



CITY OF CHARLOTTE
NEIGHBORHOOD & BUSINESS SERVICES

SAFE HOME PROGRAM

CONTRACTOR'S

GUIDELINES

AND

SPECIFICATIONS

July 16, 2014

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PART I: SAFE HOME PROGRAM

1.0 Administration

1.1 General Information about the Safe Home Program

The City of Charlotte (City) receives federal funds to provide property rehabilitation for residents in the community. More specifically, the Safe Home Program is designed to assist senior citizens, handicapped citizens and low income families to correct code violations that will impede the health and safety of the Owner upon review and approval by the City staff. This program is not designed for upgrading, remodeling or room additions. Guidelines for implementation of the following programs are included in this document.

- Safe Home Emergency Repair
- Safe Home Stabilization
- Safe Home Rehabilitation
- LeadSafe Charlotte Lead Hazard Control

1.2 Contractor’s Guidelines and Specifications

The City of Charlotte Neighborhood & Business Services Safe Home and LeadSafe Program Contractor’s Guidelines and Specifications (manual) has been developed to serve as an explanation of methods and materials to be used in the City’s community development programs related to the improvement of existing homes and construction of new residential dwellings. The manual is adhered to in its entirety when being administered by the City’s Housing Rehabilitation Specialists performing work generated internally and being managed directly by Safe Home Program staff. In addition, the following sections are also **required** to be used by our partners and subrecipients, as a standard for materials and performance of work:

Part I- SAFE HOME PROGRAM

2.0 Qualification, Evaluation and Approval of Contractor

2.1.2 Required Documentation

2.1.3 Performance References

2.1.4 Material Supplier References and Financial Institution References

2.1.5 Licenses

2.2 Certifications and Policies

2.2.1 General Labor Standards Compliance

2.2.2 Certifications

2.2.3 Section 3 Clause

2.2.4 Davis-Bacon Act/Copeland Act/Fair Labor Standards Act

2.2.5 City of Charlotte Small Business Enterprise (SBO) Requirement

2.2.6 Equal Opportunity

2.2.7 Minority/Disadvantaged Business Enterprises

2.2.8 Hazardous Materials

2.2.9 EPA Renovation, Repair and Paint Rule

2.2.14 Permits and Codes

2.3 Performance Criteria

Part II- LEAD HAZARD CONTROL

Part III- CONSTRUCTION SPECIFICATIONS

Part IV- STANDARD TREATMENTS FOR HISTORIC DISTRICTS

City partners are highly encouraged to review all aspects of the manual and follow all practices as closely as possible. The manual is based on the combined criteria of various sources: the state, national, and the uniform model codes; the ordinances, regulations and other requirements, all as adopted, or established, by the City and where stated, the specifications and standards developed by the various manufacturers and trade organizations in the industry.

It is intended that the manual be maintained and amended as needed. Every attempt will be made to notify participants in the City's Neighborhood & Business Services Department (NBS) programs of any future changes through distribution of the manual at pre-bid conferences and by distribution upon Contractor request. However, NBS reserves the right to make revisions without guarantee of timely notification.

In the event there are issues of doubt or disagreement regarding materials or methods utilized in housing improvement projects, the Rehabilitation Specialist, with the support of the applicable City Department, will rely on the manual and on the applicable building and development codes adopted by the City in making a determination. The decision of the City will be final.

Any exemptions or deviations from the requirements of these standards shall require prior written approval from the Rehabilitation Specialist. Exemptions or deviations will be approved only when it is clearly evident that the materials and methods to be used meet the minimum requirements of the applicable development codes.

All work shall meet or exceed the following codes, standards, and ordinances, as adopted by the City of Charlotte, in effect at the time of construction:

- North Carolina State Residential Building Code
- North Carolina State Plumbing Code
- North Carolina State Mechanical Code
- North Carolina State Electrical Code
- City of Charlotte Minimum Housing Code
- City of Charlotte Zoning Ordinance
- North Carolina Small Cities CDBG Rehabilitation Standards (where applicable)

1.3 Contractor Code of Ethics

- Contractor shall use common sense by assessing the situation carefully and act on good judgment
- Contractor shall treat all citizens with courtesy, fairness and respect
- Contractor shall avoid real or potential conflicts between City personnel and private responsibilities
- The Homeowner must be our principal concern
- Contractor shall keep City personnel informed of any activity that may be perceived as conflict of interest
- Contractor shall avoid soliciting or receiving anything of value which may influence their performance of official duties

1.4 Authority and Responsibility

The “**City**” referred to throughout this manual shall mean, either singly or as a group, a specific program(s), policy(s) and practice(s), and/or a specific Department(s), Division(s), Section(s) and staff person(s), of the “City of Charlotte.”

“**Mecklenburg County Code Enforcement**” hereinafter called the “**Local Building Inspector**” is the designated administrative authority that checks and approves plans and issues permits to allow performance of property improvement projects, and which approves the work performed under the specific permit(s) issued for said projects, all in accordance with the adopted codes of the State of North Carolina.

“**Neighborhood & Business Services (NBS)**” facilitates the creation of various neighborhood programs and projects, administers the funding of the City’s Housing Rehabilitation Programs and projects (Safe Home and LeadSafe Charlotte), and manages and approves the completion of projects, performed under a contractual agreement, in accordance with the standards stated in said contractual agreement and in the manual.

The City shall serve as the “**Homeowner’s Representative**,” responsible for the administration of the work, and shall be called Rehabilitation Specialist throughout the manual.

The “**Rehabilitation Specialist**” is the staff member of the City who is assigned to act as the Homeowner’s Representative with the duty to manage and operate specific assigned housing rehabilitation programs and projects, with the support of various City staff. The Rehabilitation Specialist shall serve as the project quality control inspector and coordinator, carrying out all the functions of contract administration, oversight, and approval of Change Orders with the goal of providing project quality in accordance with this manual, and providing timely construction scheduling and completion. With assistance from appropriate City staff, the Rehabilitation Specialist shall interpret the adopted codes of the State Building Code, Chapter 11 of the City of Charlotte Minimum Housing Ordinance and the general provisions and construction specifications included herein. The Rehabilitation Specialist shall not take the place of the appropriate Local Building Inspector, who shall serve as the ultimate local authority regarding interpretation of the applicable of State Building Code development codes and ordinances.

The “**Contractor**” is both of the following:

- The name of the building construction company and its Homeowner(s) performing a project under an executed contract; and
- The unlicensed or state licensed building Contractor, and/or Subcontractor, or authorized representative who has signed and executed the project contract documents. The Contractor shall perform all work described in the Scope of Work (line item specifications and plans), in accordance with the contract documents and the general provisions and specifications included herein. The Contractor shall perform as project manager, maintaining continuous contact with the Homeowner and the Rehabilitation Specialist regarding the project status and any problems. The Contractor shall attempt to resolve minor problems with the assistance of the Homeowner when the task and the solution are nominal and implied in the scope of work and general provisions, without reliance on the expertise of the Rehabilitation Specialist or Local Building Inspector.

The “**Homeowner**” is the legal Owner of record who enters into a contractual agreement with the Contractor and the City for a housing improvement sponsored by the City. The

Homeowner shall make decisions and choices with the assistance of the Contractor regarding minor problems, general progress of the project and those items which require choice of color (and style, if applicable), and with the assistance of the Rehabilitation Specialist regarding changes in the original Scope of Work and general progress of the project. The Homeowner shall cooperate with the Contractor in a manner that will allow the work to progress as rapidly as possible, as outlined in Attachment "A" to the applicable Residential Rehabilitation Work contract.

1.5 Pre-Qualified list of Contractors and Solicitation

The list for General, Residential, Lead Based Paint Abatement and/or Asbestos Lead Contractors will be maintained and developed through open solicitation

Applications for inclusion on the Contractor's lists can be obtained by calling 704-432-2321 or by visiting

<http://charmeck.org/city/charlotte/nbs/housing/Pages/ContractorResources.aspx>

2.0 Qualification, Evaluation and Approval of Contractor

2.1 Minimum Requirements for Qualification

2.1.1 Contractor Designations/Classifications/Licensing

The City will maintain lists that correlate with the North Carolina General Contracting and Licensing Requirements.

- General Contractors – to include limited, intermediate and unlimited licensed building and residential Contractors
- Residential Contractors – to include general Contractors that have not obtained a license with the State of North Carolina and will not be able to bid on estimated projects over \$30,000
- Lead Based Paint Lead Contractors- to include Certified Lead Abatement Firms with appropriately licensed individuals
- Asbestos Abatement Contractors- appropriately licensed individuals

For Environmental testing firms and trades, an annual Request for Qualifications (RFQ) is issued, and up to three Contractors will be chosen in each category to serve the Safe Home Program needs for one year.

** (Exception-The LeadSafe Charlotte Program bids an Environmental Testing contract at the start of each three year grant. This Lead Testing Contractor will perform all lead testing, risk assessment and clearance services specifically for The Leadsafe Charlotte Program. The environmental testing firms mentioned above are utilized for the other Safe Home Programs.)

Trades to include, but not limited to North Carolina licensed Contractors for:

- Electrical
- Plumbing
- Mechanical
- Roofing
- Carpentry

- Lead Based Paint Testing
- Asbestos Testing

The City shall maintain a file of each Contractor's current State License (if applicable) and current registration form to document valid inclusion of the Contractor's name on the City's Pre-Qualified List of Contractor's. Also, prior to award of any rehabilitation, the Contractor must furnish proof of a current City Business Privilege License and the required liability and worker's compensation insurance coverage.

2.1.2 Required Documentation

Prospective Contractors are required to provide copies of each of the following documents along with the Contractor's application:

- Identification - Two forms of identification are required, one of which must contain a picture of the applicants. Photo copy of driver's license is sufficient
- Insurance - Certificates of insurance will be required for the Scope of Work performed, and include the following requirements:
 - Automobile: Bodily injury and property damage liability covering all owned, non-owned and hired automobiles for limits of not less than \$1,000,000 combined single limit – bodily injury and property damage combined
 - Commercial General Liability not less than \$1,000,000 bodily injury each occurrence/aggregate and the limits shall apply on a per project basis. The City of Charlotte must be named as an additional insured under the commercial liability insurance for operations or services rendered under this Contract
 - Workers' Compensation: Shall meet the statutory requirement of the State of North Carolina, and Employers' Liability in an amount of \$100,000 each accident and disease – each employee and \$500,000 disease policy limit providing coverage for employees and Homeowners
 - Contractor's Pollution Liability: If lead hazard control or asbestos control work is conducted, the Contractor must obtain insurance with limits of not less than \$1,000,000 per claim or per occurrence. The City must be listed as an additional insured
- When certain work is performed within 50 feet of rights-of-way owned by railroads, North Carolina Department of Transportation or other agencies, both the Contractor and any Subcontractors may be required to furnish individual insurance certificates made in favor by the railroad, with limits established by that entity

2.1.3 Performance References

Furnish a minimum of three references from previous work contracted and completed by you within the last six months. References must be from jobs that display your ability to successfully complete jobs similar to the ones you will be applying for through this office.

2.1.4 Material Supplier References and Financial Institution References

Applicant must submit a letter from a Financial Institution and credit references from at least one material supplier. The following is a guideline that will be used during the application evaluation process. We encourage new Contractors to have a minimum cash/credit working capital or a combination of the two at the time of original application submission.

- **Lead Contractors** = \$15,000.00 (minimum \$6,000.00 in cash or accounts receivables and \$9,000.00 in available credit from suppliers / creditors)
- **Asbestos Abatement Contractors** = \$15,000.00 (minimum \$6,000.00 in cash or accounts receivables and \$9,000.00 in available credit from suppliers / creditors)
- **General Contractors** = \$15,000.00 (minimum \$6,000.00 in cash or accounts receivables and \$9,000.00 in available credit from suppliers / creditors)
- **Subcontractors / Specialty Trades**= \$8,000.00 (minimum \$3,200.00 in cash or accounts receivables and \$4,800.00 in available credit from suppliers/ creditors)

2.1.5 Licenses

The Contractor is required to provide current copies of the following licenses and certificates along with the application:

- City of Charlotte Business Privilege License
- Certificate of Good Standing from the NC Secretary of State
- RRP Firm Certificate
- NC State applicable licenses (General Contracting, Specialty)
- Lead Firm Certificate (as applicable)
- Lead Certifications for employees
- Asbestos Certifications

2.1.6 Evaluation and Approval of Contractors

The application and submitted documents will be reviewed by the Safe Home Program Supervisor. The Safe Home Program Supervisor will verify eligibility for federal funds, licenses and visit client reference projects for quality.

2.2 Certifications and Policies

2.2.1 General Labor Standards Compliance

The Contractor shall comply with all applicable federal and state labor standards, including minimum wage requirements, safety precautions, and employment benefits pertaining to the housing construction trades.

2.2.2 Certifications

The City requires the following Certifications for all Contractors (Attached to Application Package):

- Drug Free Workplace Certification
- Lobbying Certifications
- Non-Discrimination Certification
- E-Verify

The failure to adhere to the above City certifications requirements may result in withholding or denial of contract/written agreement reimbursements.

2.2.3 Section 3 Clause

The work to be performed under each rehabilitation/new construction contract is funded under assistance from the Department of Housing and Urban Development and is subject to

the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u. Section 3 requires that to the greatest extent feasible opportunities for training and employment be given lower income residents of the project area and contracts for work in connection with the project be awarded to business concerns which are located in, or owned in substantial part by persons residing in, the area of the project. Contractors are highly encouraged to provide these opportunities as noted.

2.2.4 Davis-Bacon Act/Copeland Act/Fair Labor Standards Act

Work performed during implementation of the Safe Home Programs may be subject to Davis-Bacon minimum wage legislation or contract work hours and payroll legislation, as covered in HUD 4010, Federal Labor Standards Provisions. The Contractor and his Subcontractors will, however, are bound by Sections 5 and 6 of 29CFR3, Copeland Act requirements, which concern eligible payroll deductions and "kickbacks" in the payment of wages, and by applicable provisions of the Fair Labor Standards Act. Any questions concerning this requirement should be directed to the Contractor List Coordinator.

2.2.5 City of Charlotte Small Business Enterprise (SBO) Requirement

All Contractors meeting the criteria to become a registered Small Business Enterprise (SBE) according to the stated City SBO guidelines must complete the City's formal SBO registration process to be eligible to submit bids for rehabilitation and receive consideration as such.

2.2.6 Equal Opportunity

During the hiring of employees for the performance of work covered by these provisions, the Contractor shall not discriminate against any citizen in the employment of a person qualified and available to perform the work under a specific contract, by reason of race, color, religion, sex, age, disability, national origin, or ancestry. The Contractor shall not discriminate, intimidate, or retaliate against any employee hired for the performance of work governed by these provisions on account of race, color, sex, age, disability, national origin, or ancestry. The Contractor shall include this equal opportunity clause in all subcontracts entered into under the terms of these provisions.

2.2.7 Minority/Disadvantaged Business Enterprises

It is the policy of the City to take affirmative action to ensure that minority and disadvantaged business enterprises are given the opportunity to participate in the provision of services required for federal grant programs administered by the local authority. The City will inform the historically underutilized business enterprise (HUB) coordinator with the NC Division of Purchase and Contract of all solicitations for rehabilitation work. Additionally, the City maintains a list of small and minority-owned Contractors available for rehabilitation and new construction Subcontracting.

2.2.8 Hazardous Materials

The Contractor is cautioned that the contract specifically excludes the removal of asbestos building materials, and holds the Contractor liable for any claims arising from asbestos removal by the Contractor self, his employees, or Subcontractors. If asbestos building materials are in evidence and need to be removed, contact the Rehabilitation Specialist immediately. Additionally, the use of lead-based paints for any interior or exterior use is absolutely prohibited, and the Contractor is cautioned that the rehabilitation contract holds the Contractor liable for any claims arising from lead based paint hazard reduction procedures called for in the Scope of Work.

If the Contractor encounters any materials considered or suspected of being hazardous, he shall immediately secure the area and contact the Charlotte-Mecklenburg Hazardous Materials Coordinator, telephone 704-336-2461 for further instructions.

Guidelines are outlined in Part II of this manual for all lead hazard control work required by any City home improvement program.

Contractors shall ensure that all lead based paint hazard reduction work is accomplished in accordance with the current EPA regulations concerning lead worker training and safety (40 CFR Part 745 Lead; Renovation, Repair, and Painting Program; Lead Hazard Information Pamphlet; Notice of Availability; Final Rule, and Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing).

2.2.9 EPA Renovation, Repair and Paint Rule

NBS requires that all approved Contractors be NC EPA certified for the Renovation, Repair and Painting Program (RRP) that mandates that Contractors and others working for compensation, in homes and child-occupied facilities built before 1978, must be trained and use Lead Safe Work practices.

2.2.10 Contractor Performance

Contractors meeting the above prerequisites will be placed on the Contractor list for a period of one year. Contractors who perform satisfactorily will be provided regular opportunities to bid on NBS work. If at any time the Contractor's performance be determined to be unsatisfactory, the Contractor shall be removed from the list.

2.2.11 Utility Use by Contractor

For rehabilitation projects, the Homeowner will make existing house utilities available, without charge, to the Contractor including electric power, gas, heat, water, up to 10% over proven normal usage. If required both temporary electric service and the fixed meter/meter base/masthead shall be obtained, and paid for, by the Contractor.

