BUILDINGS 2021-012 BULLETIN

OTCR

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PURPOSE: This document establishes the acceptable use of artificial intelligence in detecting façade defects and deterioration.

SUBJECT(S): Innovation Challenge, Façade, Exterior Wall Inspection, FISP, Artificial Intelligence Software

RELATED CODE SECTIONS: AC 28-302, 1 RCNY 103-04

I. INNOVATION CHALLENGE COMPETITION

In 2020 the Department of Buildings launched the **Hack the Building Code Innovation Challenge** competition. The competition sought ideas for modernizing the construction process by improving buildings and keeping construction workers and the public safe. The Department's website provides a **list of the winning technologies**.

One of the competition's winning technologies is the use of artificial intelligence in detecting façade defects and deterioration. This Bulletin establishes the acceptable use of artificial intelligence when used for detecting façade defects and deterioration.

II. BACKGROUND

The New York City Administrative Code section 28-302 prescribes the requirements for inspecting and maintaining the exterior wall and appurtenances in a safe condition. The Department's rule, 1-RCNY 103-04, outlines the process for such exterior wall inspections. As part of the Qualified Exterior Wall Inspector's (QEWI) work, defects and deficiencies in the façade and façade components must be identified and remedied. While hands-on inspections are required, QEWIs may use technologies such as artificial intelligence to further determine areas of concerns and unsafe conditions. These technologies may support and improve the accuracy of the QEWI's work and create more targeted repair programs for building owners. This Bulletin intends to guide design professionals interested in utilizing such software, even if not directly regulated by the NYC Construction Codes.

III. DESCRIPTION

The use of artificial intelligence (AI) is rapidly expanding into new applications, including façade inspections. Self-learning software and programs can now detect and classify visible damage to various types of structures and materials. Developments in artificial intelligence, specifically deep learning for computer vision, allow faster detection and locates damage by analyzing inspection images from photographs or videos.

IV. USES

AI programs and software targeting façade defects may be used to supplement the work of a QEWI in identifying defects and deficiencies in façades and façade components.

Restrictions: Hands-on inspections are still required, and AI tools will not supplant those requirements.

V. EVALUATION SCOPE

NYC Construction Codes, 1-RCNY 103-04

VI. ACCEPTABLE USE CONDITIONS

Buildings subject to the requirements of the Façade Inspection Safety Program (FISP) are mandated to have a Critical Examination of the building exterior walls performed by a QEWI, who will then file a Critical Examination report with the Department. All output from an AI software or program used as part of required façade inspections must be verified by the QEWI, and all façade conditions identified in the Critical Examination report are the responsibility of the QEWI.