DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
[Docket No. FR-5500-N-15]

Notice of Funding Availability (NOFA) for HUD's Fiscal Year (FY) 2011
Lead Technical Studies and Healthy Homes Technical Studies Programs

OVERVIEW INFORMATION

A. Federal Agency Name: Department of Housing and Urban Development, Office of Healthy Homes and Lead Hazard Control.

B. Funding Opportunity Title: Lead Technical Studies and Healthy Homes Technical Studies.

C. Announcement Type: Initial announcement.

D. Funding Opportunity Number: FR-5500-N-15, OMB Paperwork Approval number is 2539-0015.

E. Catalog of Federal Domestic Assistance (CFDA) Numbers: 14.902, Lead Technical Studies Grant Program, and 14.906, Healthy Homes Technical Studies Grant Program.

F. Dates: The application deadline date is **June 30, 2011**. Applications must be received and validated by Grants.gov no later than 11:59:59 pm eastern time on the application deadline date. Applicants need to be aware that following receipt, applications go through a validation process in which the application may be accepted or rejected. Please allow time for this process to ensure that you meet the timely receipt requirements. Please see the 2011 **General Section** for instructions for timely receipt, including actions to take if the application is rejected. Applicants should carefully read the section titled "APPLICATION and SUBMISSION INFORMATION" in the 2011 **General Section,** posted to www.Grants.gov on April 4, 2011. This section contains information on using Adobe Reader, HUD's timely receipt policies, and other application information.

G. Additional Information:
1. Purpose: To fund technical studies to improve existing methods for detecting and controlling lead-based paint and other housing-related health and safety hazards; to develop new methods to detect and control these hazards; and to improve our knowledge of lead-based paint and other housing-related health and safety hazards.

2. Available Funding: HUD anticipates that approximately $2.5 million will be available. Of this, approximately $500,000 is for Lead Technical Studies and approximately $2 million is for Healthy Homes Technical Studies. These funds have been made available under the Department of Defense and Full-Year Continuing Appropriations Act, 2011 (Public Law 112-10, approved April 15, 2011).

3. Anticipated Awards: Approximately 2 to awards will be made for the Lead Technical Studies Program, ranging from approximately $200,000 to a maximum of $300,000 each.

Approximately 3 to 5 awards will be made for the Healthy Homes Technical Studies Program, ranging from approximately $300,000 to a maximum of $650,000 each.

4. Type of Awards: Cooperative agreements, with substantial involvement of the government, will be awarded (see Section II.C for a description of substantial involvement).

5. Eligible Applicants: Academic, not-for-profit and for-profit institutions located in the U.S., state and units of local government, and federally recognized Native American tribes are eligible to apply. For-profit firms are not allowed to earn a fee (i.e., make a profit from the project).

6. Cost Sharing or Matching Funds: Cost sharing or "matching" is not required; however, applicant "leveraging" contributions are encouraged (see Section V.A.3.d).

7. Number of Applications: There is no limit on the number of applications that each applicant may submit.

8. Grants.gov: The applications for these NOFAs can be found at Grants.gov. The 2011 **General Section** contains information on submission requirements and procedures. Please carefully review the 2011 **General Section** before reading the program section so that you understand the Grants.gov electronic application process.

FULL TEXT OF ANNOUNCEMENT

I. Funding Opportunity Description

A. Purpose of the Programs.

The overall goal of both the Lead and the Healthy Homes Technical Studies programs is to gain knowledge to improve the efficacy and cost-effectiveness of methods for evaluation and control of lead-based paint and other housing related health and safety hazards. This also supports HUD's Strategic Goal to utilize housing as a platform for improving the quality of life and health outcomes for those living in HUD-assisted and HUD-regulated housing, and the associated policy priority to build inclusive and sustainable communities by improving the health of community residents while reducing the impact of communities on the environment.

B. Program Description.

HUD is funding studies to improve HUD's and the public's knowledge of lead-based paint hazards and other housing-related health and safety hazards, and to improve or develop new hazard assessment and control methods, with a focus on key residential health and safety hazards. Key hazards are discussed in Appendix A, *Key Residential Health and Safety Hazards*, of this NOFA. A list of references that serves as the basis for the information provided in this NOFA is provided as Appendix B, *Relevant Publications and Guidelines*, to this NOFA.

1. General Goals.

a. Lead Technical Studies

The overall goal of the Lead Technical Studies grant program is to gain knowledge to improve the efficacy and cost-effectiveness of methods for evaluation and control of residential lead-based paint hazards.

Through the Lead Technical Studies Program, HUD is working to fulfill the requirements of sections 1051 and 1052 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (Title X) (42 U.S.C. §§ 4854 and 4854a) which directs HUD to conduct research on topics which include the development of improved methods for evaluating [and] reducing lead-based paint hazards in housing, among others.

Brief descriptions of active and previously funded lead technical studies projects can be found on HUD's website at http://www.hud.gov/offices/lead/researchers.cfm. Where appropriate, you are strongly encouraged to build your proposed study upon HUD-sponsored work that has been previously completed, in addition to other relevant research (i.e., reported in the published literature). The results of the applicable aspects of lead technical studies will be used in part to update HUD's Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (Guidelines). For supporting references, including where to find the Guidelines, see Appendix B.

b. Healthy Homes Technical Studies

The overall goals and objectives of the Healthy Homes (HH) Program (formerly the Healthy Homes Initiative), which includes the Healthy Homes Technical Studies, the Healthy Homes Production Grant Program, and the Asthma Interventions in Federally Assisted Multifamily Housing Grant Program (see the Healthy Homes Production Grant and Asthma Interventions Program NOFAs published separately) are to:

(1) Mobilize public and private resources, involving cooperation among all levels of government, the private sector, grassroots community-based organizations, including faith-based organizations, and other non-profit organizations, to develop and implement the most promising, cost-effective methods for identifying and controlling housing-related hazards; and

(2) Build local capacity to operate sustainable programs that will continue to prevent, minimize, and control housing-related hazards in low- and very low-income residences when HUD funding is exhausted.

The HH Program departs from the more traditional programmatic approach of focusing on single health and safety issues attempting to correct one hazard at a time (e.g., lead hazards, radon). HUD is interested in promoting approaches that are cost-effective and efficient and result in the reduction of health threats for the maximum number of residents and, in particular, children and other vulnerable populations in low income households.

In April 1999, HUD submitted a preliminary plan that described the HH Initiative to Congress. The submission (Summary and Full Report), and a description of the HH Initiative are available on the HUD website at http://www.hud.gov/offices/lead/hhi/index.cfm. This plan was updated

with the publication of the *Healthy Homes Strategic Plan* in 2009 (see: http://www.hud.gov/offices/lead/library/hhi/hh_strategic_plan.pdf).

In addition to deficiencies in basic housing conditions that may impact health, research has identified other more subtle health hazards in the residential environment (e.g., asthma triggers, volatile and semi-volatile organic compounds, pesticide residues). While some hazards will be found disproportionately in housing that is substandard (e.g., structural problems, lack of adequate heating and cooling, moisture infiltration), housing-related environmental hazards may also exist in housing that is otherwise of good quality. Appendix A of this NOFA briefly describes the key housing-associated health and injury hazards HUD considers targets for intervention. HUD has also developed resource papers on a number of topics of importance under the HH Program, including mold, environmental aspects of asthma, carbon monoxide, pesticides, and unintentional injuries. These resource papers can be downloaded at http://www.hud.gov/offices/lead/hhi/hhiresources.cfm.

Applications for additional work related to ongoing HUD-funded technical studies (i.e., for work outside of the scope of the original agreement) are eligible to compete with applications for awards on new subjects. These applications will be evaluated in the same manner as new applicants. Brief descriptions of current and recently completed Healthy Homes Technical Studies projects and grantee contact information can be found on the HUD website at http://www.hud.gov/offices/lead/hhi/hhigranteeinfo.cfm.

2. Community Participation.

HUD believes that it is important for researchers to incorporate some aspect of meaningful community participation in the development and implementation of studies that are conducted in communities and/or involve significant interaction with community residents. Community participation can improve study effectiveness in various ways, including the development of more appropriate research objectives, improving recruitment and retention of study participants, improving participants' involvement in and understanding of a study, improving ongoing communication between researchers and the affected community, and more effectively disseminating study findings. HUD encourages applicants to consider using a "community based participatory research" (CBPR) approach, where applicable, in study design and implementation. (See, e.g., the report published by the National Institute of Environmental Health Sciences titled "Successful Models of Community-Based Participatory Research" at: http://www.hud.gov/offices/lead/library/hhts/NIEHS_Successful_Models.pdf). CBPR is characterized by substantial community input in all phases of a study (i.e., design, implementation, data interpretation, conclusions, and communication of results).

C. Authority

The Lead Technical Studies program is authorized under sections 1011(g)(1), 1011(o), and 1051-1053 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (Title X of the Housing and Community Development Act of 1992, 42 U.S.C. § 4851 *et seq*.). The Healthy Homes Technical Studies program is authorized under sections 501 and 502 of the Housing and Urban Development Act of 1970 (12 U.S.C. §§ 1701z-1 and 1701z-2). Fiscal Year 2011 funds for both

programs are authorized under the Department of Defense and Full-Year Continuing Appropriations Act, 2011 (Public Law 112-10, approved April 15, 2011).

II. Award Information

A. Funding Available

1. HUD anticipates that approximately $2.5 million will be available. Approximately $500,000 in fiscal year 2011 and prior year funds are available for the Lead Technical Studies program. Approximately $2 million in fiscal year 2011 funds are available for Healthy Homes Technical Studies program. Cooperative agreements will be awarded on a competitive basis following evaluation of all eligible proposals according to the rating factors described in Section V.A.3. HUD anticipates that approximately 2 awards will be made for the Lead Technical Studies Program, and that approximately 3 to 5 awards will be made for the Healthy Homes Technical Studies Program. Awards will range from approximately $200,000 to a maximum of $300,000 per award for Lead Technical Studies and from approximately $300,000 to a maximum of $650,000 for Healthy Homes Technical Studies.

2. New Applicants. Up to $1 million is available under the Healthy Homes Technical Studies Grant Program for qualified "new applicants," i.e., those that have not been previously funded by the Office of Healthy Homes and Lead Hazard Control (OHHLHC) under the Healthy Homes Technical Studies Grant Program as the primary grantee (note that a new applicant may have previously been a subgrantee under an award to another organization). If there are not enough qualified new applicants for funding, any remaining funds will be made available based on how the entire pool of applications is rated and ranked.

B. Anticipated Start Date and Period of Performance for New Grants

The start date for new awards is expected to be not later than October 1, 2011. The period of performance cannot exceed 36 months from the time of award. The proposed performance period should include adequate time for such project components as the Institutional Review Board process, if required, the recruitment of study participants and/or new staff, and the development of new instrumentation or methods (e.g., analytical methods), all of which have been found to delay projects in the past. Period of performance extensions for delays due to exceptional conditions beyond the grantee's control will be considered for approval by HUD in accordance with 24 CFR 84.25(e)(2) or 85.30(d)(2), as applicable, and the Office of Healthy Homes and Lead Hazard Control (OHHLHC) Program Guide. If requested and determined to be appropriate and subsequently approved by OHHLHC, grantees will be eligible to receive a single extension of up to 12 months in length.

C. Type of Award Instrument

Awards will be made as cooperative agreements. Anticipated substantial involvement by HUD staff for cooperative agreements may include, but will not be limited to:

1. Review and suggestion of amendments to the study design, including: study objectives; field sampling plan; data collection methods; sample handling and preparation; and sample and data analysis.

2. Review and provision of technical recommendations in response to quarterly progress reports (e.g., amendments to study design based on preliminary results).

3. Review and provision of technical recommendations on the journal article(s) and final study report.

III. Eligibility Information

A. Eligible Applicants

1. Academic and non-profit institutions located in the United States, state and units of local government and federally recognized Native American tribes are eligible under all existing authorizations. For-profit firms also are eligible; however, they are not allowed to earn a profit from the grant. Applications to supplement existing projects are eligible to compete with applications for new awards. Neither Federal agencies nor individuals are eligible to submit applications. The 2011 **General Section** identifies threshold requirements that must be met for an organization to receive an award.

2. If your organization received an award under the FY2010 Healthy Homes Technical Studies Grant Program cycle, you are not eligible to apply, unless you apply with a different Principal Investigator. This does not apply to the Lead Technical Studies Grant Program.

B. Cost Sharing or Matching

Cost sharing or matching is not required. In rating your application, however, you will receive a higher score under Rating Factor 4 if you provide evidence of significant resource leveraging.

C. Other

1. Eligible Activities

a. Lead Technical Studies. HUD is particularly interested in the following topics:

(1) Effectiveness of Ongoing Maintenance Activities in Controlling Lead-Based Paint Hazards. HUD has supported research that has shown that interim controls can be effective in significantly reducing dust-lead levels for periods of up to six years following intervention (see e.g., Wilson et al., 2006; in the text box at http://dx.doi.org, enter 10.1016/j.envres.2006.04.007). Outside of the intensity of the intervention and baseline conditions, however, few factors have been identified that are predictive of the effectiveness of the lead hazard control interventions in reducing dust-lead levels over the long term. The frequency and thoroughness of ongoing maintenance is one factor that is expected to be of significance with respect to the long term effectiveness of interim controls. HUD is interested in evaluating the effectiveness and feasibility of ongoing lead-based paint maintenance programs, identifying program components for which particular implementation difficulties exist, and evaluating proposed measures for overcoming those difficulties. Such an evaluation of program components could address whether and how technically-acceptable and cost-effective work practices are selected and

implemented, how effectively supervisors monitor work activities to ensure that lead-based paint hazards are controlled and that dust and debris are contained and cleaned up during and after work, and how well clearance procedures (including necessary re-cleaning) are integrated into the maintenance program, among other factors. HUD is particularly interested in evaluating outcomes based on actual environmental measurements and activities, such as use of appropriate work practices and measurement of dust-lead loadings.