2.2.12 Secured Storage Cost and Responsibilities

2.2.12.a Homeowners Responsibilities

The Homeowner will be responsible for the boxing-up of breakables, personal items and clothing that must be removed to complete the work. If the Homeowner is incapable of packing the items, the City will provide a professional moving and storage company to pack the items. The moving and storage company will be responsible for moving such boxed items, furniture, appliances, furnishings, etc., to another location in the home (and returning them to their original location), or if secured storage is provided, moving such items into and out of the storage facility, whether on-site or off-site.

2.2.12.b Contractors Materials and Equipment Storage

The Contractor shall be responsible for locating and providing storage areas for construction materials and equipment. The material and equipment storage shall comply with all local and state ordinances throughout the contract period. The Contractor shall restore the storage area to its original condition upon completion of the Project or upon such time as directed by the City. Such restoration shall be at no additional cost to the City.

The Contractor shall be responsible for the safeguarding of project materials and equipment against fire, theft and vandalism and shall not hold the City responsible in any way for the occurrences of same. The Contractor shall furnish and erect, at no additional cost, protection for the public, including but not limited to barricades, fences, etc. Prior to final payment being made, the Contractor shall obtain a release from the property Homeowner of the storage area utilized for the Project.

2.2.13 Scope of Work and Construction Specifications

The Scope of Work constitutes the basis for each job. Various items in the write-up refer to the Construction Specifications, which detail methods of application and standards for materials. Unless otherwise explicitly indicated in the Scope of Work, the Construction Specifications will be followed without variation. No verbal interpretations of the Construction Specifications will be made for bidding purposes or during construction without confirmation in writing by the Rehabilitation Specialist. No changes in the Scope of Work will be considered valid without a signed Change Order.

Floor plans and other drawings are diagrammatic only, illustrating the general scope of the work, and do not show all of the work required, exact dimensions, or construction details.

Where repair of an existing component is called for by the Scope of Work, the item is to be placed in "equal to new condition," either by repair or replacement. All damaged, loose or rotted material associated with the required repair shall be removed and replaced and the finished work shall match adjacent work in design, dimension and finish.

All work to be done shall be pursuant to all applicable codes, regulations, and city policies as they may be interpreted by the Rehabilitation Specialist.

Cost allowances for various items may be provided. Whenever such cost allowances are provided, the Contractor will be required to document the actual costs of these items. An adjustment in the contract amount will be made by change order during the construction phase to reflect differences between the allowances and the actual costs, if any such differences exist.

2.2.14 Permits and Codes

It is the responsibility of the Contractor to determine the necessity of permits. The Rehabilitation Specialist has no authority to advise whether or not a permit is required for work. The Contractor is expected to secure all necessary permits (building, lead and asbestos, plumbing, mechanical or electrical) before the start of work. The Contractor should make allowance for permitting costs in the bid. The Contractor shall also be responsible for providing any architectural drawings required by the Local Building Inspector, if reference to such drawings is made in the Scope of Work. While failure to obtain necessary permits will be grounds for the Rehabilitation Specialist to delay start of the work, no time extension for contract completion will be given. In all operations connected with the work covered by these provisions, all federal, state, county, and local ordinances and laws controlling or limiting the actions of those engaged in the work must be respected and strictly complied with. Mecklenburg County Building permits are required for all jobs over \$5000 and other jobs under \$5000 as required.

Permits for Lead Hazard Control Program Projects are required and shall be obtained by the Lead Contractor from North Carolina Health Hazard Control (HHCB). The City requires HHCB permitting for all contracts, regardless of exact Scope of Work.

The Contractor shall not be held responsible for the correction of pre-existing violations of any local or state development regulation or building code not addressed by the Scope of Work without compensation through execution of a Change Order; however, current code compliance will be required for any new or replacement work specified in the Scope of Work. The Contractor is encouraged to discuss any concerns related to current building code compliance with the Rehabilitation Specialist and Local Building Inspector to ensure that the finished work is in full compliance with current building codes.

For a list of requirements and costs associated with obtaining a building permit within The City of Charlotte, contact:

Mecklenburg County Code Enforcement
700 North Tryon Street
Charlotte, NC 2802
Main Office Telephone #: (704) 336-2831
Residential Technical Answer Center: (704) 432-7822
Commercial Technical Answer Center: (704) 432-4668
www.meckpermit.com

2.3 Performance Criteria

2.3.1 General Standards

In order for the City to complete housing rehabilitation activities on an efficient basis, specific performance standards and time limits for contract execution and completion have been outlined in the City's written contract. Failure of the Contractor to comply with these performance standards and time limits may result in rejection of bids, awards, and/or contract termination. Failure to maintain the performance standards outlined below will result in removal of current contracts and possible exclusion from the active Contractor's list. The Contractor must demonstrate an ability to accomplish work in accordance with the manual and the NC State Building Code as enforced by local authority. Particular attention will be given to the Contractor's timely completion of work. The City will perform regular checks of the Federal Debarment List to ensure the Contractor has not been debarred.

- The Contractor must have a working record acceptable to the City, as defined by the performance criteria outlined in this section
- The Contractor must perform warranty work in a timely and conscientious manner
- Falsification or alteration of bid and/or contract documents will be grounds for termination of existing work and exclusion from the City's programs
- The Contractor must make regular payments to suppliers and Subcontractors
- The Contractor must ensure that liens are not filed against individual housing units, and that any liens or judgments against the Contractor are satisfied such that they do not affect his financial capability to accomplish rehabilitation work

The Contractor will receive written notification from the City prior to any negative action taken regarding his performance, and may appeal the City's actions.

2.3.2 Inspection of Work

The Homeowner and applicable local, state and federal government and agency, and City representative shall have the right to examine and inspect work included in the Contract, and will inform the Homeowner/Contractor, as applicable, of any noncompliance with the Contract. Also, these representatives shall be permitted to examine and inspect all contracts, materials, equipment, payroll, and conditions of employment pertaining to work, including all relevant data and records. Any orders, or instructions, to the Contractor will be given by the City, on behalf of the Homeowner.

2.3.3 Quality of Workmanship and Materials

All work shall be performed to the standards required by the City. The commonly accepted standards set by the "construction industry" and the "construction trades" are used here only as a basis for establishing the minimum standards to be utilized and enforced by the City. Quality of appearance and durable utility, being the direct result of quality workmanship, shall become a goal of the City's Housing Rehabilitation Programs and of the Contractors participating in the programs. Achievement of quality workmanship shall become a goal accomplished by applying standards of excellence which exceed the commonly accepted minimum standards. The quality of workmanship performed by the Contractor shall be scrutinized prior to acceptance by the City. The decision of the City will be final.

All material shall be new, recently purchased, and in excellent condition. Only the material specified in the specific Scope of Work or the Construction Specifications included herein shall be the material which is used, and only the brand specified shall be the brand used, unless an "or equal" is specified. The Contractor shall obtain approval of "equals" from the Rehabilitation Specialist prior to purchasing and installing the equivalent material.

The Contractor shall furnish all supervision, technical personnel, labor, materials, machinery, tools, equipment, fixtures, and services, including transportation services, and shall perform all required work in an efficient and workmanlike manner. The Contractor shall perform all the construction and rehabilitation work as described in the Scope of Work (Line Item Specifications) and plans, in accordance with the provisions of all the Contract Documents and the manual.

The Contractor is responsible for ensuring that all plumbing and electrical fixtures, switches, and receptacles specified for repair or replacement in the Scope of Work are in proper working order upon completion of the rehabilitation.

Development/building permits, equal opportunity employment, and labor standards posters shall be posted and maintained by the Contractor at the job site at all times for the purposes of viewing by City staff. A copy of the plans and Scope of Work shall be available at the job site at all times.

The Contractor is responsible for any damages caused by encroachment on adjacent properties or on regulated setback areas. Encroachment damage shall be corrected by the Contractor at no cost to the Homeowner or the City.

The Contractor shall exercise due caution in the protection of existing utilities and structures and facilities during the period of construction, unless otherwise indicated on the plans or in the Scope of Work. Facilities include all water, gas and sewer lines, lighting, power or telephone conduits and wires, house connections in place, and other surface and subsurface structures or lines. If, in the performance of the work, the Contractor disturbs, disconnects, or damages any of the above, all expenses of whatever nature arising from such disturbance, or in replacing or repair thereof, shall be paid by the Contractor, unless otherwise stated in the contract documents due to special circumstances.

The Contractor shall obtain and have set, by a registered land surveyor, required property corner monuments for new construction. The Contractor shall obtain and have the finished foundation surveyed by a registered land surveyor, to ensure that the foundation meets all setback requirements and is placed according to site plan approved by the Rehabilitation Specialist. Proof of such survey shall be provided before a payment can be made for any foundation work.

3.0 Awarding Contracts

3.1 Request for Quote

Upon the need for a repair, Environmental Testing Firms and Trades Contractors will be requested to visit the project, review the repair need and submit a final quote. If the quote is in the range acceptable by the Rehabilitation Specialist, work will proceed. The City reserves the right to obtain multiple quotes for each project.

3.2 Invitation to Bid

Contractors that have been pre-qualified and are in good standing with the Safe Home and LeadSafe Charlotte Programs will be invited to attend Pre-Bid conferences.

3.3 Pre-Bid Conference/Delivery of Bid Documents

Contractors shall attend a mandatory Pre-Bid Conference as a prerequisite to bidding on a particular project or projects. Bid packages will consist of Instructions to Contractors, Scope of works/Specifications and Bid Forms. It is the responsibility of the Contractor to attend the Pre-Bid Conference and obtain the bid packages for each project. Those not attending an advertised mandatory pre-bid conference will not be eligible to bid.

3.4 Explanations to Contractors

Any explanation desired by a Contractor regarding the meaning or interpretation of the advertisement for bids, drawings, specifications, etc., must be requested in writing to the Rehabilitation Specialist with sufficient time allowed for a reply to each Contractor before the submission of their bids. Any interpretation made will be in the form of an addendum to the invitation for bids, drawings, specifications, etc., and will be furnished to all prospective Contractors. The Contractor must acknowledge any revision to the bid documents in the space provided on the bid form and it must be submitted with their bid package.

3.5 Conditions Affecting the Work

The Contractor certifies, by submission of a bid or quote, that the Contractor has inspected each property included in his formal bid and has become familiar with the conditions under which the proposed work will be performed and with the requirements of the North Carolina State Residential Building Code and the manual. Contractors should visit the site and take such other steps as may be reasonably necessary to ascertain the nature and location of the work, and the general and local conditions that can affect the work or the cost thereof. Failure to do so will not relieve Contractors from responsibility for estimating properly the difficulty or cost of successfully performing the work. The Rehabilitation Specialist will assume no responsibility for any understanding or representations concerning conditions made by any of its officers or agents prior to the execution of the contract, unless included in the advertisement for bids, the specifications, or related documents.

3.6 Trade or Brand Name

When a trade or brand name for a particular article, fixture, or object is specified in the Scope of Work or the manual, it is meant only as a reference for standards, and any other manufacturer of a similar article, fixture, or object may meet the specification if the Rehabilitation Specialist agrees that the alternative product is reasonably equivalent to the product requested in the written specifications. All Contractor requests for alternative products must be made in writing.

3.7 Preparation of Bids or Quotes

Bids shall be submitted on the forms furnished, or copies thereof, and must be manually signed. If erasures or other changes appear on the forms, the person signing the bids must initial each erasure or change. E-mailed or faxed bids will not be considered, unless written authorization is provided to the Contractor by the Rehabilitation Specialist. The Contractor's Bid Proposal must be properly executed and submitted on the form provided. Bids by Contractors must be received by the Rehabilitation Specialist at the time and place specified on the "Invitation to Bid." The Bid shall be made part of the Contract Documents.

No bid will be considered unless all individual work items on the Bid Form including any addendums are priced. The sum of all work items is equal to the Total Bid Amount. Unless called for, alternate bids will not be considered. Modification of bids already submitted will be considered if received at the office designated in the invitation for bids by the time set for opening of bids.

3.8 Submittal of Bids

Sealed bids will be submitted to the Rehabilitation Specialist Office as directed in the advertisement for bids prior to or at the appointed bid opening time. Bid will be time stamped on the date of delivery. Each bid must be submitted in a sealed envelope bearing on the outside the name of the Contractor, the name of the project for which the bid is submitted, and the date and time of the bid opening. If it is questionable that the Postal Service can deliver your bid prior to the bid opening time, the bid should be hand-delivered. E-mailed bids or faxed bids cannot be accepted without written approval by the Rehabilitation Specialist or other authorized city representative. All bids submitted must be typed or written in ink and signed by the Contractor. All bid forms, an itemized bid summary for each unit, and all requested certifications must be submitted; failure to include all forms may result in rejection of a bid. Valid bids are expected from each Contractor. Submission of "courtesy bids" will be grounds for removal from participation in the applicable housing improvement program. Any bid may be withdrawn without prejudice prior to the official bid opening time. Bids will be submitted to:

**The City of Charlotte
Neighborhood & Business Services
Safe Home Program
600 East Trade St
Charlotte, North Carolina 28208**

3.9 Lowest Responsive, Responsible Contractor

Award of contracts is made to the lowest responsive, responsible Contractor taking into consideration quality, performance and the time specified for the performance of the contract.

- "Responsible" refers to the Contractor (Contractor) and "responsive" refers to the bid
- A bid is "responsive" if it substantially conforms to the specifications. If it has a "material variance," then it does not substantially conform. A material variance is one that if allowed would give one Contractor an unfair competitive advantage over others
- The Contractor is "responsible" if they have the skill, judgment and integrity necessary to the faithful performance of the contract, as well as sufficient financial resources and ability
- A determination that the lowest Contractor is not responsible applies to that particular bid. Broad findings are not made

- All information should be verified and accurate records kept including the sources of pertinent information

3.10 Public Bid Opening

Homeowners and Contractors are encouraged to attend the bid opening specified on the invitation to bid. A copy of bid results will be provided to the Homeowner and all Contractors. The Rehabilitation Specialist collects all bids and presents them at a Public Bid Opening. The Rehabilitation Specialist and a staff witness record all bids on a Bid Opening Certification Record, allowing anyone in attendance to inspect the dollar amounts recorded. The Bid Opening is then complete, and the Rehabilitation Specialist proceeds with verifying the bids.

3.11 Bid Verification and Award of Contract

Procurement procedures for the City's federally funded construction activity carried out during housing improvement grant programs are defined in 24 Code of Federal Regulations 85.36. Award of a contract for each individual housing unit will be made to that responsible Contractor whose bid, conforming to the invitation for bids, is most advantageous to the Safe Home Program, price and other factors considered. As a general rule, the lowest responsive bid within the "bid range" will be accepted. The Safe Home Program may, when in its interest, reject any or all bids or waive any formality in bids received.

Program procedures require that separate bid prices be submitted for each unit to be rehabilitated or constructed and that a separate contract be awarded for each individual unit to be rehabilitated or constructed.

The Rehabilitation Specialist reserves the right to reject low bids and to rescind a bid, which considering factors such as programmatic factors beyond the Rehabilitation Specialist control and a Contractor's inability to meet performance standards outlined herein.

The Contractor is advised that the Rehabilitation Specialist will receive a bid solely on behalf of the Homeowner and that any contractual arrangement for performance of the work will be between the Contractor, the City and the Homeowner. The Rehabilitation Specialist and its agents will neither be a party thereto, nor liable thereon. On behalf of the Homeowner, the Rehabilitation Specialist approves pre-job product submittals, conducts inspections of work in progress, completes final inspections, and ensures building code compliance with the Mecklenburg County Code Enforcement.

The acceptance of the bid and awarding of the contract may be subject to the Homeowner receiving supplemental financing.

4.0 Contract Execution

4.1 Preconstruction Conference and Notice to Proceed

The contract signing shall be conducted on site. Acceptance Forms shall be submitted during pre-construction conference. It is particularly important that the Homeowner be fully apprised. The Rehabilitation Specialist will schedule a Pre-construction Conference with the Homeowner and the Contractor. At this conference the starting date for work will be firmly established, the sequence of work will be reviewed, special situations (such as furniture storage and temporary relocation) clarified, and federal and state contract requirements identified. Pre job product submittals and Subcontractor of the extent of inconvenience that will be experienced as a result of rehabilitation activities. The Pre-construction Conference will include a thorough review of contract provisions related to the resolution of

Homeowner/Contractor disputes that may arise.

4.2 Notice to Proceed

Under no circumstances shall a Contractor initiate work on an individual rehabilitation or new construction project without receipt (by certified mail or hand delivery) of a formal Notice to Proceed from the Rehabilitation Specialist, or without issuance of proper building permits.

It is the responsibility of the Contractor to notify Homeowners and the Rehabilitation Specialist prior to starting the project a minimum of one week in advance. It is the Contractor's responsibility to secure access.

4.3 Homeowner Responsibilities

The Homeowner shall cooperate with the Contractor, the Rehabilitation Specialist, and the Local, State or Federal Building Inspector in a manner that will allow the work to progress as rapidly as possible. The Rehabilitation Specialist shall clearly advise the Homeowner that rehabilitation is not new construction, and that the Contractor will do the best job possible given the existing structural and cosmetic condition of the dwelling and the constraints of the Scope of Work.

