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Standard Guide for Readily Observable Moisture Affected Materials and Conditions Conducive to Elevated Moisture in Commercial Buildings: Visual Moisture Assessment Process[1]

This standard is issued under the fixed designation E3026; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 *Purpose*—The purpose of this *guide*[2] is to define good commercial *practice* for conducting a *baseline survey* for *readily observable moisture affected materials* and conditions conducive to elevated *moisture* in a *commercial building* related to a *commercial real estate transaction* or *commercial real estate asset management* by conducting: a *walk-through survey*, document reviews, and *interviews* as outlined within this *guide*. This *guide* is intended to provide a practical means for the visual identification of *moisture affected materials* and *physical deficiencies conducive to elevated moisture* as a result of water infiltration through the *building envelope* or substructure, or generated within the *subject building* as a result of processes or mechanical systems, excluding *de minimis conditions*. This *guide* is to allow a *user* to assess general *moisture* concerns, as well as the potential need for further assessment or other actions that may be appropriate that are beyond the scope of this *guide*. For purposes of this *guide*, the initialism "*VMA*" or "*Visual Moisture Assessment*" is used interchangeably with this *guide's* full title.

1.2 *Purpose Limitations*—While a *VMA* may be used to *survey* for readily identifiable *moisture affected materials* and *physical deficiencies conducive to elevated moisture*, the *VMA* is not designed to serve as *comprehensivesurvey* for the presence of *moisture affected materials* and *physical deficiencies conducive to elevated moisture* in all or most areas in a *commercial building*. It is not intended to reduce or eliminate the risks that elevated *moisture* may pose to the *subject building* or its *occupants*.

1.3 *Considerations Beyond This Scope*—The use of this *guide* is strictly limited to the scope set forth in this section. Section 12 of this *guide* identifies, for informational purposes, certain physical conditions (not an all-inclusive list) that may exist at a *property* and certain activities or procedures (not an all-inclusive list) that are beyond the scope of this *guide* but may warrant consideration by *users*. The need to investigate any such conditions in the *provider's* scope of services should be evaluated based upon, among other factors, the nature of the *property* and the reason for conducting the *VMA*. The scope of such further investigation or testing services should be agreed upon between the *user* and the *provider* as additional services, which are beyond the scope of this *guide*, prior to initiation of the *VMA* process. The responsibility to initiate work beyond the scope of this *guide* lies with the *user*.

1.3.1 Sampling for suspect *fungi* and other forms of *biological growth* is a non-scope consideration under this *guide*.

1.3.2 Sampling or otherwise measuring for *moisture* is a non-scope consideration under this *guide*.

1.4 *Organization of the Guide*—This *guide* has 13 sections and three appendices. Section 1 defines the Scope. Section 2 is Referenced Documents. Section 3 is Terminology. Section 4 defines the Significance and Use of this *guide*. Section 5 describes User Responsibilities. Sections 6 through 11 provide guidelines for the main body of the *report*, including the scope of the *walk-through survey* and preparation of the *report*. Section 12 and Appendix X1 identify Out of Scope Considerations. Section 13 lists keywords for Internet reference. Appendix X1 provides the *user* with additional *VMA* scope considerations, whereby a *user* may increase this *guide's baseline* scope of *due diligence* to be exercised by the *provider*, Appendix X2 provides the *user* with a suggested Interview Checklist, and Appendix X3 provides the *user* with a suggested Field Checklist.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

[1] This guide is under the jurisdiction of ASTM Committee E50 on Environmental Assessment, Risk Management and Corrective Action and is the direct responsibility of Subcommittee E50.02 on Real Estate Assessment and Management.

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[2] Whenever terms defined in Section 3 are used in this guide, they are in *italics*.

2. Referenced Documents

2.1 *ASTM Standards:*[3]

D7338 Guide for Assessment Of Fungal Growth in Buildings

E631 Terminology of Building Constructions

E1527 Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process

E1528 Practice for Limited Environmental Due Diligence: Transaction Screen Process

E2018 Guide for Property Condition Assessments: Baseline Property Condition Assessment Process

3. Terminology

3.1 *Scope*—This section provides definitions, descriptions of terms, and a list of acronyms for many of the words used in this *guide*. The terms are an integral part of the *guide* and are critical to an understanding of the *guide* and its use.

3.2 *Definitions:*

3.2.1 *actual knowledge*—the knowledge actually possessed by an individual who is a real person, rather than an entity. *Actual knowledge* is to be distinguished from constructive knowledge, which is knowledge imputed to an individual or entity.

3.2.2 *architect*—designation reserved by law for a person professionally qualified, examined, and registered by the appropriate governmental board having jurisdiction, to provide architectural services including, but not limited to, analysis of project requirements and conditions, development of project design, production of construction drawings and specifications, and administration of construction contracts.

3.2.3 *baseline*—the minimum level of *observations*, inquiry, research, document review, and preparation of opinions for conducting a *VMA* as described in this *guide*.

3.2.4 *biological growth*—visible *moisture*-related growths such as algae, *fungi*, lichens, mosses, bacteria, and higher plants. The term may also be considered to include references to mold, mildew, mushrooms, or any plant matter.

3.2.5 *building department records*—those records of the *local government agency* in which the *property* is located indicating permission of the local government to construct, alter, or demolish improvements on the *property*. Often *building department records* are located in the building department of a municipality or county.

3.2.6 *building envelope*—the outer elements of a building, both above and below ground, which divide the external from the internal environments. Commonly included are exterior walls, windows, doors, roofs and subfloors. **E631**

3.2.7 *building system*—interacting or independent *components* or assemblies, which form single integrated units, that comprise a building and its site work, including, but not limited to, structural frame, roofing, exterior walls, plumbing, HVAC, electrical, and so forth.

3.2.8 *commercial building*—structure except a dwelling or structure with four or less *dwelling units* exclusively for residential use. This term includes, but is not limited to, structures used for industrial, retail, office, hospitality, agriculture, other commercial, medical, or educational purposes; *property* used for residential purposes that has more than four residential *dwelling units*; and structures with four or less *dwelling units* for residential use when it has a commercial function, as in the operation of such dwellings for profit.

3.2.9 *commercial real estate*—improved real *property* except a dwelling or *property* with four or less *dwelling units* exclusively used for residential use. This term includes, but is not limited to, improved real *property* used for: industrial, retail, office, hospitality, agriculture, medical, educational, or other commercial purposes; and residential purposes provided that there are more than four residential *dwelling units*; and *property* with four or less *dwelling units* for residential use when it has a commercial function, as in the operation of such dwellings for profit.

3.2.10 *commercial real estate asset management*—for purposes of this *guide*, this term means actions taken either in response to a reported or *observed* condition, or for preventive or planning purposes, by parties having a management interest (for example, as landlord, *property* manager, *owner*, investor, tenant, and so forth) in improved *commercial real estate*.

3.2.11 *commercial real estate transaction*—for purposes of this *guide*, this term means a transfer of title to (for example, sales/acquisition) or possession (for example, lease) of improved real *property*, or the receipt of a security interest, mortgage, or the placing of a lien on improved *commercial real estate* (for example, lending) excepting individual dwellings.

3.2.12 *component*—a portion of a *building system*, piece of equipment, or building element.

3.2.13 *comprehensive*—complete, thorough, entire, methodical, and detailed.

3.2.14 *dangerous condition*—conditions that may pose a threat or possible injury to the *field observer* and which may require the use of special protective clothing, safety equipment, access equipment, or other precautionary measures.

3.2.15 *deferred maintenance*—physical deficiencies that could have been remedied with routine maintenance, normal operating maintenance, and so forth, excluding *de minimis conditions* that generally do not present a material physical deficiency to the *subject property*. **E2018**

3.2.16 *de minimis condition*—a description of deficiencies that are not material to the condition of the *property* or do not require significant costs to correct. **E2018**

3.2.17 *dismantling*—to take apart or remove any *component*, device, or piece of equipment that is bolted, screwed, secured, assembled, or fastened by other means.

3.2.18 *due diligence*—the process of inquiring into the characteristics of a parcel of *commercial real estate*, usually in connection with a *commercial real estate transaction*. The degree, scope, and kind of *due diligence* vary for different properties and differing purposes of the *user*.

[3] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

3.2.19 *dwelling unit*—structure or portion thereof used for residential habitation.

3.2.20 *easily visible*—describes items, *components*, and systems that are conspicuous, patent, and which may be *observed* visually during the *walk-through* without: intrusion, removal of materials, exploratory probing, use of special protective clothing, or use of special equipment.

3.2.21 *engineer*—designation reserved by law for a person professionally qualified, examined, and licensed by the appropriate governmental board having jurisdiction, to provide engineering services.

3.2.22 *environmental site assessment*—the process by which a person or entity seeks to determine if a particular parcel of real *property* (including improvements) is subject to recognized environmental conditions as defined in ASTM Standard Practice E1527, or potential environmental concerns as defined in ASTM Standard Practice E1528, or any other environmental assessment.

3.2.23 *extraordinary physical search*—surveying of confined locations that are difficult to either physically access or *observe* within a *commercial building*. These locations include, but are not limited to, within wall or false ceiling cavities, mechanical or electrical system chases, wall or duct insulation, on the backing of carpeting, within crawl spaces, in confined spaces, or in other inconvenient locations.

3.2.24 *field observer*—an individual who conducts site activities in connection with a *VMA* in accordance with this *guide*.

3.2.25 *fungus*—(pl. *fungi*) as defined in Guide D7338, a kingdom of organisms including molds, mildews, mushrooms, yeasts and many parasites. These are important decomposers in ecosystems. *Fungi* are typically multi-cellular *fungi* with filamentous vegetative hyphae.

3.2.26 *fungal growth*—as defined in Guide D7338, vegetative portion of a *fungus*.

3.2.27 *guide*—a series of options and instructions that do not recommend a specific course of action. See also *standard*.

3.2.28 *health department records*—those records of the *local government agency*, where the *property* is located, with the responsibility to maintain health-related files regarding the *property*. Often *health department records* are located in the Health Department of a municipality or county.

3.2.29 *interviews*—discussions with those knowledgeable about the *subject building*, its construction, and history or who may have information related to the *building systems* or *components*.

3.2.30 *key site manager*—the person identified by the *owner* of a *commercial real estate* as having good knowledge of the history, uses, operation, management, and physical characteristics of the *commercial building*.

3.2.31 *limited*—not *comprehensive* in scope or purpose.

3.2.32 *local government agencies*—those agencies of municipal or county government having jurisdiction over the *property*. Municipal and county government agencies include, but are not limited to, cities, towns, parishes, townships, and similar entities.

3.2.33 *material*—having significant importance or great consequence to the *subject property's* intended use or physical condition.

3.2.34 *moisture*—water as liquid, vapor, or solid (for example, ice, frost, or snow) in any combination or in transition.

3.2.35 *moisture affected materials*—materials that have been observably affected by *moisture*, water and/or other liquid. Such affects may include, but are not limited to, staining, streaking, erosion, corrosion, efflorescence, residues, rotting, fungal and/or *biological growth*, excluding *de minimis conditions* that generally do not represent an increased risk for elevated *moisture*.

3.2.36 *observe*—to conduct an *observation* pursuant to this *guide*.

3.2.37 *observation*—the *survey* of items, systems, conditions, or *components* that are *readily accessible* and *readily observable* during a *walk-through survey* of the *subject property*.

3.2.38 *obvious*—that which is plain or evident; a condition or fact that could not reasonably be ignored or overlooked by a *field observer* while *visually observing* the *property*.

3.2.39 *occupants*—those tenants, subtenants, or other persons or entities using the *property* or a portion of the *property*.

3.2.40 *owner*—the entity holding the title to the *commercial real estate* that is the subject of the *VMA*.

3.2.41 *physical deficiency conducive to elevated moisture*—conspicuous or patent defects or significant *deferred maintenance* of a *commercial building's building systems*, site or building *components* that could lead to water infiltration or *elevated moisture* conditions as *observed* during the *field observer's walk-through survey*, excluding *de minimis conditions* that generally do not represent an increased risk for *elevated moisture*.

