

APPENDIX E: REHABILITATION GUIDELINES
SC Housing Trust Fund Awarded Developments

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Applicable Forms:

1. Fannie Mae Physical Needs Assessment Workbook
 - a. Tab 1: Terms of Reference
 - b. Tab 2: Systems and Conditions Remaining Useful life
 - c. Tab 3: Expected Useful life Tables
 - d. Tab 4: Immediate Physical Needs
 - e. Tab 5: Capital Replacement Reserve Study
2. 2020 SC Housing Rehabilitation Work Scope Form
3. Pre-Site Visit Questionnaire Form 4099b
4. Structural Risk Evaluation Questionnaire

Introduction

These Rehabilitation Guidelines are designed to outline the requirements for the rehabilitation of rental housing developments assisted with financing from SC Housing administered SC Housing Trust Fund Program. These guidelines apply to multi-family developments. The goal of these Rehabilitation Guidelines is to standardize SC Housing's expectations for the longevity and marketability of completed rehabilitation of existing rental property. These guidelines are also intended to provide the owner/applicant with guidance and requirements for adhering to SC Housing's processes and procedures for the rehabilitation of affordable rental housing.

South Carolina State Housing Finance and Development Authority (SC Housing) has established these Architectural Standards. All projects receiving SC Housing resources for the rehabilitation of existing rental housing, utilizing funding from the South Carolina Housing Trust Fund (SCHTF) must meet these Architectural Standards. It is the responsibility of the applicant/owner to ensure compliance with 100% of the requirements as described in these guidelines and SC Housing's mandatory design criteria are met, unless a waiver has been approved by SC Housing in writing.

The Fannie Mae Expected Useful Life Tables are to be used as guide to determine the components and systems that need to be replaced in order to meet the duration of all awarded program obligations. The use of SC Housing Trust Fund dollars requires that projects funded under this program meet applicable Federal, State, and local statutory and regulatory requirements for a period of twenty years. These architectural standards are not meant to replace Federal, State or local codes. These standards shall be in addition to the following that are applicable to all properties funded in the program.

Nothing in this Appendix shall be construed to modify or eliminate any legally imposed requirement, including those governing accessibility.

I. Design Document Standards

A. Code Compliance

Construction/ Rehabilitation must be in compliance with:

1. 2021 International Residential Code with South Carolina Building Code Council Modifications (SCBCCM) or currently adopted code year.
2. 2021 International Building Code with SCBCCM or currently adopted code year.
3. 2021 International Mechanical Code with SCBCCM or currently adopted code year.
4. 2021 International Plumbing Code with SCBCCM or currently adopted code year.
5. 2021 International Fuel Gas Code with SCBCCM or currently adopted code year.
6. 2020 International Electrical Code with SCBCCM or currently adopted code year.
7. 2021 International Fire Code with SCBCCM or currently adopted code year.
8. 2009 International Energy Conservation Code with SCBCCM or currently adopted code year.
9. Current Adopted Edition of the NFPA Codes and Standards.
10. ANSI 117.1 – 2017 Edition.
11. Americans with Disability Act.
12. Fair Housing Act.
13. Section 504
14. HUD Housing Quality Standards (HQS)
15. HUD Minimum Property Standards (MPS)
16. HUD Uniform Physical Condition Standards (UPCS).

Developments must meet all applicable federal, state and local accessibility standards as well as all SC Housing accessibility requirements. By some measures, SC Housing's Development Design Criteria and accessibility requirements exceed the referenced state and federal requirements.

All new and rehabilitation construction work scopes must give consideration to the property marketability and residential quality of life which includes, but is not limited to, upgraded building exteriors and unit interiors, and improved site conditions and amenities. SC Housing may determine that projects which exceed customary and reasonable construction costs, even if they are within published per unit cost limits, represent a poor utilization of resources and may not meet threshold requirements.

The applicant/owner must notify SC Housing inspection staff of when the pre-construction conference will be scheduled. The pre-construction conference must be scheduled prior to the start of construction. Compliance requirements for all applicable federal and state requirements must be included on the meeting agenda.

An onsite OAC Meeting will be scheduled during the last week of each month. The SC Housing Construction Project Manager will be notified via email of monthly OAC meeting dates and times. SC Housing staff may not attend all onsite OAC meetings.

II. Scope of Work

A. All work scopes must propose:

The length of the affordability or compliance period for SC HTF rehabilitation projects is 20 years. Projects that propose rehabilitation must present a scope of work that will position the property to meet the entire extent of its statutory obligations. The Fannie Mae Expected Useful Life Tables will be used as a guide to determine the components and systems that need to be replaced in order to meet the duration of all awarded program obligations. It is expected that all work scopes will propose:

1. A minimum "dwelling unit" per unit hard cost budget of \$25,000.
 - a. Hard costs eligible for this requirement are limited only to improvements within the dwelling unit envelope (windows, entry doors, exterior siding, unit insulation and roofing improvements). No site improvements, common building systems, community building improvements, new construction for community buildings, maintenance facilities, other common use structures or interior and exterior amenities will count towards the per unit hard cost minimum calculation.
2. A substantial gut rehabilitation (where applicable) where major systems are removed and replaced according to the Fannie Mae Expected Useful Life Table.
3. The replacement of any component of the building or site with a Remaining Useful Life, according to Fannie Mae Expected Useful Life Table, of less than 15 years.
4. Corrective action replacements for all deficiencies noted in the Physical Needs Assessment.
5. The replacement of existing exterior stairs, breezeways, and handrails that have no roof cover.
6. Entire unit (all rooms and ceilings) including doors and trims must be repainted.
7. Compliance with the South Carolina State Minimum Standard Codes and Life Safety Code regarding stairs, handrails, guardrails, smoke detectors, fire alarms, and unit fire separation (attic draft stops, fire separation, rated party walls and floor/ceiling components, and

- caulking of all penetrations in the fire assemblies).
 - 8. Substantially the same scope of work in all units.
 - 9. Compliance with SC Housing Appendix B Development Design Criteria, all current South Carolina building codes, SC Housing accessibility requirements, and UPCS, subject to inspection, upon completion of work.
- B. SC Housing will review the type of construction and associated hard construction costs. Applications for the rehabilitation of a substandard property will not be funded if, in the opinion of SC Housing, the rehabilitation will not result in improved, safe and decent long-term housing, the proposed rehabilitation does not meet SC Housing standards, or if new construction would be more appropriate.

SC Housing may determine the need to perform its own Physical Needs Assessment (PNA) or decline any application for rehabilitation if it is determined that the rehabilitation work scope:

- Is inadequate or excessive;
- Does not address the issues of the Physical Needs Assessment;
- Does not address major structural issues, building codes, health, safety, marketing or any other conditions observed on the site;
- Will not result in safe, decent housing.