When the Homeowner is to continue to occupy the premises during the work, the Homeowner shall cooperate with the Contractor in a reasonable manner to facilitate performance of the work, including abandonment of certain areas as may be essential to the conduct of the work, and moving or removing personal possessions that will interfere with the work.

4.4 Selection of Paints, Materials and Fixtures

The Contractor shall provide the Homeowner with at least three color choices and/or patterns for each specified finish material the Pre-construction Conference. A "Homeowner's Selection of Materials and Finishes" form shall be completed at the Pre-construction Conference. A copy of the form will be provided to the Contractor and Homeowner.

4.5 General Construction Guidelines

The Contractor will be expected to carry out the work activities in accordance with item specification and time limits for individual units as specified in each Contract for Rehabilitation.

- All work will be conducted in a manner to minimize inconvenience to the Homeowner
- The Contractor is advised that an inventory (before and after) is recommended, unless waived by the Homeowner. The Contractor is advised to maintain photographic and video graphic documentation of the condition of household items
- If unavoidable delays are encountered, a time Change Order extending the date for completion of the entire bid package or for an individual unit shall be prepared and executed according to guidelines for Change Orders set forth herein
- Clean-up and removal from the site of all debris and waste material resulting from the work shall be the responsibility of the Contractor who will, upon completion of work daily, and prior to job closing, leave the premises in broom clean condition. All interior and exterior surfaces affected by the rehabilitation work shall be cleaned
- Any damage to the grounds or structure resulting from mobilization of equipment shall be corrected by the Contractor prior to job closeout

- Adjacent properties should be protected from damage. If an adjacent property is affected by any work done by the Contractor, it shall be the responsibility of the Contractor to take whatever steps are necessary to rectify the situation
- Subcontractors shall be bound by the terms and conditions of the contract in so far as it applies to their work, but this shall not relieve the Contractor from full responsibility to the Homeowner for the proper completion of all work

4.6 Change Orders

No variation in the Scope of Work shall be made without a duly approved Change Order, regardless of whether or not any cost is involved. The Change Order will be prepared by the Contractor and the Rehabilitation Specialist, and then signed by the Contractor, the Homeowner, and the Rehabilitation Specialist. No work covered by the Change Order shall be done until the signed Change Order is presented to the Contractor by the Rehabilitation Specialist. Any extra work done without written authority shall be considered unauthorized work done at the expense of the Contractor. Work so done may be ordered by the Rehabilitation Specialist to be removed and replaced at the Contractor's expense. In particular, the Contractor is cautioned not to perform Homeowner requests for additional work, including installation of specialty items, without preparation of a Change Order. Additionally, the Rehabilitation Specialist will not assume responsibility for any approved work directly or indirectly affected by separate, unapproved agreements between the Homeowner and Contractor performed during the contract period, or for the quality of the unapproved Homeowner-financed work itself.

The City may issue a written Change Order that requires the Contractor to furnish extra materials and/or perform additional work not provided for in the Contract Documents, but which may be found necessary to the proper protection and/or completion of the project.

All Change Orders will be negotiated directly by the Contractor and the City's Rehabilitation Specialist based upon line item costs included on the original Contractor's bid proposal. The City will allow a maximum 20% markup on Change Orders performed directly by Subcontractors.

Change Orders shall be invoiced at the end of the project with the final pay request.

4.7 Contract Time and Liquidated Damages

All work covered by an individual contract shall be completed within the number of calendar days specified in the contract for that individual project; contract times will vary based on factors including lead abatement requirements, the size of the structure, and the complexity of the Scope of Work. The Contractor may request, in writing, an additional time extension, documenting reasons for work stoppages and delays beyond his control. Work days lost because of such documented reasons may be added to the day extension period. However, the City will assess liquidated damages as outlined herein in full, unless written requests for time extensions are received and upheld or the contract is terminated in writing by the City or the Contractor as outlined above.

If a Contractor exceeds the specified contract time limit, the City reserves the right to either declare the Contractor in default and terminate the contract, or hand deliver or send by certified mail notification to the Contractor that a specified calendar day time extension has been granted, and notifying the that liquidated damages in the amount of \$150.00 per business day will be deducted from any payment due the Contractor. Liquidated damages will be calculated beginning on the date following the extension deadline and extending to the

date of final inspection and approval of the work. Liquidated damages for contracts exceeding an extension deadline will be utilized to reimburse the City for additional inspection and administrative work associated with the increased construction time.

4.8 Interim Inspections

The Homeowner and authorized city, state and federal government agency representatives shall have the right to examine and inspect work included in any contract financed by the City, and will inform the Rehabilitation Specialist directly of any noncompliance with the terms of the contract. Also, these representatives shall be permitted to examine and inspect all contracts, materials, equipment, payroll, and conditions of employment pertaining to City financed work, including all relevant data and records. However, all orders or instructions to the Contractor will be given directly by the Rehabilitation Specialist on behalf of the Homeowner, not by the Homeowner or by other interested parties. When the Homeowner is relocated, the Homeowner shall properly inform the Contractor of a date and time when the Homeowner wishes to inspect the property. The Homeowner will not be allowed to inspect the property without such notice and schedule. This procedure will ensure the smooth continuation of the work and that the Homeowner will not be exposed to a possible hazardous work environment.

All inspections for Permitted work shall be performed by the Local Building Inspector. Work performed without the required permits and inspections will be subject to scrutiny and possible non-acceptance by the City. It is the Contractor's responsibility to ensure that the necessary inspections are requested and performed.

The Rehabilitation Specialist and the Local Building Inspector will make periodic visits to the job site during construction. The Contractor will be expected to fully cooperate in the conduct of these inspections. If the Contractor is not on the job, he shall designate a responsible person who is regularly on the job to discuss conditions with these authorized representatives.

The Contractor shall furnish the Rehabilitation Specialist with every reasonable opportunity for determining if the work is performed in accordance with the requirements of the contract, particularly in cases where floor framing/foundation work is performed, or interior wiring or plumbing is to be installed. All plumbing (including gas lines), HVAC, and electrical work are to be permitted and performed by licensed Subcontractors. These Subcontractors will contact the Local Building Inspector directly to arrange for inspection and approval of all plumbing, HVAC, and electrical work.

If the Local Building Inspector or the Rehabilitation Specialist so request, the Contractor shall remove or uncover such portions of the finished work as directed. After examination, the Contractor shall restore said portions of work exposed and replace any unacceptable work at his/her expense.

4.9 Final Inspection and Submittals

Final inspections by the Rehabilitation Specialist and the Local Building Inspector will be made before the Final Invoice is submitted by Contractor.

The following documentation shall be submitted to the Rehabilitation Specialist at the Final Inspection:

- Extermination Warranty, if required, and other manufacturers' warranties, Homeowner's manuals, including warranties for hot water heater, gas or oil heater, roofing, siding, and related items. All Warranties must be registered by the Contractor in the Homeowner's name

- Materials and labor lien releases signed by all suppliers and Subcontractors
- Certificates of compliance/occupancy from the Local Building Inspector
- Certificate of proper installation of gas, oil, or wood heater and gas appliances, if applicable; certification of plumbing, mechanical, and electrical inspection
- Documentation to fully satisfy the Rehabilitation Specialist that specified/required cost allowances have been met

The Rehabilitation Specialist will discuss any uncompleted or unsatisfactory work with the Contractor. A Contractor's Punch List will be furnished to the Contractor. Upon completion of the Contractors punch list, the Rehabilitation Specialist will schedule a walkthrough with the Contractor and the Homeowner within 24 hours. Upon approval by the Homeowner the Homeowner Acceptance Statement will be signed and the Contractor may submit their final invoice.

4.10 General Guarantee and Contractor's Warranty

The Contractor will guarantee all work performed for a period of one year from the date of final payment for all work performed under the Contract for Rehabilitation. New roofs will carry a five year warranty.

Manufacturers and suppliers written guarantees and warranties covering materials and equipment furnished under the contract, including proof of purchase documentation, shall be furnished to Homeowner. All warranties must be registered by the Contractor in the Homeowner's name. All warranties shall specifically provide that all defects in material and workmanship appearing during the one-year warranty period, as determined by the Rehabilitation Specialist in case of conflict between the Contractor and the Homeowner, will be remedied to the satisfaction of the Rehabilitation Specialist at no additional cost to the Homeowner. Warranties shall be provided to the Rehabilitation Specialist at final inspection and will be copied and sent to the Homeowner.

When a complaint is received by the City from an Homeowner, a warranty inspection will be made. If the complaint is valid and related to the scope of the original contract, a Warranty Punch List will be transmitted to the Contractor. In many instances, the Contractor will receive the complaint directly from the Homeowner. In either case, the Contractor is expected to respond to the Homeowner courteously and promptly. As soon as the work is completed, the Contractor should notify the Rehabilitation Specialist.

The Contractor shall guarantee all materials and workmanship for a period of one year from the date of acceptance by the City and shall replace any portions that fail because of faulty materials or workmanship at no additional cost to the City and Homeowner. The Contractor shall immediately repair all defective items upon notification. Failure by the Contractor to perform warranty work within a reasonable time frame shall be a basis for withdrawal of contract awards and rejection of subsequent bids. Items repaired under the provisions shall have an extended warranty period of 12 months from the date of repair of the item.

5.0 Default and Termination of Contract

5.1 Declaration of Default

The Rehabilitation Specialist may declare default of contract on the Homeowner's behalf for breach by the Contractor of any material term or condition of the Contract for

Rehabilitation/New Construction Work. Material breach shall include, but shall not be limited to the following:

- Failure to begin work under the contract within the time specified
- Failure to provide workmen, equipment, or materials adequate to perform the work in accordance with the Scope of Work and/or Construction Specifications
- Failure to comply with federal, state, or local regulations/program requirements
- Refusal to replace defective work
- Insolvency or bankruptcy, or failure to secure adequate financing to perform the work
- Failure to make prompt payment to workers, Subcontractors, or suppliers
- Misrepresentation of information included on written contract documents
- Failure to meet workmanship and performance standards defined in the North Carolina State Residential Building Code and the manual
- Failure to maintain satisfactory work progress

The Contractor's performance will be considered unsatisfactory if, at any time during the performance of a specific rehabilitation or new construction project, the percentage of the work completed (in dollars) is less than the percentage of contract time (in calendar days) elapsed by more than 15%. Percentage of work completed will be judged by the Rehabilitation Specialist as the sum of materials and labor used to accomplish satisfactorily installed work in comparison to the total contract amount.

EXAMPLE

Contract Amount \$30,500 **Contract Time** 60 Days

The Rehabilitation Specialist, using the Scope of Work for reference, determines that the total amount of labor and materials spent by the Contractor on satisfactorily installed work is \$4,710.00. This estimate is made on the 20th day following initiation of work.

To determine if progress is unsatisfactory:

(1)	20 days / 60 days	= 33.3% of contract time elapsed
(2)	\$4,710 / \$30,500	= 15.4% of work completed
(3)	33.3% minus 15.4%	= 17.9%
(4)	17.9% is greater than 15%; therefore, the Contractor's progress is considered unsatisfactory.	

5.2 Notice of Default and Settlement of Payment Disputes

The Contractor shall be notified in writing 10 working days in advance of the intention of the Rehabilitation Specialist to declare a Default of Contract. If the violation is not corrected during this period, or if a written protest outlining the Contractor's position is not received by the Rehabilitation Specialist within ten (10) working days of receipt of the intent of the Rehabilitation Specialist to declare Default of Contract, the Rehabilitation Specialist shall terminate the Contract for work.

Should the Homeowner or Rehabilitation Specialist elect to terminate a contract, partial payment shall be made as follows:

- The Contractor shall present the Rehabilitation Specialist with an invoice summarizing labor and materials for work satisfactorily in place
- The Rehabilitation Specialist will review the invoice and recommend payment based on his estimate of work items satisfactorily performed. In no case will the Rehabilitation Specialist make a partial payment after default by a Contractor that exceeds 15% of the Rehabilitation Specialist's base estimate for partial payment, regardless of invoice documentation by the defaulting Contractor
- If no invoice is submitted for partial payment under default, the Rehabilitation Specialist will make partial payment based on the Rehabilitation Specialist's base estimate for work performed

All other contractual disputes shall be settled according to guidelines set forth in the Contract and signed by the Homeowner, the City and the Contractor.

5.3 Termination by Contractor

The Contractor may request time and/or cost Change Orders as necessary due to unavoidable delays because of inclement weather, materials shortages, or unanticipated structural or site conditions. The Rehabilitation Specialist will recommend that the contract be terminated on the Contractor's behalf only under the following conditions:

- It is impossible for the Contractor to obtain critical materials for completion of the contract within a practical time limit
- It is impossible for the Contractor to comply with conditions of the contract due to inclement weather or unforeseen site conditions or unanticipated structural conditions, without a major change in contract scope and/or financial reimbursement

The Rehabilitation Specialist will consider petitions for termination of the contract for the above reasons only upon receiving written documentation from the Contractor. Should the Rehabilitation Specialist elect to terminate a contract on behalf of the Contractor, partial payment shall be made according to guidelines for partial payment under Default of Contract (as stated above).

5.4 General Termination and Legal Remedies

The Contract for work may also be terminated for additional reasons beyond the control of the Homeowner as outlined in Contract. In such case, the Rehabilitation Specialist will provide the Contractor with written notification of termination on behalf of the Homeowner. Settlement of damages accrued by either party shall be as outlined in the Contract.

5.5 Payment Policy

Invoices must contain the following in order to be processed:

- Attention: Waleska Selles NBS
- Program Name (Lead Hazard Control Program or Safe Home Program, whichever applies)
- Vendor Number (VMS number)
- Contract Number
- Invoices need to be on company letterhead
- Invoices need to be detailed and include the address of the location that the work was completed, if applicable

Invoices may not be submitted until the work has been completed. Invoices for Change Orders are handled the same way as above. Failure to submit the invoices as noted may result in a delay in payment.

5.6 Work with a Contract Value Less Than \$10,000

No partial payments will be made for contracts and for standard rehabilitation contracts with a value of \$10,000 or less. Final payment for these contracts will be made as defined below.

5.7 Work with a Contract Value of \$10,000 or More

For units with a Scope of Work with a value of \$10,000 or more, the City will provide up to two partial payments and one final payment. Partial payments will be made based upon 10% less payment approved than work actually performed. This process provides the Rehabilitation Specialist financial leverage with respect to the Contractor's performance but avoids the financial management intricacies of a warranty retainage system. Two partial payments will be approved by the Rehabilitation Specialist following his certification of the specified rehabilitation work has been satisfactorily completed. The Contractor will be paid only for work items in place and completed on the date of inspection for partial payment. Partial payment will not be made for materials on site that are not yet installed. Partial payment shall be made within 30 days of certification of partial completion. It is the Contractor's responsibility to request the Rehabilitation Specialist to accomplish the partial payment inspection.

No partial disbursement shall be made until requested documentation has been received by the Rehabilitation Specialist. This documentation may include, but not be limited to:

- Release of lien by Subcontractors, mechanics, laborers, material suppliers

Properly initialed building permit card and updated County website, indicating approval, when required, at progressive stages of work completion by the Local Building Inspector

5.8 Final Invoice

Upon completion of all work, the correction of all punch list deficiencies and the submission of the required documentation the Rehabilitation Specialist shall authorize the final payment.

PART II: LEAD HAZARD CONTROL

1.0 Administration

1.1 Authority and Responsibility

Neighborhood & Business Services (NBS) facilitates the creation of various neighborhood programs and projects, and administers the funding of the programs and projects (housing rehabilitation, housing development, and other projects), and manages and approves the completion of projects, performed under a contractual agreement, in accordance with the standards stated in said contractual agreements and this manual. The Federal Lead Safe Housing Rule was established by HUD to regulate the control of Lead Based Paint Hazards in housing receiving federal assistance via 24 CFR Part 35. ALL federally funded housing projects must be reviewed by the City and or its partners prior to performing any work. In general, there are requirements for every home constructed before 1978 and subject to renovation.

Some projects involving Lead Based Paint are funded through the federally funded **Lead Hazard Control Program**, while others are not. The procedures stated apply to all projects involving lead based paint regardless of the funding source.

The **Lead Hazard Control Program Manager (Manager)** is the staff member of the department that is assigned with the duty to manage and operate the Lead Hazard Control Program.

The **Rehabilitation Specialist** shall perform as the project coordinator, carrying out all functions of the contract administration with the goal of providing quality and compliance in accordance with the manual, the applicable local, state and federal requirements and providing timely construction scheduling and completion.

The **State of North Carolina Health Hazards Control Branch (HHCB)** is the State agency responsible for overseeing Lead-Based Paint activities, including permitting and accreditation requirements.

The **Testing and Clearance Contractor** is the entity in charge of overseeing inspections, risk assessments and providing clearance inspections and sampling.

The **Lead Contractor** is the certified Lead Based Paint Abatement Contractor hired by the City to perform lead hazard reduction services.

The **Outreach Coordinator** is the staff member that coordinates all activities to educate citizens about the hazards of lead paint.