3.2.42 *practically reviewable*—information that is *practically reviewable* means that the information is provided in a manner and in a form that, upon examination, yields information relevant to the *property* without the need for extraordinary analysis of irrelevant data.

3.2.43 *practice*—a definitive procedure for performing one or more specific operations or functions that does not produce a test result.

3.2.44 *property*—the real *property* that is the subject of the *VMA* described in this *guide*. Real *property* includes buildings and other fixtures and improvements located on the *property* and affixed to the land.

3.2.45 *property condition assessment (PCA)*—as defined in Guide E2018, the process by which a person or entity observes a *property*, interviews sources, and reviews available documentation for the purpose of developing an opinion and preparing a *property condition report* of a commercial *property's* current physical condition.

3.2.46 *property condition report (PCR)*—a written *report*, prepared in accordance with Guide E2018, that outlines the consultant's observations, opinions as to the *subject property's*

condition, and opinions of probable costs to remedy the material physical deficiencies *observed*.

3.2.47 *provider*—the entity or individual that prepares the *VMA* and that is responsible for the observance of and reporting on the presence of *moisture affected materials* and *physical deficiencies conducive to elevated moisture* within a *commercial building* in accordance with this *guide* as defined in 7.1.

3.2.48 *publicly available*—the source of the information allows access to the information to anyone upon request.

3.2.49 *readily accessible*—describes areas of the *subject building* that are promptly made available for *observation* to the *field observer* at the time of the *walk-through* of the *subject building* and does not require the removal of materials, personal *property*, equipment, or similar items and that are safely accessible in the opinion of the *field observer*. Use of extraordinary means and methods to access or *observe* suspect materials render such materials inaccessible (for example, fall protection, mechanical lifts, confined space entry, lockout/tag-out, energized systems, and so forth) is excluded. An area is said to be *readily accessible* if it can be *observed*, and identified in a safe manner without causing objectionable damage to such material or other building materials. The necessity to use ladders or stools to reach ceiling materials, the need to move lay-in ceiling tiles to view *components* above such lay-in ceilings, the need to remove goods in a retail establishment to look below shelves, or the need to look beneath carpet (at corners or existing holes only) does not render a material inaccessible. The presence of fixtures, furnishings, equipment, or similar items within the area to be assessed or restricted access (that is, locked doors or denied access or authorization to enter) may render materials not *readily accessible*. For example, materials located underground within crawl spaces or below-grade confined areas such as vaults or tunnels, below concrete slabs, or within walls without access panels, shafts, or chases that are not *readily accessible*.

3.2.50 *readily observable*—describes a physical condition that is *obvious*, patent, and *readily accessible*.

3.2.51 *reasonably ascertainable*—information that is *(1) publicly available*, *(2)* obtainable from its source within reasonable time and cost constraints, and *(3) practically reviewable*.

3.2.52 *reasonably available information*—information that is provided and received from the *user* or the party designated by the *user* prior to or during the *walk-through*.

3.2.53 *records review*—that part that is contained in Section 7 of this *guide* addresses which records shall or may be reviewed.

3.2.54 *report*—the written record prepared by the *provider* and constituting part of a *VMA*, as required by this *guide*.

3.2.55 *representative observations—observations* of a reasonable number of samples of repetitive systems, *components*, areas, and so forth, which are conducted by the *field observer* during the *walk-through survey*. The concept of *representative observations* extends to all conditions, areas, equipment, *components*, systems, buildings, and so forth to the extent that they are similar and representative of one another.

3.2.56 *site visit*—the visit to the *subject property* during which *observations* are made constituting the *walk-through survey* section of this *guide*.

3.2.57 *standard*—as used in ASTM, a document that has been developed and established within the consensus principles of the ASTM and that meets the approval requirements of ASTM procedures and regulations. This term herein is used interchangeably with *guide* (“this *guide*”).

3.2.58 *subject building*—referring to the primary building or buildings on the *subject property*, and which are within the scope of the *VMA*.

3.2.59 *subject property*—the *commercial real estate* consisting of the site and *commercial building* that are the subject of the *VMA* described by this *guide*.

3.2.60 *sump*—a pit, cistern, cesspool, or similar receptacle where liquids drain, collect, or are stored, whether above or below grade.

3.2.61 *survey—observations* made by the *field observer* during a *walk-through survey* to obtain information concerning the *subject property’s readily accessible* and *easily visible components* or *building systems*.

3.2.62 *swale*—a low-lying or depressed and often wet stretch of land that is either natural, or manmade, often for drainage purposes.

3.2.63 *timely access*—entry provided to the *field observer* at the time of the *walk-through*.

3.2.64 *user*—the person, persons, or entity retaining the *provider* to conduct the *VMA* in accordance with this *guide*. A *user* may include, but is not limited to, a purchaser, *owner*, existing or potential mortgagee, lender, lessee, or *property* manager of the *subject building*.

3.2.65 *visually and/or physically observed*—during a *site visit* pursuant to this *guide*, this term means *observations* made by vision, or other sensory perception, while performing a *walk-through*.

3.2.66 *VMA*—the process described in this *guide*.

3.2.67 *VMA reviewer*—the individual who reviews the *VMA* prior to delivery to the *user*.

3.2.68 *walk-through*—a *walk-through* of the *commercial building* to make *observations* in order to complete the *VMA* Checklist. It is the intent of this *guide* that this *walk-through* should not be considered exhaustive or *comprehensive* in nature and is subject to the limitations of this *guide*.

3.3 *Acronyms:*

3.3.1 *ASTM*—American Society for Testing and Materials International

3.3.2 *FIRM*—flood insurance rate map

3.3.3 *HVAC*—heating, ventilation, and air conditioning

3.3.4 *IAQ*—indoor air quality

3.3.5 *PCA*—property condition assessment

3.3.6 *PCR*—property condition report

3.3.7 *VMA*—visual moisture assessment

4. Significance and Use

4.1 *Use*—This *guide* is intended for use on a voluntary basis by parties who wish to obtain a limited *survey* of *commercial real estate* to assess for *readily observable moisture-affected materials* and *physical deficiencies conducive to elevated moisture* as part of a *commercial real estate transaction* or commercial *property* management. This *guide* is intended to constitute a *baseline* inquiry using *representative observations* for the purposes of conducting *due diligence* regarding the actual and potential presence of *readily observable moisture affected materials* and *physical deficiencies conducive to elevated moisture* in connection with a *property*. Inquiries that are more and less *comprehensive* than this *guide* (including, in some instances, no inquiry) may be appropriate in some circumstances in the opinion of the *user* (for example, when the presence of *moisture affected materials* is known to the *user*). Furthermore, no implication is intended that a person must use this *guide* in order to be deemed to have conducted appropriate inquiry in a commercially prudent or reasonable manner in a particular transaction. Nevertheless, this *guide* is intended to reflect a commercially prudent and reasonable inquiry. However, a *VMA* is not intended to serve as a *comprehensivesurvey* for the presence of *readily observable moisture affected materials* and *physical deficiencies conducive to elevated moisture* in all or most of the *building systems* throughout a *commercial building*.

4.2 *Clarification of Use:*

4.2.1 *Specific Point in Time*—Because conditions conducive to elevated *moisture* in a building can vary greatly over time due to changes in weather, interior air handling and conditioning, occupancy, and so forth, a *user* should only rely on the results presented in the *report* for the point in time at which the *VMA* was conducted.

4.2.2 *Site-Specific*—This *guide* is site-specific in that it relates to assessment of *readily observable moisture affected materials* and *physical deficiencies conducive to elevated moisture* within a specific *commercial building*. Consequently, this *guide* does not address many additional issues raised in *commercial real estate transactions* such as purchases of business entities, or interests therein, or of their assets, that may well involve liabilities pertaining to properties previously owned or operated or other on-site or off-site liabilities.

4.2.3 *Residential Tenants/Purchasers and Others*—No implication is intended that it is currently customary *practice* for residential tenants of multifamily residential buildings, or other residential real estate to conduct a *VMA* in connection with these transactions. Thus, these transactions are not included in the term *commercial real estate transaction*, and it is not intended to imply that such persons are obligated to conduct a *VMA* in connection with these transactions for purposes of appropriate inquiry or for other purposes.

4.3 *Who May Conduct*—The *walk-through survey* portion of a *VMA* should be conducted by a *field observer* qualified as outlined in Section 7.

4.4 *Additional Services*—As set forth in 11.13, additional services may be contracted for between the *user* and the *provider*. Such additional services may include *moisture* metering, sampling of suspect *fungal growth*, invasive testing, thermographic imaging, *environmental site assessments*, *property condition assessments* or other services not included within the scope of this *guide*, examples of which area identified in Section 12 under Out of Scope Considerations.

4.5 *Principles*—The following principles are an integral part of this *guide* and are intended to be referred to in resolving ambiguity or exercising such discretion as is accorded the *user* or *provider* in conducting a *VMA* or in judging whether a *user* or *provider* has conducted appropriate inquiry or has otherwise conducted an adequate *VMA*.

4.5.1 *Uncertainty Not Eliminated*—No limited *survey* of *readily observable moisture affected materials* and *physical deficiencies conducive to elevated moisture* can wholly eliminate uncertainty regarding the potential for *readily observable moisture affected materials* and *physical deficiencies conducive to elevated moisture* to be present at a *property*. Performance of a *VMA* pursuant to this *guide* is intended to reduce, but not eliminate, uncertainty regarding the current *readily observable moisture affected materials* and *physical deficiencies conducive to elevated moisture* at a *property* nor to eliminate the potential for *readily observable moisture affected materials* and *physical deficiencies conducive to elevated moisture* to be or to become present. The *guide* recognizes a *provider's* findings may be determined under time constraints, formed without the aid of testing, exploratory probing, the removal of materials, design, or other technically exhaustive means.

4.5.2 *Not Exhaustive*—Appropriate inquiry does not mean an exhaustive assessment of a *property*. There is a point at which the cost of information obtained or the time required to gather it outweighs the usefulness of the information and, in fact, may be a material detriment to the orderly completion of transactions. One of the purposes of this *guide* is to identify a balance between the competing goals of limiting the costs and time demands inherent in performing a *VMA* and the reduction of uncertainty about unknown conditions resulting from additional information.

4.5.3 *Activity Exclusions*—Certain activities are generally excluded from or otherwise represent limitations to the scope of a *VMA* prepared in accordance with this *guide*. These should not be construed as all-inclusive or implying that any exclusion not specifically identified is a *VMA* requirement under this *guide*. Specifically excluded activities include:

4.5.3.1 Removing or relocating materials, furniture, storage containers, personal effects, debris materials or finishes; conducting exploratory probing or testing; *dismantling* or operating equipment or appliances; or disturbing personal items or *property* which obstructs access or visibility.

4.5.3.2 Sampling of any type, including sampling for suspect *fungi* or other forms of *biological growth*, or sampling or otherwise measuring *moisture* or other physical characteristics.

4.5.3.3 Entering or accessing areas of the premises deemed to pose a threat of *dangerous conditions* with respect to the *field observer* or to perform any procedure that may damage or impair the physical integrity of the *property*, any *building system*, or *component*.

4.5.3.4 Providing an *environmental site assessment*, *property condition assessment*, or any element of an *environmental site assessment* or *property condition assessment*.

4.5.4 *Hidden Areas—Moisture affected materials* may occur in hidden areas such as: within wall cavities, within crawlspaces; above ceiling tiles or beneath flooring materials, and so forth. Possible locations of hidden *moisture affected materials* can include pipe chases and utility tunnels, porous thermal or acoustic liners inside ductwork, or roof insulation materials above roof decks of ceilings. If the *user* suspects the presence of hidden *moisture affected materials* (for example, due to musty smells), the *user* should communicate this fact to the *provider*. If the *provider* suspects the presence of hidden *moisture affected materials*, the *provider* should detail such findings in the *report*. Further investigation of hidden *moisture affected materials* is beyond the scope of work described in this *guide*.