III. Waivers

- A. SC Housing may grant waivers to the Development Design Criteria if there is an overriding public policy need based on the physical needs assessment, a certification from the architect and, where applicable, the appropriately-licensed engineer (civil, structural, mechanical, plumbing, electrical) documenting that the completed project will be viable and meet the SC Housing useful life requirements. All waiver requests must be submitted in writing and be accompanied by the SC Housing Rehabilitation Work Scope Form, Physical Needs Assessment and any other substantiating documentation.
- B. SC Housing may require, as a condition of the waiver, full funding of the capital replacement reserve. The capital replacement reserve must clearly schedule all component/system replacements required according to the **Fannie Mae Expected Useful Life Table**.
- C. Owners may request waivers for some following requirements, if it can be documented that compliance will be cost prohibitive. The burden of proof is on the owner/applicant.
1. Architectural Standards
 2. Central HVAC in a multi-floor building where it can be demonstrated that the existing central system is the most efficient and economical system for conditioning the indoor spaces
 3. Flat roofs
 4. Room and unit size, closet and cabinet/counter requirements, number of bathrooms only if documentation of the marketability of existing conditions is provided
 5. One-bedroom units where the bathroom is accessed through the bedroom
 6. The \$25,000 per unit minimum
 7. Threshold Section, Required Amenities: Additional Requirements and Amenities for senior projects that requires Fair Housing compliance on all units built BEFORE 1991 only if clear documentation of the burdensome cost to provide accessibility to all units is provided.

- D. SC Housing may deny a waiver if the completed rehabilitation will not result in safe and decent housing that is equal to comparable housing in the marketplace. In no case will SC Housing waive:
 - 1. Federal, state or local building or accessibility laws or codes;
 - 2. State energy conservation codes;
 - 3. Health and safety requirements;
 - 4. Room layouts that do not meet design criteria standards requirements for
 - a. Bathrooms that open from areas of food preparation, or
 - b. A sole passageway to a habitable room or hall unless egress is provided according to applicable fire codes.

IV. Physical Needs Assessments

- A. The application for funding shall include a PNA and comprehensive SC Housing Rehabilitation Work Scope Form outlined below. Rehabilitation projects selected for funding must submit all pre-construction due diligence documentation outlined in the Architectural Submittals Instructions, including a complete set of plans and specifications produced by an architect licensed in South Carolina. The SC Housing Rehabilitation Work Scope Form submitted at application may not be changed between application submission and Final Allocation without SC Housing's consent. All proposed work approved during the application process must be completed.
- B. SC Housing may determine the need to perform its own Physical Needs Assessment (PNA) or decline any application for rehabilitation if it is determined that the rehabilitation work scope:
 - 1. Is inadequate or excessive;
 - 2. Does not address the issues of the Physical Needs Assessment;
 - 3. Does not address major structural issues, building codes, health, safety, marketing or any other conditions observed on the site;
 - 4. Will not result in safe, decent housing.
- C. SC Housing may verify all information contained in the PNA report with an on-site inspection of the property conducted during the application process.
- D. **Physical Needs Assessment Requirements**
 - 1. The PNA is required at time of application for all rehabilitation, adaptive reuse, and historic preservation properties applications. The PNA, including an on-site investigation, narrative report, and Fannie Mae forms, must be conducted by a Qualified Consultant, who meets the following experience requirements and qualifications:
 - a. Independent from the Applicant/Owner/Developer and have the capacity to render a report in accordance with Rehabilitation Guidelines.
 - b. Have no less than five (5) years of experience performing physical needs assessments for affordable rental housing projects.
 - c. Not be presently debarred, suspended, proposed for debarment or suspension, declared ineligible or excluded from participation by any state or federal department, agency, or program.
 - d. Agrees to comply with all applicable laws, including, but not, limited to federal, state and local laws, codes, regulations, ordinances, rules and orders, including all laws

concerning fair housing and equal opportunity that protect individuals and groups familial status, or sex.

- e. Agree to comply with the SC Illegal Immigration Reform Act requirements of Title 8, Chapter 14 of the SC Code Annotated, and any other applicable state or federal immigration laws. Consultant must be registered with and using E-Verify.
 - f. Consultant must comply with Drug Free Workplace requirements.
2. Developers must contact the qualified consultant directly and contract to provide the PNA services. The report must include a certification that the report was prepared by an individual who meets the above-listed experience requirements and qualifications to be considered a qualified consultant.
 3. The PNA must be no more than six (6) months old at the time the Application is submitted. The report must include a signed statement from the consultant with the following language inserted in the consultant's signature block:

“The investigation has been completed in accordance with SC Housing requirements, is accurate, and can be relied upon by SC Housing as a true evaluation of the existing property conditions.”
 4. The Consultant shall inspect 100% of the units, community/common areas, maintenance spaces and the entire grounds of the property.
 5. The report is not expected to identify regular maintenance items that are part of the property owner's operating responsibility such as occasional window glazing replacement and/or caulking, minor plumbing repairs, annual HVAC and appliance servicing. However, the consultant must comment on such items if they do not appear to be routinely addressed or in need of immediate repair, as well as report any observed or documented building code violations.
 6. The PNA must also include a discussion of known building code violations and health/life safety violations.
 7. The PNA consultant is not expected to assume liability for compliance with accessibility regulations during design of post-rehabilitation. The consultant will identify any potentially costly barriers to the required property accessibility, i.e., changes in grade for accessible routes or parking and unit framing changes for required clearances. The PNA must identify major violations of The Americans with Disabilities Act, The Fair Housing Act, and The Uniform Federal Accessibility Standards (UFAS).
 8. The Capital Replacement Reserve study shall extend for 20 years with no capital replacements within the first five years (apart from regular maintenance and turnkey operations that are part of operation and management). The Capital Replacement Reserve shall reflect the condition of the property “As Improved” by the entire SC Housing Rehabilitation Work Scope proposed by the Owner, not just the needs identified by the Physical Needs consultant.
 9. Any item that is determined to have an Effective Remaining Life of less than 15 years must be replaced as part of the work scope. Applicants may request a waiver where major systems (roofing, HVAC equipment, windows, doors, etc.) have been replaced within the last 5 years. SC Housing may allow for replacement in the 15-year term if the cost is clearly documented in the Capital Replacement Reserve study. Replacement Reserves must exceed the SC Housing's minimum contributions and the project underwriting shall propose full funding of the Reserve.
 10. The applicant must provide adequate documentation substantiating any differences between the Effective Remaining Life as a calculated difference between Effective Useful

Life and Age and the Evaluator's opinion of the remaining useful life. The report should emphasize all systems/components with no Effective Remaining Life and those with Effective Remaining Life less than SC Housing requirements, all deferred maintenance, and repairs or replacements involving significant expense or outside contracting.

11. The consultant must note any suspected environmental hazards. Confirmation of suspected environment-related hazards, such as mold, lead-based paint, or asbestos containing materials, must be addressed in a separate environmental engineer's report. It is recognized that the Expected Useful Life Tables represents one judgment of the expected life of the various components. The Tables provide a useful and consistent standard for all evaluators to use. The Tables avoid debate on what the appropriate expected life is and permit focus on the evaluator's judgment of the effective remaining life of the actual component.