1.2 Inspection Procedures

Inspections shall be performed as required by the City, State and Federal requirements. Inspections are required for all work performed, and will be provided by the Testing and Clearance Contractor designated by the City. Work performed without the required permits and inspections will be subject to scrutiny and possible non-acceptance by the City. The Lead Contractor will assure that the necessary clearances are requested and performed.

Final Job Inspections and Clearance Sampling shall be performed by the Testing and Clearance Contractor when all work is completed. It is the responsibility of the Lead Contractor to contact the Testing and Clearance Contractor for inspections and clearance

sampling. The Lead Contractor must inform the Rehabilitation Specialist that the job is complete prior to demobilization so a final review of all job requirements can be completed. The Rehabilitation Specialist shall confirm that the job has passed clearance prior to acceptance and approval of the final payment.

2.0 Lead Contractor and Homeowner Responsibilities

2.1 Procedures/Communications

Tenant occupied units must be visited by the Rehabilitation Specialist prior to beginning work. No Lead Contractor shall be given permission to begin work on a tenant occupied unit without approval of the City.

Pre-Job Submittals must be provided to the Testing and Clearance Contractor a minimum of 7 days prior to the projects start date for approval. See Part E of this manual for a list of Pre-Job Submittals. Once Pre-Job Submittals are approved, Lead Contractor will then be given permission to begin work in writing. If the Pre-Job Submittals are lacking, it is the Lead Contractor's responsibility to address the issues as soon as possible so that work can begin as scheduled.

The Testing and Clearance Contractor will give each Lead Contractor a field sheet for each clearance that is conducted. The field sheet documents the site visit and clearance. Both parties will hold on to this field sheet until the final walk through with the Rehabilitation Specialist. After the completion of the walk through, the Lead Contractor will give the field sheets to the Rehabilitation Specialist.

Post-Jobs Submittals must be provided to the Testing and Clearance Contractor within 10 days of completion. The Post-Job submittals shall be handed into the Testing and Clearance Contractor at one time. No partials will be accepted. If the Lead Contractor is having difficulties obtaining any part of the Post-Job Submittals, the Lead Contractor must contact the Rehabilitation Specialist immediately upon job completion or as soon as any problems are discovered. The Rehabilitation Specialist will then assist in obtaining the necessary paperwork. Failure to submit appropriate paperwork will result in holding the final invoice until all paperwork is reviewed.

The Lead Contractor is limited to two clearances per unit. This is to be standard practice. If it is deemed necessary to have more than two clearances, including final vinyl and soil samples, the Lead Contractor should contact the City and the Testing and Clearance Contractor prior to beginning the unit.

The Lead Contractor and the Rehabilitation Specialist will be notified verbally by the Testing and Clearance Contractor of a failed visual clearance immediately, and notified of a failed laboratory clearance as soon as it is indicated. The Testing and Clearance Contractor will fax an explanation of the failed clearance to the Rehabilitation Specialist within 24 hours. The Rehabilitation Specialist in turn will fax the explanation along with an invoice for \$200.00 for the failed clearance. The Lead Contractor will then have an opportunity to dispute the failed clearance. If the Lead Contractor chooses not to dispute the failed clearance, he is required to subtract the invoiced amount from the final payment request with the coordinating address. If the Lead Contractor does not subtract the amount, the Rehabilitation Specialist will automatically subtract the amount upon receipt of the final payment request. If the Lead Contractor chooses to dispute the failure, the Testing and Clearance Contractor and the Rehabilitation Specialist will address the issue together at the work site. The decision of the Rehabilitation Specialist will be final regarding payments for failed clearances.

The Lead Contractor must inform the Rehabilitation Specialist that the job is complete prior to demobilization so a final review of workmanship and confirmation that all job requirements are completed.

2.2 Training Policy

Based on budget availability the Lead Hazard Control Program may provide the training sessions and applicable certification fees for pre-approved Contractors for up to 1 Supervisor and up to 3 Workers, subject to change.

DISCLAIMER

The City of Charlotte funds this training under a grant provided by the United States Department of Housing and Urban Development (HUD). The classes are facilitated by professional trainers who are certified. All Trainers are selected by open bid process, and use technical training course materials approved using federal agency recommendations. The Training Consultant and Trainer are solely responsible for the accuracy of statements and training technique provided. Such interpretations do not necessarily reflect the views of the Government.

3.0 Contract Requirements

3.1 Scope of Work

The Scope of Work shall consist of Line Items of work to be performed. The line item shall provide a description of the work to be performed, as follows:

- The item description will consist of the room numbers and a full explanation of the work to be completed, which component(s) and/or areas are to be addressed, and the specifications
- Additional detailed information will be included in the line item if the manual does not adequately address the given special action required
- The Scope of Work constitutes the basis for each job. Various items in the Scope of Work are cross-referenced to the abatement/reduction specifications which detail methods of application and standards for materials. Unless otherwise explicitly indicated in the Scope of Work, the abatement specifications will be followed without variation. No changes in the Scope of Work will be considered valid without a signed Change Order. No variation in the Scope of Work shall be made without a duly approved change order, regardless of whether or not any cost is involved
- Floor plans and other drawings are diagrammatic only, illustrating the general scope of the work and do not show all of the work required, exact dimensions, or construction details

3.2 Terminology

In this manual, in the Scope of Work, and infield practice, the following definitions shall apply:

“Install” shall mean to provide and install complete, properly in place and secure, including all necessary components, hardware, trim, fittings, and material leaving the item ready for use and fully operable. The installation shall include all necessary modification and repair of existing surrounding materials in order to accommodate the installation. All materials shall be new.

“Remove and Replace” shall mean to remove, prior to installation of the new item, and to

install complete, as described by the term "Install" (see above).

"Enclose" shall mean (unless otherwise specified) to cover plaster or drywall with new drywall, exterior siding with vinyl siding (including tyvek, or equivalent wrap) and other surfaces with the same material as the substrate being enclosed. (HUD's definition of "Enclosure" shall apply when performing this lead hazard control option).

"HUD Guidelines" Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, Second Edition, July 2012.

"Interim Control" for purposes of this manual, to reduce the Lead Hazards on components or areas by ways determined in the Scope of Work.

"Lead Hazard Abatement" for the purpose of these documents, will refer to removal and replacement of components or areas indicated in the Scope of Work, unless otherwise indicated.

"Scope of Work" (Line Item Specifications) shall mean the list of work itemized by line items. The term "Scope of Work" shall be used throughout the manual, as well as in the Contract Documents.

4.0 Lead Based Paint Hazard Control Procedures

4.1 General Requirements

- A copy of the North Carolina Department of Health and Human Services, Health Hazard Control Branch regulations as well as the specification, including Scope of Work shall be available on site whenever work is being performed. The Lead Inspection and Risk Assessment report as well as the applicable local building Permit shall also be posted
- The Lead Contractor shall use material and workmanship appropriate to ensure that all enclosure and encapsulation work will last for at least 20 years under normally anticipated conditions
- All work shall be performed in accordance with applicable regulations and shall meet all applicable building codes. Building permits will be obtained as appropriate. Mecklenburg County requires building permits for Lead Hazard Reduction if the work involves activities subject to permitting under general conducts
- In either the case of "prep and repaint" or "remove and replace" line items in the Contract, the item is to be placed in "equal to new condition" either by repair or replacement. All damaged, loose or rotted parts shall be removed and replaced and the finished work shall match adjacent work in design, dimension and finish
- All finished work shall be acceptable to the City and the Homeowner
- Waste disposal shall be conducted as specified in this manual and in accordance with applicable regulations
- Rework necessary to bring work up to building code standard or to make it acceptable to the City that is the result of any failure of the Lead Contractor, including his lack of knowledge or understanding of any part of the work, shall be the responsibility of the Lead Contractor

- Any water or weather damage resulting from the work shall be the responsibility of the Lead Contractor.
- No exterior work shall be conducted in the rain (other than cleanup) or when wind conditions are expected to meet or exceed 20 mph
- At all times the Lead Contractor shall ensure that unqualified personnel do not enter the controlled area. Where the occupants are not cooperating with the Lead Contractor, the Rehabilitation Specialist shall be notified
- At all times when work is being performed, the Lead Contractor supervisor shall be on site
- Toys or playground equipment shall be removed at least 20 feet from any exterior work or they shall be covered with 6-mil poly
- The Lead Contractor shall be thoroughly familiar with the project requirements, including this specification, prior to submitting a bid or, if no bid was required, prior to agreeing to conduct the work for the agreed upon fee
- The Lead Contractor may request a variance to these specifications prior to accepting this work. Such variance request shall include an alternate procedure and a description of the reason for the requested variance. The Testing and Clearance Contractor shall approve or reject or modify and approve the variance request. The variance shall be requested in writing and approval shall be received in writing
- Disposable clothing of the type used inside a controlled area may not be worn outside a controlled area unless it is clearly and conspicuously marked, "NOT FOR USE IN ABATEMENT AREAS"
- If, in the opinion of the Testing and Clearance Contractor, or Rehabilitation Specialist or Homeowner, a worker or supervisor repeatedly fails to conduct work in a safe manner in accordance with the requirements of this manual, applicable rules and regulations and/or the HUD Guidelines, and the Lead Contractor is issued a written notice describing the reasons for such concern by the Testing and Clearance Contractor or Rehabilitation Specialist and requesting that the offending personnel be removed, the offending personnel shall be removed from the work until such time as the Lead Contractor can satisfy the Testing and Clearance Contractor and the City that they will conduct work appropriately. The Lead Contractor shall have no recourse against the City or the Testing and Clearance Contractor and shall receive no additional allowance of time or money for the work should this option be exercised
- At their option, The City may relocate occupants during the work, but where occupants are not relocated, the Lead Contractor shall still perform the work with due concern for the safety and health of the occupants
- If the Lead Contractor wishes to conduct baseline soil or dust testing, he shall use a North Carolina-certified Testing and Clearance Contractor or risk assessor to collect the samples, and they shall be analyzed by a properly accredited laboratory. Results of such testing shall be submitted to the Testing and Clearance Contractor within 2 days of collection and prior to clearance
- The Abatement Contactor shall have a copy of the Scope of Work and this document shall be on site at all times that work is being performed

4.2 Submittals

4.2.1 Pre-job Submittals

Pre-job submittals will be sent to the Testing and Clearance Contractor at least 7 working days before start of work. Work shall not proceed until the Testing and Clearance Contractor has reviewed the submittals and issued a written notice to proceed. The following is to be included in the package:

- Copies of the executed abatement permit
- A list of personnel expected to work on the project and their functions (worker, supervisor, etc)
- A copy of NC lead abatement certificates for the firm
- A statement signed by an officer of the company that all employees who will work on this project have met all OSHA medical and training requirements for lead work and respirator use
- A copy of the respiratory protection program and the specific determination of respirator requirement for this work, including the rationale for the choice of respirator
- A copy of the occupant protection plan, which will include an explanation of how critical rooms, such as bathrooms and kitchens, will be made available if occupants will be allowed in the residence prior to clearance (the supervisor who is responsible for the work must sign the plan)
- A schedule for the work, including anticipated date of clearance inspection and anticipated date of final completion of all work
- Lead Contractor's EPA Generator number and copy of documentation, if necessary
- Landfill agreement to accept Group II and Group IV waste

4.2.2 Post-job submittals

Post-job submittals should be sent to the Testing and Clearance Contractor within 10 days of completion of work and must contain:

- Any changes or additions to the pre-job submittals
- A statement that materials and workmanship provided for this work meet industry standards, that applicable codes and regulations have been met and that encapsulation and enclosure work can be expected to last 20 years under reasonably foreseeable circumstances provided the property is adequately maintained
- A copy of the plans showing the location of lead-based paint that has been enclosed
- Results of any TCLP testing if applicable
- Any employee airborne exposure monitoring data
- Waste manifests
- Warranties
- Release of liens

4.3 Prohibited Abatement Methods

4.3.1 The following abatement methods are prohibited:

- Open flame burning or torching, including propane fueled heat grids
- Machine sanding or grinding without a HEPA local vacuum exhaust tool manufactured for the purpose (homemade tools not allowed)
- Uncontained hydro-blasting or high-pressure wash
- Abrasive blasting without a HEPA local vacuum exhaust tool manufactured for the purpose (homemade tools not allowed)
- Sandblasting

- Heat guns operating above 1100°F
- Use of methylene chloride containing products
- Dry Scraping

4.4 Removal and Replacement

- Unless otherwise noted, removal of building components shall be conducted as a Class B abatement
- Secure electrical power in the area of the component to be removed
- Lightly mist the component to be removed (if this does not produce an electrical hazard)
- Score painted seams with a sharp knife
- Remove any fasteners
- Use a flat pry instrument and hammer to pry the component from the substrate
- Remove or bend back all nails. Secure any sharp edges
- Wrap the component in at least two layers of 6-mil poly and label it as lead containing material. Take it to a secure storage area as specified in the waste disposal section
- Conduct cleaning operations as specified
- Conduct clearance as specified
- Install the new component after obtaining clearance. Finish the component to match finishes on similar components or on adjacent surfaces. If necessary, repaint walls in the room(s) or on the exterior, to match. Note* Clearance may be conducted after the installation of the new component, at the discretion of the Testing and Clearance Contractor

4.5 Encapsulation

- Encapsulant shall be applied in strict accordance with manufacturer's instructions
- The Lead Contractor shall check the wet film thickness on every surface that is encapsulated to ensure proper coverage. This data shall be recorded in a logbook kept on site. As a minimum, the entries shall include date, time, surface tested and result of the test, signed by the supervisor
- It is recommended that the encapsulant factory representative be asked to come on site to verify conditions and proper application at least once
- If proper surface preparation includes sanding or other potentially dust-producing activity, the work shall be contained as a Class A abatement
- Otherwise, the work may be conducted as a Class D abatement
- The Lead Contractor shall conduct a patch test on each different component type to be encapsulated, as described in the guidelines, to verify that the encapsulant system will work. All results shall be recorded on Form 13.1 or equivalent in the HUD Guide
- If the encapsulant passes these tests, the Lead Contractor will apply another test patch to each component type and notify the Testing and Clearance Contractor that he is ready for encapsulant testing
- The Testing and Clearance Contractor will perform another patch test to verify the results of the first
- The Lead Contractor will repair the site of the patch test via spackling or other acceptable method to make a surface suitable for painting
- If the encapsulant fails the patch test conducted by the Testing and Clearance

Contractor, the Lead Contractor shall be liable for a back charge of \$200 for each Testing and Clearance Contractor visit

- Encapsulant shall not be considered a finish coating. The Lead Contractor shall apply a finish coating that matches the previous coating and is appropriate for the application. The room where the encapsulant is applied shall be repainted so that the previously matched finishes are matching once again
- When applying encapsulant, take measures to protect any items or surfaces in the area
- Conduct cleaning operations as specified
- Conduct clearance as specified

4.6 Enclosure

- Stamp, label or stencil all lead-based painted surfaces that will be enclosed with a warning label every 2 feet both horizontally and vertically on all components. The label should read: "Danger, Lead-Based Paint." Cover warning labels and entire substrate with tyvek wrap
- The work shall be conducted as Class B abatement unless otherwise noted.
- Attach a laminated drawing to a utility room or closet showing where the enclosed lead-based paint is located
- Repair substrates or structural materials that will support the enclosure, as necessary
- Where removal of plasters or other repairs that may cause release of leaded dust and debris are conducted, the work shall be conducted as a Class A abatement
- Unless otherwise specified, cover plaster or drywall with new drywall, exterior siding with vinyl siding, soffit, exterior window trim include tyvek (or equivalent) wrap, and other surfaces with the same material as the substrate being enclosed
- Install drywall or fiberboard on interior walls as follows:
 - Check to make certain that the depth of trim will accommodate the thickness of the drywall (minimum 3/8" preferred) if it does not, contact the Testing and Clearance Contractor prior to proceeding with the enclosure
 - Set up containment
 - Remove any trim being disposed of and install the drywall over any cavity left by the removed moldings up to 16 inches in any direction. Repair structural deficiencies
 - Repair or remove any "soft wall" areas. Note that this may require conduct of abatement as a Class A abatement
 - Use construction adhesive to glue the drywall directly to the surface being enclosed
 - Screw the drywall to the studs behind the existing surface. Caulk all seams except drywall-to-drywall seams, use drywall tape and joint compound to seal these
 - Tape and finish the drywall
 - Prime and paint the finished area as well as the unenclosed surfaces in the same

- room so that all walls (and ceilings if necessary) match the new installation
- Install extensions for all electrical switches and outlets that will penetrate the enclosure
- If enclosure includes floors, HEPA vacuum and remove all foreign material
- Seal and back-caulk all seams and joints
- When installing enclosures directly to a painted surface, use adhesive and mechanical fasteners
- Conduct cleanup as specified
- Conduct clearance as specified
- Installation of new vinyl siding and trim work to be conducted in the presence of a Lead Certified Supervisor
- After installation of new vinyl siding conduct clearance as specified

4.7 Interim Controls

Most Interim Controls will be conducted as Class B abatement. (See Chapter 11 Sections II and III of the HUD Guidelines) Interim Lead Hazard Control measures include but are not limited to:

- Repairing all rotted or defective substrates that could lead to rapid paint deterioration
- Paint film stabilization and stabilization of all deteriorated lead-based paint and repainting

4.7.1 Friction and Impact surfaces

Friction and impact surface treatments – treat floors and interior windowsills and window troughs so that they smooth and cleanable

- In the case of poor window trough condition (i.e. weathered or deteriorated) the window trough should be capped with a trough liner made vinyl or PVC plastic. The liner should be back caulked and nailed into place, see HUD Figure 11.20. The liner will provide a smooth cleanable surface for the resident to clean possible lead dust that may accumulate in the future
- Treat friction and generate impact surfaces, such as windows, doors, stair treads, and floors, when they generate lead based paint chips, excessive levels of leaded dust, or show signs of deteriorated paint
- Doors- ensure smooth operation of door and frame by adjusting hinges, and or misting and planning door to eliminate friction points. Prep, clean and repaint all existing paint
- Stairs- install a hard cleanable covering on treads. Prep, clean and repaint banisters, balusters and newel posts
- Baseboards- remove and dispose of shoe molding and replace. Prep, clean and repaint
- Porches, decks and interior floors- Prep, clean and repaint

Refer to HUD Guidelines Chapter 11 Section VI for treatment of all bare soil containing excessive levels of lead.

