

## **PHYSICAL INSPECTION SCORING**

This paper provides information to public housing agencies, owners, mortgagees and contract administrators of HUD insured and/or assisted housing, as well as members of the public, regarding HUD's physical inspection scoring process for all HUD public, insured and/or assisted housing.

### **Background**

On September 1, 1998 (63 FR 35650), HUD published a final rule that established uniform physical condition standards for public housing and housing that is insured and/or assisted under certain HUD programs. These standards are intended to ensure that this housing is decent, safe, sanitary and in good repair. The September 1, 1998 final rule also established uniform physical inspection procedures by which HUD determines compliance with the physical condition standards. The final rule is codified at 24 CFR part 5, subpart G. HUD's Real Estate Assessment Center (REAC) is charged with responsibility for assessing and scoring the condition of certain properties in which HUD has an interest, in accordance with the physical conditions standards and procedures of 24 CFR part 5, subpart G.

### **Purpose of this Paper**

As stated in the Summary, the purpose of this paper is to provide information to public housing agencies, owners, mortgagees and contract administrators of HUD insured and/or assisted housing, as well as members of the public, regarding HUD's physical inspection scoring process for all HUD public housing, insured and/or assisted housing. Upon completion of individual property inspections, the REAC will determine a score for each property within the HUD housing portfolio.

### **The REAC Physical Inspection and Housing Quality Standards (HQS)**

The REAC Physical Inspection protocol covers virtually all facets of the HQS inspection and is both more objective and considerably more defined in identifying and classifying deficiencies. The HQS inspection results in a

reasonably subjective "pass/fail" designation as judged by the particular inspector. The REAC inspection results in physical scores reported at the property level, as well as "sub-scores" reported for each of the five REAC physical inspection "areas" that comprise the property. These scores are supported by "defect-level" observations recorded by the inspector electronically at the time of the inspection. While essentially encompassing the HQS inspection components, the REAC physical inspection system provides more comprehensive results.

### **HUD's Physical Inspection Scoring Process**

#### **Definitions**

The following definitions are important to understanding the scoring process.

Score means a number between 0 and 100 which reflects the physical condition of a property, inspectable area or sub-area. Additionally, a letter is appended to the property score to designate health and safety problems observed and an asterisk is added if smoke detectors are observed to be inoperable or missing.

Inspectable Area means any one of five major components of the property. The areas are the site, building exteriors, building systems, common areas and dwelling units.

Sub-Area means an inspectable area for one building or dwelling unit. For example, a property may have many buildings and each inspectable area for each building within the property is treated as a sub-area.

Inspectable Items mean things to be inspected within an inspectable area. The number of inspectable items varies among areas from between 7 and 16 items per area. Examples of inspectable items include walls, kitchens and bathrooms.

Deficiencies mean specific problems that can be recorded for an inspectable item, such as a hole in a wall or a damaged refrigerator in the kitchen. There are over 300 possible deficiencies.

Criticality means one of five levels that reflect the relative importance of the various deficiencies which can be seen within an inspectable

area. The five levels are critical, very important, important, contributes and slight contribution. For a given inspectable item, deficiencies with greater importance cause more points to be deducted from the property score. As an example, within the kitchen, a clogged drain is more critical than damaged surfaces on a counter top and, therefore, a clogged drain reduces the property score more.

Severity means one of three levels that reflect the extent of damage associated with each deficiency. The three levels are severe, major and minor. Severity levels for each deficiency are specifically defined in REAC's "Dictionary of Deficiency Definitions" and available from REAC's Internet site (<http://www.hud.gov/reac>). The greater the severity, the more the score is reduced.

Normalized Area Weights means weights that are used with area scores to create property level scores. The weights are adjusted to reflect the inspectable items actually present.

#### Elements of Scoring

The scoring process, described below, is based on the elements of inspectable areas, inspectable items and severity levels of deficiencies within a property.

#### Input in the Scoring Process

A key to accurate scores is determining appropriate relative weights between the various components of the inspection, that is, which items, areas, etc. are most important, next most important, and so on. In developing the physical inspection score methodology, HUD sought and obtained valuable input from several parties. Professionals experienced in the assessment of the physical condition of properties, representatives from the housing and public housing industries and HUD professionals participated in a series of meetings providing advice and comment on relative weights and values for inspectable areas, items, criticality of deficiencies and their severity levels.

#### Equity Principles

In addition to determining appropriate relative weights, HUD also took into account issues of equity between properties.

Proportionality. The scoring methodology includes a control to assure

that no sub-area score is negative. The control is that no single building or dwelling unit can affect the overall score more than its proportionate share to the whole.