4.5.5 *Representative Observations*—The purpose of conducting *representative observations* is to convey to the *user* the expected magnitude of commonly encountered or anticipated conditions. Representative *observation* quantities should be provided in the agreement between *user* and *provider*; however, if in the *provider's* opinion such *representative observations* as presented in the agreement are unwarranted as a result of homogeneity of the asset or other reasons deemed appropriate by the *provider*, a sufficient number of units, areas, systems, buildings, and so forth may be *observed* so as to achieve a reasonable confidence as to the representative present conditions of such repetitive or similar areas, systems, buildings, and so forth.

4.5.5.1 *User-Requested Representative Observations*—A *user* may define the *representative observations* required for a given *property*.

4.5.5.2 *Extrapolation of Findings—Provider* may reasonably extrapolate *representative observations* and findings to all typical areas or systems of the *property* for the purposes of describing such conditions within the *report*. The *provider's* rationale for the extrapolation of findings should be included in the *report*.

4.5.6 *Level of Inquiry Is Variable*—Not every *commercial real estate transaction* will warrant the same level of assessment. Consistent with good commercial *practice*, the appropriate level of *survey* will be guided by the type of *property* subject to assessment, the expertise and risk tolerance of the *user*, geographic and other environmentally related issues such as local climate, drainage and proximity to surface water, and other information that may be developed during the course of the *VMA*.

4.5.7 *Comparison With Subsequent Inquiry*—It should not be concluded or assumed that an inquiry was not an appropriate inquiry merely because the inquiry did not identify *readily observable moisture affected materials* and *physical deficiencies conducive to elevated moisture* in connection with a *commercial building*. *VMAs* should be evaluated based on the reasonableness of judgments made at the time and under the circumstances in which they were made. Subsequent *VMAs* should not be considered valid standards to judge the appropriateness of any prior assessment based upon hindsight, changed conditions, new information, use of developing technology or analytical techniques, or other factors.

4.6 *Rules of Engagement*—The contractual and legal obligations between a *provider* and a *user* (and other parties, if any) are outside the scope of this *guide*. No specific legal relationship between the *provider* and the *user* is necessary for the *user* to meet the requirements of this *guide*.

5. User Responsibilities

5.1 *Access—User* should arrange for the *field observer* to receive *timely access*, which is complete and safe, to the *commercial real estate's* improvements (including roofs). In addition, access to the *commercial real estate's* staff and appropriate documents should be provided by *owner*, *owner's* representative, or made available by the *user*, or a combination thereof. If requested by the *provider*, the *user* should provide someone knowledgeable about the *property* to accompany the *field observer* during the *walk-through survey*. In no event should the *field observer* seek access to any particular portion of the *commercial real estate*, interview *property* management staff or tenants, or review documents, if the *owner*, *user*, or occupant objects to such access or attempts to restrict the *field observer* from conducting any portion of the *walk-through survey*, document review, *interviews*, or taking of photographs. Any conditions that significantly impede or restrict the *field observer'swalk-through survey* or research, or the failure of the *owner* or occupant to provide *timely access*, information, or requested documentation should be communicated by the *provider* to the *user* in a timely manner. If such conditions are not remedied, the *provider* should state within the *report* all such material impediments that interfered with the conducting of the *VMA* in accordance with this *guide*.

5.2 *User Disclosure*—The *user* should disclose in a timely manner all appropriate information in the *user's* possession that may assist the *field observer* in identifying key issues such as construction details, renovation details, building damage details, or prior *moisture* or *fungi*-related *survey* or remediation services conducted at the *commercial building* and other information useful in completing the *VMA*.

6. Survey for Readily Observable Moisture Affected Materials and Conditions Conducive to Elevated Moisture

6.1 *Objective*—The purpose of the *VMA* is to *observe*, to the extent feasible pursuant to the processes prescribed herein, on *readily observable moisture affected materials* and *physical deficiencies conducive to elevated moisture* at the *subject property* and prepare a *report* of the findings.

6.2 *VMA Sections*—The *VMA* should have four sections:
6.2.1 Documentation Review; refer to Section 8.
6.2.2 Interview; refer to Section 9.
6.2.3 Walk-Through Survey; refer to Section 10.
6.2.4 Report; refer to Section 11.

6.3 *Coordination of Sections:*

6.3.1 *Sections Used in Concert*—The Documentation Review, Interviews, and *Walk-Through Survey* sections of this *guide* are interrelated in that information obtained from one

component may either indicate the need for more information from another, or impact the *provider's* findings, opinions, or recommendations, or combination thereof.

6.3.2 *Information Provided By Others*—The *provider* should note in the *report* the source of information used by the *provider* that were material in identifying any *readily observable moisture affected materials* and *physical deficiencies conducive to elevated moisture* encumbering the *property* that was not readily *observed* by the *field observer* or that supplemented the *observations*.

6.3.3 *No Sampling*—This *guide* does not include air, surface or bulk sampling or testing for the presence of *fungi* or other *biological growth*.

6.4 *Provider's Duties:*

6.4.1 *Who May Conduct Portions of the Survey*—The inquiries, *interviews*, *walk-through survey*, interpretation of the information upon which the *report* is based, and the writing of the *report* are all tasks and portions of the *VMA* that may be performed by the *provider*, *field observer*, members of the *provider's* staff, or third party contractors engaged by the *provider*, provided such persons meet applicable licensure requirements, if any, in the jurisdiction where the services are performed.

6.4.2 *Responsibility for Lack of Information*—The *provider* is not responsible for providing or obtaining information should the source contacted fail to respond, to respond only in part, or fails to respond in a timely fashion.

6.4.3 *Representative Observations*—The *field observer* is not expected to *survey* every *component* of every *building system* during a *walk-through survey*. For example, it is not the intent to *survey* every apartment unit, mechanical area, toilet room facilities, every square foot of tenant area, and so forth. Only *representative observations* of such areas should be surveyed. The concept of *representative observations* extends to all conditions, areas, equipment, building *components*, *building systems*, and so forth to the extent that they are similar and representative of one another.

7. The Provider

7.1 *Qualifications of Provider*—This *guide* recognizes that the competency of the *provider* is highly dependent on many factors that may include professional education, training, experience, certification, or professional licensing/registration of both the *provider's field observer* and the *VMA reviewer*. It is the intent of this *guide* to identify factors that should be considered by the *user* when retaining a *provider* to conduct a *VMA* and by the *provider* in selecting the appropriate *field observer* and *VMA reviewer*. No *standard* can be designed to eliminate the role of professional judgment, competence, and the value and need for experience during the *walk-through survey* and to conduct the *VMA*. Consequently, the qualifications of the *field observer* and the *VMA reviewer* are critical to the performance of the *VMA* and the resulting *report*. This *guide* further recognizes the *provider* has the responsibility to select, engage, or employ the *field observer* and the *VMA reviewer*.

7.2 *Independence of Provider*—This *guide* recognizes that the *provider* is normally a person or entity, acting as an independent contractor, who has been engaged by the *user* to conduct a *VMA*. In the event the *provider*, the *field observer*, the *VMA reviewer*, or members of the *provider's* staff are employees of, or subsidiary of, the *user*, such affiliation or relationship should be disclosed in the Executive Summary of the *report*.

7.3 *Qualifications of the Field Observer*—Refer to X1.1.1, for non-mandatory guidance on the qualifications of the *field observer*.

7.4 *Qualifications of the VMA Reviewer*—Refer to X1.1.2, for non-mandatory guidance on the qualifications of the *VMA reviewer*.

7.5 *The Field Observer and VMA Reviewer may be a Single Individual*—The *VMA reviewer* may also act as the *field observer* and conduct the *walk-through survey*. In such an event, the *VMA reviewer* should identify such dual responsibilities and sign the *report* indicating that he or she has performed both functions.

7.6 *Not a Professional Architecture or Engineering Service*—It is not the intent of this *guide* that by conducting the *walk-through survey* or reviewing the *report* that the *provider*, the *field observer*, or the *VMA reviewer* is practicing architecture, engineering, industrial hygiene or safety. Furthermore, it is not the intent of this *guide* that either the *VMA reviewer* or the *field observer*, if they are an *architect*, *engineer* or other licensed, registered, or certified professional must either sign or seal the *report* as an instrument of professional service or identify their signatures as being that of an *architect*, *engineer, or other licensed, registered or certified professional*.

8. Document and Record Review

8.1 *Objective*—The objective of the document and *records review* is to augment the *walk-through survey* and to assist the *provider's* understanding of the *subject property* and identifying of *readily observable moisture affected materials* and *physical deficiencies conducive to elevated moisture*. Records or documents, if readily available, should be reviewed to specifically identify, or assist in the identification of, *readily observable moisture affected materials* and *physical deficiencies conducive to elevated moisture*. Material records or documents reviewed should be described or cited in the *report*.

8.2 *Reliance*—The *provider* is not required to independently verify the information provided and may rely on information absent *actual knowledge* to the contrary and to the extent that the information appears reasonable to the *provider*.

8.3 *Accuracy and Completeness*—Accuracy and completeness of information varies among information sources. The *provider* is not obligated to identify mistakes or insufficiencies in the information provided. However, the *provider* should make reasonable efforts to compensate for mistakes or insufficiencies of information reviewed that are *obvious* in light of other information obtained in the process of conducting the *VMA* or otherwise known to the *provider*.

8.4 *Pre-survey Questionnaire—Provider* may provide *owner* or *owner's* representative, or both, with a pre-survey

questionnaire (the "questionnaire"). Such questionnaire, complete with the *owner's* or *owner's* representative's responses, should be included as an exhibit within the *report* unless directed otherwise by *user*.

8.5 *Owner/User Provided Documentation and Information*—If readily available, the *provider* should review the following documents and information that may be in the possession or provided by the *owner*, *owner's* representative, or *user* or a combination thereof, as appropriate. Such information could also aid the *provider's* knowledge of the *commercial real estate's* physical improvements, extent and type of use, or assist in identifying material discrepancies between reported information and *observed* conditions, or a combination thereof. The *provider's* review of documents submitted does not require commenting on the accuracy of such documents or their preparation, methodology, or protocol. However, if the *provider* discovers a significant discrepancy, it should be disclosed within the *report*. Such materials should be handled in a manner that protects the *commercial building's* privacy and confidentiality.

8.5.1 Moisture Intrusion Survey, Mold or Microbial Growth Survey, either current or previously prepared.

8.5.2 IAQ Reports.

8.5.3 Violations, orders, tenant or occupant complaints, or other documents or communication from any *local government agencies* regarding mold, *fungi*, IAQ, water, sewer, septic, wastewater, or other *moisture* related issue.

8.5.4 Previously prepared *environmental site assessmentreports*.

8.5.5 Previously prepared *property condition reports* or studies pertaining to any aspect of the *subject property's* physical condition.

8.5.6 Records indicating building occupancy percentage.

8.5.7 Records indicating building turnover percentage.

8.5.8 Building rent roll.

8.5.9 Leasing literature, listing for sale, marketing/promotional literature such as photographs, descriptive information, reduced floor plans, and so forth.

8.5.10 Drawings and specifications (as-built or construction).

9. Interviews with Owners and Occupants

9.1 *Persons to be Interviewed*—Prior to the *site visit*, the *provider* should ask the *owner*, *user*, or *key site manager* to identify a person or persons knowledgeable of the physical characteristics, maintenance, and repair of the *commercial building*. If a *property* manager or agent of the *owner* is identified, the *provider* should contact such individual so as to inquire about the *subject property's* historical operations, repairs and replacements, history of tenant complaints, level of preventive maintenance exercised, pending repairs and improvements, frequency of repairs and replacements, existence of ongoing or pending litigation related to *subject property's* physical condition, the presence of *readily observable moisture affected materials*, or *physical deficiencies conducive to elevated moisture*. In connection with the *provider's* research or *walk-through survey*, *provider* may also question others who are knowledgeable of the *commercial real estate's* physical condition and operation. It is within the discretion of the *provider* to decide which questions to ask before, during, or after the *site visit*.