4.8 Dust Removal

Dust removal is to be conducted as Class B abatement except that floors, walls and ceilings need not be covered. Conduct cleaning as follows:

- Clean surfaces OTHER THAN carpet, upholstery or drapes by:
 - 5% TSP detergent wash (or approve cleaning product)(3 stage wash)
 - Test surfaces to ensure that cleaning solutions will not damage them prior to cleaning
 - Begin dust removal at the top rear room in the residence, working forward and down
 - Start with the highest horizontal surface and work down
 - Clean windows and other areas where dust may accumulate (dust traps) and finally, the floors
 - Clean dirty areas last within rooms to avoid spreading dust
 - Always change cleaning solutions after completing a room
 - Cleaning procedures described in Chapter 14 of the HUD Guidelines are recommended
- Clean carpets , upholstery or drapes by:
 - Carpets shall be steam cleaned unless specified otherwise
 - Upholstery shall be HEPA vacuumed
 - Drapes shall be HEPA vacuumed and then dry cleaned
 - The Lead Contractor shall warn the Homeowner that dry cleaning of drapes may damage them and that such damage will be the responsibility of the Homeowner. If the Homeowner elects not to have them dry cleaned, then HEPA vacuuming is all that is required
 - Conduct final cleaning as specified

4.9 Cleaning

Cleaning requires use of respiratory protection and protective clothing. The Lead Contractor shall determine the level of protection required (at least half mask with P-100, N-100, O-100 or HEPA filters approved for use with lead dust and fume) and shall document it in the records kept on the job site.

If pre-cleaning is specified, conduct as follows:

- If large paint chips or similar debris is present, mist the material and sweep it up
- Before removal of contaminated carpet, mist it thoroughly with water
- HEPA vacuum all surfaces in the affected area

Daily cleaning is always required and shall be conducted at least as follows:

- If paint chips or other large debris is present, mist it with water and sweep it up
- HEPA vacuum all surfaces in the area
- Always allow sufficient time for cleaning each day
- No visible dust or debris shall remain at the end of the shift
- Repair any rips, tears or other failures in the poly
- Secure all debris and other material. Store it in a locked waste storage facility, not in the residence
- For exterior work, all poly shall be removed daily unless secured within a 6' fence and locked and high winds (≥ 20 mph) are not expected

Final cleaning shall be conducted at least as follows:

- Mist and sweep up debris from floor poly
- Wet clean all poly surfaces
- Remove the top layer of poly from the floor and walls if there is more than one layer, making certain that all debris is contained by removing and rolling poly from ends to the middle
- Wet clean poly surfaces again, if there was more than one layer of floor poly
- Remove and replace outer protective clothing, including shoes or shoe covers.
- Remove remaining wall, floor and ceiling poly, leaving doors and other openings into the work area covered. Make certain that all debris is contained by removing and rolling poly from ends to the middle
- HEPA vacuum all surfaces, then wet wash with 5% TSP detergent or approved cleaning product, then HEPA vacuum again
- Use the recommended wash procedure that is described in Chapter 14 of the HUD Guidelines
- When final cleaning is complete, the supervisor shall conduct a final inspection. If the area does not pass the visual inspection, then repeat the procedure
- When the area passes final inspection by the supervisor, notify the Testing and Clearance Contractor or risk assessor for final inspection. Final inspection may not be conducted until one hour after all cleaning has been completed

4.10 Clearance Testing

- Upon completion of required final cleaning, the Lead Contractor supervisor shall conduct a visual inspection of the work
- When the Lead Contractor determines that the area is visually clean and that all loose or deteriorated paint in the area is removed, he shall remove all poly barriers, except critical barriers over openings. The area shall then be HEPA vacuumed, washed and HEPA vacuumed again. Any furniture or other surfaces that cannot be washed shall be HEPA vacuumed. Carpet covered floors shall be steam cleaned
- The Lead Contractor supervisor shall then conduct another visual inspection
- If the area is found to be clean, the Lead Contractor shall notify the Testing and Clearance Contractor that the area is ready for clearance. Clearance inspections will be provided within 4 hours of contact with the Contractor, provided that contact is made by 1 pm. The supervisor shall ensure that no one enters the work area for at least one hour prior to final clearance inspection and testing by the Testing and Clearance Contractor
- The Testing and Clearance Contractor shall wait at least one hour after anyone has worked in the area to conduct the inspection
 - The Testing and Clearance Contractor shall use disposable coveralls or at least shoe covers
 - The Testing and Clearance Contractor shall conduct the visual inspection and, if the area is free of visible dust, debris and deteriorated paint, he shall conduct clearance testing as described in the guidelines and or required by EPA regulations. Surfaces tested may include:
 - Floors whether carpeted or not

- Window sills
- Window troughs
- Stairs
- Other surfaces for which a clearance standard applies

Note: Soil testing may be conducted as part of the clearance testing for exterior work.

- If any clearance testing fails to meet the clearance criteria specified in the EPA regulations or the guidelines, the Testing and Clearance Contractor shall determine if the entire area should be re-cleaned or only a limited area should be re-cleaned
- The Lead Contractor should assume that the entire area would require rework if any part of clearance testing fails
- If the area fails clearance, the entire cleaning and clearance process must be repeated
- If the area fails lab testing and or visual clearance, the Lead Contractor may be back charged a fee of \$200 regardless of whether any individual sample met clearance criteria or failed to meet clearance criteria

4.11 Waste Disposal

- Waste shall not be stored in the residence overnight
- A layer of 6-mil poly shall cover the path from the work area to the waste storage site
- The storage site shall be locked and secure from tampering or entry by unauthorized personnel
- Waste shall be segregated at least as follows:
 - Group I - Paint chips, dust, contents of HEPA vacuum
 - Group II - Disposable protective clothing, polyethylene sheets, tape, and other containment material
 - Group III - Wastewater
 - Group IV - Removed components
 - Group V - Chemical stripper residue
 - Group VI - Other waste
 - Group VII - Soil
- Groups I, III, V, VI and VII waste must be subjected to TCLP testing prior to disposal. Upon receipt of TCLP results, the waste shall be disposed appropriately
- Groups II and IV need not be subjected to TCLP testing provided the landfill selected for disposal is notified of the nature of the material in writing prior to start of the job and agrees to accept the material, in writing prior to the start of work. A copy of this agreement shall be included in the pre-job submittals
- All waste disposals shall be conducted in accordance with federal, state and local regulations, including those at the disposal site. Note that wastes totaling less than 100 kg or 220 lbs. are exempt from reporting
- The City will secure temporary EPA generator identifications for Homeowners where required but the Lead Contractor will be responsible for disposal

- All waste shall be transported and disposed of in accordance with applicable regulations and the Lead Contractor shall be responsible for such disposal. The Lead Contractor shall indemnify and hold harmless the Homeowner, the City, the Testing and Clearance Contractor and all of their employees associated with this work from claims arising from disposal of the material
- Waste Disposal Manifests:
 - All waste disposals shall be properly documented in accordance with federal, state and local regulations
 - Completed waste manifests shall be submitted to the Testing and Clearance Contractor with post job submittals no later than 30 days after completion of the work
 - All final disposal documentation shall be included with this submittal and the Lead Contractor shall be responsible for ensuring that the disposal site submits any required documentation in time to meet this requirement
 - Where all waste is consumed by the laboratory analysis, the contractor shall so certify in writing and attach it to post job submittals

4.12 Class A Abatement Requirements

This level of control is designed to be used in instances where the health hazard potential due to release of lead contaminated debris into the air or on surfaces is high. Such debris would be expected to include significant amounts of dust. This will be used primarily for interior work but may also be applied to exterior work.

4.12.1 Containment

- HVAC ventilation to the space shall be secured by shutdown or physically disconnecting or blanking off the duct-work
- All openings shall be covered with 6-mil poly as a critical barrier
- Items that are not removed from the space shall be covered with a critical barrier of 6-mil poly
- Floors shall be covered with two layers of 6-mil poly. For exterior work, the ground within the demarcated area shall be completely covered with 6-mil poly. They shall be secured in such a manner as to prevent movement and to be snug against the walls and other surfaces and be dust tight. Corners shall be sharp
- Walls shall be covered with two layers of 6-mil poly, attached as described in Chapter 8 of HUD Guidelines
- Ceilings shall be covered with a single layer of 4-mil poly, attached as described in Chapter 8 of HUD Guidelines
- Do not cover surfaces to be treated

4.12.2 Personnel Decontamination

- A three-stage decontamination unit consisting of a clean side, airlock, shower, airlock and equipment room all separated by standard 3 flap Z-doors shall be attached directly to the containment

- All entry and exit to the work area shall be through the decontamination unit and no one may exist without proper decontamination except during a life/health-threatening emergency
- Decontamination procedures and emergency exit procedures shall be posted in the clean room and in the equipment room
- Outside clothing worn inside the work area may not be worn outside the work area
- Wastewater shall be stored for later treatment or filtered via two stage filters with last filter a 5micron filter. Filtered wastewater may be disposed to the sanitary sewer provided this practice is acceptable to Charlotte-Mecklenburg Utility Department (CMUD). The Lead Contractor is solely responsible for making this determination and securing the required approvals

4.12.3 Control Ventilation

- HEPA equipped general exhaust ventilation shall be used to maintain a negative pressure of 0.02" H₂O and 4 air changes per hour. Negative pressure shall be continuously monitored and recording using a properly maintained and calibrated recording manometer
- Exhaust shall be ducted outside and up at least 10' high and directed upward and away from windows, doors, air intakes and other structures
- A copy of the necessary ventilation calculations shall be maintained in the onsite logbook. At least the following data shall be included:
 - Room area calculations
 - HEPA unit number and capacity
 - Number of calculated air changes per hour
 - Date of data entry
 - Signature of the supervisor responsible for the work

4.12.4 Signage and Barriers

- OSHA required warning signs shall be posted at all entrances to the work area
- Construction barrier tape shall be used to demarcate a secure area of at least 20 feet around any exterior work areas
- If an exterior work area is to be left unattended overnight, a minimum 6' chain link fence or equivalent must be constructed around the work area. With the gate locked
- If an interior work area is to be left unattended overnight, the doors to the work area shall be locked

4.12.5 Respiratory Protection

- A minimum half mask air purifying respirator with high efficiency mechanical filters approved for protection against lead dust or fume shall be used
- The Lead Contractor shall be responsible for ensuring that OSHA required respiratory protection be used at all times
- The Lead Contractor's respiratory protection program with a copy of the Lead Contractor's determination of required respiratory protection shall be on site

4.13 Class B Abatement Requirements

This level of control is designed to be used in instances where the health hazard potential due to release of lead contaminated debris into the air or on surfaces is moderate. Such debris would not be expected to include significant amounts of dust but may include paint chips.

4.13.1 Containment

- HVAC ventilation within 10 feet of the work shall be secured by shutdown or physically disconnecting or blanking off the ductwork
- All openings within 10 feet of the work shall be covered with 6-mil poly as a critical barrier
- Items within 10 feet of the work that are not removed shall be covered with a critical barrier of 6-mil poly
- The floor within 10 feet of the work shall be covered with two layers of 6-mil poly. For exterior work, the ground within the demarcated area shall be completely covered with 6-mil poly. They shall be secured in such a manner as to prevent movement and to be snug against the walls and other surfaces
- Corners shall be sharp
- Walls shall be covered with one layer of 6-mil poly to a distance of 10 feet from the work and shall be attached as described in Chapter 8 of HUD Guidelines
- Do not cover surfaces to be treated

4.13.2 Personnel Decontamination

- A decontamination unit consisting of a facility for washing hands and face and a shower shall be available at the site
- All entry and exit to the work area shall be through a three-panel Z-flapped entrance to the work area (unless it is outside). Upon exiting, proceed directly to the decontamination unit and wash face and hands. Prior to exiting the work site at the end of the shift, personnel shall shower
- Decontamination procedures and emergency procedures shall be posted at the decontamination unit
- Outside clothing (including shoes) worn inside the work area may not be worn outside the work area
- Wastewater shall be stored for later treatment or filtered via two stage filters with last filter a 5micron filter. Filtered wastewater may be disposed to the sanitary sewer provided this practice is acceptable to Charlotte-Mecklenburg Utility Department (CMUD). The Lead Contractor is solely responsible for making this determination and securing the required approvals

4.13.3 Signage and Barriers

- OSHA required warning signs shall be posted at all entrances to the work area
- Construction barrier tape shall be used to demarcate a secure area around any exterior

work areas. It shall be placed at least 20' from the work if that much space is available

- If an exterior work area is to be left unattended overnight, a minimum 6' chain link fence or equivalent must be constructed around the work area, with the gate locked
- If an interior work area is to be left unattended overnight, the doors to the work area shall be locked

4.13.4 Respiratory Protection

- A minimum half mask air purifying respirator with high efficiency mechanical filters approved for protection against lead dust or fume shall be used
- The Lead Contractor shall be responsible for ensuring that OSHA required respiratory protection be used at all times
- The Lead Contractor's respiratory protection program with a copy of the Lead Contractor's determination of required respiratory protection shall be on site

4.14 Class D Abatement Requirements

This level of control is designed to be used in instances where the health hazard due to release of lead contaminated debris into the air or on surfaces is low. Such debris would not be expected to include significant amounts of dust or paint chips. This level may be used for abatement methods such as encapsulation.

4.14.1 Containment

- HVAC ventilation within the space shall be secured by shutdown or physically disconnecting or blanking off the ductwork unless no volatile chemicals or other similar materials are used
- All openings within eight feet of the work shall be covered with 6-mil poly as a critical barrier
- Items within eight feet of the work that are not removed shall be covered with a critical barrier of 6-mil poly
- The entire floor shall be covered with one layer of 6-mil poly. For exterior work, the ground within the demarcated area shall be completely covered with 6-mil poly. It shall be secured in such a manner as to prevent movement and to be snug against the walls and other surfaces. Corners shall be sharp
- Walls shall be covered with a single layer of 6-mil poly to a distance of eight feet from the work and shall be attached as described in Chapter 8 of HUD Guidelines
- Do not cover surfaces to be treated
- Where application of encapsulants or other operations may cause damage to surfaces beyond those required to be covered herein, the Lead Contractor shall extend the coverage accordingly

4.14.2 Personnel Decontamination

- A decontamination unit consisting of a facility for washing hands and face and a shower shall be available at the site

- All entry and exit to the work area shall be through a three-panel Z-flapped entrance to the work area (unless it is outside). Upon exiting, proceed directly to the decontamination unit and wash face and hands. Prior to exiting the work site at the end of the shift, personnel shall shower
- Decontamination procedures and emergency procedures shall be posted at the decontamination unit
- Outside clothing (including shoes) worn inside the work area may not be worn outside the work area
- Wastewater shall be stored for later treatment or filtered via two stage filters with last filter a 5micron filter. Filtered wastewater may be disposed to the sanitary sewer provided this practice is acceptable to Charlotte-Mecklenburg Utility Department (CMUD). The Lead Contractor is solely responsible for making this determination and securing the required approvals

4.14.3 Signage and Barriers

- OSHA required warning signs shall be posted at all entrances to the work area
- Construction barrier tape shall be used to demarcate a secure area around any exterior work areas. It shall be placed at least 20' from the work if that much space is available
- If an exterior work area is to be left unattended overnight, a minimum 6' chain link fence or equivalent must be constructed around the work area with the gate locked
- If an interior work area is to be left unattended overnight, the doors to the work area shall be locked

4.14.4 Respiratory Protection

- The Lead Contractor shall be responsible for ensuring that OSHA required respiratory protection be used at all times
- The Lead Contractor 's respiratory protection program with a copy of the Lead Contractor 's determination of required respiratory protection shall be on site

PART III: CONSTRUCTION SPECIFICATIONS

1.0 Administration

1.1 Title

These provisions shall be known as the Construction Specifications for the City of Charlotte Neighborhood & Business Services (City).

1.2 Purpose

The purpose of these specifications is to provide minimum standards for housing rehabilitation and new construction work funded in whole or in part by the City.