(2) Training persons in lead-safe work practices is important with respect to preventing contamination of the work environment and reducing occupant and worker lead exposures. New renovators and workers lack experience with lead-safe work practices.

Much of the lead-safe work practices training has been delivered in urban areas in order to reach the maximum numbers of persons possible, with less emphasis on training individuals in rural areas. Barriers to training in rural locations include low enrollments, physical distance from the training location, travel costs and other factors. HUD will consider applications that investigate strategies designed to reach affected persons closer to where they live and work through technology-based instructional alternatives or structured on-the-job training solutions. (Structured on-the-job training (SOJT) includes planning, breaking down jobs into their component tasks and providing instructors with lesson plans and materials. It produces consistent training outcomes of predictable quality. Information on SOJT is readily available in the body of training and education literature.) Proposed training solutions must be suitable for the delivery of training that can be shown to be effective at giving workers the skills and ability they need to complete projects that pass independent third-party clearance examinations in target housing. HUD will consider funding applications that evaluate current existing technologies and infrastructure possibilities that appear to be suitable for delivery of such training.

For either of these evaluations on the effectiveness of training projects, it would be of particular value to evaluate the outcomes based on actual observation of trained workers in the field, environmental measurements such as dust-lead loadings, etc. including at time intervals greater than immediately following training.

(3) Evaluation of the effectiveness of interim controls for various time periods following intervention is a topic that has been primarily covered through HUD's *Evaluation of the HUD Lead Hazard Control Grant Program* (referred to as the National Evaluation) (see, for example, http://www.nchh.org/Research/Archived-Research-Projects/HUD-Lead-Hazard-Control-Grant-Program.aspx) that assessed the impact of interventions that were conducted by 14 programs that were among the first recipients of HUD lead hazard control grants. Follow-up research on a subset of the original study participants demonstrated that dust-lead levels generally remained low (particularly on floors) six years following interventions (Wilson et al., 2006). Although this research has demonstrated that interim controls can be effective in reducing dust-lead levels over an extended period, HUD believes that it is important for lead hazard control grantees to conduct periodic monitoring of homes which have been treated by their programs to assess the long term efficacy of the interventions. The Office is especially interested in supporting studies that would include the development and testing of evaluation protocols and data management systems that could be adopted by HUD lead hazard control programs at a modest cost. You are encouraged to partner with one or more previous or current recipients of a HUD Lead-Based Paint Hazard

Control grant or Lead Hazard Reduction Demonstration grant if you are considering conducting research on this or other related topics. Information on current grantees is available at http://www.hud.gov/offices/lead/assistance.cfm.

(4) Analysis of Available Data and Databases. HUD is interested in supporting research using existing data to address key scientific issues related to the identification and control of lead-based paint hazards. Large research efforts often generate large data sets that are analyzed to address primary research objectives; however, there is often important information to be gained by conducting additional analyses of the collected data. Such analyses can generally be conducted at low cost relative to the cost of the initial research. Applicants submitting proposals in this area should explain how the analyses would address high priority issues and possibly result in improvements in lead hazard assessment and control methods. HUD is also interested in the creative use of existing databases (e.g., Census data, blood-lead screening data) to improve the efficacy of lead hazard control programs (e.g., by improved targeting of the highest risk homes and neighborhoods), assess the effectiveness of enforcement and lead hazard control activities and regulations, and other uses of these data that further the goal of improving methods for the identification and control of residential lead-based paint hazards.

(5) Other Focus Areas that are Consistent with the Overall Goals of HUD's Lead Technical Studies Program. HUD will consider funding applications for technical studies on other topics that are consistent with the overall goals and objectives of the Lead Technical Studies program, as described above.

In such instances, for an applicant to receive an award, it is necessary that the applicant describe in sufficient detail how the proposed study is consistent with the overall lead technical studies program goals and objectives.

NOTE: A limited amount of lead hazard control activities, which involve construction rather than research, may be conducted as part of a project (see Section IV.E.9).

b. Healthy Homes Technical Studies.

(1) HUD expects to advance the recognition and control of residential health and safety hazards and more closely examine the link between housing and health. The overall objectives of the Healthy Homes Technical Studies Program include, but are not limited to:

(a) Development and evaluation of low-cost test methods and protocols for identification and assessment of housing-related hazards.

(b) Development and assessment of cost-effective methods for reducing or eliminating housing-related hazards.

(c) Evaluation of the effectiveness of housing interventions including educational interventions, and barriers and incentives affecting future use of the most cost-effective strategies.

(d) Investigation of the epidemiology of housing-related hazards and illness and injuries associated with these hazards, with an emphasis on vulnerable populations (e.g., children, senior citizens).

(e) Analysis of existing data or generation of new data to improve knowledge regarding the prevalence and severity of specific hazards in various classes of housing, with a focus on low-income housing.

(f) Improved understanding of the relationship between a residential exposure and illness or injury of children or other vulnerable populations. Applicants that propose this type of study should discuss how the knowledge that is gained from the study could be used in a program to reduce these hazards in target communities.

(g) Development of low-cost analytical techniques and instruments for the rapid, on- and off-site determination of environmental contaminants of concern (e.g., bioaerosols, pesticides, allergens). HUD's primary interest is in the improvement of existing instruments or methods, and not in the development of new technologies or instruments. The OHHLHC has noted that these types of studies pose a high risk of experiencing significant delays. Applicants seeking to develop new technologies/instruments should discuss why, if funded, their proposed project would be unlikely to experience significant delays in its completion.

(h) The effect of green construction, building renovation, rehabilitation, or maintenance on measures of indoor environmental quality (IEQ).

(2) HUD is particularly interested in the following topics:

(a) Improving or assessing the efficacy of current methods for residential Integrated Pest Management (IPM). (See, for example, the *Healthy Housing Reference Manual* (HUD/Centers for Disease Control and Prevention (CDC), 2006) and the CDC's IPM web page, http://www.cdc.gov/nceh/ehs/Topics/VectorControl.htm.) IPM focuses on approaches for managing pests which incorporate information on the life cycles of pests and their interaction with the environment, while minimizing hazards to people, property, and the environment. HUD is particularly interested in IPM methods for reducing cockroach, bedbug and/or rodent populations in multifamily housing, with an emphasis on low-income housing.

(b) Developing easily replicable, cost-effective methods for preventing and controlling excess moisture and mold in various types of residential buildings.

(c) Improving indoor air quality, such as through cost-effective approaches to upgrading residential ventilation or improving control/management of combustion appliances. Applicants should discuss how proposed approaches might affect residential energy consumption and/or costs (e.g., increasing air exchange rates resulting in an increase in heating and cooling costs) and how significantly increased energy consumption and/or costs can be avoided or mitigated.

(d) Rigorous evaluation of policies that contribute to the supply of affordable, healthy and energy efficient housing.

(e) Evaluating the effectiveness of education and outreach methods designed to provide at risk families (including minority families and those with limited English proficiency) with the knowledge to adopt self-protective behaviors with respect to residential health hazards. If you propose a study in this focus area you should cite and discuss the theoretical basis for the education/outreach approach that you are proposing.

(f) Conducting cost-benefit or cost-effectiveness studies on the health benefits of healthy homes interventions in high risk populations (e.g., implementation of smoke-free housing policies, reductions in the incidence of injuries among children or the elderly, reductions in asthma morbidity through improvements to indoor environmental quality). Applicants are encouraged to team with existing projects or studies through which the housing interventions are being conducted.

(g) Assessing the impacts of green construction, rehabilitation and maintenance practices on IEQ and health. Applicants are encouraged to design studies that focus on low income housing, including federally-assisted housing. For resources on designing, implementing and evaluating a project for the assessment and remediation of housing-related environmental health and safety hazards that result in illnesses to children, please see Appendix C. HUD encourages applicants to consider the study of housing that has been rated using one of the existing voluntary guidelines (e.g., U.S. EPA's *Indoor Air Plus*, Enterprise Community Partners *Green Communities Criteria*, U.S. Green Building Council's *LEED for Homes*, the *National Green Building Standard* (ICC 700-2008, approved by the American National Standard Institute). For more information on green building guidelines, please see Appendix B.

(h) Injury Prevention Measures: HUD is interested in demonstrating the feasibility and cost-effectiveness of incorporating injury prevention measures into residential programs, including green renovation and rehabilitation programs. Such measures (e.g., grab bars in showers, anti-scald devices, lockable medicine cabinets) are not typically included in building programs but could be incorporated to enhance the effects of the program on resident safety and health.

(i) Other Focus Areas that are Consistent with the Overall Goals of HUD's Healthy Homes Technical Studies Program. HUD will consider funding applications for technical studies on other topics that are consistent with the overall goals and objectives of the Healthy Homes Technical Studies program, as described above. In such instances, for an applicant to receive an award, it is necessary that the applicant describe in sufficient detail how the proposed study is consistent with the overall program goals and objectives.

2. General Information. In proposing to conduct a study on a particular topic, applicants should consider:

a. The ability of the study to generate definitive results. Because the size of the awards under this NOFA limits the ability of applicants to design and implement research on health outcomes using the strongest methodology (i.e., a randomized controlled trial), applicants should consider focusing on important environmental measures instead of health outcomes in studies where this is appropriate. A focus on environmental outcomes would often be expected to produce more

definitive results as opposed to a health outcomes focus, and the impact of improvements to IEQ on health outcomes can be inferred where the evidence base is sufficient.

b. The "fit" of the proposed hazard assessment and/or control methods within the overall goal of addressing "priority" health and safety hazards in a cost-effective manner;

c. The likely efficacy of the proposed methods for hazard control and risk reduction (e.g., how long is effective hazard reduction maintained);

d. Where and how these methods would be applied and tested, and/or perform demonstration activities; and

e. The degree to which the study will help develop practical, widely applicable methods and protocols or improve our understanding of a residential health hazard.

Applicants should consider the efficiencies that might be gained by working cooperatively with one or more recipients of HUD's Healthy Homes Demonstration and/or Production grants or Lead-Based Paint Hazard Control or Reduction Demonstration grants, which are widely distributed throughout the United States. Information on current grantees is available at http://www.hud.gov/offices/lead/assistance.cfm.

You may address one or more than one of the above technical studies topic areas within your proposal, or submit separate applications for different topic areas.

NOTE: A limited amount of hazard control activities, which involve construction rather than research, may be conducted as part of a Healthy Homes Technical Studies project (see Section IV.E.9).

3. Threshold Requirements Applicable to all Applicants. To receive an award of funds from HUD, you must meet all threshold requirements set forth in section III.C.2 of the 2011 **General Section**.

4. Program Requirements. The following requirements are applicable to both the Healthy Homes Technical Studies and Lead Technical Studies Programs:

a. Program Performance. Grantees shall take all reasonable steps to accomplish all activities within the approved period of performance. HUD reserves the right to terminate the cooperative agreement prior to the expiration of the period of performance if the grantee fails to make reasonable progress in implementing the approved program of activities or fails to comply with the terms of the cooperative agreement.

b. Regulatory Compliance. Grantees must comply with all relevant federal, state, and local regulations regarding exposure to and proper disposal of hazardous materials.

c. Blood Lead Testing. Any blood lead testing, blood lead level test results, medical referral, or follow-up for children under 6 years of age must be conducted according to the

recommendations of the Centers for Disease Control and Prevention (CDC), Preventing Lead Poisoning in Young Children (see Appendix B of this NOFA).

d. Restricted Use of Funds. HUD technical studies grant funds will not replace existing resources dedicated to any ongoing project.

e. Laboratory Analysis for Lead. Laboratory analysis covered by the EPA's National Lead Laboratory Accreditation Program (NLLAP) must be conducted by a laboratory recognized under the program, unless approved by HUD.

f. Laboratory Analysis for Mold. Samples to be analyzed for mold (fungi) must be submitted to a laboratory accredited through the Environmental Microbiological Laboratory Accreditation Program (EMLAP), administered by the American Industrial Hygiene Association (AIHA), unless approved by HUD.

g. Human Research. Human research subjects will be protected from research risks in conformance with Federal Policy for the Protection of Human Subjects, required by HUD at 24 CFR 60.101, which incorporates the Department of Health and Human Services (DHHS) Protection of Human Subjects regulation at 45 CFR part 46.

h. OSHA Compliance. The requirements of the Occupational Safety and Health Administration (OSHA) (e.g., 29 CFR part 1910 and/or 1926, as applicable) or the state or local occupational safety and health regulations, whichever are most stringent, will be met.

i. Civil Rights. The institution administering the grant must comply with all nondiscrimination requirements as set forth in section III.C.5 of the 2011 **General Section**.

j. Disclosure. All test results and other information in pre-1978 housing related to lead-based paint or lead-based paint hazards must be provided to the owner of the unit, together with a statement describing the owner's legal duty to disclose the knowledge of lead-based paint and its hazards to tenants (before initial leasing, or before lease renewal with changes) and buyers (before sale) (24 CFR Part 35, subpart A). Disclosure of other identified housing-related health or safety hazards to the owner of the unit, for purposes of remediation, is encouraged but not required by HUD.

k. Privacy. Submission of any information to databases (whether website, computer, paper, or other format) of addresses of housing units identified, treated or cleared under these studies is subject to the protections of the Privacy Act of 1974, and shall not include any personal information that could identify any household member. You should also check to ensure you meet state and local privacy regulations.