9.2 *Reliance—Provider* may rely on the information obtained as a result of the *interviews*, provided that in the *provider's* opinion such information appears to be reasonable.

9.3 *Method*—Questions to be asked pursuant to this section are at the discretion of the *provider* and may be asked in person, by telephone, or in writing.

9.4 *Incomplete Answers*—While the *provider* should make inquiries in accordance with this section, the persons to whom the questions are addressed may have no obligation to cooperate. Should the *owner*, *key site manager* or the *property* manager, building/facility *engineer*, or maintenance supervisor not be available for an interview, whether by intent or inconvenience, or not respond in full or in part to questions posed by the *provider*, *provider* should disclose such within the *report*. Furthermore, should any party not grant such authorization to interview, restrict such authorization, or should the person to whom the questions are addressed not be knowledgeable about the *subject property* this should be disclosed within the *report*.

9.5 *Questions*—See Appendix X2.

10. Walk-Through Survey

10.1 *Objective*—The objective of the *walk-through survey* is to obtain information indicating the likelihood of identifying current *readily observable moisture affected materials* and *physical deficiencies conducive to elevated moisture observed* to be occurring within a *commercial building*.

10.2 *Photographs—Provider* should take representative photographs of typical conditions *observed*, *moisture affected materials*, and conditions conducive to elevated moisture.

10.3 *Observation*—During the *walk-through survey*, the *provider* should *visually or physically observe*, or both, the *property* and the *commercial building(s)* located on the *property* to the extent not obstructed by bodies of water, adjacent buildings, or other obstacles.

10.4 *Specific Examples of Areas to be Observed*—The following listing of areas or locations, or both at a *property* to be *observed*, if present, are provided as examples. If these areas are present on a *property* they should be *observed* for the presence of *readily observable moisture affected materials* and *physical deficiencies conducive to elevated moisture*.

10.4.1 *Site*—The periphery of the developed area of the *commercial building* should be *visually or physically observed*, or both.

10.4.1.1 *Topography—Observe* the general topography and any unusual or problematic features or conditions that would be possibly problematic with respect to *moisture* or water infiltration into the *commercial building's* sublevel(s).

10.4.1.2 *Storm Water Drainage—Observe* the storm water collection and drainage system and note the presence of on-site surface waters, and retention or detention basins. If *swales* or drainage areas are present adjacent to or near building exterior

walls, they should be *observed* for standing water or other indications that they could be sources of *moisture* that could enter the building.

10.4.1.3 *Marshes, Bogs and Open Water*—If marshes, bogs, or areas of open water, or combination thereof, are present adjacent to or near the *subject building's* exterior walls, they should be *observed* for standing water or other indications that they could be sources of *moisture* that could enter the *subject building*.

10.4.2 *Exterior*—The periphery of all structures on the *property* should be *visuallyor physically observed*, or both.

10.4.2.1 *Exterior Building Walls*—Should be *visually or physically observed*, or both.

10.4.2.2 *Cooling Towers*—Should be *visually or physically observed*, or both.

10.4.2.3 *Roofs*—Accessible flat roofs should be *observed* for *obvious* signs of leaking such as split seams, excessive areas of patching, damaged or missing flashings, as well as drainage issues (for example, evidence of ponding, drainage systems obstructed by debris or ice jams, and so forth).

10.4.2.4 *Air Intakes*—HVAC air intakes should be *observed* for signs of *moisture affected materials* or for the presence of standing water in the vicinity of them.

10.4.2.5 *Air Handling Units*—Representative HVAC air handling units should be *visually or physically observed*, or both.

10.4.3 *Interior*—The interior of structures on the *property*, *readily accessible* common areas expected to be used by *occupants* or the public (such as lobbies, hallways, utility rooms, recreation areas, and so forth), maintenance and repair areas, including boiler rooms, and a representative sample of occupant spaces, should be *visually or physically observed*, or both. Additionally, *readily accessible* attics, basements, cellars, and other such areas of the *commercial building* not usually occupied should be viewed. It is not necessary to comply with this *guide* by surveying under floors, above ceilings, behind walls, or within confined areas such as chases, ducts, or crawl spaces as these areas are not generally considered *readily accessible* and would be deemed areas warranting an *extraordinary physical search*.

10.4.3.1 *Interior Areas Near Visible Exterior Moisture Affected Materials*—If evidence of *moisture affected materials* on exterior walls is *observed* (for example *biological growth*, decay, abnormal drainage patterns, and so forth), the interior walls adjacent to such visibly affected exterior areas should be *observed*. If reasonably possible, the interior wall cavities of exterior walls may be *observed*. While this *guide* does not require opening such wall cavities, if they can be *observed* from above hung ceilings or through existing wall penetrations, they may be so *observed*.

10.4.3.2 *Interior Areas Near Exterior Swales or Drainage Systems, or both*—If exterior *swales* or drainage systems are *observed*, the interior walls adjacent to such *swales* or drainage systems, or both should be *observed*. Interior wall surfaces that are near locations where the exterior of the *subject building* is near *swales* or drainage systems, or both should be *observed*. If *readily accessible*, the interior wall cavities of exterior walls may be *observed*. While this *guide* does not require opening such wall cavities, if they can be *observed* from above hung ceilings or through existing wall penetrations they may be so *observed*.

10.4.3.3 *Interior Areas Near Below Grade Exterior Walls or Those at Lower Levels Than the Surrounding Land*—Interior wall surfaces that are near locations where the exterior of the *subject building* is below grade or at lower levels than surrounding land should be *observed*. If *readily accessible*, the interior wall cavities of exterior walls may be *observed*. While this *guide* does not require opening such wall cavities, if they can be *observed* from above hung ceilings or through existing wall penetrations they may be so *observed*.

10.4.3.4 *Toilet Rooms and Bathrooms*—Toilet rooms and bathrooms should be *observed* for operational exhaust fans and leaking plumbing fixtures. Exhaust fans should be *observed*, and if accessible, operated to ensure that they are drawing air from the space. The areas around and near the fans should be *observed* for *moisture affected materials*.

10.4.3.5 *Kitchens*—Kitchens should be *observed* for *moisture affected materials*. Enclosed cabinets and areas beneath sinks and around grease traps should be *observed*. Exhaust fans should be *observed*, and if accessible, operated to ensure that they are drawing air from the space. The areas around and near the fans should be *observed* for *moisture affected materials*. Kitchen equipment such as steam tables, dishwashers, and cooking areas should also be *observed* for *moisture affected materials*.

10.4.3.6 *Water-dispensing Equipment*—Mechanical systems that dispense water (ice makers, water coolers, drinking fountains, and so forth) should be *observed* for leaks and condensation.

10.4.3.7 *Cold Storage*—Walk in coolers, freezers, and other refrigeration systems should be *observed* for exterior condensation.

10.4.3.8 *Humidifiers*—Humidifiers, especially reservoir-type central and portable units, should be *observed*.

10.4.3.9 *Dehumidifiers*—Dehumidifiers should be noted as to their location within the *subject building*, cause for warranting such an appliance, and method of discharging the collected water.

10.4.3.10 *HVAC Equipment*—To the extent they are *readily accessible*, condensation/drip pans under coils of air conditioners or other HVAC equipment should be *observed* for standing water and *biological growth*. HVAC equipment should also be *observed* for condensation or *moisture affected materials* on or around the units.

10.4.3.11 *Crawl Spaces*—Entering of crawl or confined space areas are considered out of scope. However, the *field observer* should *observe* conditions to the extent *easily visible* from the point of access to the crawl or confined space areas. The *field observer* is to note evidence of previous substructure flooding or water penetration if *easily visible* or if such information is provided.

10.4.3.12 *Basements and Cellars*—Basements and cellars should be *observed* along the *subject building's* exterior perimeter walls for evidence of visible *moisture affected materials* or

significant water intrusion, or both. *Sumps*, perimeter channels, or other areas of open water in the basement or cellar, or both should be *observed*.

10.4.3.13 *Plumbing*—Exposed plumbing in basements, cellars, and other *readily observable* locations should be *observed* for water leaks or condensation.

10.4.3.14 *Fire Suppression Systems*—Exposed fire suppression system *components* in basements, cellars, and other *readily observable* locations should be *observed* for water leaks or condensation.

10.4.3.15 *Windows and Sliding Doors*—Frames and perimeters should be *observed* for *moisture affected materials* and *physical deficiencies conducive to elevated moisture*, such as condensation, as well as areas where leaks can occur.

10.4.3.16 *Attic Spaces*—Attic spaces, especially around roof penetrations where flashing would be expected, should be *observed* if *readily accessible*. If possible, on buildings with pitched roofs, areas near the building's eaves should be *observed*. Attic insulation should be *observed* for signs of elevated *moisture* and *physical deficiencies conducive to elevated moisture*.

10.4.3.17 *Interior Areas With Open Water or High Humidity*—Area of buildings with wet rooms, spas, whirlpools, swimming pools, decorative fountains, saunas, steam baths and other such areas that have open water or high humidity, or both, should be *observed*.

10.4.3.18 *Dryer Vents*—Dryer vents should be *observed* to ensure that they are connected and directly discharge outside buildings.

10.4.3.19 *Gas-fired and Oil-fired Heaters*—Gas-fired and oil-fired heaters (for example, hot water heater, pool water heaters, and so forth) and their exhausts should be *observed*.

10.4.4 *Sample Field Checklist*—See Appendix X3.

11. Evaluation and Report Preparation

11.1 *Report Format*—The *report* of findings of the *VMA* can either be *(1)* a stand-alone *report* or *(2)* accompany or be an integral part of a *property condition report (PCR)* or other type of assessment, as determined by the terms of the engagement between the *user* and *provider*. If the results of the *VMA* are to be included within a PCR or other *report*, then all of the information required by this *guide* should be included. However, the ordinal placement of such information within the PCR or other *report* may reasonably vary.

11.2 *Scope*—Provide an outline of the scope of work completed for the *report* and methods utilized. Should either the *survey* or the *report* materially deviate from this *guide* or if there were any constraints preventing the *provider* from conducting the *survey* in accordance with this *guide*, these constraints should be identified.

11.3 *Documentation*—The findings, opinions, and conclusions in the *report* should be supported by documentation, if readily available. If the *provider* has chosen to exclude certain documentation from the *report*, the *provider* should identify in the *report* the reasons for doing so (for example, a confidentiality or nondisclosure agreement between *user* and *provider*). Supporting documentation should be included in the *report* or adequately referenced to facilitate reconstruction of the *survey* by another *provider*. Sources that revealed no salient, pertinent information do not need to be documented.

11.4 *Content of Report*—The *report* should include those matters required to be included in the *report* pursuant to various provisions of this *guide*.

11.5 *Scope of Services*—The *report* should describe all services performed in sufficient detail to permit another party to reconstruct the work performed.

11.6 *Provider Information*—The name, address, phone number, and alternate contact information of the *provider* conducting the *survey* as well as the name and signature of the *VMA reviewer*.

11.7 *Building Identification—Name* (if any) and address of the *subject property*, age, size, use, the general materials used to construct and clad the frame, and a general description of the interior.

11.8 *User Information*—Name, address, phone number, and e-mail address.

11.9 *Findings*—The *report* should summarize the *observed readily observable moisture affected materials* and *physical deficiencies conducive to elevated moisture*, if any, on the *property*.

11.10 *Opinion*—The *report* should include the *provider's* opinions) related to *readily observable moisture affected materials* and *physical deficiencies conducive to elevated moisture* or areas/conditions conducive to *moisture* intrusion on the *property*, found as a result of the *VMA*. The logic and reasoning used by the *provider* in evaluating information collected during the course of the *survey* related to *moisture affected materials* and *physical deficiencies conducive to elevated moisture* on the *property* should be discussed. *Readily observable moisture affected materials* and *physical deficiencies conducive to elevated moisture* should be listed in the conclusions section of the *report*.