1.3 Applicability

These specifications apply to the following housing improvement programs sponsored by the City of Charlotte Neighborhood & Business Services Code Enforcement Division:

- Safe Home Emergency Repair
- Safe Home Stabilization
- Safe Home Rehabilitation
- LeadSafe Charlotte

1.4 North Carolina State Residential Building Code

Any reference to "Code" or "Building Code" when used in these specifications refers to the most recent effective North Carolina State Building Codes and any subsequent amendments thereto circulated by the North Carolina State Building Code Council and the North Carolina Department of Insurance. Applicable North Carolina State Building Codes are as follows:

- 2012 North Carolina State Residential Building Code
- 2012 North Carolina State Rehabilitation Code
- 2012 North Carolina State Plumbing, Mechanical, Fuel Gas, Fire, and Energy Conservation Codes
- 2012 North Carolina State Electrical Code
- 2012 North Carolina State Accessibility Code

Additionally, the Contractor is reminded that he is responsible for performing all work items in accordance with local interpretation of the North Carolina State Residential Building Code. The Contractor is strongly encouraged to consult with the Local Building code authority prior to performing any residential construction work covered by these specifications, particularly structural, plumbing, mechanical, and electrical work.

2.0 Concrete and Masonry

2.1 Concrete shall meet the following standards:

- Portland cement shall be ASTM C150
- Sand shall be clean, sharp siliceous material, free from silt, loam, clay or other deleterious materials and shall meet the requirements of ASTM C33
- Coarse aggregate shall be hard, durable, uncoated crushed stone or gravel, free from deleterious substances and conforming to ASTM C33; well graded, minimum size 1/4", maximum size 1-1/2" or 3/4 the distance between reinforcing rods or 1/5 the minimum dimension of the forms, whichever is smaller
- Fine aggregate shall be clean, sharp sand conforming to ASTM C33, and graded from No. 4 to No. 100
- Mixing water shall be clean and free from oil, acid and injurious amounts of vegetable matter, alkalis, and other deleterious substances
- Mix Ratio shall be no more than 6 - 1/2 gallons of water to be added per cubic yard; a

ratio of 1 part cement, 3 parts sand and 4 parts of 3/4-"rock (5 sack mix). Concrete shall be poured as soon as practical after water and proper mixing have been completed. Absolutely no "retarder agents" or "accelerators" are to be used with mix unless otherwise instructed by the Rehabilitation Specialist

2.2

Minimum compressive strength of concrete for foundations, slabs, sidewalks, and driveways shall be 3000 psi at 28 days, depending on the weathering potential defined in of the North Carolina State Residential Building Code.

2.3

Dry premixed concrete such as Quikrete shall not be used in and foundation application.

2.4

Concrete masonry block units shall be solite concrete, autoclave cured, nominal modular size, free of cracks, chips or other spoils, and shall be manufactured in accordance with the standards of ASTM C140, and installed per the North Carolina State Residential Building Code.

2.5

Patented mortar shall be used, equal to "Brixment" and mixed in the correct proportions as recommended by the manufacturer and the North Carolina State Residential Building Code. Sand shall be fine aggregate, clean and sharp, meeting the requirements of ASTM C144. Type S mortar is required for any below grade construction.

2.6

Use method of measuring material at job so that specified proportions of mortar materials can be accurately controlled. Prepare mortar in batches of volume that will be used before initial set takes place, in no case longer than 45 minutes before delivery to mason's mortar board at points of use.

2.7

No masonry work shall be done when atmospheric temperature is below 40°F., and falling, or when freezing weather is predicted within the ensuing 48 hours. Anti-freeze compounds or other admixtures will not be permitted.

2.8

Lay masonry units with full mortar coverage on all horizontal and vertical joints. All exposed joints shall be tooled concave. Clean masonry as work progresses.

2.9

Concrete shall not be placed over grass, roots, or any foreign material.

2.10

All material used for concrete forms shall be removed after the concrete reaches final set. Voids and honeycombed surfaces shall be filled with cement grout.

2.11

Twenty-six gauge galvanized metal flashing or synthetic rubber membrane shall be placed

where concrete is poured adjacent to wood bands, joists, or other floor framing members per the North Carolina State Residential Building Code.

2.12

Steel lintels, if specified, shall be hydro-primed and painted with metal paint before installation. Lintels shall bear on wall at least 4" at each end.

2.13

Pointing shall be done only after joints have been raked out to a minimum depth of ½" and wetted. All joints shall be completely filled with mortar and shall match existing joints. New mortar shall match color and consistency of existing mortar. Face of brick shall be kept clean of any mortar.

2.14

Parging with cement plaster mixture shall be done with Portland cement plaster consisting of one part Portland cement to 2 - ½ parts sand by volume. Hydrate lime may be used but shall not exceed 10 percent by weight or 25 percent by volume of the Portland cement used. The temperature of the surrounding air shall not be less than 40°F. during application and for at least 48 hours thereafter. Anti-freeze compounds or other admixtures will not be permitted. Apply in two 1/4" thick coats; the second coat shall not be applied sooner than seven days after the first coat. Before applying first coat, completely cover surface with a bonding agent, Acryl 60 or equal. Before applying the second coat, the surface shall be dampened evenly to obtain uniform suction. Minimum thickness shall be ½".

2.15

Parging may be performed with a minimum of two coats (minimum 1/4" each coat) of "Quikrete," "SureWall," or other parging compounds approved by the local building code inspector. This process cannot be utilized without authorization by the Rehabilitation Specialist. Such compounds shall be installed strictly in accordance with manufacturer's instructions.

3.0 Foundation Construction

3.1

Areas within high wind zones and in the floodplain require more restrictive standards that are outlined in Chapter 45 and 46, respectively, of the North Carolina State Residential Building Code, and local authorities may impose different standards than those listed in the Code. Because of this, always confer with the Local Building Inspector prior to submitting bids.

3.2

Pier and foundation wall footings shall be constructed of poured concrete in accordance with the North Carolina State Residential Building Code.

3.3

Load bearing foundation wall and pier footings shall conform to the requirements listed in Section R403 of the North Carolina State Residential Building Code as referenced above. All excavation work shall be inspected and approved by the Local Building Inspector prior to pouring of concrete, and all footings shall be inspected prior to pouring of piers/foundation walls/underpinning. Footings shall rest on undisturbed soil or engineered fill at least 12" below grade line. When the surrounding soil is not sufficiently strong to hold the concrete until final

set, forms shall be constructed for concrete placement per the North Carolina State Residential Building Code.

3.4

Reinforcing bars shall be Grade 40 billet steel deformed in accordance with ASTM A615. Metal shall be clean and free from scale or coatings that will reduce bond.

3.5

Foundation walls and piers shall be constructed of masonry or poured concrete. Foundation wall and pier types and sizes shall conform directly to Section R403 and R404 of the North Carolina State Residential Building Code. All piers, foundation walls, and block underpinning shall have mortared joints unless surface bonding cement is approved by the local building code inspector.

3.6

All new masonry chimneys shall have footings of poured concrete which shall have a depth of at least 12", which extend at least 12" beyond each exterior edge of the finished chimney base, and which shall be bonded to the bearing wall footing where the chimney is located.

3.7

When soil is required for structural fill/backfill, soil should be pulverized and fine graded to provide a smooth surface, free of rocks and debris. Backfill around footings after construction is completed to meet grading requirements per the North Carolina State Residential Building Code.

3.8

Special conditions may require major excavation, material importing/backfilling, and soil compaction testing, approved by the local building code inspector before concrete can be poured. Includes pours all structure pours: pads, footings and foundations.

3.9

All areas of soil disturbance, areas of imported material and areas of cuts shall be properly graded and prepared for the intended use at the location, utilizing standard and minimum compaction methods by wetting and rolling at yard areas, and utilizing other approved methods as required for specific structural work.

3.10

Compacted fill shall be provided by the Contractor at all locations of demolition and removal of any below grade structures. All fill material at structure building pads and all locations of backfill shall be compacted to 85 percent relative compaction.

3.11

Backfill shall be provided and graded uniformly to provide a uniform slope. The grade shall fall a minimum of 6" within the first 10' per the North Carolina State Residential Building Code.

3.12

Block underpinning shall rest on continuous poured footings a minimum of 6" deep by 12" wide for 4" block, and 8" x 16" for 8" block. (Underpinning shall be tied into existing piers with metal ties and the footings tied into the existing footings of all exterior piers.

Underpinning shall include the installation of foundation vents and access doors in accordance with the North Carolina State Residential Building Code's requirements.

3.13

Finished underpinning, foundation walls and exposed piers shall be painted in accordance with painting specifications or parged in accordance with parging specifications in Section 2 if parging is specified in the write-up.

3.14

Mobile home skirting shall be vinyl, equivalent to "Ever-Lock" skirting manufactured by Scott and Fetzer Company; or galvanized steel with a baked-on enamel finish, equivalent to that manufactured by Elixir Industries. Color choice shall be made by Homeowner. Install skirting according to manufacturer's instructions, with access door and vent size and spacing according to these specifications or manufacturer's instructions and per the North Carolina State Residential Building Code.

4.0 Concrete Work (Slabs/Driveways/Walkways/Misc. Repair)

4.1

Prior to construction of concrete slabs, driveways, or walkways, all sod or other debris shall be removed to clean earth, in accordance with section 506 of the North Carolina State Residential Building Code. A bed of gravel or sand shall be placed as a base under poured concrete. The base shall have a 95% minimum compaction rating and shall be wetted before pouring any concrete.

4.2

Concrete slabs on ground (carports/garages/decks/utility areas/porch landings) shall be constructed in accordance with Section R506 of the North Carolina State Residential Building Code. Wire mesh reinforcing shall be 6"x6" Number 10 welded steel wire fabric, conforming to ASTM A185. Sides and ends shall be lapped at least 6". The slab and footings of enclosed areas shall be insulated according to local conditions as outlined in section 403 of the North Carolina State Residential Building Code.

4.3

Concrete porch slabs shall have a 4" minimum thickness and shall be poured monolithically over wire mesh reinforcing conforming to ASTM A185 and per North Carolina State Residential Building Code.

4.4

Concrete drives and walkways shall have a minimum 4" thickness.

4.5

Minimum compression strength for slabs, sidewalks/walkways, and driveways shall be 3,000 psi at 28 days.

4.6

Width of new driveways shall be a minimum of 10 feet; width of new walkways shall be a minimum of 36". Reinforcing shall be installed for all new driveways; wire mesh reinforcing shall be 6" x 6" Number 10 welded steel wire fabric, conforming to ASTM A185.

4.7

Expansion joints shall be placed a minimum of 10 LF apart on all driveways. Expansion joint material shall be saturated felt. All joints must be visible and finished with rounded edges.

4.8

Sidewalks shall be scored/grooved every 4 LF with a grooving tool.

4.9

Concrete for slabs, driveways, and walkways shall be troweled and broom-finished to provide a non-slip surface. Concrete surface shall be level except where floor drains are installed. All concrete shall receive an application of curing compound, "Clear Bond" or equal, applied according to manufacturer's instructions. All exposed surfaces of concrete shall be protected from premature drying and freshly placed concrete shall be protected from rain. Dry premixed concrete shall not be used.

4.10

After removal of forms, backfill, fine grade and seed areas adjacent to new driveways/slabs/walkways where existing ground cover was disturbed.

5.0 Chimneys

5.1

Repair existing or install new chimney in accordance with Chapter 10 of the North Carolina State Residential Building Code. Haul off all debris when demolishing existing chimney.

5.2

If repair of existing chimney is specified in the Scope of Work, repair and point up existing brick/masonry, install new tile liner extending at least 12" below lowest thimble and at least 4" above top of existing chimney, and properly support to restore structural integrity. Top of new tile liner shall extend at least 3 LF above roof line. If extension is required, extend/match existing masonry to at least 6" below end of new tile liner per the North Carolina State Residential Code.

5.3

When demolition of any existing framing, wall covering, or roof covering is required due to existing chimney demolition, repair, or new chimney construction, Contractor shall replace any damaged building materials to match finished exterior and interior construction, including flashing and caulking of chimney as specified in the North Carolina State Residential Building Code. Installation of new roof materials shall match existing. Demolition of existing chimney below roof line includes sealing of the flue opening with masonry caps, and installation of a brick profile that extends a minimum of 18" in all directions from the existing thimble. Cap brick profile with a minimum 1" x 6" #1 grade yellow pine mantle including trim.

6.0 Crawl Space

6.1

Access doors must be constructed of at least 2" X 4" pressure-treated framing and 3/4" thick pressure-treated plywood, including pressure-treated door stops around entire perimeter, T-strap hinges, and a latch capable of being secured with a padlock. Access opening shall be a

minimum of 20" x 36" in area, unless otherwise approved prior to installation due to clearance limitations. New installations of crawlspace access doors are required to meet the North Carolina State Residential Building Code. Do not paint access door unless non-treated wooden door is approved by the Rehabilitation Specialist.

6.2

The access door shall be located so as to provide as convenient access as possible to mechanical systems, plumbing, etc.

6.3

All foundation vents shall be automatic type comparable to Solar-Tek, or die cast aluminum/plastic sliding type. Push-in metal louver vents will not be permitted. Size, mesh size, and spacing of vents shall be in accordance with the requirements of Section 408 of the North Carolina State Residential Building Code. Vents shall be securely set in the underpinning and be perimeter-sealed with acrylic latex siliconized caulk, if necessary to provide a tight fit and adequate weatherization. All cracked or chipped blocks surrounding the vents shall be patched with mortar or other approved sealant.

6.4

If a dry well is specified in the Scope of Work or by change order, install a Galvanized or Vinyl-enclosed dry well with an 8" gravel floor.

6.5

If a French drain is specified for removal of water that periodically accumulates in the crawl space, consult with the Rehabilitation Specialist prior to installation. The drain should be located at the lowest point in the crawl space and extend from the crawl space to an appropriate exterior location for the drainage of water away from the structure; e.g., an adjacent ditch or swale. Construct a ditch approximately 10" wide and 8" deep from the low point in the crawl space and extend to the appropriate exterior drainage point. Place approximately 2" of clean, coarse gravel in the bottom of the ditch. Lay 4" corrugated black polyethylene drain pipe over the gravel bed and extend the pipe the terminating exterior drainage point. Perforations on pipe should be turned down. Cover pipe in crawl space with coarse gravel to fill ditch. Cover exterior portion of pipe with landscape fabric, approximately 2" of coarse gravel, and fill remainder of ditch with topsoil, seed and straw.

6.6

Crawl space groundwater vapor retarder shall be constructed of minimum 6 mil polyethylene material or approved equivalent, in accordance with the North Carolina State Residential Building Code. Poly shall be adhered with (glue "seal-it XP" or equal) to perimeter walls approx. 12" above foundation floor.

7.0 Pest Control

7.1

Termite treatment shall be done by a licensed professional pest control operator, properly licensed and bonded. Chemical shall be applied at the rate recommended by the manufacturer. Soil treatment shall be applied to dry soils during clear weather after all grading is completed. The Homeowner shall be furnished with a certificate of treatment that will provide the Homeowner with annual inspection and treatment (if required) and warrant against termite infestation for a period of 5 years.

7.2

Powderpost beetle treatment shall be done by a licensed professional pest control operator, properly licensed and bonded. Treatment for powderpost beetles shall be done by spraying joists and sills with "Timbor" or approved equivalent prior to installation of floor insulation. Application shall be applied to the point of runoff. Treatment shall carry a one-year written warranty.

7.3

Extermination for rodents, roaches, and other vermin shall be performed by a licensed professional pest control operator, properly licensed and bonded. Treatment shall carry a one-year written warranty and shall include coverage of 1 year minimum follow-up visit during the warranty period.

8.0 Site Improvements

8.1 Demolition

If demolition of a structure or portion of a structure is specified in the Scope of Work, work includes demolition, removal and proper disposal of all building materials and trash. Additionally, the area where structure is removed shall be filled with dirt as needed to provide a level grade to prevent puddling, and shall be raked, seeded, and mulched in accordance with the landscaping specifications outlined below.

8.2

Fill dirt, where required to backfill around new foundation wall or underpinning, or to repair settled areas in yard, shall consist of soil of equal quality to that which exists in areas adjacent to the area to be backfilled or repaired. The soil shall be relatively free from large stones, roots, or other materials that will interfere with subsequent seeding, and shall be approved by the Rehabilitation Specialist.

8.3

Fill dirt in crawl space, where specified in the Scope of Work to improve drainage, shall be clean sand or other non-structural fill material approved by the Rehabilitation Specialist.

8.4

For site surfaces disturbed by rehabilitation activity, the grade shall fall a minimum of 6" within the first 10" towards a public street or grassed swale, and shall match the grade of existing (and proposed) street improvements.

8.5

Areas to be seeded shall be loosened to a depth of at least 2". Apply materials at the following rates:

- Limestone 10#/100 Square Feet
- Kentucky Tall Fescue ½#/100 Square Feet
- 10-10-10 Fertilizer 2#/100 Square Feet
- Straw 1/4 Bale/100 Square Feet

Materials shall be distributed uniformly over the areas to be seeded.

9.0 Floor Framing

9.1

New floor framing members (sills, bands, girders, and joists) shall be southern yellow pine with moisture content not exceeding 19% in all load-bearing applications; spruce-pine-fir may be utilized in non-load-bearing applications. No sistering or scabbing of joist is allowed. Built-up structural members must be approved by the Rehabilitation Specialist, and must meet the specifications outlined in Section R502 of the North Carolina State Residential Building Code. Floor framing for repair, replacement, or new construction must meet the size and spacing requirements of Section R502 of the North Carolina State Residential Building Code. Replacement framing in areas of repair shall match the sizing of existing structural members, must be spaced to meet code requirements for new construction, and must be approved by the local building inspector prior to covering up framing work in areas of repair/replacement.