Configuration of Property. To assure that properties with different numbers of units in buildings are scored fairly, area scores for building exteriors and systems are calculated using weighted averages based on the number of units in each building.

Differences Between Properties. The scoring takes into account that properties have different features and amenities. The weights applied to calculate area and property scores depend on how many items are actually present in inspected buildings and units. In this way, the overall score of a property reflects only what is present to be inspected.

#### Deficiency Definitions

During a physical inspection, the inspector looks for existing deficiencies for each inspectable item within the inspectable areas, such as the walls (item) of a dwelling unit (area). Each noted deficiency has a specific criticality level. The criticality level reflects importance of the deficiency relative to all deficiencies for a given inspectable item. In addition, each deficiency will have one of three severity levels. The REAC's "Dictionary of Deficiency Definitions" specifies what makes an observed deficiency severe, major or minor. This dictionary is available on the REAC Internet site.

#### Health and Safety

Health and safety (H&S) deficiencies are strongly emphasized in the physical inspection, because of their great importance to the well being of residents.

H&S deficiencies can reduce the overall property score by a substantial amount. The presence of H&S deficiencies is highlighted in the score by the addition of a letter grade to the numeric score ("a" for no H&S, "b" for non-life threatening H&S or "c" for exigent—calling for immediate attention or remedy— or fire safety H&S; for example, 75c)). A more complete discussion of the H&S letter system is in Appendix 1 to this paper.

To assure prompt correction of H&S deficiencies by the property

representative, a list of every exigent/fire safety H&S deficiency seen by the inspector during the inspection is given to the property representative before the inspector leaves the site. The list is also sent to HUD the morning after the inspection is completed.

In addition, an inspection report, sent to all PHAs/Owners/Agents (POAs), summarizes H&S deficiencies that were recorded by the inspector. The report provided to the POAs shows clearly the number of H&S deficiencies (exigent/fire safety and non-life threatening) and also projects the total number of H&S problems that might have been seen if all buildings and units had been inspected.

The report to POAs also shows problems found that relate to smoke detectors. The score will include an asterisk (75c\*) when smoke detector deficiencies exist. Problems with smoke detectors do not affect the overall score at this time.

#### The Scoring Process

Scoring as Weighted Averages. In broad terms, the score for a property is the weighted average of area scores, where area weights are adjusted to take into account how many of an area's inspectable items are actually present to be inspected. In turn, area scores are calculated by deriving weighted averages of sub-area scores over buildings or dwelling units as appropriate. Sub-area scores, constrained to be non-negative (never less than zero), are calculated by deducting points for deficiencies observed based on criticality and severity levels. Scores are further decreased by H&S deductions.

Essential Weights and Levels : The process of scoring physical inspections depends on weights and the levels and associated values of several quantities:

- o Weights for Inspectable Areas (5 areas);
- o Weights for inspectable items within areas (7 to 16 per area);
- o Criticality levels (critical, very important, important, contributes and slight contribution) and their associated values for the possible deficiencies within items inspected;
- o Severity levels (severe, major and minor) and their associated values for deficiencies; and

- o Health and safety deductions (exigent/fire safety and non-life threatening) for site, buildings and dwelling units.

Normalized Area Weights. Area weights are used to obtain a weighted average of area scores in order to produce the overall score. Approximate relative weights/points were provided in the Public Housing Assessment System (PHAS) final rule, published on September 1, 1998 (63 FR 46596, see pages 46598-46599).

- 15 percent - Site
- 15 percent - Building exterior
- 20 percent - Building systems
- 15 percent - Common areas
- 35 percent - Dwelling units

These weights would be assigned if all inspectable items were present for each area for each building and unit. Typically, some areas have a number of inspectable items missing for some or all buildings or units. For example, common areas may be missing in some buildings. When items are missing for an area, the area weight is adjusted to reflect the missing item weights and "normalized" so that area weights add to 100 percent.

Sub-Area Scores. The first step in obtaining a sub-area score for the site or an individual building or unit is to calculate an initial "proportional" score. This is the difference between the possible points for the site, building or unit and the deductions associated with the deficiencies recorded for the given area or sub-area. The number of possible points is simply the total of the inspectable item weights for the site, building or unit. The deduction for an observed deficiency is calculated by multiplying the relevant item weight by the criticality value and by the severity value. The resulting proportional scores are then "normalized" to scores based on 100 points by dividing by the total of the weights for items that are recorded as present in the site, building or unit.