- E. The PNA must include descriptions of the condition of the following items and identification of the Remaining Useful Life in the Fannie Mae forms format of the following items:

SITE SYSTEMS AND CONDITIONS

- Landscaping
- Irrigation
- Grading/storm water drainage
- Lighting - building mounted
- Lighting - pole mounted
- Parking
- Pedestrian paving (sidewalks)
- Utilities (piping & equipment such as pumps etc.)
 - Water
 - Fire
 - Gas
 - Electrical
 - Sanitary
 - Storm water drainage structures & piping
 - Cable/Phone/Communications
- Mailboxes
- Property sign
- Traffic signage
- Retaining walls
- Fencing
- Exterior stairs
- Exterior railings
- Site amenities

COMMON AREAS/COMMUNITY BUILDING

- Common area amenities
- Common area doors
 - Interior
 - Exterior
- Common area floors

- Common area ceilings
- Common area walls
- Common area kitchens
 - Countertop
 - Cabinets
 - Sink
 - Appliances
- Common area HVAC
 - Ductwork
 - Equipment
- Common area/public bathrooms
 - Fixtures
 - Hot water heating
 - Water piping
 - Waste/vent piping
 - Bathroom accessories
- Sprinklers
- Electrical
 - Light fixtures
 - Outlets/switches
 - Wiring
 - Equipment (panels/breakers)
- Life safety
 - Smoke alarms
 - Fire alarms

BUILDING ARCHITECTURE

- Foundations
- Crawl Spaces/Basements
- Framing
 - Wall
 - Floor
 - Ceiling/roof
- Exterior wall sheathing
- Exterior cladding
- Roof sheathing
- Roofing
- Gutters & downspouts
- Soffits
- Windows
- Insulation
 - Wall
 - Floor
 - Attic

DWELLING UNITS

- Cabinets
- Countertops
- Interior doors
- Exterior doors
- Floor underlayment
- Floor finishes
- Interior wall sheathing (gypsum wall board)
- Wall finishes
- Ceilings
- Bathroom vanities
- Bathtubs/showers
- Tub/shower surrounds
- HVAC
 - Ductwork
 - Equipment
 - Bath fans & ventilation
- Plumbing
 - Fixtures (faucets, shower valves, toilets, sinks)
 - hot water heating
 - water piping
 - waste/vent piping
 - Wall
 - Under slab
- Appliances
- Elevators
- Sprinklers
- Electrical
 - Light fixtures
 - Outlets/switches
 - Wiring
 - Equipment (panels/breakers)
- Life safety
 - Smoke alarms
 - Fire alarm system
 - Attic draft stop/fire walls

V. SC Housing Rehabilitation Work Scope Form

- A. The SC Housing Rehabilitation Work Scope form must address future property marketability, durability, and energy efficiency which will add to the residential quality of life.
- B. The SC Housing Rehabilitation Work Scope Form must be compiled by the Applicant/Owner, Architect/ Engineer, and Construction Contractor in SC Housing’s required format to include materials, quantities and unit costs.
- C. The SC Housing Rehabilitation Work Scope Form shall be based on:
 1. Requirements for the replacement of components with an Effective Remaining Useful Life of less than 15 years, building code and health/safety violations, and immediate needs from the PNA;

2. Requirements for the replacement of components in order to comply with SC Housing’s Design Criteria Standards and Specific Systems Replacement Guidance;
 3. All applicable Threshold and Scoring upgrades as indicated in the SC Housing Application including amenities construction;
 4. All costs that will be incurred in bringing the property into compliance with federal, state, local, and SC Housing accessibility regulations;
 5. Remediation of all issues identified in the Phase I and II environmental reports and NEPA reviews.
- D. SC Housing must be able to determine that all major issues identified in the PNA and Environmental Reports are addressed in the SC Housing Rehabilitation Work Scope form.

VI. Specific Systems Replacement Guidance

A. Site Utilities

The SC Housing Rehabilitation Work Scope Form must contain a budget line item to investigate (including with remote imaging) and repair or replace all main utility lines on the property, regardless of age. If more than 50% identifies as failed, the entire line must be replaced. Owners must submit a copy of the sewer investigation to SC Housing with the final inspection documentation.

B. Site Utilities - Special Considerations: Polybutylene Piping

The consultant must investigate any polybutylene piping and provide an opinion on whether it should be repaired or replaced. In all cases the last 3’-0” of polybutylene hot water lines must be replaced with copper piping.

C. Landscaping/Storm Water Drainage/Erosion

All areas of washout, exposed dirt, dead trees and overgrown landscaping must be corrected. SC Housing may require, as a condition of funding, that a civil engineer be engaged to address the issue.

D. Site Improvements

Broken or un-useable amenities equipment, non-compliant site stairs and handrails, failed/deteriorated sidewalks, paving, and retaining walls must be corrected. Sidewalks and paving must meet the minimum UPCS and accessibility standards

E. Foundations

All cracking or settling of concrete foundations and masonry must be addressed. SC Housing may require, as a condition of funding, that a structural engineer be engaged to address the issue. Wholesale Foundation replacement are prohibited.

F. Crawlspace

All crawlspaces must be investigated and assessed for the presence of mold, plumbing leaks, and deteriorating structures. All crawl spaces must meet minimum energy and fire code requirements.

G. Rough Carpentry

Deteriorated subfloor, wall sheathing, roof sheathing, and structural framing must be addressed and allowances for the quantity of this work must be substantiated.

H. EIFS & Stucco

EIFS (synthetic stucco) may not be repaired but must be replaced by a SC Housing approved material. Hard-coat stucco (cement stucco) must be replaced if more than 25% of the existing

material has failed. SC Housing must approve any repair or replacement of hard-coat stucco.

I. Acoustical Isolation

The work must meet the Design Criteria Standards for acoustical isolation wherever party and exterior wall structures and ceiling and floor construction are exposed during the course of construction.

J. Drywall

The Work Scope must indicate the approximate percentage of drywall to be removed and replaced. Allowances must be substantiated.

K. HVAC

Heating, ventilating, and air conditioning systems must be replaced if they do not meet the applicable building codes, do not meet Threshold Section Building Sustainability, or do not have the required Effective Remaining Life. The duct system must be replaced if necessary to meet applicable codes and SC Housing required life expectancy. If ductwork is not replaced, it must be cleaned and sealed in accordance with the South Carolina State Minimum Standard Energy Code.

L. Plumbing

Plumbing components must be replaced if they do not meet the requirements of applicable building codes, do not meet Threshold Section Building Sustainability, do not have the required Effective Remaining Life, 50% of the plumbing system needs replacement, or if lead in water testing results exceeds regulated levels. Refer to Appendix B Development Design Criteria Section II, P, 16 for details.