9.2

New sills and girders, or existing sills and girders over new piers and/or foundation walls, shall be shimmed to fit properly with pressure-treated wood or other approved insect and water-resistant material approved by the Local Building Inspector.

9.3

In areas where new sills or girders are installed or new piers or foundation walls are installed under existing floor framing, sills and girders shall be tied into piers or foundation walls as required by the Local Building Inspector's interpretation of the North Carolina State Residential Building Code.

9.4

All new floor framing installed in areas subject to termite damage or decay as identified in Sections R317 and R318 of the North Carolina State Residential Building Code shall be constructed of pressure-treated framing lumber treated in accordance with the North Carolina State Residential Building Code. This requirement applies to replacement of wood joists or the bottom of a wood structural floor closer than 18" to exposed ground, replacement of wood girders closer than 12" to exposed ground, and to replacement exterior sills/plates that are resting on masonry.

9.5

All replaced joists shall be supported at their extreme ends by a 2" thick sill plate, 2"x 2" ledger, or metal joist hanger. Toe nailing only will not be accepted.

9.6

Notching, and drilling of existing and replacement structural floor members shall be accomplished in strict accordance with the requirements of Section R502 of the North Carolina State Residential Building Code. Floor framing shall fit neatly around all plumbing, heating, and ventilating improvements.

9.7

Replacement of floor framing system shall include installing all new floor joists, blocking,

girders, bands, and sills in the area(s) designated in the Scope of Work in accordance with requirements of the North Carolina State Residential Building Code and North Carolina State Rehabilitation Code. Remove subflooring and remove all existing wood framing members prior to replacement.

9.8

Repair of floor framing system shall include replacement of all damaged framing members in the area(s) designated in the Scope of Work to include joists, blocking, girders, and sills in accordance with requirements of the North Carolina State Residential Building Code and North Carolina State Rehabilitation Code. Remove subflooring and remove all deteriorated wood framing members prior to repair.

10.0 Subflooring

10.1

New plywood subflooring panels shall be of a thickness required by Section R503 of the North Carolina State Residential Building Code for the existing/new joist spacing, and at a minimum, either 3/4" or 5/8" underlayment grade plywood, 23/32" Advantech tongue and groove subflooring, or 1/2" CDX plywood covered with 3/8" underlayment grade plywood. Install plywood with outer plies at right angles to the joists and staggered so that the end joints in adjacent panels bear on different joists. Glue and nail plywood subflooring panels to floor framing. (NOTE: The bottom of a wood structural floor when closer than 18" to exposed ground in crawl spaces or unexcavated area located within the periphery of the building foundation shall require treated plywood.)

10.2

When patching or spot repairing subflooring: remove damaged, wet, rotted, or insect-infested material and replace with underlayment grade (or CDX grade if new underlayment is specified for entire room following subfloor repair) plywood to match the level of existing subflooring. Re-nail existing loose subflooring. Glue and nail new subflooring to joists. Install new floor joists to meet structural requirements of the North Carolina State Residential Building Code when the clear span between joists at repaired areas exceeds that allowed by code for existing subflooring thickness.

10.3

Particleboard subflooring specified by Section R503 of the North Carolina Residential Building Code is not permitted!

10.4

When the repair of subflooring is requested, replace all damaged subflooring material in designated area. If the removal of the subflooring reveals framing damage not noted in the write-up, contact the Rehabilitation Specialist prior to continuing with the repair. Proceed with this item only after the Rehabilitation Specialist has inspected the damage and a change order has been approved.

11.0 Exterior Wall Construction

11.1

New exterior stud walls shall be constructed of materials outlined in Sections R602 of the North Carolina State Residential Building Code. Design and construction of new exterior walls

shall be in accordance with Section R602 of the North Carolina State Residential Building Code. All new exterior stud walls shall be insulated with minimum R-13.

11.2

New exterior structural sheathing shall be wood structural panels or particleboard conforming to Sections R604 and R605 of the North Carolina State Residential Building Code, and be of a minimum thickness and installed in accordance the North Carolina State Residential Building Code. Cover structural sheathing with building paper, asphalt-saturated felt, or a code-approved moisture-permeable building wrap such as Tyvek prior to installation of new siding.

11.3

When repair or replacement of existing siding and sheathing is specified, remove all damaged, wet, rotted or insect-infested siding and sheathing in areas specified. Replace sheathing in areas specified in Scope of Work with wood structural panels or particleboard approved by Sections R604 and R605 of the North Carolina State Residential Building Code to match existing materials, and cover with building paper, asphalt-saturated felt, or a code-approved moisture-permeable building wrap such as Tyvek. When repairing corner areas, install new corner bracing in accordance with Section R602 of the North Carolina State Residential Building Code. Re-nail loose sheathing in areas specified for repair, and fasten new sheathing according to Section R602 of the North Carolina State Residential Building Code. Provide new studs, bracing, and reinforcing necessary to realign and prevent deflection or collapse of exterior walls in areas where repair is specified. Replacement studs and structural members for exterior wall repair shall be constructed of approved materials. Existing walls shall be made as even as possible by furring, blocking and cutting prior to application of sheathing and/or siding. Strip outside corners and fasten replacement siding to match existing material, or install new siding complete, as specified in Scope of Work, in accordance with applicable specifications for new exterior siding construction, below. Re-nail loose siding with galvanized or aluminum nails, and caulk old nail holes. Provide flashing and caulking as required for new construction to provide a weather-tight wall. This work item includes installation of new wall insulation to a minimum R-13 factor in uncovered areas.

11.4

All siding materials (plywood/hardboard or wood lap/vinyl/aluminum/fiber cement) shall be applied in accordance with the requirements of Table R703of the North Carolina State Residential Building Code.

11.5

When specified, plywood siding shall be installed per the North Carolina State Residential Building Code. 303-6-W "premium" grade, 4' x 8' T1-11 panels. Installation includes all trim, including window facings, band boards, corner boards and moldings; trim shall be fir. Seal all plywood panel edges with water repellent preservatives compatible with finish before installation. Nail siding with galvanized or aluminum nails, 3/8"from shiplap edges, 6 inches apart and 1/2 "from horizontal joints, and 12" apart over intermediate wood framing. Do not nail in grooves of channels. Nails must penetrate studs 1-1/2". Prime paint and paint in accordance with painting specifications.

11.6

When specified, hardboard siding shall be 1/2" (nominal) Georgia-Pacific "StayStrate" 6" lap siding or approved equivalent. Install horizontally to line, level, and square, with proper overlap. Vertical wood or galvanized corner strips shall be used at all outside corners. Fasten hardboard siding with 8d galvanized or aluminum nails with 3/16" heads. Paint in accordance

with manufacturer's instructions and painting specifications.

11.7

Exterior wood lap siding shall be, as a minimum, # 1 grade southern yellow pine, free of knot holes. Stagger joints in adjacent pieces. Nail with two galvanized or aluminum nails at each bearing to penetrate at least 1-1/2" in stud, countersink and caulk nails exposed to finish. Prime paint immediately upon installation and paint in accordance with painting specifications.

11.8

This specification summarizes the installation of vinyl siding, soffit, and fascia on an existing frame dwelling, or on a frame addition thereto. All vinyl installation shall be applied in strict compliance with manufacturer's application instructions and the specifications of this section. All vinyl siding shall carry a lifetime or minimum 50-year manufacturer's warranty against peeling, blistering, flaking, or corrosion. Vinyl siding shall be horizontal lap, "double 5"-type, shall have a minimum thickness of .045" and have a color impregnated throughout the entire thickness of the siding and shall be installed per the manufacturer's installation instructions and the North Carolina State Residential Building Code. The color will be the Homeowner's choice, per samples provided.

11.8.1 Preparation

- Nail down loose boards and replace any rotted or deteriorated, or warped wood prior to installation of vinyl siding. (Exterior structural wall panels may be used to replace rotted wood if thickness matches removed wood siding or trim)
- Remove all loose, cracked, and damaged caulking and properly and neatly re-caulk around windows, doors, and other areas to protect from moisture penetration. Holes and other openings larger than 1/4 "shall not be caulked but repaired properly
- Check all walls for evenness. On older homes, sidewalls with waves and low spots shall be evened out. Nail down loose boards and shim/fur any low spots
- When installing vinyl siding over a masonry surface (i.e., a block house), install 1" x 4" treated furring strips 16" on center secured by masonry nails or screws. Install 3/4" rigid insulation board equivalent to Dow's Styrofoam sheathing between furring. Open celled insulation board is not permitted. Cover insulation board and furring with 1/4" minimum rigid insulation equal to Owens Corning Brand. Multifold insulation is not permitted over masonry
- Unless otherwise specified in the Scope of Work, apply rigid or multifold foam insulation board (Owens-Corning 1/4" insulation board or equal) over existing siding to provide an even, nailable surface and to increase the insulation "R" factor of the sidewalls. Insulation board should be nailed with corrosion-resistant nails of sufficient length to penetrate the sidewall at least 3/4"
- Select only corrosion-resistant nails that are long enough to allow for a minimum 3/4" penetration into a solid, nailable surface. Minimum length for nail penetrating through siding with rigid insulation should be 2-1/2"

11.8.2 Application

- Siding must be installed in accordance with manufacturer's guidelines and the North Carolina State Residential Code applied with properly staggered joints lapping away from the street. It must be cut in lengths to provide for

expansion. Allow a 1/4" gap wherever siding butts accessories. Nails must be centered in slots and installed with approximately 1/16" between nail head and vinyl to permit expansion and contraction. Drive nails straight and level

- All window and door openings, porch ceilings, and exterior trim must be covered in vinyl or wrapped with aluminum unless noted otherwise in write-up
- Installation of new vinyl siding includes fascia and continuous vented soffit application around entire perimeter of siding application
- If an open rafter situation exists, the overhang must be framed to accommodate the appropriate nailing strip for the channels and soffit installation
- All blocking between rafters must be removed and unvented existing soffit must be opened to allow for proper ventilation per the North Carolina State Residential Building Code
- "J" channel installed around exterior openings shall be mitered at top and bottom and cut to form drain tab. Do not miter side "J" channels
- All gaps surrounding cut-outs for protruding objects must be caulked with acrylic latex siliconized caulk. 100% silicone caulk is not permitted. Holes and other openings larger than 1/4 "shall not be caulked, but repaired properly. (NOTE: Do not caulk vinyl siding joints)
- All soffit shall be perforated along roof edges and solid along gables
- Old gable vents shall be removed and replaced with new vinyl vents; apply "J" channel and new siding around new vents to provide a watertight seal
 - After installation, all soiled areas and fingerprints shall be removed

11.9

Aluminum siding, Hardi-plank, or other alternatives to wood/vinyl siding shall be approved by the Rehabilitation Specialist before installation and shall be installed according to the North Carolina State Residential Building Code and the manufacturer's specifications.

11.10

Install flashing over heads and below sills of openings, and elsewhere required to provide a weather-tight wall in areas where siding repair or replacement is specified.

11.11

Install caulk joints between wood/hardi-plank siding, and projections in areas where siding repair or replacement is indicated. Holes and other openings larger than 1/4" shall not be caulked, but repaired properly.

11.12

A new house number must be installed following rehabilitation work. An existing number can be reinstalled if not damaged.

11.13

Any existing utility services (wiring/cable/telephone/etc.) disturbed by new siding installation or repair shall be reinstalled to the satisfaction of the Rehabilitation Specialist.

12.0 Brick Veneer

12.1

This section summarizes the installation of brick veneer on an existing frame residence, or on a frame addition thereto. All brick veneer shall be installed in strict accordance with Section R703 of the North Carolina State Residential Building Code.

12.2

When constructing brick veneer wall over existing exterior siding or sheathing, re-nail all loose or protruding boards, to provide a reasonably smooth exterior surface. Remove and replace any decayed, damaged or termite-infested siding and/or sheathing. Install 15# asphalt-saturated builder's felt or other approved sheathing paper over existing and new wood sheathing and/or wood and hardboard siding prior to construction of brick veneer. Install horizontally, with minimum 4" overlap. Include proper flashing around all windows and doors.

12.3

Brick veneer shall be installed per the North Carolina State Residential Building Code in Section R703. The Brick veneer wall shall be aligned so as to provide a 1" minimum air space between the interior of the brick wall and the exterior frame wall. Corrosion-resistant metal head flashing shall be installed over wall openings (doors and windows) to prevent moisture from penetrating behind the veneer.

12.4

Where new brick veneer wall is bonded to new or existing solid foundation wall or underpinning (i.e., where moisture cannot escape 1" air space at sill), Contractor shall attach continuous metal flashing to frame wall and also to interior brick veneer wall, where weep holes shall be constructed at 48" maximum centers to drain moisture. Weep holes shall be placed between sill and grade line.

12.5

Brick veneer shall be anchored to the wood frame exterior wall with corrosion-resistant metal ties as outlined in Section R703 of the North Carolina State Residential Building Code. Each tie shall be embedded in mortar and securely fastened over frame wall studs.

12.6

Carefully scrape and clean interior face of brick veneer of exposed mortar during construction to maintain unobstructed 1" air space.

12.7

Vent and crawl space access requirements for brick veneer walls shall be identical to that specified for solid foundation walls or underpinning (see Section 6). However, a structural metal access door may be substituted for wood frame door.

A steel lintel shall be installed over the wood frame access door per the North Carolina State Residential Building Code.

12.8

Steel lintels sized in accordance with table R703.7.3 of the North Carolina State Residential Building Code shall be required where brick veneer wall extends over door and window openings.

12.9

Flashing shall be installed in the exterior wall envelope over doors and windows and at other locations specified in Section R703 of the North Carolina State Residential Building Code.

12.10

Where brick veneer is installed around existing exterior doors and windows, existing casings, sills, and heads shall be extended beyond interior face of brick veneer wall a minimum of 1 inch. Joints shall be caulked and fitted to provide a weather-tight surface.

12.11

Caulk and fit joints with new/existing exterior windows and doors and roof trim to provide a weather-tight surface.

12.12

For new roof construction, provide a minimum of 12" overhang and level soffit. Install 2" x 4" blocking, minimum 1" x 6" frieze board and molding at intersection of frieze board and soffit. Frieze board shall not extend more than 8" from soffit to top of veneer.

12.13

When utilizing existing rafters, repair or replace existing boxing as required in write-up. Cut and trim existing soffit as required and install blocking, frieze board and molding as required for new roof construction specified herein.

12.14

The cost for installation of brick veneer includes all exterior trim carpentry work required to provide proper interface with existing and proposed wood components, including extension of exterior openings and trim carpentry at intersection of veneer wall and boxing.

12.15

Materials for exterior trim carpentry required to tie in brick veneer wall to new or existing frame construction shall be as specified in the North Carolina State Residential Building Code.

12.16

Any existing utility services (wiring/cable/telephone/etc.) disturbed by brick veneer installation or repair shall be reinstalled to the satisfaction of the Rehabilitation Specialist.

13.0 Roofing

13.1

New ceiling joists, rafters, trusses, and bracing required by the Scope of Work for replacement or new construction shall be constructed of materials, sized, spaced, and installed according to requirements of Sections R801 and R802 of the North Carolina State Residential Building Code. (When rafter tails are to be replaced, they shall be cut back flush with exterior siding. New rafter tails shall be scabbed at a minimum length of 2 LF up existing rafter and shall be of the same dimensional lumber). Trusses shall be constructed to meet specific job requirements, and the Contractor shall provide the Rehabilitation Specialist and Local Building Inspector with the engineer's stamp or certification.

13.2

Surface preparation for specified roof repairs shall include stripping all existing roofing materials, and repairing defective structural materials, leaving all components uniform and secure prior to installation of a new roof.

13.3

Removal of debris and surplus materials shall be progressively performed by the Contractor on a daily basis, maintaining a clean and safe job site.

13.4

When structural repair or replacement of roof sheathing/framing is specified, remove all damaged, wet, rotted, or insect-infested material in areas specified for repair or replacement. Re-nail loose sheathing and structural members in areas specified for repair. Install new sheathing, ceiling joists, bracing, and rafters to match existing damaged materials in areas specified for repair. In all areas specified for roof framing repair, the following structural requirements shall apply:

- Collar beams shall be installed on upper 1/3 of rafter pairs when new framing is required
- Purlins shall be installed perpendicular to rafters to allow braces tied to load-bearing walls to remove/prevent reoccurrence of swag
- Load-bearing wall rafter supports shall be installed along purlins to even roof rafters to one another in such a manner as to provide a true and even deck surface
- Ceiling joist strong backs shall be installed to support existing 2" x 4" ceiling joists. Strong backs shall be minimum 2" x 4" and a 2" x 6" on edge installed at mid-span with ends fastened to top plate of nearest load-bearing wall, and 2"x4" knee walls shall be installed on strong backs at every third rafter
- If ceiling joists are required in areas specified for roof framing repair, they will be specified in the Scope of Work for interior rooms, separately from the roof system

13.5

New ridge board shall be a minimum of 1- 1/2 " in thickness and not less in depth than the

cut end of the rafter it joins.