Sub-area scores are further reduced for any health and safety (H&S) deficiencies observed. These deductions are taken at the site, building or unit level. It is at this point that a control is applied to prevent negative

site, building or unit scores. Again, the control assures that no one building or unit can affect an area score more than its weighted share would justify.

Area Scores. Since the site is but one element, its area score is derived as described above. However, within each area involving either multiple buildings or units, the area score is a weighted average of the sub-area scores for individual buildings or units. These weighted averages are calculated as follows:

- o Dwelling units - The area score is the weighted average of sub-area scores for each unit, weighted by the total of item weights present to be inspected in each unit;
- o Common areas - In a similar manner to the dwelling unit score, the area score for common areas is the weighted average of sub-area common area scores weighted by the total of the weights for items inspected in the common areas for each building; and,
- o Building exteriors or building systems - The area scores for building exteriors and building systems are weighted averages of sub-area scores where the weights are the product of the total of weights for items inspected for each building exterior or systems and the total number of units for each building. (Note: the total number of units is all units, not just those inspected.)

Overall Property Score. The normalized area weights derived earlier are applied to the area scores derived above to calculate the overall property score.

Possible Points: Normalized area weights reflect both the initial weights and the relative weights between areas of inspectable items actually present. Normalized weights are actually the maximum point contributions for each of the five inspectable areas and are listed as the "Possible Points" by area in the Physical Inspection Report sent to all POAs. These are followed by the area scores taking into account the points deducted for observed deficiencies. This allows the POA to see the magnitude of the points lost by inspectable area.

Very-High/High/Medium/Low Impact Deficiencies. There are a total of over 600 deficiencies, taking into account all possible severity levels. After each inspection, all observed deficiencies are reported to the POAs. These various deficiencies cover a wide range of point deductions from the score.

Very high, high, medium and low impact deficiencies have been defined which give POAs a sense of how the specific deficiencies found on their property have affected the property's score. A list of 7 very-high impact deficiencies, 33 high impact deficiencies and 54 medium impact deficiencies is in Appendix 2 to this paper. The remaining 500 plus deficiencies reduce the score by relatively small amounts and are designated low impact.



## Appendix 1

### PHYSICAL INSPECTION SCORING

Physical inspection scores have both number and letter parts. The number part gives an overall score for the basic physical condition of a property, including health and safety (H&S) problems other than those associated with smoke detectors. The letter part specifically indicates that H&S problems were observed during the inspection. For the alphabetic part, the presence of H&S deficiencies are highlighted using the lower case letters a, b, and c. There are also special considerations with respect to any problems with smoke detectors. The score has been calculated to make it easy to quickly assess at a glance the physical health of a property and the kinds of problems it may have.

As shown in the chart below, the lower-case letter a will be shown if there are no H&S deficiencies. The lower-case letter b will be given if there are one or more non-life threatening H&S deficiencies, but no exigent/fire safety H&S deficiencies. The lower-case letter c will be given if there are one or more exigent/fire safety H&S deficiencies.

The health and safety (H&S) letter grades have two forms: with and without an asterisk (\*). The asterisk designates that the property has at least one smoke detector deficiency. When the asterisk is present, that part of the score is pronounced as "risk," as in "93a, risk" for 93a\* and "71c, risk" for 71c\*.

A score of 90c\* means that the property does contain some number of exigent/fire safety H&S deficiencies to be corrected, including some smoke detector deficiencies, but is otherwise in excellent condition. On the other hand, a score of 55a means that the property is in poor condition, even though there are no H&S deficiencies. A property in excellent physical condition with no H&S deficiencies would be expected to have a score of 90a to 100a. Thus, there are six distinct letter grade combinations: a, a\*, b, b\*, c and c\*.

PHYSICAL INSPECTION SCORES	NO HEALTH AND SAFETY PROBLEMS	HEALTH AND SAFETY PROBLEMS		
		NON-LIFE THREATENING	EXIGENT/FIRE SAFETY	
			NO SMOKE DETECTOR PROBLEMS	SMOKE DETECTOR PROBLEMS
a	X			
a*				X
b		X		
b*		X		X
c			X	
c*			X	X

## Appendix 2

### Very-High, High and Medium Impact deficiencies

The impact levels for deficiencies can be used to get a rough idea of how many points might be deducted from the possible points for each of the areas for a given building or unit. This differs by area and by possible points as described in the Table 1 below, which shows by impact level how many deficiencies are needed to reduce the score for an inspectable area to zero or a small value. It needs to be recognized that area scores are weighted averages over all buildings or units inspected. Thus, the impacts indicated in Table 1 are accurate only if all buildings or units have deficiencies at the given levels.