11.11 *Conclusions*—The *report* should summarize all indications of *moisture affected materials* and *physical deficiencies conducive to elevated moisture* connected with the *property*.

11.12 *Deviations*—All deletions and deviations from this *guide* (if any) should be listed individually. Related services that complement or augment the *survey* should also be listed.

11.13 *Additional Services*—Additional services contracted for between the *user* and *provider*, including a broader scope of assessment, detailed conclusions, testing, sampling, measurements, or calculations of any kind, recommendations to remediate causes and consequences of *moisture* infiltration, and so forth, are beyond the scope of this *guide*, and should only be included in the *report* if so specified in the terms of engagement between the *user* and the *provider*.

11.14 *Qualifications*—The *report* should include a qualification statement of the *provider* responsible for conducting the *VMA*.

11.15 *Limiting Conditions*—Provide all limiting conditions of the *report*.

11.16 *Exhibits:*

11.16.1 Representative photographs.

11.16.2 Questionnaire, if used.

11.16.3 *User/owner* submitted documents, if any.

11.16.4 Photocopied plot plans, sketches, and so forth, if any.

11.16.5 Other exhibits considered appropriate by the *provider*, if any.

12. Out of Scope Consideration

12.1 *Activity Exclusions*—The activities listed below are generally excluded from or otherwise represent limitations to the scope of a *VMA* prepared in accordance with this *guide*. These should not be construed as all-inclusive or implying that any exclusion not specifically identified is a *VMA* requirement under this *guide*.

12.1.1 Removing or relocating materials, furniture, storage containers, personal effects, debris material, or finishes; conducting exploratory probing or testing of any kind; *dismantling* or operating of equipment or appliances; or disturbing personal items or personal or real *property* that obstructs access or visibility.

12.1.2 Verifying measurements or quantities to establish or confirm any information or representations provided by the *owner* or *user*.

12.1.3 Entering or accessing any area of the premises deemed to pose a threat of *dangerous conditions* with respect to the *field observer* or to perform any procedure, which may damage or impair the physical integrity of the *property*, any system, or *component*.

12.1.4 Providing an opinion as to the presence within the *property* of asbestos, hazardous wastes, toxic materials, or conducting an *environmental site assessment* in whole or in part.

12.1.5 Providing an opinion as to the physical condition of any *component* system, or equipment within the *property*, or conducting a *property condition assessment* in whole or in part.

12.2 *Warranty and Guarantee Exclusions*—By conducting a *VMA* and preparing a *report*, the *provider* is merely providing an opinion and does not warrant or guarantee the present or future condition of the *subject property* or the absence of *moisture affected materials* and *physical deficiencies conducive to elevated moisture*.

12.3 *Additional Services/General Considerations:*

12.3.1 *Further Inquiry*—There may be physical condition issues or certain physical improvements at the *subject property* that the parties may wish to assess in connection with a *commercial real estate transaction* or commercial *property* management that are outside the scope of this *guide*. Such issues are referred to as out of scope considerations and if included in the *VMA*, should be identified as set forth in 11.13.

12.3.2 *Out of Scope Considerations*—Whether or not a *user* elects to inquire into out of scope considerations in connection with this *guide* is a decision to be made by the *user*. No assessment of such out of scope considerations is required for a *VMA* to be conducted in compliance with this *guide*.

12.4 *Other Standards*—There may be *standards* or protocols for the discovery or assessment, or both, of *moisture affected materials* and *physical deficiencies conducive to elevated moisture* associated with out of scope considerations developed by government entities, professional organizations, or private entities.

13. Keywords

13.1 ASTM; commercial real estate *survey*; elevated *moisture*; *moisture affected materials*; *fungal growth*; *fungus*; *fungi*; indoor air quality; *biological growth*; *moisture* intrusion *survey*; mold; mold *survey*; water intrusion; water intrusion *survey*

APPENDIXES

(Nonmandatory Information)

X1. GUIDANCE AND ENHANCED DUE DILIGENCE SERVICES

INTRODUCTION

The information presented in this appendix is not necessary for completing a *baseline VMA* pursuant to this *guide*. However, a *user* and *provider* may wish to utilize some or all of the information presented in this appendix to increase or supplement the extent of *due diligence* to be exercised by the *provider*.

X1.1 *Qualifications*—This *guide* recognizes that the quality of a *VMA* is highly dependent on the qualifications of the *provider*, the *field observer* and *VMA reviewer*. These qualifications include such factors as experience, education, training, certification or professional registration/licensure in architecture, engineering or industrial hygiene, or a combination thereof. Additionally, this *guide* recognizes that appropriate qualification levels may vary for different *VMAs* depending on such factors as asset type and scope (for example, size, age, complexity, and so forth) as well as the specific needs, purpose the *VMA* is to serve, and the risk tolerance level of the *user*.

X1.1.1 *Qualifications of the Field Observer*—The *field observer* is the person engaged by the *provider* to conduct the *walk-through survey*; the *field observer* also may be the *VMA reviewer*. The *provider* should establish the qualifications of

the *field observer*, but as the accuracy and completeness of the *walk-through survey* will determine the quality of the *VMA*, the *provider* should carefully consider education, training, and experience when selecting the *field observer*.

X1.1.1.1 The *field observer*, as a representative of the *provider*, should be identified in the *VMA*.

X1.1.2 *Qualifications of the VMA Reviewer*—The *VMA reviewer* is the qualified individual designated to exercise responsible control over the *field observer* on behalf of the *provider* and to review the *VMA*. This *guide* recognizes that the *provider* is ultimately responsible for the *VMA* process.

X1.1.2.1 As indicated in the main body of the *guide*, all *VMAs* prepared in accordance with this *guide* should be reviewed and signed by the *VMA reviewer*.

X1.1.2.2 It is recommended that the *user* consider a *VMA reviewer* qualified by possessing a professional designation in architecture, engineering, industrial hygiene, a state license in an appropriate field or appropriate experience or certifications, or both, in the construction fields. The *VMA reviewer* should have experience commensurate with the *subject property* type and scope (size, complexity, and so forth), and experience in the preparation of *VMAs*. Generally, professional architecture, engineering, industrial hygiene licensure/registration, or certifications, education, or appropriate construction experience related to these disciplines, or a combination thereof, are recognized as acceptable qualifications for reviewing *VMAs*. However, the *user* and *provider* may mutually agree to define qualifications for the *VMA reviewer*, which may depend on the specific experience of the *VMA reviewer* and the scope of the *subject property*.

X1.2 *Documents and Records Research*:

X1.2.1 *Objective—Provider* should solicit and review *publicly available* recorded documents.

X1.2.2 *Reasonably Ascertainable/Standard Government Record Sources*—Availability of record or document information varies from information source to information source, including governmental jurisdictions. *Provider* should make appropriate inquiry and review only such record information that is *reasonably ascertainable* from *standard* sources. If information is not *practically reviewable* or not provided to the *provider* in a reasonable time for the *provider* to formulate an opinion and complete the *report*, such fact should be stated in the *report*, and the *provider* is to have no further obligation of retrieving such documentation or reviewing it if it is subsequently provided. Nevertheless, if pursuant to the *provider's* appropriate inquiry, material information is received by the *provider* contemporaneous to the preparation of the *report* (within 30 days) but too late to be included in the *report*, the *provider* should forward it to *user*.

X1.2.3 *Publicly Available Documents*—Information from a local, state, tribal, or federal government agency, department, or other source of information, which is typically reproduced and provided to the *provider* upon appropriate inquiry and is *reasonably ascertainable*.

X1.2.4 *Drawings*—If readily available, such documents should be provided and identified to the *provider* by the *owner*, *owner's* representative, or *user* as construction, as-built, or other design/construction documents. Nonetheless, the review of drawings of the *commercial building* is not a requirement of this *guide*.

X1.2.5 *Reasonable Time and Cost*—It is the intent of this *guide* that information will be provided to the *provider* within ten business days of the source receiving appropriate inquiry, without an in-person request by the *provider* being required, and at no more than a nominal cost to cover the source's cost of retrieving and duplicating the information. Generally, an in-person request by the *provider* is not required. However, this is not to preclude the *provider* from personally researching such files if, in the opinion of the *provider*, this could be reasonably accomplished at the time of the *site visit*.

X1.3 *Suggested Types of Documents to Review*:

X1.3.1 Operations & Maintenance records;

X1.3.2 Records of complaints related to IAQ;

X1.3.3 Records of water damage, flooding, water leakage or water intrusion, or both;

X1.3.4 Records of *property* insurance claims related to *fungal growth*, *moisture*, flooding, water damage, and so forth; or

X1.3.5 Records of code violations or citations, or both, applicable to *fungal growth*, *moisture*, flooding, water damage, and so forth

X1.4 *Suggested Locations of Documents to Review*:

X1.4.1 Government agencies—zoning, building codes or licensing and permits.

X1.4.2 Health department.

X1.4.3 Fire department.

X1.4.4 Insurance databases.

X1.4.5 FIRM maps.

X2. INTERVIEW CHECKLIST

INTRODUCTION

The information presented in this appendix is not necessary for completing a *VMA* pursuant to this *guide*. However, a *user* and *provider* may wish to utilize some or all of the information presented in this appendix as guidance to complete the *VMA*.

The following questionnaire may be used to interview an *owner*, *user*, or *key site manager* of the *property*. An attempt should be made to interview the person(s) with the greatest historical and current knowledge of the operation and maintenance of the *property*. Note that if the answer to any of the following questions is "yes" or "unknown", then further inquiry may be required during the interview to determine the location(s) where the issue exists and to gain information and documentation useful in the completion of the *walk-through survey*.

X2.1 *General*:

X2.1.1 What were the date(s) of construction of buildings, phases, and any material tenant improvements or significant renovations?

X2.1.2 Are there any existing or historic *moisture*, chronic condensation, or high humidity problems, or a combination thereof, within or exterior to the building?

X2.1.3 Have there been any fires extinguished by water?

X2.1.4 Have building *occupants* reported any moldy odors or musty odors, or filed complaints regarding Indoor Air Quality (IAQ), *moisture*, excess water, mold, *fungi*, or related issues?

X2.1.5 Are there any animal confinement operations on-site, within or exterior to the building (for example, aquariums, kennels, pet waste areas, and so forth)?

X2.1.6 Are there any firewood storage areas within or adjacent to the building?

X2.1.7 Have there been any insurance claims related to water damage or *moisture affected materials*, or both (for example, sewer backups, flooding, groundwater intrusion, and so forth)?

X2.1.8 Have there been any violation notices regarding IAQ, odors, *moisture*, mold, *fungi*, or related issues received from any regulatory body (for example, local Boards of Health, Building Department, and so forth)?

X2.1.9 Has there been any *observed* or reported rodent or insect infestation?

X2.1.10 Is any additional building information available for cursory review such as a site plan, floor plans, structural drawings, prior *property condition assessments*, roof reports, facade studies, and so forth?

X2.2 *Site and Surroundings*:

X2.2.1 Are there any areas where landscaping irrigation sprinklers have water contact with the building's sidewalls, or irrigation systems within close proximity to exterior walls?

X2.2.2 Are there any areas of exterior standing water or inadequate drainage? If so, please comment on the *observed/* reported frequency and causes.

X2.2.3 Are there any areas of significant erosion or unusual drainage patterns?

X2.2.4 Are there any current or past exterior natural or man-made water bodies such as streams, lakes, ponds, rivers, wetlands, high water tables, or other persistent standing water?

X2.3 *Building Exterior and Roofs*:

X2.3.1 Are there any *building envelope* leaks: roofs, sidewalls, flashing, windows, eaves, sliders, and so forth?

X2.3.2 Has the building been partially or fully re-sided? If yes, why and with what material?

X2.3.3 Have there been any *obvious* repairs to any partial or full re-siding? Is it applied over the old siding or any wood framing?