l. Applicants must incorporate meaningful community involvement into any study that requires a significant level of interaction with a community during implementation (e.g., projects being conducted within occupied dwellings or which involve surveys of community residents). The term community refers to a variety of populations comprised of persons who have commonalities that can be identified (e.g., based on geographic location, ethnicity, health condition, common interests). Applicants should identify the community that is most relevant to their particular

project. Meaningful community involvement also requires that recipients ensure that information provided to the community during these activities is provided in a manner that is effective for persons with disabilities (See 24 CFR § 8.6) and gives meaningful access to persons with limited English proficiency (LEP). There are many different approaches to involving the community in the conception, design, and implementation of a study and the subsequent dissemination of findings. Examples include but are not limited to: establishing a structured approach to obtain community input and feedback (e.g., through a community advisory board); including one or more community-based organizations as study partners; employing community residents to recruit study participants and collect data; and enlisting the community in the dissemination of findings and translation of results into improved policies and/or practices. A discussion of community involvement in research involving housing-related health hazards can be found in Chapter 5 of the Institute of Medicine publication titled "Ethical Considerations for Research on Housing-Related Health Hazards Involving Children" (see Appendix B for more information on this report).

m. Economic Opportunities for Low- and Very Low-Income Persons (Section 3).
This program is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968 (12 U.S.C. § 1701u). Section 3 requires recipients to ensure that grants under this program conducting housing construction or rehabilitation (including reduction and abatement of lead-based paint hazards), as described in Section V.A.3.c(5)(b), below, will direct, to the greatest extent feasible, training, employment, contracting, and other economic opportunities to low- and very low-income persons, particularly those who are recipients of government assistance for housing, and to business concerns that provide economic opportunities to low- and very low-income persons in the area in which the project is located. For more information on these requirements, see 24 CFR Part 135 and section III.C.5.d of the 2011 **General Section**.

n. Standardized Dust Sampling Protocol and Quality Control Requirements. Grantees collecting samples of settled dust from participant homes for environmental allergen analyses (e.g., cockroach, dust mite) will be required to use a standard dust sampling protocol, unless there is a strong justification to use an alternate protocol (e.g., the study involves the development of an alternative sampling method). The HUD protocol can be found on the OHHLHC website at: http://www.hud.gov/offices/lead/hhi/hhiresources.cfm. Grantees conducting these analyses may also be required to include quality control dust samples, provided by OHHLHC at no cost to the grantee, with the samples that are submitted for laboratory analyses.

o. Requirements for peer review of scientific data in accordance with the Office of Management and Budget Information Quality Guidelines. All HUD-sponsored research is subject to the OMB Final Information Quality Bulletin for Peer Review (70 FR 2664-2677, January 14, 2005) prior to its public dissemination. In accordance with paragraph II.2 of the Bulletin, HUD will not require further peer review conducted on information that has already been subjected to adequate peer review.

5. DUNS Requirement. Refer to the 2011 **General Section** for information regarding the DUNS requirement. A DUNS number must be provided for the institution that is submitting an application. Your DUNS number must be included in your electronic application submission. Be sure to use the DUNS number that you use to register as an Authorized Organization Representative (AOR) with Grants.gov. Be sure that your eBusiness Point of Contact has authorized you to submit an application on behalf of the applicant organization (see the 2011 **General Section** for details about the Grants.gov registration process).

IV. Application and Submission Information

If you are interested in applying for funding under this program, please review carefully the 2011 **General Section** and the following additional information.

A. Addresses to Request Application Package

All applications must be submitted electronically. The information required to submit an application is contained in the program section of this NOFA and the 2011 **General Section**. Applications can be downloaded from the web at: http://www.grants.gov/applicants/apply_for_grants.jsp. Grants.gov provides customer support information on its website at http://www.grants.gov/contactus/contactus.jsp. Applicants having difficulty accessing the application and instructions or having technical problems can receive customer support from Grants.gov by calling (800) 518-GRANTS (this is a toll-free number) or by sending an email to support@grants.gov. (Hearing- or speech-challenged individuals may access this number through TTY by calling the toll-free Federal Relay Service at 800-877-8339.) The Grants.gov Help Desk can be reached twenty-four hours per day, seven days per week, except federal holidays. HUD recommends calling the Help Desk rather than emailing, because determining the basis for the problem may take some conversation with the Grants.gov Support Customer Service Representative.

B. Content and Form of Application Submission

1. Applicant Data. Your application must contain the items listed in this section. These items include the standard forms contained in the 2011 **General Section** that are applicable to this funding announcement (collectively referred to as the "standard forms"). Copies of these forms are available on line at http://www.grants.gov/applicants/apply_for_grants.jsp. The required items are:

a. Application Abstract. An abstract with the project title, the names and affiliations of all investigators, and a summary of the objectives, study design and expected results, and (two-page maximum) must be included in the proposal. Information contained in the abstract will not be considered in the evaluation and scoring of your application, and will not be counted towards the 25 page maximum. Any information you wish to be considered should be provided under the appropriate rating factor response.

b. All forms as required by the 2011 **General Section**. Form HUD2991_Certification_of_Consistency_with_the_Consolidated_Plan is not required with the application for these programs.

c. Response to Rating Factors. A project description/narrative statement addressing the rating factors for award under the program (Lead Technical Studies or Healthy Homes Technical Studies) for which you are applying. The narrative statement must be identified in accordance with each factor for award (Rating Factors 1 through 5). Number the pages of your narrative statement. The project description or narrative must be included in the responses to the rating factors. The response to the rating factors should not exceed a total of 25 pages, single-sided, with a minimum 12-point font and a minimum margin width of 1-inch on all sides. **Any pages in excess of this limit will not be read**. The points you receive for each rating factor will be based on the portion of your narrative statement that you submit in response to that particular factor, supplemented by any appendices that are referenced in your narrative response to the rating factor. Supporting materials that are not referenced or discussed in your responses to the individual rating factors will not be considered. Additional materials (e.g., appendices) must be submitted with your application according to the directions in the 2011 **General Section**. The footer on the pages of these materials should identify the rating factor that they are supporting.

d. Supporting Materials. Include the resumes of the principal investigator and other key personnel and other materials that are needed in your response to the rating factors (e.g., organizational chart, letters of commitment, a list of references cited in your responses to the rating factors). Each resume shall not exceed three pages, and is limited to information that is relevant in assessing the qualifications and experience of key personnel to conduct and/or manage the proposed technical studies. This information will not be counted towards the Rating Factors narrative 25-page limit.

e. Additional Information. Submit other optional information provided in support of your application following the directions in the 2011 **General Section**. These additional optional materials must not exceed 20 pages. Any pages in excess of this limit will not be read. Do not include additional narrative information that is an extension of or expands upon any of your rating factor responses. Such narrative will not be considered.

f. Budget. Include a total budget with supporting cost justification up to four pages, which will cover all budget categories of the federal grant request. This information will not be counted towards the Rating Factors narrative 25-page limit. Use the budget format discussed in Rating Factor 3, Section V.A.3.c, below. In completing the budget forms and justification, you should address the following elements:

(1) Direct Labor costs, including all full- and part-time staff required for the planning and implementation phases of the project. These costs should be based on full time equivalent (FTE) or hours per year (hours/year) (i.e., one FTE equals 2,080 hours/year);

(2) Allowance for one trip to HUD Headquarters in Washington, DC, for each year of your grant, planning each trip for one person. The first trip will occur shortly after grant award for a stay of two or three days, depending on your location, and the remaining trips will have a stay of one or two days, depending on your location;

(3) A separate budget proposal for each sub-recipient receiving more than 10 percent of the total federal budget request;

(4) Supporting documentation for salaries and prices of materials and equipment, upon request; and

(5) Indirect Cost Rates. Organizations that have a federally negotiated indirect cost rate should use that rate and the appropriate base. The documentation will be verified during award negotiations and should not be included in this application submission. Organizations that do not have a federally negotiated rate schedule must obtain a rate from their cognizant federal agency; otherwise the organization will be required to obtain a negotiated rate through HUD.

g. Checklist for Technical Studies Program Applicants

(1) Applicant Abstract (limited to 2 pages)

(2) Rating Factor Responses (Total narrative response limited to 25 pages.)

(a) Capacity of the Applicant and Relevant Organizational Experience (20 points)

(b) Need/Extent of the Problem (15 points)

(c) Soundness of Approach (49 points)

(d) Leveraging Resources (6 points)

(e) Achieving Results and Program Evaluation (10 points)

(f) Bonus Points (RC/EZ/EC-II) (2 points)

(g) Preferred Sustainable Communities Status Bonus Points (2 points)

(3) Required materials in response to rating factors (does not count towards 25-page limit)

(a) Resumes of Key Personnel (limited to 3 pages per resume; please do not include Social Security Numbers on resumes)

(b) Organizational Chart

(c) Letters of Commitment (if applicable) – Letters of commitment should include language defining the activities to be performed, the contributions to be made, and the monetary value of each.
NOTE: HUD recommends against including letters of support that do not commit services, materials, or funds; they will not add to the consideration of your application.

(d) Affirmatively Furthering Fair Housing Requirements (if applicable) – If the Affirmatively Furthering Fair Housing requirements apply to your proposed project as described in Section V.A.3.c(5)(a), below, you must include the applicable narrative discussed in that section in your application; failure to comply will result in the application not being considered for award.

(4) Optional material in support of the Rating Factors (20 page limit)

(5) Required Forms and Budget Material

(a) Form SF424_Application_for_Federal_Assistance (Be sure to correctly identify the NOFA title, Funding Opportunity Number, and CFDA number. Please note: CFDA numbers differ for the Lead Technical Studies Program and the Healthy Homes Technical Studies Program. Applicants must also include the nine digit zip code (zip code plus four digits) associated to the applicant address in box 8d of the SF424.

(b) Form HUD424CBW_Budget_Worksheet for the entire project.

(c) Budget narrative for each form HUD424CBW submitted

(d) Form SF424Supplement_Survey_on_Ensuring_Equal_Opportunities_for_Applicants (Faith_Based_EEO_Survey SF424SUPP) on Grants.gov (to be completed by private nonprofit organizations only)

(e) Form SFLLL_Disclosure_of_Lobbying_Activities, if applicable.

(f) Form HUD2880_Applicant/Recipient_Disclosure/Update_Report ("HUD_Applicant Recipient_Disclosure_Report" on Grants.gov)

(g) Form HUD2990_Certification_of_Consistency_with_the_RC/EZ/EC-II_Strategic_Plan (required only for applicants who are seeking these 2 bonus points)

(h) Form HUD96011_Third_Party_Documentation_Facsimile_Transmittal ("Facsimile Transmittal Form" on Grants.gov) (Used as the cover page to transmit third party documents and other information designed for each specific application for tracking purposes. HUD will not read faxes that do not use the HUD96011 as the cover page to the fax.)

C. Receipt Dates and Times

Electronic applications must be received and validated by Grants.gov on or before 11:59:59 PM eastern time on the application deadline date. Refer to the 2011 **General Section** for submission requirements. See the 2011 **General Section** for what to do if your application is rejected by the Grants.gov system,

Please allow time for this process to ensure that you meet the timely receipt requirements. Please see the 2011 **General Section** for instructions for timely receipt, including actions to take if the application is rejected. Applicants should carefully read the section titled "INSTRUCTIONS ON HOW TO DOWNLOAD AN APPLICATION PACKAGE AND APPLICATION INSTRUCTIONS" in the 2011 **General Section**. This section contains information on using Adobe Reader, HUD's timely receipt policies, and other application information.

D. Intergovernmental Review

This NOFA is excluded from the requirement of an Intergovernmental Review.

E. Funding Restrictions

1. Administrative Costs. There is a 10 percent maximum allowance for administrative costs. For each kind of organization, a set of Federal principles determines allowable costs. Allowable costs shall be in accordance with the cost principles applicable to the organization incurring the costs. Specifically, see 2 CFR 220 - Cost Principles for Educational Institutions, 2 CFR 225 - Cost Principles for State, Local, and Indian Tribal Governments, or 2 CFR 230 - Cost Principles for Nonprofit Organizations. (OMB relocated its cost principles Circulars A-21, regarding educational institutions, A–87, regarding governments, and A-122, regarding nonprofits, to title 2 of the Code of Federal Regulations; the regulations supersede the circulars (70 *Federal Register* 51880, 51910, and 51927, respectively, August 31, 2005).)

2. Indirect Costs. Please see http://www.hud.gov/offices/adm/grants/fundsavail.cfm for reference to the Indirect Cost requirements.

3. Purchase of Real Property. The purchase of real property is not an allowable cost under either program.

4. Purchase or Lease of Equipment. The purchase or lease of equipment having a per unit cost in excess of $5,000 is not an allowable cost, unless prior written approval is obtained from HUD.

5. Medical Treatment. Medical treatment costs are not allowable under this program.

6. Profit. For profit institutions are not allowed to earn a profit.

7. You must comply with the Coastal Barrier Resources Act (16 U.S.C. § 3501).

8. You may not conduct lead-based paint or healthy home hazard control activities or related work that constitutes construction, reconstruction, repair or improvement (as referenced in Section 3(a)(4) of the Flood Disaster Protection Act of 1973 (42 U.S.C. §§ 4001-4128)) of a building or mobile home which is located in an area identified by the Federal Emergency Management Agency (FEMA) as having special flood hazards unless:

a. The community in which the area is situated is participating in the National Flood Insurance Program in accordance with the applicable regulations (44 CFR parts 59-79), or less than a year has passed since FEMA notification regarding these hazards; and

b. Where the community is participating in the National Flood Insurance Program, flood insurance on the property is obtained in accordance with section 102(a) of the Flood Disaster Protection Act (42 U.S.C. § 4012a(a)). You are responsible for assuring that flood insurance is obtained and maintained for the appropriate amount and term.

9. Construction Activities. The amount of HUD Lead Technical Studies grant funds used for lead-based paint hazard control activities may not exceed 20% of the total HUD funds awarded. The amount of HUD Healthy Homes Technical Studies grant funds used for construction

activities may not exceed 20% of the total HUD funds awarded. Furthermore, the majority of any funds dedicated to construction activities shall be spent for interventions not intended for lead hazard control. No funds under either grant program may be used for new construction, substantial rehabilitation, or changes in land use or unit density.