M. Electrical

The existing electrical system must be upgraded to meet all applicable codes. If 50% of the system needs replacement, the entire system must be replaced, including all wiring.

N. Building Sustainability

Rehabilitation projects will meet the sustainability requirements outlined in the 2021 Small Rental Development Program Application Manual, regardless of local code enforcement.

O. Accessibility

All Work Scopes must meet applicable federal, state, local, and SC Housing requirements. SC Housing requires 5% of the units to be fully accessible, 100% of mobility units to have roll-in showers, and an additional 2% equipped for the hearing and sight impaired. SC Housing maintains the same accessibility standard for new construction and rehabilitation.

P. Fire and Life Safety

Through strict code compliance, the property design shall provide a safe environment for all tenants. Compliance with the Life Safety Code for new construction is required for the following regardless of local building authority enforcement: stairs, handrails, guardrails, smoke detectors, carbon monoxide detectors, fire alarms, and unit fire separation (attic draft stops, fire/smoke separations, rated party walls and floor/ceiling components, and caulking of all penetrations in the fire assemblies). Life Safety items that do not meet current codes will not be 'grandfathered' in.

Adherence to the most recently adopted editions of the South Carolina State Codes is required. This includes but is not limited to:

1. Smoke detectors must be hard-wired and located per code for all construction, either rehabilitation or new. SC Housing will not waive this requirement for rehabilitation proposals. Carbon Monoxide Detectors shall be in accordance with NFPA 101 Life Safety Code and NFPA 720.
2. Fire alarms and sprinklers must meet fire department, state and local code requirements.
3. Attics must be constructed or rebuilt to meet all current fire and life safety codes, regardless of the requirements of the local building authority. These include draft stop walls, and rated ceiling, floor, and wall assemblies.
4. All through-penetrations of smoke walls, draft stops, and rated assemblies must meet current fire codes.
5. Multi Family buildings with existing exterior wooden stair systems may not be repaired. Instead they must be replaced in their entirety with new galvanized steel (field painted) and or concrete stair systems.
6. Projects shall comply with all disaster mitigation-related requirements of the latest editions of the applicable mandatory State Minimum Standards as adopted and amended by South Carolina, and with all local ordinances regarding disaster mitigation. Such as but not limited to Hurricane, Earthquake and Flood requirements.
7. Life Safety items that do not meet current codes will not be 'grandfathered' in. SC Housing may allow an outcome at a standard lower than new construction requirements based on documentation from the authorized local code enforcement official(s).

VII. Historic Rehabilitation

Applicants must follow the *Secretary of the Interior's Standards for Rehabilitation* (36 CFR Part 68) to rehabilitate the property's interior and exterior features and complete SC Housing's environmental requirements, including the testing and abatement of lead and asbestos. These exterior and interior guidelines can be found at:

<http://www.nps.gov/tps/standards/rehabilitation.htm>.

A. Summary

1. If a Preservation Professional, as defined in the Environmental Manual, determines that the proposed project has an adverse effect or is a contributing structure which is either listed in the National Register or is eligible for listing in the National Register (or a lot within such a listed or eligible district) and South Carolina State Historic Preservation Office (SHPO) has cleared the proposed activities to proceed, the general rehabilitation standards may not apply. However, SC Housing still requires that the completed rehabilitation results in housing that will meet the duration of all awarded program obligations.
2. The Applicant must submit to SC Housing a detailed scope of work that sets forth the proposed rehabilitation or new construction activity in accordance with recommended practices as set forth in *The Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings*
3. **Review the Historical Significance of the Property**
Applicants must review documentation on file with the National Register of Historic Places or local preservation commissions and supplemented with a physical investigation to identify which character defining features and spaces must be protected.

4. Reconstruction (demolition and replacement) of Historic Properties

Applicants must consult with a Preservation Professional to develop a set of historically compatible model replacement building plans and construction drawings (including elevations) in advance of any planned reconstruction activities, which must then be approved by the SHPO before beginning construction.

- 5. Any modifications of the historic rehabilitation work scope must be approved in writing by SC Housing in advance of the project start-up.**

Exhibit I

Fannie Mae Physical Needs Assessment Guidelines

Below is a reproduction of the directions for completing the Fannie Mae forms. SC Housing may have detailed specific guidance above which overrides these boiler-plate directions.

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The standard format forms are to help the consultant conduct a comprehensive and accurate assessment. However, the forms should not constrain the consultant from fully addressing other findings and may be supplemented as necessary to create a thorough record of the property's physical needs. The forms may be altered to serve the consultants' needs if the basic format is maintained and the same information is presented.

I. SPECIFIC GUIDANCE TO THE PROPERTY EVALUATOR

- A. Purpose -_The purpose of the Physical Needs Assessment is to identify and provide cost estimates for the following key items:
- B. Immediate Physical Needs - repairs, replacements and significant maintenance items which should be done immediately.
- C. Physical Needs Over the Term - repairs, replacements and significant maintenance items which will be needed over the term of the mortgage and two years beyond. As part of the process, instances of deferred maintenance are also identified. The assessment is based on the evaluator's judgment of the actual condition of the improvements and the expected useful life of those improvements. It is understood that the conclusions presented are based upon the evaluator's professional judgment and that the actual performance of individual components may vary from a reasonably expected standard and will be affected by circumstances which occur after the date of the evaluation.
- D. This package explains how to use the set of forms provided by Fannie Mae. It is important to recognize that the forms are intended to help the evaluator conduct a comprehensive and accurate assessment. They also present the results of that assessment in a relatively standard format which will be useful in making underwriting decisions.
- E. The forms however, should not constrain the evaluator from fully presenting concerns and findings. The forms should be used and supplemented in ways which facilitate the preparation and presentation of information useful regarding the physical needs of the property.
- F. The Systems and Conditions forms may be altered and/or computerized to serve the evaluators' needs so long as information is provided on the condition and Effective Remaining Life of all components and the Effective Remaining Life is compared to the standard Expected Useful Life (EUL). The Summary forms may also be extended or computerized so long as the basic format is

maintained.