X2.3.4 Are there areas of soil accumulation or hardscape abutting exterior walls?

X2.3.5 Was a water-proof coating applied to basement wall exteriors?

X2.3.6 Have there been roof drainage issues such as chronic standing water or drainage system malfunction (for example, back-ups from debris or ice jams, and so forth)?

X2.4 *HVAC, Plumbing and Mechanical*:

X2.4.1 Have there been any discharges or leaks from a sprinkler system? If so, where?

X2.4.2 Are there any *sumps*, perimeter channels, or interior drains?

X2.4.3 Has there been any overflow from sinks, toilets, *sumps*, or sewers?

X2.4.4 Are there any humidifiers?

X2.4.5 Are there any dehumidifiers? If yes, why, and what is the method of discharging the collected water?

X2.4.6 Are there any window AC units? If yes, is there any evidence of *moisture* intrusion related to installation, flashing, condensate drainage, and so forth?

X2.4.7 Are there any HVAC cooling towers? Where are they located?

X2.4.8 Does the HVAC equipment have systems in place to manage condensate (for example, drip pan(s), direct drainage from coils, open discharge, and so forth), and do they appear to be functioning properly?

X2.4.9 Does the HVAC system have any secondary condensate collection system discharge points? If so, describe their location and discharge points, if known.

X2.4.10 Is there a routine HVAC maintenance program(s) in place that includes condensate management system inspection, filter changes and coil service? If yes, what is the frequency of such maintenance?

X2.4.11 Are there any gas-fired or oil-fired hot water, pool water, other types of water heaters? Do any exhaust within the building?

X2.4.12 Are there boilers? If present, how is boiler blowdown directed?

X2.4.13 Are there other systems that generate blowdown? If present, how is this blowdown directed?

X2.4.14 Are there any sewer injector pumps? If so, are they working properly?

X2.4.15 Have any plumbing leaks or excessive piping condensation occurred in any part of the *commercial building*? If so, when, and what measures were taken, if any, to address the leaks?

X2.4.16 Are there any clothes dryers? If yes, describe how the dryers are vented.

X2.4.17 Has condensation been *observed* or reported on HVAC ductwork (for example due to hot/humid conditions, inadequate insulation, mechanical system imbalance, and so forth)?

X2.4.18 Has condensation been *observed* or reported on windows (for example due to hot/humid conditions, improper installation or a mechanical system imbalance)?

X2.4.19 If the *property* was built between 1984-1990, is there any known ABS plastic piping present? If yes, has there been any history of leaks or repairs?

X2.4.20 If the *property* was built between 1970-1990, is there any known polybutylene piping present (flexible plastic supply piping)? If yes, has there been any history of leaks or repairs/replacements of fittings?

X2.4.21 Does the *property* have any known galvanized piping? If yes, has there been any history of leaks or repairs/replacements caused by corrosion?

X2.4.22 Does the *property* have any metal water piping where two dissimilar metals are joined (for example, galvanized to copper or brass), which could be subject to a corrosive galvanic reaction?

X2.4.23 Are there commercial-type coolers or freezers installed within the building? If so, are they above a basement or higher than the first floor?

X2.5 *Building Interior*:

X2.5.1 Has there been any flooding within the building, basement, cellar, or crawl spaces?

X2.5.2 Are you aware of any visual suspect *fungal growth* (for example mold, mildew, mushrooms, or other plant matter), discoloration, or water damage within the building (including furniture, finishes and contents)? If so, what is the extent and location?

X2.5.3 Have any window or roof leaks or other water damage occurred in any part of the building? If so, when and what measures were taken, if any, to repair the damage and prevent reoccurrence?

X2.5.4 Does the building have a basement, cellar or crawl space(s)? If yes, do any of those areas have dirt floors?

X2.5.5 If the building has a basement, cellar or *readily observable* crawl space(s), have there been any issues related to wetness, dampness, or water intrusion in those areas?

X2.5.6 Are there any areas with extensive amounts of indoor plants or greenhouses?

X2.5.7 Are there any areas of high humidity (for example, kitchens, indoor pools, spas, whirlpools, saunas, steam baths, decorative fountains, and so forth)?

X2.5.8 Are there any attics or other interior locations with resident or seasonal birds, bats, or other animals?

X2.5.9 Are there any attics that have exhaust ducts from toilet rooms, kitchens, or other locations discharging directly into the attic?

X2.6 *Additional Questions*—Optional, additional questions that may be added by *user* or *provider*.

TABLE X2.1 ASTM E3026 Visual Moisture Assessment (VMA) Interview Checklist Questionnaire (Appendix X2)

Purpose: To convey items not readily observable, or related to historical/seasonal/episodic data, or that may guide the field observer to observe specific conditions.

Site Name: _____ Project #: _____

Site Address: _____

_____

Site City / ST / Zip: _____ Response Date: _____

Question		Response				Comments/Details
X2.1	**General**	Y	N	Unk	N/A	
X2.1.1	What were the date(s) of construction of buildings, phases, and any material tenant improvements or significant renovations?					
X2.1.2	Are there any existing or historic moisture, chronic condensation, or high humidity problems, or a combination thereof, within or exterior to the building?					
X2.1.3	Have there been any fires extinguished by water?					
X2.1.4	Have building occupants reported any moldy odors or musty odors, or filed complaints regarding Indoor Air Quality (IAQ), moisture, excess water, mold, fungi, or related issues?					
X2.1.5	Are there any animal confinement operations onsite, within or exterior to the building (for example, aquariums, kennels, pet waste areas, and so forth)?					
X2.1.6	Are there any firewood storage areas within or adjacent to the building?					
X2.1.7	Have there been any insurance claims related to water damage or moisture affected materials, or both (for example, sewer backups, flooding, groundwater intrusion, etc)?					
X2.1.8	Have there been any violation notices regarding IAQ, odors, moisture, mold, fungi, or related issues received from any regulatory body (for example, local Boards of Health, Building Department, and so forth)?					
X2.1.9	Has there been any observed or reported rodent or insect infestation?					
X2.1.10	Is any additional building information available for cursory review such as a site plan, floor plans, structural drawings, prior property condition assessments, roof reports, facade studies, and so forth?					
X2.2	**Site and Surroundings**	Y	N	Unk	N/A	
X2.2.1	Are there any areas where landscaping irrigation sprinklers have water contact with the building's sidewalls, or irrigation systems within close proximity to exterior walls?					
X2.2.2	Are there any areas of exterior standing water or inadequate drainage? If so, please comment on the observed/reported frequency and causes.					
X2.2.3	Are there any areas of significant erosion or unusual drainage patterns?					
X2.2.4	Are there any current or past exterior natural or man-made water bodies such as streams, lakes, ponds, rivers, wetlands, high water tables, or other persistent standing water?					
X2.3	**Building Exterior and Roofs**	Y	N	Unk	N/A	
X2.3.1	Are there any building envelope leaks: roofs, sidewalls, flashing, windows, eaves, sliders, and so forth?					
X2.3.2	Has the building been partially or fully re-sided? If yes, why and with what material?					
X2.3.3	Have there been any obvious repairs to any partial or full re-siding? Is it applied over any wood framing?					
X2.3.4	Are there areas of soil accumulation or hardscaping abutting exterior walls?					
X2.3.5	Was a water-proof coating applied to basement wall exteriors?					

X2.3.6	Have there been roof drainage issues such as chronic standing water or drainage system malfunction (for example, back-ups from debris or ice jams, and so forth)?					
X2.4	**HVAC, Plumbing and Mechanical**	Y	N	Unk	N/A	
X2.4.1	Have there been any discharges or leaks from a sprinkler system? If so, where?					
X2.4.2	Are there any sumps, perimeter channels, or interior drains?					
X2.4.3	Has there been any overflow from sinks, toilets, sumps, or sewers?					
X2.4.4	Are there any humidifiers?					
X2.4.5	Are there any dehumidifiers? If yes, why, and what is the method of discharging the collected water?					
X2.4.6	Are there any window AC units? If yes, is there any evidence of moisture intrusion related to installation, flashing, condensate drainage, and so forth?					
X2.4.7	Are there any HVAC cooling towers? Where are they located?					
X2.4.8	Does the HVAC equipment have systems in place to manage condensate (for example, drip pan(s), direct drainage from coils, open discharge, and so forth), and do they appear to be functioning properly?					
X2.4.9	Does the HVAC system have any secondary condensate collection system discharge points? If so, describe their location and discharge points, if known.					
X2.4.10	Is there a routine HVAC maintenance program(s) in place that includes condensate management system inspection, filter changes and coil service? If yes, what is the frequency of such maintenance?					
X2.4.11	Are there any gas-fired or oil-fired hot water, pool water, other types of water heaters? Do any exhaust within the building?					
X2.4.12	Are there boilers? If present, how is boiler blowdown directed?					
X2.4.13	Are there other systems that generate blowdown? If present, how is this blowdown directed?					
X2.4.14	Are there any sewer injector pumps? If so, are they working properly?					
X2.4.15	Have any plumbing leaks or excessive piping condensation occurred in any part of the commercial building? If so, when, and what measures were taken, if any, to address the leaks?					
X2.4.16	Are there any clothes dryers? If yes, describe how the dryers are vented.					
X2.4.17	Has condensation been observed or reported on HVAC ductwork (for example due to hot/humid conditions, inadequate insulation, mechanical system imbalance, and so forth)?					
X2.4.18	Has condensation been observed or reported on windows (for example due to hot/humid conditions, improper installation or a mechanical system imbalance)?					
X2.4.19	If the property was built between 1984-1990, is there any known ABS plastic piping present? If yes, has there been any history of leaks or repairs?					
X2.4.20	If the property was built between 1970-1990, is there any known polybutylene piping present (flexible plastic supply piping)? If yes, has there been any history of leaks or repairs/replacements of fittings?					
X2.4.21	Does the property have any known galvanized piping? If yes, has there been any history of leaks or repairs/replacements caused by corrosion?					
X2.4.22	Does the property have any metal water piping where two dissimilar metals are joined (for example, galvanized to copper or brass), which could be subject to a corrosive galvanic reaction?					
X2.4.23	Are there commercial-type coolers or freezers installed within the building? If so, are they above a basement or higher than the first floor?					
X2.5	**Building Interior**	Y	N	Unk	N/A	
X2.5.1	Has there been any flooding within the building, basement, cellar, or crawl spaces?					

X2.5.2	Are you aware of any visual suspect fungal growth (for example mold, mildew, mushrooms, or other plant matter), discoloration, or water damage within the building (including furniture, finishes and contents)? If so, what is the extent and location?					
X2.5.3	Have any window or roof leaks or other water damage occurred in any part of the building? If so, when and what measures were taken, if any, to repair the damage and prevent reoccurence?″					
X2.5.4	Does the building have a basement, cellar or crawl space(s)? If yes, do any of those areas have dirt floors?					
X2.5.5	If the building has a basement, cellar or readily observable crawl space(s), have there been any issues related to wetness, dampness, or water intrusion in those areas?					
X2.5.6	Are there any areas with extensive amounts of indoor plants or greenhouses?					
X2.5.7	Are there any areas of high humidity (for example, kitchens, indoor pools, spas, whirlpools, saunas, steam baths, decorative fountains, and so forth)?					
X2.5.8	Are there any attics or other interior locations with resident or seasonal birds, bats, or other animals?					
X2.5.9	Are there any attics that have exhaust ducts from toilet rooms, kitchens, or other locations discharging directly into the attic?					
X2.6	**Additional Questions**	Y	N	Unk	N/A	

Questionnaire Respondent Contact Information

Questionnaire Responses of: ☐ OWNER ☐ SITE REPRESENTATIVE ☐ FIELD OBSERVER

Answered by (Name): _____ Title/Role: _____

Company: _____ Phone: _____

E-mail Address: _____ Alt Phone/e-mail: _____

Address of Company: _____

Respondent represents that to the best of their knowledge the above statements are true and correct and that no material facts have been suppressed or misstated.