10. Costs related to animal testing are not allowable under this program.

F. Other Submission Requirements. Applicants are required to submit applications electronically via the website http://www.grants.gov/applicants/apply_for_grants.jsp. See sections IV.B and F of the 2011 **General Section** for additional information on the electronic process requirement and how to request a waiver from the requirement if necessary. Applicants should submit their waiver requests in writing using email. Waiver requests must be submitted no later than 25 days prior to the application deadline date and should be submitted to: OHHLHCNOFAreview@hud.gov. Paper applications will not be accepted from applicants that have not been granted a waiver. If an applicant is granted a waiver, the approval notice will provide instructions for submission. **All applications in paper format must have received a waiver to the electronic application requirement and the application must be received by HUD on or before the application deadline date**.

V. Application Review Information

A. Criteria

1. Threshold Requirements. Applications that meet all of the threshold requirements will be eligible to be scored and ranked, based on the total number of points allocated for each of the rating factors described in Section V.A.3 . Your application must receive a total score of at least 75 points to be considered for funding.

2. Award Factors. Each of the five factors is weighted as indicated by the number of points that are assigned to it. The maximum score that can be attained is 104 points, including a possible 4 bonus points. Applicants should be certain that each of these factors is adequately addressed in the project description and accompanying materials. To the extent feasible, include all of the needed information within your response to each rating factor. If your response to a particular rating factor cites information provided in your response to another rating factor, clearly indicate where the information is located so that the reviewer can easily locate it.

3. Rating Factors.

a. Rating Factor 1: Capacity of the Applicant and Relevant Organizational Experience (20 Points). This factor addresses the extent to which you have the ability, capacity and organizational resources necessary to successfully implement your proposed activities in a timely manner. The rating of your application will include any sub-grantees, consultants, sub-recipients, and members of consortia that are firmly committed to the project (generally, "subordinate organizations"). In rating this factor, HUD will consider the extent to which your application demonstrates:

(1) The capability and qualifications of key and supporting personnel (13 points). HUD will assess the qualifications of key personnel to carry out the proposed study as evidenced by academic and professional background, publications, and recent (within the past 10 years) research experience. Publications and/or research experience are considered relevant if they required the acquisition and use of knowledge and skills that can be applied in the planning and execution of the technical study that is proposed under this NOFA. HUD will also evaluate the qualifications of supporting personnel such as statisticians and research assistants. Partner organizations will also be evaluated with respect to their qualifications and capabilities to successfully implement their proposed project roles. Please **do not** include the Social Security Numbers (SSN) of any staff members. You must also submit an organizational chart that shows the key players in the project, their reporting relationships, and their responsibilities. The chart may be submitted as an attachment and will not count towards the 25 page maximum.

(2) Past performance of the study team in managing similar projects (7 points).

(a) HUD will evaluate your demonstrated ability to successfully manage various aspects (e.g., personnel management, data management, quality control, reporting) of a complex technical study, as well as your overall success in completing projects on time and within budget. If applicable, provide the number and title of any past OHHLHC grants and describe the outcomes of those grants and your organization's performance in their implementation (e.g., whether they were completed on time and within budget). Also, describe the past performance of the organization (applicant and/or partners) on other projects related to residential environmental health and safety research, or other relevant experience. Provide details about the nature of the project, the funding organization, and your performance (e.g., timely completion, achievement of desired outcomes). You should also discuss the degree to which the results from past research have been used to develop new or improved methods or tools for residential hazard assessment or control.

(b) If your organization has an active OHHLHC grant or cooperative agreement, provide a description of the progress and outcomes achieved under that award. If you completed one or more HUD-funded Technical Studies grants, your performance will be evaluated in terms of achievements made under the previous grant(s). If your organization received a grant from OHHLHC in Fiscal Years 2006, 2007, or 2008 (i. e. the grant number ends in "-06", "-07", or "08") and you have not demonstrated a credible attempt to publish the results in a scientific or professional journal, 5 points will be deducted under this subfactor.

b. Rating Factor 2: Need/Extent of the Problem (15 Points). This factor addresses the extent to which there is a need for your proposed technical study. In responding to this factor, you should document in detail how your project will make a significant contribution towards achieving some or all of HUD's stated goals and objectives for one or more of the topic areas described in Section I.B.1.a (Lead Technical Studies) or I.B.1.b (Healthy Homes Technical Studies), as appropriate for the program to which you are applying. For example, you should demonstrate how your proposed study addresses a need with respect to the development of improved methods for the assessment and control of residential lead-based paint hazards or addresses a need associated with an important housing-related health hazard, with an emphasis on the health of children and other sensitive populations such as seniors. This is especially important for applicants that are proposing to study a lead or healthy homes topic that is not

highlighted as a priority area by HUD in section III.C. Specific topics to be addressed for this factor include:

(1) A concise review of the research need that is addressed by your proposed study and why it is consistent with the goals and objectives of the NOFA; identify which NOFA goals and objectives are addressed by the proposed study. Identify the knowledge gap that is addressed by the study and why it is important. For Healthy Homes Technical Studies applicants that are conducting research with households in targeted communities, include available documented rates of illness or injury associated with the hazard or hazards that you are addressing within that community and compare these rates to national rates for health outcomes. Data should be provided for the relevant geographic area(s) (e.g., local, regional, state level), depending upon availability. Similarly, Lead Technical Studies applicants should provide data on the prevalence of lead-based hazards and/or elevated blood-lead levels among households in targeted neighborhoods, if applicable. (6 points)

(2) A discussion of how your proposed study would significantly advance the current state of scientific knowledge for your focus area. You should make clear how your proposed study would effectively build upon the current body of knowledge, especially the peer-reviewed literature. (6 points)

(3) A discussion on how you anticipate your study findings will be used to improve current methods for assessing or mitigating the hazards under study, particularly for affordable housing. If applicable, indicate why the method/protocol that would be improved through your study would be widely adopted (e.g., low cost, easily replicated, lack of other options) or how the knowledge gained through your proposed study will help to advance greater adoption of the "healthy homes" concept. (3 points)

c. Rating Factor 3: Soundness of Approach (49 Points). This factor addresses the quality of your proposed technical study plan. Specific components include:

(1) Soundness of the study design (28 points). Clearly and thoroughly describe the design of your proposed study and identify the major objectives. If possible, your study should be designed to address testable hypotheses that are clearly stated. The study should be presented as a logical sequence of steps or phases with individual tasks described for each phase. Your narrative should reflect the relevant scientific literature, which should be thoroughly cited in your application. Your proposed study will be judged in part on the soundness of the underlying body of research upon which it is based (e.g., is it based upon well-understood or poorly-understood associations from previous epidemiological studies?) and the clarity and soundness of your interpretation and summarization of this research base. Describe the statistical basis for your study design and demonstrate that you would have adequate statistical power to test your stated hypotheses and achieve your study objectives. Discuss your plans for data management, analysis, and archiving. You should identify any important "decision points" in your study plan. You should demonstrate that it is clearly feasible to complete the study within the proposed period of performance and successfully achieve your objectives. HUD has observed that studies can miss targeted performance timelines because of delays in the IRB approval process or unexpected difficulties with recruiting study participants, and delays in developing new laboratory methods or instruments. If applicable, describe actions that you will take to minimize

the possibility that your study would experience delays in these areas (e.g., understanding likely IRB requirements in advance, planning on additional avenues for recruitment of participants, initiating the development of new methods/instruments).

If you are proposing to conduct a study that includes a significant level of community interaction (e.g., studies involving participant recruitment, survey research, environmental sampling on private property), describe your plan for meaningful involvement of the affected community in your proposed study. You should define the community of interest with respect to your proposed study and discuss why and how your proposed approach to community involvement will make a meaningful contribution to your study and to the community.

(2) Policy Priorities (2 points). Indicate if your proposed study will address any of the FY 2011 policy priorities that are applicable to this NOFA (see the 2011 **General Section** for additional details regarding these policy priorities). You will receive a maximum of two (2) points under Rating Factor 3(2) for either of the applicable FY 2011 policy priorities that are found in the 2011 **General Section** and applicable to the Technical Studies NOFA that are adequately addressed in your application. Policy priorities that are applicable to these Technical Studies NOFAs are: (1) **Capacity Building and Knowledge Sharing**; and (2) **Using Housing as a Platform for Improving Other Outcomes**. It is up to the applicant to determine which of the policy priorities outlined below they will address in order to receive the available two points. Please refer to the 2011 **General Section,** sections I.B.4 and I.B.5, respectively, to see how these policy priorities should be discussed and presented in order to receive these points.

(a) Capacity Building and Knowledge Sharing. Applicants requesting the policy priority points must demonstrate the proposed direct impact their research can have in advancing the field of healthy homes (including lead hazard control). Applicants must identify the outputs and outcomes their projects are expected to achieve related to capacity building and knowledge sharing, as well as the outcome measures they will report on. To receive the full two (2) points under this policy priority, an applicant must respond to at least one or more of the activities listed below and explain how success will be measured during the grant performance period:

(i) Activities:

- Implementation of a research dissemination plan.
- Integration of the research findings with other researchers and/or practitioners in the healthy homes/lead hazard control fields.

1. Presentation of research findings at academic and/or professional conferences.

(ii) Measures of success:

- Development of at least one new activity by partner organizations as a result of the outcomes of the research to enhance current healthy homes or lead hazard control program activities.
- Presentation of research finding at two or more appropriate academic and/or professional conferences.
- Publication of research findings in two or more scientific and/or professional journals.

(b) Using Housing as a Platform for Improving Other Outcomes. To receive the full two (2) points under this policy priority, an applicant must respond to at least one or more of the activities listed below and explain how success will be measured during the grant performance period:

(i) Activities

- Study findings that will result in improved health outcomes as a result of new or improved methods for hazard identification or control, improved understanding of housing-related health hazards, etc.
- Coordination and information sharing with partners, such as those of local green and healthy housing initiatives that will result in improved health outcomes in the target population.
- Formation of strategic partnerships with practitioners that will commit to applying the findings of the study to improve program activities.

(ii) Measures of success:

- The study findings result in the creation tools or knowledge that can be used to improve health outcomes in target populations.
- Partner organizations commit to applying study findings in a manner that will improve health outcomes in the populations that they serve.

For this policy priority, applicants must identify the target populations to be served, the baseline from which improvements are to be measured, the anticipated impact outcome(s) and related activity, and measurements to be used to gauge the positive change to be achieved by their project. Applicants will be expected to report progress in meeting the expected goals.

(3) Quality assurance mechanisms (8 points). You must describe the quality assurance mechanisms that will be integrated into your project design to ensure the validity and quality of the results. Applicants that receive awards will be required to submit a Quality Assurance Plan to HUD. You should plan for this and include Quality Assurance activities in your study work plan.

(a) Discuss the major quality assurance mechanisms that are relevant for your proposed study. Examples of quality assurance mechanisms include, but are not limited to: procedures for selection of samples/sample sites, sample handling, use of quality control samples, validating the accuracy of instrumentation, measures to ensure accuracy during data management, staff training, and final validation of your dataset. If applicable, documents (e.g., government reports, peer-reviewed academic literature) that provide the basis for your quality assurance mechanisms should be cited. Identify who will have primary responsibility for drafting and ensuring compliance with the Quality Assurance Plan (QAP) and describe how the QAP will be used during the implementation of your study. Your application will be rated on the thoroughness, clarity, and validity of your proposed quality assurance activities, and their appropriateness for ensuring the validity and quality of the data.

(b) For the collection of data using survey or other observational tools, describe the procedures that you will follow to ensure accurate data capture and transfer (e.g., transfer of data

from the field to a database). Also, describe any research done (or planned) to validate the instrument.

(c) Institutional Review Boards. In conformance with the Common Rule (*Federal Policy for the Protection of Human Subjects*, codified by HUD at 24 CFR 60.101, which incorporates the DHHS regulation at 45 CFR part 46), if your research involves human subjects, your organization must provide proof (e.g., a letter signed by an appropriate official) that the research has been reviewed and approved by an Institutional Review Board (IRB) before you can initiate activities that require IRB approval. Before initiating such activities you must also provide the number for your organization's assurance (i.e., an "institutional assurance") that has been approved by the DHHS's Office for Human Research Protections (OHRP). You must also provide proof that the IRB that approves your study is registered with the OHRP.

You do not have to provide proof of IRB approval with your application. If you do not have IRB approval yet, you should address how you will obtain such approval. Describe how you will obtain informed consent (e.g., from the subjects, their parents or their guardians, as applicable) and discuss the steps you will take to help ensure participants' understanding of the elements of informed consent, such as the purposes, benefits and risks of the research. Describe how this information will be provided and how the consent will be collected. For example, describe your use of "plain language" forms, flyers and verbal scripts, and how you plan to work with families with limited English proficiency or primary languages other than English, and with families including persons with disabilities. For assistance in ensuring that persons with limited English proficiency have meaningful access to your research activities, see section III.C.5.c of the 2011 **General Section**. For additional information on what constitutes human subject research or how to obtain an institutional assurance see the OHRP website at http://www.hhs.gov/ohrp/.

(4) Project management plan (5 points, plus 0.5 or 1 point, if one or both portions of subparagraph (5), below, are not applicable to the proposed project). The proposal should include a management plan that provides a schedule for the clear and expeditious completion of major tasks, with associated benchmarks and major study milestones, and deliverables. You can refer to the benchmarks, milestones, and outcomes that you identify in your response to Rating Factor 5 when responding to this sub factor. If your application includes multiple organizations, you should identify the organization/person that has primary responsibility for completion of each of the major study tasks. You should include plans and schedules for preparation and submission of a minimum of one manuscript for publication in a peer-reviewed academic journal following HUD acceptance. Depending on the study's focus, HUD may also accept publication of study findings in one or more high quality professional journals (i.e., if this is considered more appropriate for the focus area than publication in a scientific/academic journal). Where possible, you should include the name of the journal in which you plan to publish. The final deliverable can be submitted to HUD during the agreed upon period of performance or during the 90-day closeout period following award expiration.