**Table 1**  
**Effects of Very-High, High and Medium Impact Deficiencies**

<u>Area</u>	Number of Deficiencies For Each Impact Level			Number of Deficiencies Required to Deduct All Or Most of the Possible Points		
	<u>Very High Impact</u>	<u>High Impact</u>	<u>Medium Impact</u>	<u>Very High Impact</u>	<u>High Impact</u>	<u>Medium Impact</u>
Site	0	0	7	-	-	2
Building Exterior	0	7	22	-	1 or	2
Building Systems	0	15	3	-	1-2 or	2
Common Areas	0	0	1	-	-	varies
Dwelling Units	7	11	21	1 or	2-3 or	3-6
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Total	7	33	54			

In Table 1 it is seen that for the building exterior or systems areas, one to two high impact deficiencies will deduct all or most of the possible points. For site, building exterior and building systems, two medium impact deficiencies would also deduct all or most of the possible points. For dwelling units, it would take one very-high, two or three high or three to six medium impact deficiencies. The situation for common areas is more complicated, with the one medium impact deficiency not able to deduct all possible points if the common areas have a substantial number of points. If there are few possible points, then the one medium or a few low impact deficiencies could deduct all or most of the points for common areas.

A large number of low-impact deficiencies could also deduct all or a substantial number of possible points for each area. It should be noted that various appropriate combinations of high, medium, and low impact deficiencies could have the same effects.

## Deficiency Impact Listing

<u>Area</u>	<u>Item</u>	<u>Deficiency</u>	<u>Severity</u>	<u>Impact</u>	
Site	Fencing & Retaining Walls	Damaged or Missing Gates	Severe	Medium	
		Sharp Edges	Severe	Medium	
	Grounds	Erosion Areas	Severe	Medium	
		Penetrating Vegetation	Severe	Medium	
		Ponding/Site Drainage	Severe	Medium	
	Storm Drainage	Damaged/Broken/Cracked	Severe	Medium	
		Debris/Obstruction/Sediment	Severe	Medium	
	Building Exterior	Doors	Broken/Missing Glazing/Glass	Severe	Medium
			Damaged Frames/Threshold/Lintels/Trim	Severe	Medium
			Damaged Hardware/Locks	Severe	Medium
Damaged Surface (Holes/Paint/Rusting)			Severe	Medium	
Deteriorated/Missing Seals			Severe	Medium	
Damaged/Missing Screen/Storm/Security Door			Severe	Medium	
Missing Door			Severe	High	
Fire Escapes			Visibly Missing Components	Severe	High
			Foundations	Cracks/Gaps	Severe
Cracks/Gaps Leaking				Major	Medium
Spalling/Exposed Rebar		Severe		Medium	
Roofs		Clogged Drains		Severe	High
		Clogged Drains	Major	Medium	
		Damaged Soffits/Fascia	Severe	Medium	
		Damaged Vents	Severe	Medium	
		Damaged/Torn Membrane	Severe	High	
		Damaged/Torn Membrane	Major	Medium	
		Leaks	Severe	High	
		Downspout/Gutter Missing Components	Severe	Medium	
		Missing Shingles	Severe	High	
		Missing Shingles	Major	Medium	
Walls		Ponding	Severe	Medium	
		Cracks/Gaps	Severe	Medium	
	Damaged Chimneys	Severe	Medium		
Windows	Missing or Broken Pieces/Holes	Severe	Medium		
	Broken/Missing/Cracked Panes	Severe	Medium		
	Damaged Sills/Frames/Lintels/Trim	Severe	Medium		
	Deteriorated/Missing Caulking/Seals	Severe	Medium		

<u>Area</u>	<u>Item</u>	<u>Deficiency</u>	<u>Severity</u>	<u>Impact</u>
Building Systems	Domestic Water	Central Hot Water Supply Inoperable	Severe	High
		Leaking Central Water Supply	Severe	High
		Leaking Hot Water Supply	Severe	High
		Missing Pressure Relief Valve	Severe	High
		Rust/Corrosion-Centrl Water Components	Severe	Medium
		Water Supply Inoperable	Severe	High
		Electrical System	Blocked Access/Improper Storage	Severe
	Burnt Breakers		Severe	High
	Evidence of Leaks/Corrosion		Severe	High
	Frayed Wiring		Severe	High
	Missing Breakers		Severe	High
	Fire Protection	Missing Covers	Severe	High
		Missing Water Diffusers (Sprinklers)	Severe	High
		Missing/Damaged/Expired Extinguisher	Severe	High
	HVAC	Boiler/Pump Leaks	Severe	High
		Fuel Supply Leaks	Severe	High
	Sanitary System	Broken/Leaking/Clogged Pipes or Drains	Severe	High
Missing Drain Covers		Severe	Medium	
Common Areas		Community Room	Stairs/Hand Railings Damaged	Severe