II. Terms of Reference Form

The Applicant /Owner must provide this form for the evaluator as part of the need's assessment form. It serves as a reference point for the assessment and provides the evaluator with basic information about the property and the expected term of the loan(s). Four additional topics are covered:

1. Sampling Expectations - Expectations about the number and/or percentage of dwelling units, buildings and specialized systems to evaluate may be stated. If there is no stated expectation, the evaluator should inspect sufficient units, buildings, and numbers of specialized systems to state with confidence the present and probable future condition of each system at the property. The evaluator should provide a separate statement indicating the sampling systems used to ensure a determination of conditions and costs with acceptable accuracy.
 - a. If a Sampling Expectation is provided by the applicant/owner is not adequate to achieve the requisite level of confidence, the evaluator should so advise the owner/applicant. Considerations in determining an adequate sample size are age and number of buildings (especially if the property was developed in phases), total number of units, and variations in size, type and occupancy of units.
 - b. Effective sampling is based on observing a sufficient number of each significant category. Using the above criteria, categories could include buildings by age of each building (e.g. inspect buildings in the 8-year-old phase and in the 11-year-old phase), buildings by type (e.g. row house, L-shaped row house, walkup, elevator) and/or buildings by construction materials (e.g. inspect the garden/flat roof/brick walls section and the garden/pitched roof/clapboard walls section).
 - c. Dwelling units are separate categories from buildings. At a minimum, sampling is by unit size (0/1/2/3/4 bedrooms). There may be further categories if units are differently configured or equipped, or have different occupants (especially family or elderly). Systems which are not unit specific, such as boilers, compactors, elevators and roofs, will often have a 100% sample.
 - d. The objective is to see enough of each unit type and system to determine the present and probably future condition.
2. Market Issues - In certain instances, market conditions may necessitate action on certain systems. Examples are early appliance replacement or re-carpeting, new entry paving, special plantings, and redecorated lobbies. If the owner or lender has identified such an action, the evaluator should include cost estimation for such action and indicate what, if any, other costs would be eliminated by such action.
3. Work in Progress - In some instances, work may be underway (which can be observed) or under contract. When known by the lender, this will be noted. For purposes of the report, such work should be assumed to be complete, unless observed to be unacceptable in quality or scope.
4. Management-Reported Replacements - In some instances, the property ownership or management will provide the lender with information about prior repairs or replacements which have been completed in recent years. The applicant/owner may provide this information to the evaluator to assist in the assessment of these components. The evaluator should include enough units, buildings, or systems in the sample to reasonably verify the reported repairs or replacements.

III. Systems and Conditions Forms

- A. It is the responsibility of the evaluator to assess the condition of every system which is present at a property. All conditions, except as noted below, requiring action during the life of the loan must be addressed regardless of whether the action anticipated is a capital or operating expense.
- B. To assist evaluators in reviewing all systems at a property, four Systems and Conditions Forms are provided. Each lists a group of systems typically related by trade and/or location. The four forms are Site, Architectural, Mechanical and Electrical, and Dwelling Units. While the forms have several columns in which information may be recorded, in many instances only the first three columns will be completed. If the condition of a system is acceptable, the Effective Remaining Life exceeds the term of the mortgage by two years, and no action is required, no other columns need to be completed.
- C. The report is not expected to identify minor, inexpensive repairs or other maintenance items which are clearly part of the property owner's current operating pattern and budget so long as these items appear to be taken care of on a regular basis. Examples of such minor operating items are occasional window glazing replacement and/or caulking, modest plumbing repairs, and annual boiler servicing, however, the evaluator should comment on such items in the report if they do not appear to be routinely addressed or are in need of immediate repair.
- D. The report is expected to address infrequently occurring "big ticket" maintenance items, such as exterior painting, all deferred maintenance of any kind, and repairs or replacements which normally involve significant expense or outside contracting. While the evaluator should note any environmental hazards seen in the course of the inspection, environment-related actions, such as removal of lead-based paint, will be addressed in a separate report prepared by an environmental consultant.

IV. USING THE SYSTEMS AND CONDITIONS FORMS

A. Purpose

The forms can be used both to record actual observations at a specific location and for an overall summary. For example, the Architectural form can be used for a specific building (or group or identical buildings) as well as for summarizing all information for buildings at a property. The same is true for the Dwelling Unit form. An unlabeled form is included which can be used as a second page for any of the Systems and Conditions Forms.

1. In some instances, the evaluator will note components which, while they may continue to be functional, may reduce marketability of the property. For example, single-door refrigerators or appliances in outdated colors may have such an impact in some properties. The evaluator should note these items, discuss them with the lender, and provide separate estimates of the cost to replace such items if requested.
2. Each of the four forms has a number of frequently-occurring systems and components listed. This list represents only the most frequently observed and is not meant to be all inclusive. Every system present at the property must be observed and recorded. Any system not listed on the form may be included in the spaces labeled "Other".
3. Note that the assessment includes the systems and components in both residential and non-residential structures. Thus, garages, community buildings, management and maintenance offices, cabanas, pools, commercial space, and other non-residential buildings and areas are included.

B. Items (EUL)

1. The Expected Useful Life (EUL) figure which appears in parentheses after the Item is taken from the Expected Useful Life Table provided. This table provides standard useful lives of many components typically found in apartment complexes. Where the parentheses do not contain a number, it is because there are various types of similar components with differing economic lives.
2. The evaluator should turn to the Expected Useful Life Table and select, and insert, the appropriate Expected Useful Life (EUL) number. If the Expected Useful Life (EUL) will, without question, far exceed the term of the mortgage plus two years, the Expected Useful Life (EUL) number need not be inserted.
3. The Expected Useful Life Tables represents only one possible judgment of the expected life of the various components. If we receive substantial material to the effect that one or more of the estimates are inappropriate, we will make adjustments. Until such changes are made, the Tables provide a useful and consistent standard for all evaluators to use. They avoid debate on what the appropriate expected life is and permit focus on the evaluator's judgment of the effective remaining life of the actual component in place, as discussed below.

C. Age

The evaluator should insert the actual Age of the component or may insert "OR" for original. If the actual age is unknown, an estimate is acceptable. If there is a range in Age (for example, components replaced over time), the evaluator may note the range (i.e., 5-7 years) or may use several lines for the same system, putting a different Age of that system on each line.

D. Condition

This space is provided to indicate the Condition of the component, generally excellent, good, fair, or poor, or a similar and consistent qualitative evaluation.

E. Effective Remaining Life

1. This space is provided for the evaluator to indicate the remaining life of the component as is. For standard components with standard maintenance, the Expected Useful Life Table provided by the Lender could be used to determine Effective Remaining Life by deducting the Age from Expected Useful Life (EUL). However, this should not be done automatically. A component with unusually good original quality or exceptional maintenance could have a longer life.
2. On the other hand, if the component has been poorly maintained or was of below standard original quality, the useful life could be shorter than expected. The evaluator applies professional judgment in making a determination of the Effective Remaining Life. If the Effective Remaining Life is longer than the term of the loan plus two years, no deferred maintenance exists, and no action needs to be taken during the life of the loan, no other columns need to be filled out.
3. The only exception may be Diff? (Difference), as discussed below. This should be noted when the evaluator's estimate of the Effective Remaining Life varies by more than two years from the standard estimate.

F. (Difference)

The Age of the component should be deducted from the Expected Useful Life (EUL) in parentheses and the answer compared to the Effective Remaining Life estimated by the evaluator. Where there is a difference of over two years, the evaluator should insert a footnote number in the Diff? (Difference) column and supply in an attached list of footnotes a brief statement of why, in the evaluator's judgment, the Effective Remaining Life of the component varies from the standard estimate. This approach provides consistency among evaluators while making best of the evaluators' professional judgment.