(5) Affirmatively Furthering Fair Housing (AFFH) and Section 3 Requirements (1 point).

(a) AFFH (0.5 points). If your proposed project will confer a benefit to members of the public in which the work is to be done, through hazard intervention that involves construction or rehabilitation of housing (including reduction and abatement of lead-based paint hazards but not including routine housing maintenance or minor repair) and/or education or training, then, to

receive funding consideration, your application must discuss, in a separate narrative, how your proposed plans affirmatively further fair housing. If, on the other hand, your proposed project entails only laboratory research, conducting surveys, analyzing existing data sets, or other narrowly focused activities, your application need only include a separate statement to that effect in regard to affirmatively furthering fair housing. If applicable, this narrative must describe how your proposed activities further at least one of the following objectives: {i} help overcome any impediments to fair housing choice related to the assisted program or activity itself; {ii} promote racially, ethnically, and socioeconomically diverse communities; or {iii} promote housing-related opportunities that overcome the effects of past discrimination because of race, color, national origin, religion, sex, disability, and familial status. The narrative must also show how your proposed plans are designed to help overcome the effect of impediments to fair housing choice that are identified in the Analysis of Impediments to Fair Housing Choice ("AI") of the jurisdiction(s) in which the planning occurs, as described in section III.C.5.b of the 2011 **General Section**.

For projects involving construction or rehabilitation, examples of activities that affirmatively further fair housing include those that ensure that existing residents relocated (or temporarily relocated) to facilitate rehabilitation are afforded preference or right of first refusal for new units.

For projects which involve community-based research and/or which include enrollment outreach, education and/or training, examples of activities that affirmatively further fair housing include:

(i) where appropriate, designing and implementing the research study so as to maximize communication and participation with, or dissemination of information to, persons unlikely to have access to the study, including persons of different ethnic and racial backgrounds, and persons with disabilities;

(ii) to the maximum extent practicable, affirmatively marketing the existence of the study or affirmatively disseminating the results of such studies broadly to persons affected, including persons of different races or ethnicities, persons of different socioeconomic status, or persons with disabilities who are not likely to be aware of the study; {iii} conducting such activities in a manner that provides meaningful access to persons with limited English proficiency (LEP); and {iv} targeting the benefits of the research, outreach, or educational activities to vulnerable populations, including women with children and racial and ethnic minorities.

(b) Section 3 Requirements (0.5 points). If your proposed project will conduct housing construction or rehabilitation (including reduction and abatement of lead-based paint hazards), explain in a separate narrative how you will provide appropriate opportunities to Section 3 residents and Section 3 businesses of the target area, in compliance with Section 3 of the Housing and Urban Development Act of 1968 (12 U.S.C. § 1701u) and HUD's implementing rules at 24 CFR Part 135 (see section III.C.5.d of the 2011 **General Section** for further information).

(6) Budget Proposal (5 points).

(a) Your budget proposal should thoroughly estimate all applicable direct and indirect costs, and be presented in a clear and coherent format in accordance with the requirements listed in the 2011 **General Section**. HUD is not required to approve or fund all proposed activities. You must thoroughly document and justify all budget categories and costs (Form HUD424CBW) and all major tasks, for yourself, sub-recipients, major subcontractors, joint venture participants, or others contributing resources to the project. A separate budget must be provided for partners who are proposed to receive more than 10 percent of the federal budget request. Your application will be evaluated on the extent to which your resources are appropriate for the scope of your proposed study.

(b) Your narrative justification associated with these budgeted costs should be submitted as part of the Total Budget (Federal Share and Matching), but is not included in the 25-page limit for this submission. Separate narrative justifications should be submitted for partners that are submitting separate budgets.

(c) The application will not be rated on the proposed cost; however, cost will be considered in addition to the rated factors to determine the proposal most advantageous to the Federal Government. Cost will be the deciding factor when proposals ranked under the listed factors are considered acceptable and are substantially equal.

d. Rating Factor 4: Leveraging Resources (6 Points)

This factor addresses your ability to obtain other resources that can be combined with HUD's funding to increase the effectiveness of the proposed study. Your proposal should demonstrate that the effectiveness of HUD's Technical Studies grant funds is being increased by securing other resources or by structuring the project in a cost-effective manner, such as integrating the project into an existing study (either funded by HUD or another source) that will be concurrent with your proposed study. Contributed resources must be shown to be specifically dedicated to and integrated into supporting study activities. Resources may include funding or in-kind contributions (such as direct labor, specialized facilities) allocated to the purpose(s) of your project. Staff and in-kind contributions should be assigned a monetary value. In assigning points for this factor, HUD will consider the significance of the leveraging in the context of the amount of federal funds that you are requesting. Applicants must propose to contribute resources valued 1% or more of the federal funds requested to receive points.

Leveraging from a partner or from outside your organization must be documented with letters of firm commitment, memoranda of understanding, and/or agreements to participate including the monetary value of the contribution. Each document must include the organization's name, proposed level of commitment (with estimated monetary value) and responsibilities as they relate to specific activities or tasks of your proposed program. The commitment letter must also be signed by an official of the organization legally able to make commitments on behalf of the organization. Simple letters that only indicate support of the proposed study are not sufficient and are discouraged. In responding to this rating factor, you must complete and submit Form HUD-96015 (Leveraging Resources).

Resources may include funding or in-kind contributions (such as direct labor, specialized facilities) allocated to the purpose(s) of your project. Staff and in-kind contributions should be assigned a monetary value. In assigning points for this factor, HUD will consider the significance of the leveraging in the context of the amount of federal funds that you are requesting. Newly contributed resources, devoted to supporting proposed study activities will be fully credited. Resources included from previous work, previous data bases, or other concurrent work which would be completed regardless of this proposed study, will be valued at no more than 25% of their documented cost.

Applicants should make sure that their submittal regarding leveraging is identified and is internally consistent in all the required places, i.e., forms SF424, HUD424CBW (budget), HUD96015, and the signed documentation. If for some reason you are not able to include your leveraging in the budget forms, please provide an explanation as part of your response to this rating factor.

The chart below identifies the points to be provided for leveraging Factor 4.

Leverage	Points
Less than 1%	0
1% and less than 5%	2
5% and less than 10%	4
10% or more	6

e. Rating Factor 5: Achieving Results and Program Evaluation (10 Points). This factor emphasizes HUD's commitment to ensuring that applicants keep promises made in their applications and assess their performance to ensure performance goals are met. Achieving results requires that you, the applicant, have clearly identified the expected outcomes of your study and interim performance measures for measuring progress in achieving the desired outcomes. Outcomes are ultimate goals. Benchmarks or outputs are interim activities or products that lead to the ultimate achievement of your goals.

In order to track the progress of your proposed study, you must identify interim products or benchmarks, milestones, and outcomes, all of which are indicators that will allow you and HUD to measure your performance. Performance indicators should be objectively quantifiable and measure actual achievements against identified goals. You should identify the critical study milestones, which should be clearly indicated in your study timeline. In your response you should also identify potential obstacles in meeting your study objectives and related performance measures and discuss steps you would take to respond to these obstacles.

In responding to this factor, you should:

(1) Identify benchmarks that you will use to track the progress of your study;

(2) Identify important study milestones (e.g., recruitment of study objectives, developing an analytical protocol, the end of specific phases in a multiphase study), which should also be clearly indicated in your study timeline;

(3) Identify potential obstacles in achieving study milestone and adjustments that you would make in response to these obstacles;

(4) Identify how your program will be held accountable for meeting program goals, objectives, and the actions undertaken in implementing the grant program.

Successful applicants will be required to enter project benchmarks and milestones into a spreadsheet which will be used to help track study progress.

f. Bonus Points (4 points maximum).

a. RC/EZ/EC-II. (2 bonus points) Applicants are eligible to receive up to two bonus points for projects located within federally designated Renewable Communities (RCs), Empowerment Zones (EZs), or Enterprise Communities (ECs) designated by USDA in round II (EC-IIs) (collectively referred to as RC/EZ/EC-IIs), and which will serve the residents of these communities (see the 2011 **General Section**). In order to be eligible for these bonus points, applicants must meet the requirements of the 2011 **General Section** and submit a correctly completed form HUD2990, signed by the authorizing official for the Zone or Community, with descriptive language in the budget discussion describing the actual work that is to be done in these communities.

b. Preferred Sustainable Communities Status (2 bonus points) In FY2011, HUD will award 2 bonus points to applicants that are working with the Preferred Sustainability Status recipients of the HUD FY2010 Sustainable Communities Regional Planning Grant Program and the FY2010 HUD funded Challenge Grant Program grantees. Please refer to the 2011 **General Section** for information on how to obtain these bonus points.

B. Reviews and Selection Process

1. Corrections To Deficient Applications. The **2011 General Section** provides the procedures for correcting deficient applications.

2. Rating and Ranking. Awards will be made in rank order for each type of Technical Studies Program applications (Lead or Healthy Homes), within the limits of funding availability for the program.

a. Partial Funding. In the selection process, HUD reserves the right to offer partial funding to any or all applicants. If you are offered a reduced grant amount, you will have a maximum of 14

calendar days to accept such a reduced award. If you fail to respond within the 14-day limit, you shall be considered to have declined the award.

b. Remaining Funds. See the 2011 **General Section** for HUD's procedures if funds remain after all selections have been made within either type of Technical Studies Program.

VI. Award Administration Information

A. Award Notices

1. Notice of Award. Applicants who have been selected for award will be notified by letter from the Office of Healthy Homes and Lead Hazard Control Grant Officer. The letter will state the program for which the application has been selected, the amount the applicant is eligible to receive, and the name of the Government Technical Representative (GTR). This letter is not an authorization to begin work or incur costs under the award. An executed cooperative agreement is the authorizing document.

HUD may require that all the selected applicants participate in negotiations to determine the specific terms of the cooperative agreement and budget. If you accept the terms and conditions of the cooperative agreement, you must return your signed cooperative agreement by the date specified during negotiation. In cases where HUD cannot successfully conclude negotiations with a selected applicant or a selected applicant fails to provide HUD with requested information, an award will not be made to that applicant. In this instance, HUD may offer an award, and proceed with negotiations with the next highest-ranking applicant. Applicants should note that, if they are selected for multiple OHHLHC awards, they must ensure that they have sufficient resources to provide the promised leveraging for the multiple awards. During negotiations, applicants selected for multiple awards will be required to provide alternative leveraged resources, if necessary, before the grant can be awarded. This is required in order to avoid committing duplicate leveraged resources to more than one OHHLHC grant.

Awardees will receive additional instructions on how to have the grant account entered into HUD's Line of Credit Control System (LOCCS) payment system or its successor will be provided. Other forms and program requirements will also be provided.

In accordance with OMB Circular A-133 (Audits of States, Local Governments and Non-Profit Organizations), grantees expending $500,000 in Federal funds within a program or fiscal year must submit their completed audit-reporting package along with the Data Collection Form (SF-SAC) to the Single Audit Clearinghouse, the address can be obtained from their website. The SF-SAC can be downloaded at http://harvester.census.gov/sac/.

2. Debriefing. The 2011 **General Section** provides the procedures applicants should follow for requesting a debriefing.

B. Administrative and National Policy Requirements

1. Environmental Requirements.

a. Eligible Construction and Rehabilitation Activities. A FY 2011 Lead Technical Studies and/or a Healthy Homes Technical Studies award does not constitute approval of specific sites where activities that are subject to environmental review may be carried out. Under the , the provisions of section 305(c) of the Multifamily Housing Property Disposition Reform Act of 1994, implemented by HUD regulations at 24 CFR part 58, "Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities," are applicable to properties assisted with Lead Technical Studies or Healthy Homes Technical Studies funds. Therefore, recipients conducting eligible construction and rehabilitation activities must comply with 24 CFR part 58. Recipients that are States, units of local government or Native American tribes must carry out environmental review responsibilities as a responsible entity under part 58. Recipients who are academic, not-for-profit, or for-profit institutions, must contact and partner with a responsible entity, usually the unit of local government or Native American tribe, to assume the environmental review responsibilities for construction or rehabilitation activities funded under this NOFA. Reasonable expenses incurred for compliance with these environmental requirements are eligible expenses under this NOFA. Under 24 CFR 58.11, where the recipient is not a State, unit of local government or Native American tribe, if a responsible entity objects to performing the environmental review, or the recipient objects to the responsible entity performing the environmental review, HUD may designate another responsible entity to perform the review or may perform the environmental review itself under the provisions of 24 CFR part 50. When HUD performs the review itself, following grant award execution, HUD will be responsible for ensuring that any necessary environmental reviews are completed. See paragraph b, below for additional assistance.

b. For all cooperative agreements under this NOFA, recipients and other participants in the project are prohibited from undertaking, or committing or expending HUD or non-HUD funds (including leveraged funds) on, a project or activities under this NOFA (other than activities listed in 24 CFR 58.34, 58.35(b) or 58.22(f)) until the responsible entity completes an environmental review and the applicant submits and HUD approves a Request for the Release of Funds and the responsible entity's environmental certification (both on form HUD-7015.15) or, in the case where the recipient is not a State, unit of local government or Native American tribe and HUD has determined to perform the environmental review under part 50, HUD has completed the review and notified the grantee of its approval. The results of the environmental reviews may require that proposed activities be modified or proposed sites rejected. For Part 58 procedures, see http://www.hud.gov/offices/cpd/environment/index.cfm. For assistance, contact Karen Griego-West, the Office of Healthy Homes and Lead Hazard Control Program Environmental Clearance Officer at (213) 534-2458 (this is not a toll free-number) or the HUD Environmental Clearance Officer in the HUD Field Office serving your area. If you are a hearing- or speech-impaired person, you may reach the telephone number via TTY by calling the toll-free Federal Relay Service at 1-800-877-8339. Recipients of a grant under these funded programs will be given additional guidance in these environmental responsibilities.

c. All other activities not related to construction and rehabilitation activities are categorically excluded under 24 CFR 50.19 (b)(1), (3), (5) and (9) from the requirements of the National Environmental Policy Act of 1969 (42 U.S.C. § 4321) and are not subject to environmental review under the related environmental laws and authorities at 24 CFR 50.4.