<u>Area</u>	<u>Item</u>	<u>Deficiency</u>	<u>Severity</u>	<u>Impact</u>	
Dwelling Unit	Bathroom	Bathroom Cabinets - Damaged/Missing	Severe	Medium	
		GFI - Inoperable	Severe	Very High	
		Lavatory Sink - Damaged/Missing	Severe	High	
		Plumbing - Clogged Drains	Severe	Very High	
		Plumbing - Clogged Drains	Minor	Medium	
		Plumbing - Leaking Faucet/Pipe	Severe	High	
		Shower/Tub - Damaged/Missing	Severe	High	
		Shower/Tub - Damaged/Missing	Major	Medium	
		Ventilation/Exhaust System - Inoperable	Severe	Very High	
		Water Closet - Damaged/Clogged/Missing	Severe	Very High	
		Water Closet - Damaged/Clogged/Missing	Major	High	
		Ceiling	Bulging/Buckling	Severe	Medium
			Holes/Missing Tiles/Panels	Severe	Medium
	Doors	Deteriorated/Missing Seals (Entry Only)	Severe	Medium	
		Door Inoperable	Severe	Medium	
		Missing Door	Severe	Medium	
	Floors	Bulging/Buckling	Severe	Medium	
		Floor Covering Damage	Severe	Medium	
		Holes/Missing Tiles	Severe	Medium	
		Rot/Deteriorated Flooring	Severe	Medium	
	Hot Water Heater	Inoperable Unit/Components	Severe	High	
		Leaking Valves/Tanks/Pipes	Severe	High	
		Pressure Relief Valve Missing	Severe	High	
		Rust/Corrosion	Severe	Medium	
	HVAC System	Inoperable	Severe	Very High	
		Noisy/Vibrating/Leaking	Major	Medium	
		Rust/Corrosion	Major	Medium	
	Kitchen	Countertops/Cabinets - Missing	Severe	Medium	
		Dishwasher - Damaged/Inoperable	Severe	Medium	
		Exhaust Sys.-Excessive Grease/Inoperable	Severe	Medium	
		GFI - Inoperable	Severe	Very High	
		Plumbing - Clogged Drains	Severe	High	
		Plumbing - Leaking Faucet/Pipes	Severe	High	
		Range/Stove - Missng/Damaged/Inoperable	Severe	High	
		Refrigerator- Missing/Damaged/Inoperable	Severe	High	
		Sink - Damaged/Missing	Severe	Very High	
		Sink - Damaged/Missing	Minor	Medium	
		Walls	Bulging/Buckling	Severe	Medium
			Deteriorated/Missing Caulking/Seals	Severe	Medium
		Windows			

Health And Safety  
Deficiency Scoring  
Impact

<u>Category</u>	<u>Item</u>	<u>Defect Name</u>	<u>Impact</u>
<b>Exigent</b>			
	Air Quality	Propane/Natural Gas/Methane Gas Detected	High
	Electrical Hazards	Exposed Wires/Open Panels	High
		Water Leaks on/near Electrical Equipment	High
	Hot Water Heater/HVAC	Gas Fired Unit-Missing/Misaligned Chimney	High
<b>Fire Safety</b>			
	Emergency Equip./ Fire	Emergency/Fire Exits/Blocked/Unusable Fire Escapes	High
	Exits/Fire Escapes	Window Security Bars Prevent Bldg. Ingress/Egress	High
		Window Security Bars Prevent Unit Ingress/Egress	High
		Blocked Egress/Ladders	High
		Fire Extinguishers Expired	High
	Smoke Detectors	Inoperable	Not Scored
		Missing	Not Scored
<b>Non-Life Threatening</b>			
	Elevator Hazards	Tripping	Medium
		Sharp Edges	Medium
		Tripping (Other Hazards)	Medium
		Others	Medium
	Infestation	Rats/Mice/Vermin	Medium
		Insects	Medium
	Garbage and Debris	Indoors	Medium
		Outdoors	Medium
	Air Quality	Sewer Odor Detected	Medium
		Mold and/or Mildew Observed	Medium
	Lead-Based Paint	Owner Certification	Medium
	Handrails	Missing/Broken	Medium
	Emergency/Fire Exits	Missing Exits Signs	Medium
	Flammable Materials	Improperly Stored	Medium

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