G. Action

1. If any Action is required - immediately, over the life of the loan, or within two years thereafter the Action should be recorded as repair, replace, or maintain. Repair is used when only a part of an item requires action, such as the hydraulics and/or controls of a compactor.
2. Replace is used when the entire item is replaced. Maintain is used where special, non-routine maintenance is required, such as the sandblasting of a swimming pool. In cases where a repair or maintenance may be needed now, and replacement or further maintenance may be needed later, separate lines may be used to identify the separate actions and timing.

H. Now?

If the item involves a threat to the immediate health and safety of the residents, clearly affects curb appeal, will result in more serious problems if not corrected, or should otherwise be accomplished as part of an immediate repair, maintenance or replacement program, this space should be checked. Replacements which may be needed in year one, but do not require immediate attention, need not be checked.

I. DM (Deferred Maintenance)

The DM (Deferred Maintenance) space is marked in any instances where current management practice is clearly inadequate and the owner's attention should be called to the item, even if no major expenditure or significant labor may be required.

J. Quantity

For items requiring action, the evaluator should note the Quantity of the system, with the applicable unit of measure entered (each, unit, square feet, square yards, linear feet, lump sum, etc.).

K. Field Notes

This space, as well as attachments may be used to record the type of component (16cf, frost free, Hotpoint), the problem (valves leaking) or other information (consider replacement for marketing purposes, replace 30% per year, work in progress, etc.) that the evaluator will need to complete the Evaluator's Summary.

L. Sample Form

The following example from the Dwelling Unit Systems and Conditions form illustrates how this form is properly used. The example presumes an 11-story building containing 1 and 2 bedroom units. There are 100 units. The age of the building is 9 years. The term of the proposed loan is 7 years.

1. Countertop/sinks are 9 years old. (The entry could also be "OR"). Condition is excellent, with an Effective Remaining Life of 10 years. This is significantly different from the anticipated Effective Remaining Life of 1 (a EUL of 10 years minus an Age of 9 years). Therefore, there is a footnote entry "1" in the "D" column. The footnote will indicate that this item is made of an exceptionally durable material, along with a top quality stainless steel sink. The evaluator's estimate of an Effective Remaining Life of 10 years + is beyond the term of +2. No capital need would be reported.
2. Refrigerators are also original, reported as Hotpoint 16 cf frost free. Replacement is expected around the Effective Remaining Life, noted as 20% annually and beginning in the 5th year of the loan when the refrigerators are 14 years old. Disposals range from new to original (Age = 0-9). 20% per year replacements will be needed starting in year 1. The evaluator notes that disposals appear to be replaced as part of the project's normal operations.
3. Bath fixtures are original, and in good condition. No replacement is expected to be required during the term +2 years. The note indicates that they are "dated looking," which may prompt a market consideration for replacement.
4. Ceiling is a special entry. The "04" stack of units has experienced water damage to ceilings from a major plumbing leak. This is noted for repair NOW. As this apparently occurs in all 10 units in this stack, and therefore is likely to have more than a modest cost, this action would be reported on the Immediate Physical Needs summary form.

M. Evaluator's Summary Forms

Two separate forms are used to summarize the evaluator's conclusions from the Systems and Conditions Forms. One summarizes Immediate Physical Needs and the other summarizes the Physical Needs over the Term +2 years.

N. Evaluator's Summary: Immediate Physical Needs

All of the items for which NOW are checked are transferred to this form. This form provides for the listing of Items, Quantity, Unit Cost and Total Cost of each. The Item and Quantity are transferred directly from the Systems and Conditions Form.

O. Unit Cost: This is the cost per unit (sf, ea, lf, etc.) in current dollars to implement the required action. The source of the cost estimate should be listed in a separate attachment. The sources may include a third-party estimation service (e.g., R.S. Means: Repair and Remodeling Cost Data), actual bid or contract prices for the property, estimates from contractors or vendors, the evaluator's own cost files, or published supplier sources.

P. Total Cost: This is the result of multiplying the quantity times the unit cost. It is expressed in current year dollars.

Q. DM (Deferred Maintenance): If the item evidences deferred maintenance, this column is checked.

R. Comments: the comments column, or an attachment, should clearly provide information on the location and the nature of problem being addressed for each item. The information should be adequate for the owner to begin to implement the action.

S. Evaluator’s Summary: Physical Needs Over the Term

Those items not listed on the Immediate Physical Needs form, but for which action is anticipated during the term of the loan plus two years, are listed on the form. The item and Quantity are transferred directly from the Systems and Conditions Form. The Unit Cost is calculated in the same manner as on the Immediate Physical Needs Form.

An attachment should be provided which gives any necessary information on the location of action items and the problem being addressed for each item. The information should be adequate for the owner to begin to implement the action.

T. Cost by Year: the result of multiplying the quantity times the unit cost, in current dollars, is inserted in the column for the year in which the action is expected to take place. Generally, the Effective Remaining Life estimate provided by the evaluator on the Systems and Conditions will indicate the action year. For example, if the evaluator has indicated that the Effective Remaining Life of the parking lot paving is 4 years, the cost, in current dollars, is inserted in Year 4.

If the items are likely to be done over a number of years, the costs, in current dollars should be spread over the appropriate period. For example, if the Effective Remaining Life of the Refrigerators is estimated to be 4 years, or 3-5 years, one third of the cost of replacing the refrigerators may appear in each of Years 3, 4, and 5.

U. Total Un-inflated: After inserting all of the appropriate action items, the evaluator should total the items for each year.

V. Total Inflated: The evaluator should multiply the Total Un-inflated times the factor provided to produce the Total Inflated.

W. Total Inflated All Pages: On the last sheet, the evaluator should include the Total Inflated Dollars for that page and all prior pages.

X. Cumulative Total All Pages: On the last sheet, the evaluator should insert the Total Inflated Dollars of that year and all prior years.

V. Special Repair and Replacement Requirements

While performing a property inspection, the evaluator must be aware that certain building materials and construction practices may cause properties to experience (or to develop in a short time period) problems that can be corrected only with major repairs or replacements.

The following identifies some specific construction related problems; however, the evaluator must be aware that other construction related problems may be found in any property and should be identified. If any of the following requirements are not met or if the evaluator determines that the following conditions or others are present, the evaluator must contact the lender immediately to discuss the timing as well as the cost of the repairs or replacements. The evaluator should ensure that any of these conditions are thoroughly addressed in the Physical Needs Assessment.

A. Minimum Electrical Capacity: Each apartment unit must have sufficient electrical capacity (amperage) to handle the number of electrical circuits and their use within an apartment. Therefore, the evaluator must determine, based on referencing the National Electric Code as well as local building codes, what is the minimum electrical service needed. In any event, that service must not be less than **100 amperes** (**This specific requirement is a SC Housing amendment to this section of the Fannie Mae Guidelines**).

B. Electrical Circuit Overload Protection_ - All apartment unit circuits, as well as electrical circuits elsewhere in an apartment complex, must have circuit breakers as opposed to fuses as circuit overload protection.