2. Conducting Business in Accordance with HUD Core Values and Ethical Standards. If awarded assistance under this NOFA, prior to entering into a cooperative agreement with HUD, you will be required to submit a copy of your code of conduct and describe the methods you will use to ensure that all officers, employees, and agents of your organization are aware of your code of conduct. See the 2011 **General Section** for information about conducting business in accordance with HUD's core values and ethical standards.

3. Participation in HUD-Sponsored Program Evaluation. See the 2011 **General Section**.

4. HUD Reform Act of 1989. The provisions of the HUD Reform Act of 1989 that apply to this NOFA are explained in the 2011 **General Section**.

5. Procurement of Recovered Materials. See the 2011 **General Section** for information concerning this requirement.

6. Davis-Bacon Wage Rates. The Davis-Bacon wage requirements do not apply to this program. However, if program funds are used in conjunction with other federal programs in which Davis-Bacon prevailing wage rates apply, then Davis-Bacon provisions would apply to the extent required under the other federal programs.

C. Reporting:

1. Post Award Reporting Requirements: Final budget and work plans are due 60 days after the start date.

2. Progress Reporting: Progress reporting is required on a quarterly basis. Project benchmarks and milestones will be tracked using a benchmark spreadsheet that incorporates the benchmarks and milestones identified in the response to rating factor 5. For specific reporting requirements, see policy guidance at: http://www.hud.gov/offices/lead/.

3. Racial and Ethnic Beneficiary Data: HUD requires grantees to collect racial and ethnic beneficiary data for this program. You must use the Office of Management and Budget's Standards for the Collection of Racial and Ethnic Data as presented on Form HUD27061RacialandEthnicDataReportingForm (and instructions for its use), found on http://www.hud.gov/offices/adm/hudclips/forms/files/27061.pdf. See section VI.C.7 and VI.C.8.b of the FY 2011 **General Section**.

4. Tangible Personal Property Report: Grant recipients who purchase equipment in excess of $5,000 apiece must complete the OMB's annual Tangible Personal Property Report, if and after that report receives OMB approval under the Paperwork Reduction Act of 1995 (see 75 Federal Register 14441-14442; March 25, 2011). This report has four components: the Annual Report,

the Final (Award Closeout) Report, and the Disposition Report/Request, and, if needed, the Supplemental Sheet (see http://www.whitehouse.gov/omb/grants_standard_report_forms/). Generally, the average estimated time to complete each of these components is 0.5 hours; it is likely to be less for this grant program.

5. Section 3: All grant recipients must comply with reporting and record-keeping requirements for Section 3 of the Housing and Urban Development Act of 1968, 12 U.S.C. § 1701u (Economic Opportunities for Low- and Very Low-Income Persons in Connection with Assisted Projects). Those requirements can be found at 24 CFR part 135, subpart E. See section III.C.5.d of the FY 2011 **General Section**.

6. Transparency Act Reporting.

a. Recipient Reporting to Meet the Requirements the Federal Financial Assistance Accountability and Transparency Act of 2006 as amended.

(1) Prime Awardee Reporting. Prime recipients of HUD financial assistance are required to report subawards made either as pass-through awards, subrecipient awards, or vendor awards in the federal governmentwide website www.fsrs.gov or its successor system.

Starting with awards made October 1, 2010, prime financial assistance awardees receiving funds directly from HUD are required to report subawards and executive compensation information both for the prime award and subawards, including awards made as pass-through awards or awards to vendors, where both the initial award is $25,000 or greater or the cumulative award will be $25,000 or greater if funding incrementally as directed by HUD in accordance with OMB guidance. The reporting of award and subaward information is in accordance with the requirements of Federal Financial Assistance Accountability and Transparency Act of 2006, as amended by section 6202 of Public Law 110-252, hereafter referred to as the "Transparency Act" and OMB Guidance issued to the Federal agencies on September 14, 2010 (75 FR 55669) and in OMB Policy guidance. The prime awardee will have until the end of the month plus one additional month after a subaward or pass-through award is obligated to fulfill the reporting requirement. The Transparency Act requires the creation of a public governmentwide website in which the following subaward data will be displayed:

(a) Name of entity receiving award;
(b) Amount of award;
(c) Funding agency;
(d) North American Industry Classification System (NAICS) code for contracts/CFDA program for financial assistance awards;
(e) Program source;
(f) Award title descriptive of the purpose of the funding action;
(g) Location of the entity (including Congressional district);
(h) Place of Performance (including Congressional district);
(i) Unique identifier of the entity and its parent; and
(j) Total compensation and names of top five executives.

For the purposes of reporting into the FFATA Sub-award Reporting System (FSRS) reporting site, the unique identifier is the DUN and Bradstreet Universal Numbering System (DUNS)

number the entity has obtained from Dun and Bradstreet, and for Prime awardees the DUNS number registered in the Central Contractor Registration as required by HUD regulation 24 CFR 5.1004.

(2) Prime Awardee Executive Compensation Reporting. Prime awardees must also report in the governmentwide website the total compensation and names of the top five executives in the prime awardee organization if:

(a) More than 80% of the annual gross revenues are from the Federal government, and those revenues are greater than $25 million annually; and

(b) Compensation information is not readily available through reporting to the Securities Exchange Commission (SEC.)

(3) Subaward Executive Compensation Reporting. Prime awardees must also report in the government-wide website the total compensation and names of the top five executives in the subawardees, pass-through or vendor organization if:

(a) More than 80% of the annual gross revenues are from the Federal government, and those revenues are greater than $25 million annually; and

(b) Compensation information is not readily available through reporting to the Securities Exchange Commission (SEC.)

(4) Transparency Act Reporting Exemptions. The Transparency Act exempts any sub-awards less than $25,000 made to individuals and any sub-awards less than $25,000 made to an entity whose annual expenditures are less than $300,000. Subawards with a cumulative total of $25,000 or greater are subject to subaward reporting beginning the date the subaward total award amount reaches $25,000. Any other exemptions to the requirements must be approved by the Office of Management and Budget.

7. Compliance with Section 872 of the Duncan Hunter National Defense Authorization Act for Fiscal Year 2009 (Pub. L. 110-417), hereafter referred to as "Section 872."

Section 872 requires the establishment of a government-wide data system to contain information related to the integrity and performance of entities awarded federal financial assistance and making use of the information by federal officials in making awards. It is anticipated that the federal data system will be known as the Federal Awardee Performance and Integrity Information System (FAPIIS). Only federal officials and the entity will be able to view the information in the FAPIIS system.

Further, each recipient of federal funds with a cumulative value greater than $10 million and their direct (i.e., first-tier) subrecipients would be required to report to the FAPIIS system. The data collection requirements include information about certain civil judgments, criminal convictions, and outcomes of administrative proceedings that reached final disposition within the most recent 5-year period and were connected with the award or performance of a federal or state award. Recipients and first-tier subrecipients must report information at least semi-annually to maintain the currency of the information. Section 872 also requires that an entity be allowed to

submit comments to the data system about any information that system contains about the entity. Use of the FAPIIS system requires a DUNS number and current valid registration in the CCR for HUD awardees and first-tier subrecipients.

Prior to making a funding decision, the federal official authorized to make the award is required to determine whether the entity is qualified to receive an award, taking into consideration any information about the entity that is in the data system. OMB is in the process of issuing regulations regarding federal agency implementation of Section 872 requirements. A proposed rule was published in the Federal Register on February 18, 2010, by OMB seeking public comments no later than April 19, 2010.

HUD's terms and conditions to its FY2011 awards will contain requirements related to meeting Section FFATA and Section 872 requirements.

8. Final Report: The cooperative agreement will specify the requirements for final reporting (e.g., final technical report and final project benchmarks and milestones achieved against the proposed benchmarks and milestones which were approved and incorporated into your cooperative agreement).

9. Draft Scientific Manuscript(s): Grantees will be required to complete a minimum of one draft manuscript for publication in a peer-reviewed journal.

VII. Agency Contact(s)

For programmatic questions on the Healthy Homes Technical Studies program, you may contact Dr. Peter Ashley, Office of Healthy Homes and Lead Hazard Control, at 202-402-7595 or via email at Peter.J.Ashley@hud.gov. For grants administrative questions, you may contact Ms. Nadine Heath, Office of Healthy Homes and Lead Hazard Control, at telephone 202- 402-7680 or via email at Nadine.L.Heath@HUD.gov. If you are a hearing- or speech-impaired person, you may reach the above telephone numbers through TTY by calling the toll-free Federal Relay Service at 1-800-877-8339.

VIII. Other Information

A. Other Office of Healthy Homes and Lead Hazard Control Information. For additional general, technical, and grant program information pertaining to the Office of Healthy Homes and Lead Hazard Control, visit http://www.hud.gov/offices/lead/.

B. **Paperwork Reduction Act**. The information collection requirements contained in this document have been approved by the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1995 (44 U.S.C. §§ 3501-3520) and assigned OMB control number 2539-0015. In accordance with the Paperwork Reduction Act, HUD may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the collection displays a currently valid OMB control number. Public reporting burden for the collection of information is estimated to average 80 hours per respondent for the application and 16 hours to finalize the cooperative agreement. This includes the time for collecting, reviewing, and reporting the data for the application. This information will be used for grantee selection. The reporting burden for completion of the Quality Assurance Plan by applicants who are

awarded a grant is estimated at 24 hours per grantee. Response to this request for information is required in order to receive the benefits to be derived.

C. Environmental. A Finding of No Significant Impact (FONSI) with respect to the environment has been made for this NOFA in accordance with HUD regulations at 24 CFR part 50, which implement section 102(2)(C) of the National Environmental Policy Act of 1969 (42 U.S.C. § 4332(2)(C)). The FONSI is available for public inspection between 8 a.m. and 5 p.m. weekdays in the Regulations Division, Office of General Counsel, Department of Housing and Urban Development, 451 Seventh Street, SW, Room 10276, Washington, DC 20410-0500. Due to security measures at the HUD Headquarters building, an advance appointment to review the FONSI must be scheduled by calling the Regulations Division at 202-708-3055 (this is not a toll-free number).

D. Appendices. Appendices A, B, and C to this NOFA are available for downloading with the application at http://www.hud.gov/offices/adm/grants/fundsavail.cfm.

Dated: 4/29/2011

Jon L. Gant, Director
Office of Healthy Homes and Lead Hazard Control

[FR-5500-N-15]

FY 2011 Lead Technical Studies and Healthy Homes Technical Studies
Notice of Funding Availability

APPENDIX A – Key Residential Health and Safety Hazards

The following briefly describes the residential health and injury hazards HUD considers key targets for intervention:

1. Allergens and Asthma: In 2005, the CDC estimated that over 22.2 million Americans have asthma with an associated annual cost of more than $13 billion. Asthma is now recognized as the leading cause of school and work absences, emergency room visits, and hospitalizations. For sensitized children, exposure to antigens from dust mites, certain pets, and cockroaches has been associated with more severe asthma. There is a preponderance of evidence showing a dose-response relationship between exposure and prevalence of asthma and allergies; some evidence also indicates that exposure to antigens early in life may predispose or hasten the onset of allergies and asthma. Dust mites have been identified as the largest trigger for asthma and allergies. A recently published study of children with atopic (allergic) asthma from seven major U.S. cities reported that over half of the children were allergic to cockroach and dust mite allergen (approximately 70% and 63%, respectively), with approximately 50% of the children allergic to mold (Morgan et al. 2004). Significant fractions of children also tested positive for allergy to cat, rodent and dog allergens. This is consistent with other studies that have found that cockroach tends to be the dominant allergen among asthmatic children living in the inner-city, whereas allergy to dust mite allergens appears to dominate among children living in most suburban environments. While children are the population most at risk for developing asthma, there is a growing need to address the onset of new cases in older adults, and to examine how their risk factors might differ from those of children (Selgrade et al. 2006).

Interventions known to have beneficial effects include the installation of impervious mattress and pillow covers, which can reduce allergen exposure by 90 percent. Other dust mite control measures include dehumidification, laundering bedding in hot water, specialized cleaning (dry steam or use of a HEPA vacuum), and removal of carpets and other materials that accumulate dust and are difficult to clean (e.g., dust sinks). Providing residents with education and instruction on cleaning with repeat visits by outreach workers has been shown to result in significant reduction in levels of dust mite and cockroach allergens in floor dust (Takaro et al. 2004; Morgan et al. 2004). For these same studies, researchers also reported significant reductions in asthma symptoms among children living in the intervention group when compared to the control group. A recent meta-analysis found that dust control interventions can also have a preventative effect. Based on five longitudinal studies, the researchers reported an approximately twenty percent decrease in risk of physician-diagnosed asthma for individuals in homes with dust control interventions, compared to those in control homes (Russell et al. 2007).

Interventions emphasizing the mitigation of mold and moisture problems in the homes of asthmatic children have also been shown to be effective. In one HUD-supported study, asthmatic children living in homes in which nontrivial mold growth was identified, were randomized into two groups, with one group receiving interventions to address the residential mold/moisture problems. The remediation group showed statistically significant reductions in

symptom days, symptom score, and the need for acute care (Kercsmar et al. 2006). The mean cost of home interventions was $3,458 per home, including the cost of addressing lead-based paint hazards.