X3. FIELD CHECKLIST

INTRODUCTION

The information presented in this appendix is not necessary for completing a *VMA* pursuant to this *guide*. However, a *user* and *provider* may wish to utilize some or all of the information presented in this appendix as guidance to complete the *VMA*.

During the *walk-through survey*, the *field observer* may complete the following checklist. The following questions should be answered as "Yes," "No," "Not Applicable," or "Unable to Easily Observe or Readily Access." Documentation and photographs, along with the checklist answers, may be helpful in completing the *walk-through survey*.

X3.1 *General*:

X3.1.1 Was an Interview Checklist Questionnaire (Appendix X2) completed by a *property* representative?

X3.1.2 Was any additional building information available for cursory review such as a site plan, floor plans, structural drawings, prior *property condition assessments*, roof reports, facade studies, and so forth?

X3.1.3 Are there any animal confinement operations on-site, within or exterior to the building (for example, aquariums, kennels, pet waste areas, and so forth)?

X3.1.4 Is there any evidence of rodent or insect infestation?

X3.2 *Site and Surroundings*:

X3.2.1 Does the ground surface slope away from the building?

X3.2.2 Do downspouts and scuppers appear to drain water away from the building?

X3.2.3 Do irrigation sprinklers overspray onto the building or excessively water near the building?

X3.2.4 Is there vegetation close to the building?

X3.2.5 Are there any current or reported past exterior natural or man-made water bodies such as streams, lakes, ponds, rivers, wetlands, high water tables, or other persistent standing water?

X3.2.6 Are there any retention or detention basins?

X3.2.7 Are there any areas of significant erosion or unusual drainage patterns?

X3.3 *Building Exterior*:

X3.3.1 Is there *moisture*-related staining or discoloration apparent on the building exterior?

X3.3.2 Is there visual evidence of water intrusion associated with the building exterior?

X3.3.3 Is there visible damage to the building exterior?

X3.3.4 Are crawlspace vents blocked?

X3.3.5 Is there visual evidence of suspect *biological growth* or *moisture affected materials* on the building exterior?

X3.3.6 Are there side wall or exterior cladding penetrations (such as light fixtures, scuppers, bolts, hose bibs, piping, and so forth)? If so, do they appear to be properly sealed?

X3.3.7 Does the building appear or reported to have been partially or fully re-sided? If yes, with what material?

X3.3.8 Have there been any *obvious* or reported repairs to any partial or full re-siding? If yes, were the repairs applied over the old siding or any wood framing?

X3.3.9 Are there *swales* or open drainage areas near the building? If yes, is there any *readily observable* standing water?

X3.3.10 Are there areas of soil accumulation or hardscape abutting exterior walls?

X3.3.11 Do window exteriors appear to be properly flashed, caulked, and free from signs of past or current *moisture* damage (dry rot on frames or sills, condensation, staining, and so forth)?

X3.3.12 Do doors appear to be properly flashed, caulked, and free from signs of past or current *moisture* damage (dry rot or swelling on doors or frames, *fungal growth*, staining, and so forth)?

X3.3.13 Are there any Exterior Insulated Finishing System (EIFS) or synthetic stucco finishes present at the *property*?

X3.3.14 If EIFS or synthetic stucco is present at the *property*, is there any evidence of bulging, cracking, staining, damage, improper installation or inadequate drainage?

X3.3.15 Is engineered wood siding used on any building exterior? If yes, does it appear to be in good condition and free from signs of bulging, warping, rot, *biological growth*, staining, or signs of excessive caulking or past repairs?

X3.3.16 Are there any areas where weep screeds or exterior building finishes are within two inches of the adjacent grade (soil or paved surfaces)?

X3.3.17 Do transition areas to facades (for example parapet caps) exhibit any signs of cracking, bulging, staining, and so forth?

X3.3.18 Do facades exhibit any evidence of significant cracking, bulging, missing or damaged mortar/caulking, or *moisture*-related staining?

X3.4 *Roof*:

X3.4.1 Is there visual evidence of suspect *moisture affected materials* on the roof?

X3.4.2 Is there any *readily observable* roof damage?

X3.4.3 Is there any evidence of notable roof repairs?

X3.4.4 Is there any *readily observable* exposed, damaged, or moisture-affected oriented strand board (OSB) or similar materials subject to expansion or degradation when exposed to elevated *moisture*?

X3.4.5 Is there evidence of ponding on the roof?

X3.4.6 Is there any evidence of ponding on parapet wall coping or any evidence of sheet metal coping seams that are not sealed, have deteriorating sealant, or are improperly lapped?

X3.4.7 Do all flashings appear to be properly installed and in good condition?

X3.4.8 Are roof penetrations sealed?

X3.4.9 Are there any exhaust vents (for example, from plumbing, kitchen, bathroom, mechanical systems, and so forth) within 10 ft of air intakes?

X3.4.10 If exhaust vents are present, does there appear to be any *moisture*-related corrosion, condensation, or other impacts?

X3.4.11 Are roof vents blocked (for example, soffit vents, roof louvers, and so forth)?

X3.4.12 Are gutters, downspouts, and roof drains present and in good repair?

X3.4.13 How far from the building do roof drains transport storm water?

X3.5 *HVAC, Plumbing and Mechanical*:

X3.5.1 Are ventilation units on with air flowing into outdoor air intakes?

X3.5.2 Do outdoor air intakes appear to be properly screened, unobstructed, dry, and free from organic or animal/insect material accumulation or other evidence of *moisture affected materials*?

X3.5.3 Is there standing water or accumulation of organic materials near the air intake?

X3.5.4 Do condensation pans appear to be properly installed, clean and unobstructed, with readily identifiable points of discharge?

X3.5.5 Are secondary drain pans present? If yes, then do they appear to be properly installed, dry, clean and unobstructed, with readily identifiable points of discharge?

X3.5.6 Do condensate drain lines appear to be properly installed, clean and unobstructed, with readily identifiable points of discharge?

X3.5.7 Is there a cooling tower within 25 ft from the outdoor air intake?

X3.5.8 Was condensation *observed* or reported on HVAC ductwork (for example due to hot/humid conditions, inadequate insulation, mechanical system imbalance, and so forth)?

X3.5.9 Is there visual evidence of suspect *moisture affected materials*, *biological growth*, or standing water in, on, or around an air handling unit?

X3.5.10 Are return air filters dirty, blocked, or exhibiting evidence of *biological growth* or *moisture* damage?

X3.5.11 If an outdoor air damper is present, does it appear to be operating properly?

X3.5.12 Are supply and return air vent grills clean, dry, and free from evidence of *biological growth* or *moisture affected materials*, or both?

X3.5.13 Are *readily observable* air flow plenum spaces clean, dry, and free from evidence of *biological growth* or *moisture affected materials*, or a combination thereof?

X3.5.14 Is there a routine HVAC maintenance program(s) in place that includes condensate management system inspection, filter changes and coil service? If yes, what is the frequency of such maintenance?

X3.5.15 Does the building have humidifiers? If yes, do they appear to be properly maintained?

X3.5.16 Does the building have dehumidifiers? What is the method for discharging the collected water?

X3.5.17 Does the building have any “cold surface” mechanical systems (for example ice machines, refrigerated display cases, commercial freezer rooms, and so forth)? If yes, is there any evidence of condensation or *moisture affected materials* on or around such systems?

X3.5.18 Do the toilet rooms or bathrooms have manually operated (by switch) or continually operating exhaust fans? If yes, do the fans vent to the building exterior?

X3.5.19 Are interior floor drains equipped with trap primers (to keep water constantly in the trap)?

X3.5.20 Do kitchens have operating exhaust fans? If yes, do the fans vent to the building exterior?

X3.5.21 Are clothes dryer vents properly connected and discharging to the outside?

X3.5.22 Are there any sewer injector pumps?

X3.5.23 If sewer injectors are present, do they appear to be working properly (visibly good condition, no evidence of leakage, and so forth)?

X3.5.24 Is there any exposed plumbing? If yes, any water leaks or condensation?

X3.5.25 If the *property* was built between 1984-1990, is there any known ABS plastic piping present? If yes, is there any evidence of repairs (for example, added epoxy or repair sealants at joints) or reported history of leaks?

X3.5.26 If the *property* was built between 1970-1990, is there any known polybutylene piping present (flexible plastic supply piping)? If yes, has there been any history of leaks or repairs/replacements of fittings?

X3.5.27 Does the *property* have any known galvanized piping? If yes, has there been any history of leaks or repairs/replacements caused by corrosion?

X3.5.28 Does the *property* have any metal water piping where two dissimilar metals are joined (for example, galvanized to copper or brass), which could be subject to a corrosive galvanic reaction?

X3.5.29 Are there any fire suppression system *components*? If yes, have water leaks, corrosion or condensation been *observed*?

X3.5.30 Are there any gas-fired or oil-fired heaters (such as hot water heaters or pool water heaters)? If yes, do they exhaust directly into the building or are the vented to the outdoors?

X3.5.31 Are there commercial-type coolers or freezers installed within the building? If so, are they above a basement or higher than the first floor?

X3.6 *Building Interior*:

X3.6.1 Is there visual evidence of suspect *moisture affected materials* within the building?

X3.6.2 Is there a musty odor present within the building?

X3.6.3 Does the building seem to have excessive humidity?

X3.6.4 Is staining or discoloration apparent on floors?

X3.6.5 Is sheet vinyl or vinyl tile floor exhibiting blistering, bubbling, or showing any signs of distress?

X3.6.6 Is staining or discoloration apparent on the walls?

X3.6.7 Is staining or discoloration apparent on the ceilings, including ceiling tiles?

X3.6.8 Is there any evidence that ceilings have been repaired or ceiling tiles have been replaced?

X3.6.9 Is staining or *moisture*-related discoloration apparent on any furniture, fixtures, or finishes?

X3.6.10 Is there evidence of a current or past water leak?

X3.6.11 Are any walls or ceilings crumbling or degrading?

X3.6.12 Do any interior windows or surrounds (frames, heads, jambs, and sills) have any evidence of past or current *moisture* damage (warping, dry rot on frames or sills, condensation, staining, and so forth)?

X3.6.13 Are painted surfaces bubbled, swollen, sagging or peeling?

X3.6.14 Is there any evidence of evaporation such as white residue on floors (evidence of previous standing *moisture*, distinctly different from staining, streaking, efflorescence, and so forth). If so, is the likely cause *readily observable* (for example, past spill, overflow or leak, and so forth)?

X3.6.15 Is there condensate on cold surfaces (such as piping, exterior walls, roof, exterior doorframes, windows, or floor)?

X3.6.16 Is any portion of the interior below grade?

X3.6.17 Does the building have a basement, cellar, or crawl space(s)?

X3.6.18 If the building has a basement, cellar or *readily observable* crawl space(s), was visual evidence of suspect *moisture affected materials* or water intrusion *observed*?

X3.6.19 Are there any *sumps*, perimeter channels (for example, French drains), or other areas of open water drainage on any level of the building(s)?

X3.6.20 Any *readily observable moisture affected materials* or water intrusion on the attic insulation?

X3.6.21 Any spas, whirlpools, swimming pools, decorative fountains, saunas, steam baths, showers, or other such areas with open water? (Note: health clubs have showers, steam rooms, and so forth that are in continuous operation, as well as indoor pools, all of which can contribute to high humidity levels)

X3.6.22 Do any attics or other interior locations have evidence of resident or seasonal birds, bats, or other animals?

X3.6.23 Are there any areas with extensive indoor plants or greenhouses? If yes, do plants appear to be overwatered or exhibiting evidence of suspect *fungal growth*?

X3.7 *Additional Questions*—Optional, additional questions that may be added by *user* or *provider*.

TABLE X3.1 ASTM E3026 Visual Moisture Assessment (VMA) Field Checklist Questionnaire (Appendix X3)

Purpose: To document the assessor's visual observations of site-specific conditions during a single visit to the subject property.