C. Aluminum Branch Wiring

All PCA Reports must indicate the type of branch wiring at the property as observed (i.e., visually verified and photographed) by the PCA Consultant. If the PCA Consultant identifies aluminum wiring at the Property, the PCA Report must also indicate whether a retrofit, such as the installation of CO/ALR devices, is already in place. The primary concern with aluminum branch wiring is that, as a result of current flow, heated aluminum expands approximately 40% faster than copper. The unequal expansion rates between the aluminum wire and the copper, steel or brass switch or outlet connection point subjects the heated aluminum wire to a rapidly rising compressive stress (compressed wire expands). When the current is turned off, the termination cools causing the wire to contract, which in turn causes the connection to become loose. A loose electrical connection will accelerate the heating of the wire due to the restricted current flow (because the connection point is not snug); subsequently, the wire will heat up like a burner on a stove. An overheated connection could potentially lead to a fire. Appropriate recommendations regarding retrofit procedures should be noted.

Remediation: A electrical survey must be performed to determine actual electrical wiring condition in order to fully evaluate this issue.

Recommended Remediation: Complete re wire of unit /building.

The CPSC's Publication 516, July 2011 (Repairing Aluminum Wiring), recommends a permanent repair using one of the following three methods:

- Complete rewiring of the building;
- Copper pig-tailing at the receptacles using COPALUM crimp connectors; or
- Copper pig-tailing at the receptacles using AlumiConn connectors.

D. Federal Pacific Stab Lok Breakers.

NOTE: The following only applies to Federal Pacific Stab-Lok panels. Federal Pacific panels that are not Stab-Lok models are not problematic. The words "Stab-Lok" will generally be stamped on the face of the panel behind the door, or on the door itself. Field and lab testing on Federal Pacific Electric (FPE) "Stab-Lok" panels established that the panels and breakers have a significant failure rate. Failure to trip properly with overload and short-circuiting are the basic safety defects of this type of panel. In over one-third of the panels tested, breakers would not trip when overloaded. Historical performance that breakers never trip cannot be relied upon in the future. If the breaker does not operate or trip properly, the potential of fire increases. Stab-Lok panels may also have interconnection problems that can lead to a higher risk of overheating.

Remediation; Replacement of electrical panel.

E. ABS Sanitary Lines

There are five manufacturers who produced ABS pipe from 1984 to 1990 that may crack circumferentially at the joint. The manufacturers are Apache, Polaris, Centaur, Phoenix, and Gable. These manufacturers apparently used non-virgin materials that may eventually crack at the location where it comes in contact with the plumbers glue – typically circumferentially at the joints. If ABS piping is identified as being installed as the primary sanitary piping within the buildings (i.e., the material is not limited to the stub out from the wall to the fixture), the current condition and manufacturer must be verified.

Remediation: If the Property contains ABS pipe manufactured by one of the five problematic manufacturers, a plumbing survey performed by a qualified plumbing expert must be performed in order to ascertain the current condition and potential short and long-term repair or replacement costs.

Recommended Remediation: Complete re plumb of the unit /building.

F. Polybutylene Water Distribution Lines

Polybutylene (“PB”) is a form of plastic resin that was used extensively in the manufacture of water supply piping from 1979 until about 1995. Due to the low cost of the material and ease of installation, PB piping was used as a substitute for traditional copper piping. It is believed that oxidants in public water supplies (such as chlorine) react with the PB piping and fittings, causing it to scale and flake and become brittle. Micro-fractures of the piping result, and the basic structural integrity of the pipe is reduced. The pipe becomes weak, and is susceptible to sudden failure. Other factors may also contribute to the failure of PB systems, such as improper installation. Most problematic installation situations involve the use of PB fittings (connections between sections of piping such as elbows). The crimping process utilized during installation, if not done correctly, can compromise the performance of the piping at that connection. PB piping which has been installed with copper fittings has historically performed better with regard to fittings installation, but this has no bearing on the pipe’s ability to withstand chemical breakdown. Historical and current conditions must be noted, potential issues with content of local water supply noted.

Remediation: A plumbing survey must be performed to determine actual piping condition in order to fully evaluate this issue.

Recommended Remediation: Complete re plumb of the unit /building.

G. Galvanized Steel Water Distribution Lines

Galvanized pipe is defined as a steel pipe or wrought-iron pipe of standard dimensions, which has been galvanized by coating it with a thin layer of zinc. Galvanized piping has been utilized as a water supply system throughout the country, and is not limited to certain dates of construction. Galvanized piping systems typically exhibit corrosion more quickly than other plumbing systems, which can ultimately require the complete replacement of the piping system. Corrosion is a chemical or electrochemical process in which the metals commonly used in plumbing systems deteriorate and ultimately fail. Rates of corrosion produced by different waters vary widely, depending upon a number of factors (including acidity, electrical conductivity, temperature, oxygen concentration and the presence of sulfate and chlorides). Current and historical condition and any management reported replacements should be noted. Cost estimates of the replacement of a galvanized steel water distribution system should be carefully evaluated, as

costs can vary significantly. Vertical water lines are generally more expensive to replace than the horizontal lines, as the vertical water lines are typically less accessible.

Remediation: A plumbing survey must be performed to determine actual piping condition in order to fully evaluate this issue.

Recommended Remediation: Complete re plumb of the unit/building.

H. Omega Brand Fire Sprinkler Heads

All Omega sprinklers contain one, two or three small circular discs at the base of the sprinkler. The discs are very flat and thin and are spaced closely together. They may be white, chrome, or brass depending upon the finish of the sprinkler. If the sprinklers at the Property do not contain these discs, they are not Omegas. If they do have these discs, they may be Omegas. All Omega sprinklers contain the word "Central" or "CSC" somewhere on the daisy-like device. Approximately 8.4 million Omega brand sprinkler heads are part of a nationwide recall program. All Omega sprinkler models are being recalled, including those Omegas manufactured after May 1, 1996. In a release dated October 14, 1998, the CPSC alleges that, on average, between 30 and 40 percent of Omegas removed from various locations around the country for testing, failed to activate as they should.

Recommended Remediation: All Omega brand sprinkler heads should be evaluated to determine whether the sprinkler head is included in the recall and should be replaced if recalled.

I. Central Brand Fire Sprinkler Heads

Central manufactured 33 million "wet" sprinklers with O-rings from 1989 until 2000 that are covered by a recall program. Central also manufactured 2 million "dry" sprinklers with O-rings from the mid-1970's to June 2001 that are covered by this program. The program also covers 167,000 sprinklers with O-rings manufactured by Gem Sprinkler Co. and Star Sprinkler Inc. from 1995 to 2001. A listing of all the models covered under this voluntary replacement program is available on-line at the CSPC website. Central initiated this recall because it discovered the performance of these O-ring sprinklers can degrade over time. These sprinkler heads can corrode or minerals, salts and other contaminants in water can affect the rubber O-ring seals. These factors could cause the sprinkler heads not to activate in a fire. The fire sprinkler heads have the words "CENTRAL" or "STAR", the letters "CSC", the letter "G" in triangle, or a star-shaped symbol stamped on either the metal sprinkler frame or on the deflector. The model designation and date may also be stamped on the frame or deflector. The deflector is the flower, or gear-shaped metal piece at one end of the sprinkler head.