Moving families with an asthmatic child into new howing designed to reduce exposure to asthma triggers has also been shown to be effective. HUD-supported research conducted by Takaro et al (2010) demonstrated improvements in asthma symptoms and other indicators for subjects who lived in asthma-friendly Breathe-Easy Homes in addition to receiving traditional in-home asthma education and outreach. Breathe-Easy Homes address multiple asthma triggers by incorporating comprehensive enhancements into the physical structure, including moisture-reduction features, low dust-generating and chemical-emitting finishes, and advanced fresh-air ventilation systems. The authors reported significant improvements in primary (e.g., symptom-free days, FEV_1) and secondary (days rescue medicine used, nights with symptoms) outcomes among BEH occupants.

2, <u>Asbestos:</u> Asbestos is a mineral fiber that has been used commonly in a variety of building construction materials and household products for insulation and as a fire-retardant. The Environmental Protection Agency (EPA) and the Consumer Product Safety Commission (CPSC) have banned most asbestos products. Manufacturers have also voluntarily limited uses of asbestos. Today, asbestos is most commonly found in older homes in pipe and furnace insulation materials, asbestos shingles, millboard, textured paints and other coating materials, and floor tiles. Elevated concentrations of airborne asbestos can occur when asbestos-containing materials (ACMs) are disturbed by cutting, sanding or other remodeling activities. Improper attempts to remove these materials can release asbestos fibers into the air in homes, increasing asbestos levels and endangering the people living in those homes. The most dangerous asbestos fibers are too small to be visible. After they are inhaled, they can remain and accumulate in the lungs. Asbestos can cause lung cancer, mesothelioma (a cancer of the chest and abdominal linings), and asbestosis (irreversible lung scarring that can be fatal). Most people with asbestos-related diseases were exposed to elevated concentrations on the job; some developed disease from exposure to clothing and equipment brought home from job sites. As with radon, dose-response extrapolations suggest that lower level exposures, as may occur when asbestos-containing building materials deteriorate or are disturbed, may also cause cancer.

Intact asbestos-containing materials are not a hazard; they should be monitored for damage or deterioration and isolated if possible. Repair of damaged or deteriorating ACMs usually involves either sealing (encapsulation) or covering (enclosure) it. Repair is usually cheaper than removal, but it may make later removal of asbestos more difficult and costly. Repairs should only be done by a trained professional certified to handle asbestos safely and can cost from a few hundred to a few thousand dollars; removal can be more expensive.

3. <u>Combustion Products of Heating and Cooking Appliances:</u> Burning of oil, natural gas, kerosene, and wood for heating or cooking purposes can release a variety of combustion products of health concern. Depending upon the fuel, these may include carbon monoxide (a chemical asphyxiant), oxides of nitrogen (respiratory irritants), polycyclic aromatic hydrocarbons (e.g., the carcinogen benzo[a]pyrene), and airborne particulate matter. Exposure to carbon monoxide, an odorless gas, can be fatal. Nitrogen dioxide can irritate or damage the respiratory tract, and sulfur dioxide can irritate the eyes, nose and respiratory tract. Improper

venting and poor maintenance of heating systems and cooking appliances can dramatically increase exposure to combustion products. As the principles of "green" construction and rehabilitation become more popular, and homes become increasingly airtight to improve energy efficiency, there are concerns about potential indoor air quality trade-offs (Selgrade et al. 2006).

Experts recommend having combustion heating systems inspected by a trained professional every year to identify blocked openings to flues and chimneys, cracked or disconnected flue pipes, dirty filters, rust or cracks in the heat exchanger, soot or creosote build-up, and exhaust or gas odors. Installing a carbon monoxide detector is also recommended; however, such a detector will not detect other combustion by-products.

4. Secondhand Smoke (SHS): Secondhand smoke (also known as environmental tobacco smoke) results from the combustion of tobacco products and exhalation of inhaled tobacco smoke by active smokers. Tobacco smoke contains as many as 7000 individual compounds, including formaldehyde, carbon monoxide, nicotine, nitrosamines and polyaromatic hydrocarbons, with nearly 70 compounds identified as carcinogens (US DHHS, 2010; IARC, 2004). Exposure to SHS has been associated with numerous adverse health effects, including multiple types of cancer, coronary heart disease, asthma, respiratory tract infections and others. Additionally, exposure to SHS has been estimated to cause approximately 50,000 excess deaths annually in the U.S., including sudden infant death syndrome (Cal EPA, 2005). Children are particularly vulnerable to the effects of SHS. The U.S. Surgeon General's office reported that approximately 22 million children may be exposed to secondhand smoke in the U.S. (US DHHS, 2006).

Exposure to SHS smoke can be a problem even in rooms or units where smoking does not occur. Van Deusen et al (2009) reported that levels of particulate matter (an indicator of tobacco smoke) were elevated in rooms within a home that were distant from the primary room where smoking occurred. In addition, SHS also migrates between units in multi-unit buildings. Kraev et al (2009), measured nicotine in air and air exchange rates in individual units of a lower-income multi-unit building in the Boston area and found measurable levels of nicotine in units where no smoking occurred; King et al (2010) reported similar results in nonsmoking units and hallways as part of a study in Buffalo. Wilson et al (2010) analyzed measurements of cotinine exposure in children (an indicator of SHS exposure) and found that those living in multifamily housing had higher levels than children in detached housing, indicating the contribution from SHS migrating between units of multifamily housing. The collective confirmation on secondhand smoke infiltration into nonsmoking areas indicates that designating entire buildings or homes as nonsmoking is the only way to adequately protect nonsmoking occupants from exposure.

5. Insect and Rodent Pests: The observed association between exposure to cockroach antigen and asthma severity has already been noted above. In addition, cockroaches may act as vehicles to contaminate environmental surfaces with certain pathogenic organisms. Rodents can transmit a number of communicable diseases to humans, either through bites, arthropod vectors, or exposure to aerosolized excreta. In addition, humans can become sensitized to proteins in rodent urine, dander and saliva. Such sensitization may contribute to asthma severity among sensitized individuals. Insect and rodent infestation is frequently associated with substandard housing that

makes it difficult to eliminate. Treatment of rodent and insect infestations often includes the use of toxic pesticides that may present hazards to occupants (see below). Integrated pest management (IPM) for rodents and cockroaches is the recommended control strategy because it minimizes the use of toxic pesticides and instead emphasizes environmental controls such as elimination of harborages, and removing access to food and water. This recommendation was recently confirmed by an expert panel that systematically reviewed the literature on this topic (Sandel et al, 2010). According to the expert panel, sufficient evidence was available to support the implementation of an IPM approach as a way of reducing pesticide residues in the home. A reduction in residential pesticide exposure subsequently would ultimately lead to a reduction in the prevalence of pesticide-associated health issues.

6. Lead-Based Paint and its Hazards: Exposure to lead, especially from deteriorating lead-based paint, remains one of the most important and best-studied of the household environmental hazards to children. Although blood lead levels (BLLs) have fallen nationally, a large reservoir of lead remains in housing. Recent results from CDC's Fourth National Health and Nutrition Examination Survey (NHANES 2002) demonstrate that the national geometric mean blood lead concentration of children aged 1-5 years has decreased from 2.3 g/dL in 1991 to 1.6 g/dL in the period 1999-2002 (CDC 2005). During the 1999-2002 survey period, children aged 1-5 years had the highest prevalence of elevated BLLs (1.6%), so that approximately 310,000 children aged 1-5 years remained at risk for exposure to harmful lead levels. Overall, by race/ethnicity, non-Hispanic blacks and Mexican Americans had higher percentages of elevated BLLs (1.4% and 1.5%, respectively) than non-Hispanic whites (0.5%). Among subpopulations, non-Hispanic blacks aged 1-5 years and aged >60 years had the highest prevalence of elevated BLLs (3.1% and 3.4%, respectively). As BLLs have dropped over the years, recent analyses have examined the relationship between relatively low blood lead concentrations (<10 g/dL) and cognitive functioning in representative samples of U.S. children and adolescents, and have found evidence that suggests that deficits in cognitive and academic skills associated with lead exposure have no threshold (Lanphear et al., 2000; Canfield et al. 2003). These findings clearly support the importance of primary prevention with respect to childhood lead exposure.

Despite dramatic reductions in blood lead levels over the past 15 years, lead poisoning continues to be a significant health risk for young children. Based on results from the HUD- and NIEHS-funded National Survey of Lead and Allergens in Housing (Jacobs et al., 2002), it is estimated that approximately 40 percent of housing units (38 million) in the United States contain lead-based paint. It is further estimated that 25 percent of the nation’s housing stock (24 million housing units) have one or more significant lead-based paint hazards (i.e., deteriorated lead-based paint, lead-contaminated dust, or lead-contaminated soil). 1.2 million housing units were found to pose the highest risk of lead poisoning because they housed low-income families with children under six years of age.

Among HUD grantees, lead hazard control (LHC) costs tend to range from $500 to $15,000 per unit, with a median cost of $5,960. Corrective measures include paint stabilization, enclosure and removal of certain building components coated with lead paint, cleanup and "clearance testing," which ensures the unit is safe for young children. In addition, acute injuries to children have been well documented, most notably in instances involving sanding or stripping of lead-based paint or

visible deterioration of lead-based painted residential building components combined with children who exhibit pica tendencies.

Evaluation of lead hazard control interventions conducted by recipients of HUD's lead hazard control grants found that interventions were effective in significantly reducing pre-intervention dust-lead levels on floors and window surfaces up to six years following intervention (Wilson et al. 2006). More intensive treatments were found to significantly reduce dust lead loadings on window sills and troughs compared to lower level treatments, however, no significant differences in dust-lead loadings on floors were reported. Sandel et al (2010) confirmed these general findings, citing that lead hazard control interventions were effective in reducing exposures to lead exposures. The authors concluded that the evidence was sufficient to promote lead hazard control interventions as a means of reducing lead exposure and associated health effects, particularly in children.

7. Mold and Moisture: An analysis of several pulmonary disease studies estimates that 25 percent of airways disease, and 60 percent of interstitial lung disease may be associated with moisture in the home or work environment. Moisture is a precursor to the growth of mold and other biological agents, which is also associated with respiratory symptoms. An investigation of a cluster of pulmonary hemosiderosis (PH) cases in infants showed PH was associated with a history of recent water damage to homes and with levels of the mold Stachybotrys atra (SA) in air and cultured surface samples. Associations between exposure to SA and "sick building" symptoms in adults have also been observed. Other related toxigenic fungi have been found in association with SA-associated illness and could play a role. For sensitive individuals, exposure to a wide variety of common molds may also aggravate asthma. A recent review by an expert committee convened by the Institute of Medicine found sufficient evidence for an association between exposure to mold and other agents in damp indoor environments and asthma symptoms in sensitized persons, upper respiratory tract symptoms, cough, and wheeze (IOM 2004). The committee also found limited or suggestive evidence for an association between damp indoor environments and the development of asthma. Addressing mold problems in housing requires coordination among the medical, public health, microbiological, housing, and building science communities. Krieger et al (2010) report that an expert panel review of relevant literature on this topic found that a combined approach of eliminating active leaks and moisture intrusion into the home while also removing moldy items already in place was an effective intervention strategy for reducing exposure to mold and associated respiratory health effects. The panel concluded that there was sufficient evidence to support implementation of a coordinated intervention strategy for mold and moisture problems.

The cost of mold/moisture-related intervention work (e.g., IPM, clean and tune furnace, remove debris, vent clothes dryer, cover dirt floor with impermeable vapor barrier) is a few hundred dollars, unless major modification of the ventilation system or structural repairs is needed. For example, in Cleveland, mold interventions, including repairs to ventilation systems and basement flooring, in the most heavily contaminated homes range from $500 to $5,000, with some costs also being dedicated to LHC simultaneously through its lead and asthma program.

8. Pesticide Residues: According to the EPA, 75 percent of U.S. households used at least one pesticide product indoors during the past year. Products used most often are insecticides and

disinfectants. Another study suggests that 80 percent of most people's exposure to pesticides occurs indoors and that measurable levels of up to a dozen pesticides have been found in the air inside homes. The amount of pesticides found in homes appears to be greater than can be explained by recent pesticide use in those households; other possible sources include contaminated soil or dust that migrates in from outside, stored pesticide containers, and household surfaces that collect and then release the pesticides. Pesticides used in and around the home include products to control insects (insecticides), termites (termiticides), rodents (rodenticides), molds and fungi (fungicides), and microbes (disinfectants). In 2005, the American Association of Poison Control Centers reported that some 1.6 million children were involved in common household pesticide poisonings or exposures (AAPCC 2005). In households with children under five years of age, almost half stored at least one pesticide product within the reach of children. Exposure to high levels of cyclodiene pesticides, commonly associated with misapplication, has produced various symptoms, including headaches, dizziness, muscle twitching, weakness, tingling sensations, and nausea. In addition, the EPA is concerned that cyclodienes might cause long-term damage to the liver and the central nervous system, as well as an increased risk of cancer. A recent expert panel review (Sandel et al, 2010) found that implementation of an integrated pest management approach was an effective intervention for reducing pesticide residues in the home and should be implemented in lieu of pesticide application for reducing pests.

There are available data on hazard evaluation methods and remediation effectiveness regarding pesticide residues in the home environment.

9. Radon Progeny: The National Academy of Sciences estimates that approximately 15,000 cases of lung cancer per year are related to radon exposure. Epidemiologic studies of miners exposed to high levels of radon in inhaled air have defined the dose response relation for radon-induced lung cancer at high exposure levels. Extrapolation of these data has been used to estimate the excess risk of lung cancer attributable to exposure to radon gas at the lower levels found in homes. These estimates indicate that radon gas is an important cause of lung cancer deaths in the U.S. Excessive exposures are typically related to home ventilation, structural integrity and location.

Radon measurement and remediation methods are well developed, and the EPA recommends that every home be measured for radon. Sandel et al (2010) conducted a review of the literature and concluded that active soil depressurization beneath the foundation of the structure was an effective method for reducing radon exposures in the home. EPA estimates that materials and labor costs for radon reduction in an existing home are $800-$2,500. Including radon resistant techniques in new home construction costs $350-$500, and can save up to $65 annually in energy costs, according to the EPA.