Site Name: _____ Project #: _____

Site Address: _____

_____

Site City / ST / Zip: _____ Assessment Date: _____

Question		Response				Comments/Details
X3.1	**General**	Y	N	Unk	N/A	
X3.1.1	Was an Interview Checklist Questionnaire (Appendix X2) completed by a property representative?					
X3.1.2	Was any additional building information available for cursory review such as a site plan, floor plans, structural drawings, prior property condition assessments, roof reports, facade studies, and so forth?					
X3.1.3	Are there any animal confinement operations on-site, within or exterior to the building (for example, aquariums, kennels, pet waste areas, and so forth)?					
X3.1.4	Is there any evidence of rodent or insect infestation?					
X3.2	**Site and Surroundings**	Y	N	Unk	N/A	
X3.2.1	Does the ground surface slope away from the building?					
X3.2.2	Do downspouts and scuppers appear to drain water away from the building?					
X3.2.3	Do irrigation sprinklers overspray onto the building or excessively water near the building?					
X3.2.4	Is there vegetation close to the building?					
X3.2.5	Are there any current or reported past exterior natural or man-made water bodies such as streams, lakes, ponds, rivers, wetlands, high water tables, or other persistent standing water?					
X3.2.6	Are there any retention or detention basins?					
X3.2.7	Are there any areas of significant erosion or unusual drainage patterns?					
X3.3	**Building Exterior**	Y	N	Unk	N/A	
X3.3.1	Is there moisture-related staining or discoloration apparent on the building exterior?					
X3.3.2	Is there visual evidence of water intrusion associated with the building exterior?					
X3.3.3	Is there visible damage to the building exterior?					
X3.3.4	Are crawlspace vents blocked?					
X3.3.5	Is there visual evidence of suspect biological growth or moisture affected materials on the building exterior?					
X3.3.6	Are there side wall or exterior cladding penetrations (such as light fixtures, scuppers, bolts, hose bibs, piping, and so forth)? If so, do they appear to be properly sealed?					
X3.3.7	Does the building appear or reported to have been partially or fully re-sided? If yes, with what material?					
X3.3.8	Have there been any obvious or reported repairs to any partial or full re-siding? If yes, were the repairs applied over the old siding or any wood framing?					
X3.3.9	Are there swales or open drainage areas near the building? If yes, is there any readily observable standing water?					
X3.3.10	Are there areas of soil accumulation or hardscaping abutting exterior walls?					
X3.3.11	Do window exteriors appear to be properly flashed, caulked, and free from signs of past or current moisture damage (dry rot on frames or sills, condensation, staining, and so forth)?					
X3.3.12	Do doors appear to be properly flashed, caulked, and free from signs of past or current moisture damage (dry rot or swelling on doors or frames, fungal growth, staining, etc)?					

X3.3.13	Are there any Exterior Insulated Finishing System (EIFS) or synthetic stucco finishes present at the property?					
X3.3.14	If EIFS or synthetic stucco is present at the property, is there any evidence of bulging, cracking, staining, damage, improper installation or inadequate drainage?					
X3.3.15	Is engineered wood siding used on any building exterior? If yes, does it appear to be in good condition and free from signs of bulging, warping, rot, biological growth, staining, or signs of excessive caulking or past repairs?					
X3.3.16	Are there any areas where weep screeds or exterior building finishes are within two inches of the adjacent grade (soil or paved surfaces)?					
X3.3.17	Do transition areas to facades (for example parapet caps) exhibit any signs of cracking, bulging, staining, and so forth?					
X3.3.18	Do facades exhibit any evidence of significant cracking, bulging, missing or damaged mortar/caulking, or moisture-related staining?					
X3.4 **Roof**		Y	N	Unk	N/A	
X3.4.1	Is there visual evidence of suspect moisture affected materials on the roof?					
X3.4.2	Is there any readily observable roof damage?					
X3.4.3	Is there any evidence of notable roof repairs?					
X3.4.4	Is there any readily observable exposed, damaged, or moisture-affected oriented strand board (OSB) or similar materials subject to expansion or degradation when exposed to elevated moisture?					
X3.4.5	Is there evidence of ponding on the roof?					
X3.4.6	Is there any evidence of ponding on parapet wall coping or any evidence of sheet metal coping seams that are not sealed, have deteriorating sealant, or are improperly lapped?					
X3.4.7	Do all flashings appear to be properly installed and in good condition?					
X3.4.8	Are roof penetrations sealed?					
X3.4.9	Are there any exhaust vents (for example, from plumbing, kitchen, bathroom, mechanical systems, and so forth) within 10 ft. of air intakes?					
X3.4.10	If exhaust vents are present, does there appear to be any moisture-related corrosion, condensation, or other impacts?					
X3.4.11	Are roof vents blocked (for example, soffit vents, roof louvers, etc)?					
X3.4.12	Are gutters, downspouts, and roof drains present and in good repair?					
X3.4.13	How far from the building do roof drains transport storm water?					
X3.5 **HVAC, Plumbing and Mechanical**		Y	N	Unk	N/A	
X3.5.1	Are ventilation units on with air flowing into outdoor air intakes?					
X3.5.2	Do outdoor air intakes appear to be properly screened, unobstructed, dry, and free from organic or animal/insect material accumulation or other evidence of moisture-affected materials?					
X3.5.3	Is there standing water or accumulation of organic materials near the air intake?					
X3.5.4	Do condensation pans appear to be properly installed, clean and unobstructed, with readily identifiable points of discharge?					
X3.5.5	Are secondary drain pans present? If yes, then do they appear to be properly installed, dry, clean and unobstructed, with readily identifiable points of discharge?					
X3.5.6	Do condensate drain lines appear to be properly installed, clean and unobstructed, with readily identifiable points of discharge?					
X3.5.7	Is there a cooling tower within 25 ft from the outdoor air intake?					
X3.5.8	Was condensation observed or reported on HVAC ductwork (for example due to hot/humid conditions, inadequate insulation, mechanical system imbalance, and so forth)?					
X3.5.9	Is there visual evidence of suspect moisture affected materials, biological growth, or standing water in, on, or around an air handling unit?					

X3.5.10	Are return air filters dirty, blocked, or exhibiting evidence of biological growth or moisture damage?					
X3.5.11	If an outdoor air damper is present, does it appear to be operating properly?					
X3.5.12	Are supply and return air vent grills clean, dry, and free from evidence of biological growth or moisture affected materials, or a combination thereof?					
X3.5.13	Are readily observable air flow plenum spaces clean, dry, and free from evidence of biological growth or moisture affected materials, or both?					
X3.5.14	Is there a routine HVAC maintenance program(s) in place that includes condensate management system inspection, filter changes and coil service? If yes, what is the frequency of such maintenance?					
X3.5.15	Does the building have humidifiers? If yes, do they appear to be properly maintained?					
X3.5.16	Does the building have dehumidifiers? What is the method for discharging the collected water?					
X3.5.17	Does the building have any ″cold surface″ mechanical systems (for example ice machines, refrigerated display cases, commercial freezer rooms, and so forth)? If yes, is there any evidence of condensation or moisture-affected materials on or around such systems?					
X3.5.18	Do the toilet rooms or bathrooms have manually operated (by switch) or continually operating exhaust fans? If yes, do the fans vent to the building exterior?					
X3.5.19	Are interior floor drains equipped with trap primers (to keep water constantly in the trap)?					
X3.5.20	Do kitchens have operating exhaust fans? If yes, do the fans vent to the building exterior?					
X3.5.21	Are clothes dryer vents properly connected and discharging to the outside?					
X3.5.22	Are there any sewer injector pumps?					
X3.5.23	If sewer injectors are present, do they appear to be working properly (visibly good condition, no evidence of leakage, and so forth)?					
X3.5.24	Is there any exposed plumbing? If yes, any water leaks or condensation?					
X3.5.25	If the property was built between 1984-1990, is there any known ABS plastic piping present? If yes, is there any evidence of repairs (for example, added epoxy or repair sealants at joints) or reported history of leaks?					
X3.5.26	If the property was built between 1970-1990, is there any known polybutylene piping present (flexible plastic supply piping)? If yes, has there been any history of leaks or repairs/replacements of fittings?					
X3.5.27	Does the property have any known galvanized piping? If yes, has there been any history of leaks or repairs/replacements caused by corrosion?					
X3.5.28	Does the property have any metal water piping where two dissimilar metals are joined (for example, galvanized to copper or brass), which could be subject to a corrosive galvanic reaction?					
X3.5.29	Are there any fire suppression system components? If yes, have water leaks, corrosion or condensation been observed?					
X3.5.30	Are there any gas-fired or oil-fired heaters (such as hot water heaters or pool water heaters)? If yes, do they exhaust directly into the building or are the vented to the outdoors?					
X3.5.31	Are there commercial-type coolers or freezers installed within the building? If so, are they above a basement or higher than the first floor?					
X3.6	**Building Interior**	Y	N	Unk	N/A	
X3.6.1	Is there visual evidence of suspect moisture affected materials within the building?					
X3.6.2	Is there a musty odor present within the building?					
X3.6.3	Does the building seem to have excessive humidity?					
X3.6.4	Is staining or discoloration apparent on floors?					
X3.6.5	Is sheet vinyl or vinyl tile floor exhibiting blistering, bubbling, or showing any signs of distress?					
X3.6.6	Is staining or discoloration apparent on the walls?					

X3.6.7	Is staining or discoloration apparent on the ceilings, including ceiling tiles?					
X3.6.8	Is there any evidence that ceilings have been repaired or ceiling tiles have been replaced?					
X3.6.9	Is staining or moisture-related discoloration apparent on any furniture, fixtures, or finishes?					
X3.6.10	Is there evidence of a current or past water leak?					
X3.6.11	Are any walls or ceilings crumbling or degrading?					
X3.6.12	Do any interior windows or surrounds (frames, heads, jambs, and sills) have any evidence of past or current moisture damage (warping, dry rot on frames or sills, condensation, staining, etc)?					
X3.6.13	Are painted surfaces bubbled, swollen, sagging or peeling?					
X3.6.14	Is there any evidence of evaporation such as white residue on floors (evidence of previous standing moisture, distinctly different from staining, streaking, efflorescence, and so forth). If so, is the likely cause readily observable (for example, past spill, overflow or leak, and so forth)?					
X3.6.15	Is there condensate on cold surfaces (such as piping, exterior walls, roof, exterior doorframes, windows, or floor)?					
X3.6.16	Is any portion of the interior below grade?					
X3.6.17	Does the building have a basement, cellar, or crawl space(s)?					
X3.6.18	If the building has a basement, cellar or readily observable crawl space(s), was visual evidence of suspect moisture affected materials or water intrusion observed?					
X3.6.19	Are there any sumps, perimeter channels (for example, French drains), or other areas of open water drainage on any level of the building(s)?					
X3.6.20	Any readily observable moisture affected materials or water intrusion on the attic insulation?					
X3.6.21	Any spas, whirlpools, swimming pools, decorative fountains, saunas, steam baths, showers, or other such areas with open water? (Note: health clubs have showers, steam rooms, and so forth that are in continuous operation, as well as indoor pools, all of which can contribute to high humidity levels)					
X3.6.22	Do any attics or other interior locations have evidence of resident or seasonal birds, bats, or other animals?					
X3.6.23	Are there any areas with extensive indoor plants or greenhouses? If yes, do plants appear to be overwatered or exhibiting evidence of suspect fungal growth?					
X3.7	**Additional Questions**	Y	N	Unk	N/A	

Questionnaire Respondant Contact Information

Questionnaire Responses of: ☐ OWNER ☐ SITE REPRESENTATIVE ☐ FIELD OBSERVER

Answered by (Name): _____ Title/Role: _____

Company: _____ Phone: _____

E-mail Address: _____ Alt Phone/e-mail: _____

Address of Company: _____

Respondent represents that to the best of their knowledge the above statements are true and correct and that no material facts have been suppressed or misstated.