Recommended Remediation: All Central Brand sprinkler heads should be evaluated to determine whether the sprinkler head is included in the recall and should be replaced if recalled.

J. Cadet Brand Electric In-wall Heaters

Cadet Manufacturing produced in-wall electric heaters under the brand names Cadet and Encore that were sold and installed in single- family and multi- family residential projects from 1982 through 1999. The units were primarily distributed in Oregon, Washington, California, Idaho,

Montana, and Wyoming. The heater models that were recalled are as follows: FW, FX, LX, TK, ZA, Z, RA, RK, RLX, RX and ZC. The CPSC alleges that these particular models of heater are defective, and can overheat or catch fire. Flames, sparks or molten particles can spew through the front grill cover of the heater into the living area, putting residents at risk from fires. The heaters can also become energized creating a risk of electric shock.

Recommended Remediation: Any Cadet brand heater on the recall list should be replaced immediately. Repairs to these units, such as limit switch replacement, are no longer considered an acceptable remediation method by the CPSC. Cadet models not listed above have not been recalled and do not need replacing. Information on how to identify the recalled models and a cross reference chart showing the correct replacement heater assembly may be obtained at: <http://cadetheat.com/support/install-help#replace-heater>.

K. Appliance and Equipment

Any appliances or equipment identified by the CPSC as subject to recall must be identified. The PCA Consultant should be aware of recalled appliances and equipment, and make recommendations for replacement or repair consistent with the CPSC guidelines. Any costs for the necessary repair or replacement of recalled equipment should be included in the Cost Estimate Schedules.

- L. Fire Retardant Treated Plywood:** While performing the roof inspection, the evaluator should investigate whether there is any indication that fire-retardant treated plywood was used in the construction of the roof (primarily roof sheathing). This inspection should focus on sections of the roof that are subjected to the greatest amount of heat (e.g., areas that are not shaded or that are poorly ventilated) and, if possible, to inspect the attic for signs of deteriorating fire-retardant treated plywood or plywood that is stamped with a fire rating.

M. Compressed Wood or Composite Board Siding

Composite siding is a man-made board that is manufactured from various combinations of wood fibers, fillers, binders and glue, to form exterior siding commonly referred to as T1-11 siding. An embossed layer is often added to simulate the look of natural wood. The products take the form of either lap siding or panel siding. The primary concern related to this product is its tendency to absorb water at locations where the “compressed wood” is exposed. This includes areas where nails have been over-driven, unfinished joints, or improperly sealed penetrations through the material. Evidence of deterioration includes edge swell, delamination of the finish, warping, and fungus growth.

Recommended Remediation: Current condition, quality of installation, and replacement recommendations should be considered by the PCA Consultant, where appropriate.

N. Exterior Insulation Finish Systems (EIFS)

Exterior insulation finish systems (EIFS) are a multi-layered exterior wall system consisting of a finish coat, a base coat, reinforcing mesh, adhesive and insulation board all of which are secured to some form of substrate. EIFS systems are also referred to as synthetic stucco or Dryvit. EIFS systems are designed to be “barrier” systems, meaning that they prevent water penetration from the outside. However, this also means that these systems do not “breathe” the way a traditional stucco system would. The problems associated with EIFS stemmed from water leaking behind

the EIFS cladding and becoming trapped inside the walls, producing mildew and rot in the sheathing and framing. The most common areas for this type of damage have been at penetrations such as windows, doors, and roof penetrations (chimneys, vents, and drainage components). The problem has resulted from the areas around the penetrations not being properly flashed or sealed thereby allowing water intrusion, rather than from the exterior system itself allowing water infiltration.

Recommended Remediation: The PCA Consultant should consider a full exterior façade inspection if concerns regarding the installation or current condition of the exterior insulation finish systems (EIFS) are noted.

Recommended Remediation: Complete removal and replacement.

O. Problem Drywall (aka “Chinese Drywall”)

Problem drywall refers to a specific drywall in which initial studies found a strong association between the presence of problem drywall and corrosion of metal in residential housing with potential health safety issues. The problem drywall was primarily used from approximately 2001 to 2007, however problem drywall has also been found in properties of all ages. Problem drywall contains extraneous metals and minerals, such as sulfur, strontium and iron. Under certain environmental conditions (typically warm, humid climates), the drywall will emit sulfur gasses. These gases create a noxious odor and corrode copper and other metal surfaces, which can damage HVAC Systems, electrical wiring, copper plumbing, appliances and electronics. Problem drywall can also cause adverse health effects, which are primarily irritant and temporary in nature. Long term health effects are unknown. Problem drywall may also be referred to as “Chinese Drywall” and is often found in properties with untainted drywall as well, which is why owners should not assume that the property is free of problem drywall based on the year built or if they know the source of the drywall. In some cases, U.S. drywall was manufactured in China and rebranded in the US, identifying problem drywall as U.S. drywall.

Recommended Remediation: If problem drywall is suspected, according to the Consumer Products Safety Commission (CPSC) Identification Guidance for Problem Drywall dated March 18, 2011, a “threshold inspection” should be performed (i) for blackening of copper electrical wiring or air conditioning evaporator coils, and (ii) to determine if the installation of the drywall occurred between 2001 and 2009. If BOTH criteria are affirmed, then “corroborating evidence” must be obtained through the use of professional evaluation and analytical sampling, including at least two of these additional symptoms:

- Elemental sulfur levels of drywall core samples;
- Use of test strips to identify copper sulfide which indicates corrosive conditions;
- Confirmed marking of Chinese origin by stamping on panels;
- Elevated levels of hydrogen sulfide, carbonyl sulfide and/or carbon disulfide emitted from drywall samples when tested via ASTM D5504-08; or
- Corrosion of copper metal to form copper sulfide when copper is placed in test chambers with drywall samples taken from the home.

If the corroborating evidence for the presence of problem drywall is affirmed through an analysis performed by a qualified laboratory, a general contractor should be hired to ascertain (i) the scope of remediation in accordance with the CPSC Guidance, and (ii) all associated costs of remediation. The contractor cost estimates should be provided for review and included in the Immediate Repair Cost Estimate Schedules in the PCA Report as a “Critical Item”.

The CPSC Remediation Guidance for Homes from Problem Drywall dated March 15, 2013, calls for the replacement of all:

1. Possible problem drywall (as identified in the CPSC and HUD Identification Guidance);
2. Smoke alarms and carbon monoxide alarms;
3. Electrical distribution components (including receptacles, switches, and circuit breakers, but not necessarily wiring); and
4. Fusible-type fire sprinkler heads.