection	9
7.2 Proportion of Units/Buildings to be included in the Assessment	9
7.3 Selection of Units to Assess	9
8 Inspection	10
8.1 Inspection Elements	10
8.2 Physical Inspection	10
8.3 Readings and Samples: Core Parameters	10
9 Moisture Survey and Moisture Management Plan	11
10 INFRA-RED Camera Surveys of Accessible Surfaces	12
11 Requirement to Provide Guidance Document to Occupants	12

APPENDIX A

A1 External References	A1
------------------------------	----

APPENDIX B

INTRODUCTION

1 Scope

1.1 This document provides the procedure and requirements for certain categories of residential buildings under the UL Environment program for Residential Indoor Air Quality (Res-IAQ).

1.2 Occupants and their activities introduce multiple factors that affect IAQ, and that cannot be reliably normalized for comparison to specific criteria. Thus requirements in this document apply to buildings in the new “as-built” state, and prior to first occupancy.

1.3 Requirements of this document can be applied to:

- a) Multi-family residential buildings;
- b) A specific model of manufactured or modular residential buildings; or
- c) A series of essentially identical site built residences using the same design, schedule of materials and equipment.

1.4 These requirements can be met to a given model of modular/manufactured housing (rather than individual units) or complete floors or blocks of floors of multifamily residential buildings, or to a group of essentially identical individual residential buildings. The building requirements will include aspects of design of the building, review and selected testing of materials/components, as well as assessing the status of the IAQ prior to occupancy. The defined scope of the requirements, including the model or the extent of the building that is included and the phases that are assessed will be stated on the certificate.

1.5 This outline recognizes the issues surrounding Legionella in the built environment. Due to differing legal restrictions and licensure requirements, the microbial content and colonization of Legionella are beyond the scope of this outline. It is the responsibility of the building owner and/or operator to assure compliance with all regulations applicable within the jurisdiction. For multi-family residential buildings, if there is no regulation within the jurisdiction, then a written policy pertaining to Legionella shall be required as a criterion for requirements.

1.6 These requirements provide a review of basic information about the materials and components used in the building, considers recognized design features that can affect IAQ, requires emissions testing of selected materials/components and conducts an initial assessment of the status of representative units as related to Indoor Air Quality (IAQ). The focus of the reviews and assessments is on the quality of the indoor air – i.e. performance. The program recognizes however that design, material selection, construction and initial operation all must be considered to minimize the risk of poor IAQ. The program also recognizes that even proper consideration of these factors is not a guarantee of satisfactory IAQ.

2 Units of Measurement

2.1 For the purposes of these requirements, values shall be reported in accordance with the requirements of the specific criteria and shall be in metric units. If a manufacturer's choice of units deviates, that change shall be documented and justified as to the reason and relevance for that change.

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

3 Undated References

3.1 Any undated reference to a code or standard appearing in the requirements of this Outline shall be interpreted as referring to the latest edition of that code or standard.

4 Glossary

4.1 For the purpose of these requirements, the following definitions apply.

4.2 ACH – Air changes per hour with outdoor (fresh) air.

4.3 AIR TEMPERATURE, DEW POINT (T_{dp}) – Temperature at which condensation (dew) will form from water vapor in air.

4.4 AIR TEMPERATURE, DRY BULB (T_{db}) – Temperature of air as measured independently of humidity effects (temperature).

4.5 ASSESSMENT – The multicomponent process of evaluating a building interior for Indoor Air Quality (IAQ).

4.6 BUILDING ENCLOSURE (OR ENVELOPE) – Materials, components and assemblies that separate the interior of a building from the external environment (collectively the walls, roof and bottom of a building).

4.7 CERTIFIED BUILDING – Refers to either an entire building or the portion of the building that is included within the scope of assessment and requirements.

4.8 COLD CLIMATE – Climate zones with greater than 3000 heating degree days (18°C basis) per year.

4.9 COUNT CONCENTRATION (PM) – The number of particles per volume of air ($\#/cm^3$ or $\#/m^3$).

4.10 DEW POINT – See AIR TEMPERATURE (DEW POINT).

4.11 HUMID CLIMATE – Areas within climate zones 1, 2 or 3 as defined by ASHRAE that receive more than 50 cm of precipitation annually.

4.12 HVAC – The heating, ventilation and air conditioning systems of a building including the outdoor (fresh) air intake, filters and cooling coils.