10. Semi-Volatile Organic Compounds (SVOCs): Several SVOCs are emerging as potential health risks in the home due to their ubiquitous nature in consumer and building products that are produced in high volume and used worldwide. SVOCs exist partially in the gas-phase and emit their respective chemical gradually over time, particularly in the presence of increased temperatures. Two compounds of increasing concern are phthalates and polybrominated diphenyl ethers (PBDE). During recent years, phthalate and PBDE compounds have received

increased scrutiny due to their potential cumulative health risks and increased use in consumer products. PBDE are found in flame retardants, plasticizers, flexible foams and may also be found in children's products. Pthalates are used as plasticizers and are most notable for their use in childrens' products, such as teething rings, food contact items and other flexible polyvinyl chloride (PVC)-based products. The health effect most widely associated with phthalates exposures are reproductive effects, while PBDE have shown toxicity potential in liver, thyroid and neurodevelopment systems.

Exposure to phthalates may occur via many different routes – inhalation, ingestion, water, soil – and may occur in various environments from the home to a place of work. Children are reported to have the highest exposures to pthalates among all age groups (CDC, 2005), along with lower SES households (Zota et al, 2008). Both phthalates and PBDE have been found in house dust; exposure to dust has been reported as the primary route of exposure for PBDE (Wilford et al, 2005; Zota et al, 2008). The presence of both phthalates and PBDE in house dust presents potential risks particularly to young children. Several house characteristics, including older age of house, water leakage and use of PVC in flooring materials, have been identified as significant indicators for potential phthalates exposures (Bornehag et al, 2005). The increased concern over phthalates and PBDE has led to increased regulatory scrutiny. In 2008, the U.S. Consumer Product Safety Commission issued a prohibition on the use of several phthalate compounds above threshold levels in children's toys and items used for childcare. Furthermore, PBDE have been banned at the state level, including in California and Washington.

11. <u>Take-Home Hazards from Work/Hobbies and Work at Home</u>: When the clothing, hair, skin, or shoes of workers become contaminated with hazardous materials in the workplace, such contaminants may inadvertently be carried to the home environment and/or an automobile. Such "take-home" exposures have been demonstrated, for example, in homes of lead-exposed workers. In addition, certain hobbies or workplaces located in the home may provide an especially great risk of household contamination.

Control methods include storing and laundering work clothes separately, and showering and changing clothes before leaving work or immediately after arriving home. Once a home becomes contaminated, cleaning floors and contact surfaces and replacing furnishings may be necessary to reduce exposures.

12. <u>Unintentional Injuries/Fire</u>: In 1997, nearly 7 million persons in the U.S. were disabled for at least one full day by unintentional injuries received at home; for children younger than 15 years of age, unintentional injury is now the leading cause of death and disability. A recent HUD-supported study of deaths among US children and adolescents from 1985 to 1997 found that an average of 2,822 unintentional deaths occurred annually from residential injuries (Nagaraja et al., 2005). The highest death rates were attributable to fires, submersion or suffocation, and poisoning. Black children were two times more likely to die from residential injuries than white children. The elderly are also at an elevated risk for residential injuries. Home visitation protocols have been shown to be effective in reducing exposure to injury hazards. The "add-on" cost of injury prevention measures, when combined with other housing interventions are estimated at about $100 per unit. This includes the cost of some injury prevention devices (e.g., smoke alarms, electrical socket covers, etc.). DiGuiseppi et al (2010) reported on an expert

panel review of seventeen interventions intended to reduce injuries due to residential deficiencies. Installed and properly working smoke detectors were determined to be an effective intervention that should be implemented for reducing fire-related injuries. In addition, the efficacy of four-sided pool enclosures and pre-set safe hot waters heaters were also deemed sufficient for reducing residential-based injuries and should be implemented on a wide scale.

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APPENDIX B -- Relevant Publications and Guidelines

To secure any of the documents listed, call the telephone number provided. If you are a hearing- or speech-impaired person, you may reach the telephone numbers through TTY by calling the toll-free Federal Relay Service at 800-877-8339. A number of these references are provided on HUD's CD, "Residential Lead Desktop Reference, 3rd Edition." This CD can be obtained at no charge by calling the National Lead Information Clearinghouse's (NLIC's) toll free number, 800-424-LEAD. Several of these references can be downloaded from the Internet without charge from the HUD Office of Healthy Homes and Lead Hazard Control's Internet site, www.hud.gov/offices/lead.

A. REGULATIONS:

1. Worker Protection: Occupational Safety and Health Administration (OSHA) publications listed below can be purchased by calling either OSHA Regulations at 202-693-1888 (OSHA Regulations) (this is not a toll-free number) or the Government Printing Office (GPO) at 202-512-1800 (this is not a toll-free number). OSHA standards and other publications can be downloaded or purchased (as applicable) from OSHA's publication web page, http://www.osha.gov/pls/publications/pubindex.list. A broad range of information on construction and other worker protection requirements and guidelines is available from OSHA's home page, http://www.osha.gov/ and from http://www.osha.gov/SLTC/lead/.

2. Waste Disposal. A copy of the EPA regulations at 40 CFR parts 260-268 can be purchased by calling 800-424-9346, or, from the Washington, DC, metropolitan area, 703-412-9810 (this is not a toll-free number). The regulations can also be downloaded without charge from the EPA website at http://www.epa.gov/lead/pubs/fslbp.htm.

3. Lead.

(a) Requirements for Lead-Based Paint Activities in Target Housing and Child-Occupied Facilities; Final Rule: 40 CFR part 745 (EPA) (Lead Hazard Standards, Work Practice Standards, EPA and State Certification and Accreditation Programs for those engaged in lead-based paint activities) can be purchased by calling the Toxic Substances Control Act (TSCA) Assistance Service at 202-554-1404 (this is not a toll-free number). The rule and guidance can be downloaded from the Internet without charge at http://www.epa.gov/lead/pubs/leadcert.htm.

(b) Requirements for Notification, Evaluation and Reduction of Lead-Based Paint Hazards in Federally Owned Residential Property and Housing Receiving Federal Assistance; Final Rule: 24 CFR part 35, subparts B through R, published September 15, 1999 (64 FR 50201) (HUD) can be purchased by calling the NLIC's toll-free number (800-424-LEAD) or downloaded without charge from the HUD website at http://www.hud.gov/offices/lead/library/enforcement/LSHRFinal21June04.pdf.

(c) Requirements for Disclosure of Information Concerning Lead-Based Paint in Housing, 24 CFR Part 35, Subpart A (HUD, Lead-Based Paint Disclosure Rule) by calling the NLIC's toll-free number (800-424-LEAD). The rule, guidance, pamphlet and disclosure formats can be downloaded from the HUD website at http://www.hud.gov/offices/lead/library/enforcement/24CFR35_SubpartA.pdf.

(d) U.S. Environmental Protection Agency. Lead; Identification of Dangerous Levels of Lead; Final Rule at 66 FR 1205-1240 (January 5, 2001). This rule and guidance can be obtained without charge by calling the NLIC's toll-free number (800-424-LEAD) or by calling the TSCA Assistance Service at: 202-554-1404 (this is not a toll-free number). The rule and guidance can be downloaded from the EPA website at http://www.epa.gov/lead/pubs/leadhaz.htm.

(e) U.S. Environmental Protection Agency. Lead; Renovation, Repair, and Painting Program; Final Rule at 73 FR 21692- 21769 (April 22, 2008). As of April 22, 2011, the rule will be fully implemented. This rule and guidance can be obtained without charge by calling the NLIC's toll-free number (800-424-LEAD) or by calling the TSCA Assistance Service at: 202- 554-1404 (this is not a toll-free number). The rule and guidance can be downloaded from the EPA website at http://www.epa.gov/lead/pubs/renovation.htm.

B. GUIDELINES:

Guidelines *for the Evaluation and Control of Lead-Based Paint Hazards in Housing*; HUD. The Guidelines can be downloaded from the HUD website without charge at http://www.hud.gov/offices/lead/lbp/hudguidelines/index.cfm.

Preventing Lead Poisoning in Young Children; Centers for Disease Control, August, 2005. These guidelines can be obtained without charge by calling the CDC toll free number at 888-232-6789. The guidelines can also be downloaded from http://www.cdc.gov/nceh/lead/publications/PrevLeadPoisoning.pdf.

Screening Young Children for Lead Poisoning: Guidance for State and Local Public Health Officials, November 1997; Centers for Disease Control and Prevention (CDC). These guidelines can be obtained without charge by calling the CDC toll free number at 888-232-6789 or they can be downloaded from http://www.cdc.gov/nceh/lead/guide/guide97.htm.

C. REPORTS:

1. Lead

Putting the Pieces Together: Controlling Lead Hazards in the Nation's Housing, (Summary and Full Report); HUD, July 1995. A copy of this summary and report can be purchased by calling 800-245-2691 toll free or downloaded from http://www.cdc.gov/nceh/lead/guide/1997/pdf/p112.pdf.

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2. Healthy Homes

Healthy Housing Reference Manual; HUD/CDC, 2006. A copy of this manual can be downloaded from the CDC website without charge at www.cdc.gov/healthyplaces/healthyhomes.htm.

The Healthy Homes Initiative: A Preliminary Plan (Summary and Full Report); HUD, July 1995. A copy of this summary and report can be downloaded from the HUD website without charge at www.hud.gov/offices/lead.

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D. PAPERS

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APPENDIX C: Resources for Designing and Implementing Healthy Homes Projects

HUD encourages applicants to incorporate the following elements in designing, implementing and evaluating a project for the assessment and remediation of housing-related environmental health and safety hazards that result in illnesses to children.

For each activity that you incorporate, you will need to collect standardized data, as applicable to your project. These data may include pre- and post-intervention information (e.g., environmental sampling, housing conditions, educational or training information, and health outcome data).

HUD strongly encourages applicants to use data collection instruments that have been used extensively in the field and subjected to validation. You must also keep detailed records of costs associated with project activities to quantify the cost effectiveness of desired outcomes.

Examples of data collection instruments and sources of best practices include:

1. Asthma and Other Respiratory Hazards

The "Home Environmental Checklist" and specific protocols used by Public Health – Seattle & King County at: www.metrokc.gov/health/asthma/healthyhomes/.

The environmental assessment survey for asthma/respiratory health developed for use in public housing (may also be appropriate for general multifamily housing) by the "Healthy Public Housing Initiative" at: www.hsph.harvard.edu/hphi/surveytraining.HTM

The American Academy of Pediatrics (AAP) instrument for assessing childhood asthma, available from AAP at: www.aap.org/research/instrumentoutcome.htm.

The National Healthy Homes Training Center and Network "Pediatric Environmental Home Assessment (PEHA)" instrument designed for public health and visiting nurses, available at: http://www.healthyhomestraining.org/Nurse/PEHA.htm.

EPA's Indoor Environments Division-sponsored Asthma Health Outcomes Project (AHOP), which identified the common components of effective asthma intervention programs, available at: http://cmcd.sph.umich.edu/assets/files/final AHOP report.pdf.

The EPA-sponsored Communities in Action for Asthma-Friendly Environments (CAAFE), a forum for exchanging asthma intervention program best practices through a peer to peer online network, which includes change concepts to evaluate asthma program progress, available at: www.asthmacommunitynetwork.org

2. Home Injury Hazard Assessment

The healthy home checklist that includes a childhood (and elderly) injury assessment instrument, on the OHHLHC's web site under "Healthy Homes Program Resources" at: www.hud.gov/offices/lead/hhi/hhiresources.cfm.

The results of the National Council on Aging's "Creative Practices in Home Safety Assessment and Home Modification Study" highlights injury assessment and intervention programs for the elderly, available at: www.healthyagingprograms.org/resources/Creative_Practices-HomeSafetyReport.pdf.

3. Mold and Moisture Assessment and Intervention

The mold and moisture assessment tool developed by the Cuyahoga County Department of Development is available on the OHHLHC's web site under "Technical resource materials" at: www.hud.gov/offices/lead/hhi/hhiresources.cfm.

The "Home Moisture Audit" is available from Environmental Health Watch at: www.ehw.org/Healthy House/HH Moist Audit.htm.

The tested mold and moisture home interventions available from Environmental Health Watch at: www.ehw.org/HealthyHouse/HHUMMPSummary.htm.

EPA's "A Brief Guide to Mold, Moisture, and Your Home" EPA 402-K-02-003, 2002 Available: http://www.epa.gov/mold/moldguide.html; and http://www.epa.gov/mold/pdfs/moldguide.pdf Also available in Spanish: http://www.epa.gov/mold/pdfs/moldguide_sp.pdf

The WHO Guidelines for Indoor Air Quality: Dampness and Mould; ISBN 798 92 890 4168 3, 2009, available from: Publications; WHO Regional Office for Europe; Scherfigsvej 8; DK-2100 Copenhagen O, Denmark; or http://www.euro.who.int/document/E92645.pdf

Recognition, Evaluation, and Control of Indoor Mold, Edited by Bradley Prezant, Donald M. Weekes, and J. David Miller; Product ID: 2008; IMOM08-679; ISBN: 978-1-931504-91-1 American Industrial Hygiene Association, 2700 Prosperity Ave., Suite 250, Fairfax, VA 22031 https://webportal.aiha.org/Purchase/ProductDetail.aspx?Product_code=a736ed35-e059-df11-ba2b-005056810034

4. Integrated Pest Management (IPM)

Guidance on IPM interventions is available from the U.S. Environmental Protection Agency's web site at www.epa.gov/oppfead1/Publications/Cit_Guide/citguide.pdf, and related web pages.

Northeastern IPM Center's Integrated Pest Management for Multifamily Housing; http://www.stoppests.org/

USDA's National Institute of Food and Agriculture;http://www.csrees.usda.gov/nea/pest/pest.cfm