13.6

When rafter tails are to be replaced, they shall be cut back flush with exterior siding. New rafter tails shall be scabbed at least 2 LF on existing rafter and shall be the same dimension as existing rafter.

13.7

Roof sheathing for replacement or new construction shall be wood structural panels of a quality and thickness required by Section R803 and Table R503.2.1.1(1) of the North Carolina State Residential Building Code, and at a minimum, 5/8" CDX plywood, or Oriented Strand Board (OSB) equal in quality to "Blue Ribbon" OSB manufactured by Georgia Pacific. OSB panels must be APA Engineered Wood Association span-rated and Exposure 1 rated for projected construction applications that require the ability to resist moisture during construction delays. "H-Clips" shall be used for all roof sheathing installation. If all existing roof sheathing is to be replaced, installation includes installation of new barge rafters and outriggers.

13.8

Roofing system as referred to here and in all write-ups shall include the installation of rafters, bracing (e.g., collar ties and knee walls), gable end walls, fly rafters, lookouts, blocking, and sheathing installed in accordance with Sections R801, R802, and R803 of the North Carolina State Residential Building Code.

13.9

Contractor shall contact the Rehabilitation Specialist concerning installation of new roof framing if required to provide structural integrity in the repaired area if framing repair is not specified in the Scope of Work.

13.10

All roof covering assemblies (shingles, roll, and built-up roofing) shall be constructed in accordance with Chapter 9 of the North Carolina State Residential Building Code.

13.11

Shingle roofs shall be constructed as follows: Use 15# asphalt-saturated felt with 2" top lap and 4" end lap. Shingles shall be fungus-resistant AR reinforced, Architectural, self-sealing, conforming to Federal Specifications SS-S-294 Class A Type 1 and SS-S-001534 Class A Type 1 (Owens Corning or equal); furnish 30-year guarantee from material supplier. Install with a minimum of 4 galvanized or aluminum nails, of a size recommended by the manufacturer.

13.12

Install a 3 LF wide roll of a self-adhering polymer modified bitumen sheet (or approved alternative ice and water shield) to all roof edges and valleys specified for new shingle roof covering.

13.13

All flashing and valley material shall be of material and installed as specified in section R905 of the North Carolina State Residential Building Code. All valleys shall be closed (covered with shingles) and lined with a 3LF wide self-adhering ice and water shield, centered in valley

and closed shingled as per manufacturer's specifications.

13.14

Metal flashing shall be installed at all chimneys, at all junctions of roof with walls, and all changes in roof slope in areas where new roofing is specified or where specified in the Scope of Work. Flashing at parapets shall be corrosion-resistant, solid horizontal metal or metal step flashing to be placed in a professional manner and blind-nailed. All vertical ends of flashings will be installed beneath exterior wall coverings. When exterior wall coverings are not new or are not specified to be replaced, coverings shall be replaced to an adequate height to facilitate installation of flashing. These existing walls may be counter flashed, but only with prior approval by the Rehabilitation Specialist.

13.15

All chimneys and all frame junctures with brick walls shall be flashed and counter flashed in areas where new roofing is installed, or where specified in the Scope of Work. Counter flashing shall be keyed into masonry joints and base flashing shall be turned up under counter flashing a minimum of 3".

13.16

Aluminum Drip edge of 0.019" or thicker, shall be installed around the entire perimeter of the shingle roof edge. Overlap at metal angle splices shall be 3" minimum overlap. All corners of metal angle strips shall be cut on top and bent around corner to form continuous protection. Nailing of aluminum drip edge shall be top-nailed only.

13.17

Shingles shall overhang the roof edge (drip edge) at least $\frac{3}{4}$ ", but no more than 1".

13.18

Shingles can be installed on roofs up to a minimum pitch of 2 -/12; however, application in accordance with Section R905 of the North Carolina State Residential Building Code is required as follows if the pitch is less than 5/12: Install a self-adhering waterproofing underlayment equal to Owens-Corning Weatherguard; shingle tab exposure shall be only 2-1/2".

13.19

When new shingles or other roof covering is specified, remove all existing roof covering materials in areas of repair (including felt and fasteners); haul off all old roofing; protect shrubbery, yard and other improvements. Installation of new shingles in not permitted over any existing roof coverings.

13.20

Rubber Roof Systems: installation by a factory-certified installer is required! Single-ply rubber membrane roofing such as Mule-Hide's EPDM membrane or equivalent shall be applied in strict compliance with the manufacturer's installation instructions. Surface must be prepared to meet the requirements of the North Carolina State Residential Building Code and manufacturer's requirements and then covered with an approved insulation board prior to applying membrane.

13.21

Built-up roofing shall be constructed in accordance with section 905 of the North Carolina State Residential Building Code and at a minimum, consist of one dry ply of 15# felt, three plies of 15# felt mopped down and mopped together, and approximately 100# of asphalt per square. Provide flashing at intersections with exterior walls as specified in this section.

13.22

Roll roofing shall be constructed in accordance with section R905 of the North Carolina State Residential Building Code and at a minimum, consist of 15# builders felt with 2" top lap and 4" side lap with 90# mineral asphalt covering; choice of color by Homeowner. Seams shall be blind nailed and cemented with asphalt roofing cement. Install with aluminum or galvanized nails, of a size recommended by the manufacturer. Roofing shall be turned and nailed at eaves and rake.

13.23

Metal Roof Restoration: When the restoration of a metal roof is specified, the Acrymax System or equivalent restoration system shall be completed as follows:

- All repairs to the roof and seams shall be made by applying Poly-1 fabric reinforcement material in accordance with the manufacturer's instructions
- Roof shall be cleaned of all dirt, dust, loose paint, debris, rust, oil, etc., prior to priming with Rust Inhibitive Primer HP-7000 in quantities formulated for the individual job
- After the application of primer, apply HP-1000 undercoat in the recommended quantity
- Apply finish coat of HP-5000 as directed by manufacturer

13.24

When installation of new metal roof is specified, install new metal roof panels in accordance with Section R905.10 of the North Carolina State Residential Building Code and paint in accordance with manufacturer's instructions.

13.25

Antenna/lightning rod/satellite dish removal and reinstallation shall be provided when the dwelling is re-roofed by the Contractor.

13.26

Mushroom type ventilators shall have throat openings of 9" to 10". Space as required by Section R806 of the North Carolina State Residential Building Code near ridgeline.

13.27

Turbine ventilators shall have 12" throat openings. Space as required by Section R806 of the North Carolina State Residential Building Code near ridgeline. Use manufacturer's base unit and install so as to make watertight. The use of this type vent is not permitted unless specifically requested in a write-up or approved by the Rehabilitation Specialist prior to installation.

13.28

New ridgeline vents shall be equivalent to Shinglevent-II manufactured by Air Vent, Inc., and shall be constructed of HD polyethylene. Installation shall be performed in accordance with manufacturer's instructions and extend entire length of ridge. Installation includes installation of cap shingles to match existing/specified new shingles. Aluminum vents are not allowed without the prior approval of the rehabilitation inspector.

13.29

Gable end louvers shall be constructed of storm proof aluminum or an approved wood or vinyl equal, installed so as to be watertight, and shall include insect screen. Size vents to allow for adequate roof ventilation as required by section R806 of the North Carolina State Residential Building Code.

13.30

Any existing utility services (cable/telephone/etc.) disturbed by new roof installation or repair shall be reinstalled to the satisfaction of the Rehabilitation Specialist.

14.0 Exterior Finish Carpentry

14.1

All exterior trim components shall be installed plumb, level, true to line and securely anchored. Nails and screws shall be neatly set and all wood raised in the driving of nails and screws removed. Exterior corner joints shall be mitered. Tool marks or marred surfaces and edges will not be acceptable on any exposed finished surfaces and, as evidence of inferior workmanship, shall be cause for rejection of such work. The Contractor shall replace inferior work at no extra cost. All exposed end splices in finished members shall be accurately and neatly square butted. Install members in full lengths as possible. Splices shall be cut at a 45-degree angle with the splice occurring at a stud for nail backing.

14.2

All rough hardware required for installation of exterior trim shall be furnished, including all connections to metal studs, bolts, etc., required to complete the work. Exterior bolts, nuts and washers shall be zinc galvanized.

14.3

New fascia boards and barge rafters shall be #1 Hem/Fir, #1 select white pine, rough redwood, or cedar. Rafter ends shall be string lined and trimmed before installation of fascia boards so as to obtain a straight line. The fascia boards shall be nailed to each end rafter with two 8d galvanized or aluminum nails. Prime paint new fascia and barge rafters immediately upon installation. Fascia boards shall be one lumber size larger in height than rafters and shall be 1" nominal thickness. Barge rafters shall be one lumber size height than fascia and shall be 2" nominal thickness.

14.4

New wood soffits shall be 3/8" A-C exterior plywood. Soffits shall be fastened to 2" x 4" lookout boards at each rafter with galvanized or aluminum nails. A smooth horizontal surface shall be maintained. Install plastic or metal vents (continuous or rectangular) in soffits in accordance with Section R806 of the North Carolina State Residential Building Code. All blocking between existing rafter tails or lookouts shall be removed prior to soffit installation to ensure proper ventilation. Prime paint new soffit boards prior to or immediately after

installation.

14.5

Repair existing roof trim to match existing material thickness with material quality and installation as specified above. All new wood trim shall be painted in accordance with the painting specifications.

14.6

Fascia wrapped in vinyl-coated .019 aluminum and vinyl soffits shall be installed in conjunction with vinyl siding as specified above.

15.0 Gutters and Downspouts

15.1

Aluminum gutters and downspouts in areas specified for replacement shall have a baked-on enamel finish with 20-year paint guarantee, and shall comply with the Architectural Aluminum Manufacturers' Association latest Specifications for Aluminum Gutter and Downspout Systems, AAMA 1405.1. Gutters and downspouts shall comply with the standards for roof drainage products, Commercial Standard CS 244-62 of the U.S. Department of Commerce. Use continuous lengths. Use 2" x 3" rectangular or 3" round downspouts spaced so as to adequately carry off water. Securely fasten gutters and downspouts to house with aluminum nails, or other approved anchors, spaced no more than 32" apart.

15.2

New gutter installation, where specified, shall consist of vinyl leaf protection variety gutters. Gutter mesh wire screens are not acceptable.

15.3

Vinyl splash blocks shall be installed at every downspout location as a part of the installation repair of guttering unless specifically noted.

16.0 Doors

Unless otherwise noted, existing door sizes shall be maintained; however, when a new door is added that has to be cut into an interior or exterior wall it must conform to the North Carolina State Residential Building Code, Section R311, which states that one exterior door is required to be side hinged and shall provide a minimum clear width of 32" when measured between the face of the door and the stop, with the door open 90 degrees. The minimum clear door height shall not be less than 78" measured from the top of the threshold to the bottom of the stop.

16.1

All doors, jambs, casings and hardware shall be installed expertly and in accordance with the plans and manufacturers specifications and standard details, and shall be installed plumb, level, square, in plane, true to line and be securely anchored. Doors shall be properly flashed and wrapped before installation. Doors shall be insulated around frame with batt insulation. All components shall fit accurately, with proper and uniform clearances, and shall operate freely, without binding or dragging. A minimum of 1 screw shall be installed through each hinge into the framing members.

16.2

All doors shall be installed in proper frames as specified and shall fit uniformly and snug against all stops. Provide accurate fit, free from hinge bind, and with uniform clearance of 1/6" at heads and jambs. Undercut doors for floor finishes or coverings and ventilating purposes where required. Sliding doors shall slide and operate smoothly under fingertip pressure. Door hardware including deadbolts and opening hardware must operate as intended, without binding or any special force required to operate. There shall be no double keyed deadbolts. Finish hardware shall be removed for painting and reinstalled after finishing is completed and dry.

16.3

Provide required dimensional modification of the framed opening in order to allow a plumb and square door setting. Jambs at nailing point, butts and lock strikes shall have solid backing. Exterior jambs shall be completely caulked and sealed around their perimeter, between jambs and adjoining framing construction, using mastic and tape as required.

16.4

Interior and exterior corner joints on door casings shall be mitered and interior joints shall be coped. Casings at head of doors shall be mitered.

16.5

Wooden exterior doors shall be solid wood, raised panel, 1-3/4" thick, constructed of clear white pine, Ponderosa pine or Douglas fir. Installation includes wide aluminum saddle type threshold, door shoe with vinyl gasket, jamb up weather-stripping, lock set, deadbolt, and peep hole. All exterior doors shall be hung on three 4" x 4" butt hinges and shall have both lockset and deadbolt keyed alike. All new locks shall be keyed alike. Installation shall include replacement of all damaged jambs, stops, and casing on interior or exterior as needed. There shall be no double keyed deadbolts. Prime and paint (2 finish coats) wooden doors and new and existing trim remaining in accordance with painting specifications. When a size different than the existing opening is specified, installation shall include all adjustments to framing (including header and stud wall framing) needed to accommodate the new door size. Install a suitable door bumper.

16.6

Pre-hung metal exterior door units six panel shall be equal to Lowe's "Reliablilt" and carry a minimum of a five-year guarantee with warranty in writing and turned in with Homeowner's warranties. Units shall come complete with door pre-hung in frame with rabbeted jamb, threshold, weather-stripping, casing, and lockset and deadbolt (keyed alike), and peep holes. There shall be no double keyed deadbolts. Installation includes removal of existing door and frame, minor framing adjustments, and all related casing to install a door equal to the original size (interior casing to match new or existing room trim is required as part of this installation). Prime and paint metal doors and new and existing trim remaining (2 finish coats) in accordance with painting specifications. When a size different than the existing opening is specified, installation shall include all adjustments to framing (including header and stud wall framing) needed to accommodate the new door size. Install base board door bumper where applicable.

16.7

All exterior doors shall have dead bolts as part of any installation. There shall be no double keyed deadbolts. All front doors shall be provided with peep holes, regular or handicapped

height. All exterior doors shall be installed with a rigid aluminum strip with neoprene-type weather stripping securely fastened to sides and head jambs. Pre-hung door units shall have factory installed weather stripping installed to ensure no air leakage around openings in exterior doors. When door casings are to be removed and/or replaced for any reason, all voids shall be filled R-13 unfaced batt insulation. All exterior doors shall be provided with aluminum or wood with rubber attached to the drip cap at bottom edge of door. Hardware shall be fastened *to framing* in a manner to prevent removal to gain entrance while door is in its locked position.

16.8

Interior doors shall be flush, hollow-core birch, AWI "Custom" Grade, 1-3/8" thick; or six panel molded doors equal to the "Elite" door manufactured by JELD-WEN. Luan doors shall not be allowed unless specified or approved by the Rehabilitation Specialist. Interior doors shall be installed with a minimum of two butt hinges (3-1/2" x 3-1/4") and passage hardware. Bathroom doors and bedroom doors shall be provided with "privacy" hardware. Interior bi-fold doors shall be hollow core birch or molded raised panel bi-fold doors, minimum 1-1/8" thick. Doors shall be prime and painted immediately following installation, or stained in accordance with staining specifications. Install a suitable door stop.

16.9

Interior pre-hung door, birch or molded as noted above units shall come complete with frame and casing, and installation includes removal of existing door and frame and all necessary framing work (including header and stud wall framing), to install new door frame plumb and level with a suitable lockset and door bumper. When a size different than the existing opening is specified or a new location is to be cut into a wall, installation shall include all needed adjustments to framing including header and stud wall framing and trim casing needed to accommodate the new door.

16.10

Deadbolt locks shall have case hardened rim and throw bolt at least 1" long. Locks on solid doors shall have thumb turn on inside. There shall be no double keyed deadbolts on egress doors. Door locksets shall be Kwikset, Schlage, Weiser or approved equivalent brand name.

16.11

When Scope of Work calls for repair of existing exterior door framing and trim, replace all deteriorated, decayed, broken, or split woodwork, so that finished job is structurally sound and free from surface defects. Repair includes installation of new lockset and deadbolt (unless noted otherwise), aluminum saddle-type threshold, door shoe, and jamb-up weather-stripping). Install repair work to match existing finish work. New jamb shall be double rabbeted, 1-1/4" white pine or fir. New trim shall be finish grade white pine, grade C or better yellow pine, or fir with less than 12% moisture content. Prime all repair work immediately upon installation, then stain or paint in accordance with painting specifications. Repair includes installation of a suitable door stop.

16.12

When Scope of Work calls for repair of existing interior door framing and trim, replace all deteriorated, decayed, broken, or split woodwork, so that finished job is structurally sound and free from surface defects. Interior door jambs, casings, and stops shall be repaired with finish grade lumber with less than 12% moisture content. Match existing finish work. New frames shall be either 3/4" thick flat jamb frames with applied stop, or split jamb with integral casing and stop. Prime paint work immediately upon installation, then stain or paint

in accordance with painting specifications. Repair includes installation of a new lockset (unless noted otherwise) and suitable door stop.

16.13

All new material for repaired or replaced interior and exterior door casings, jambs, and stops shall be free of surface defects and imperfections. Finger joint trim or jambs will not be allowed if surfaces are to be varnished or stained. Corners of casings shall be mitered and casings shall be set back 3/16" to 3/8" from face of jamb.

17.0 Windows

17.1

All windows assemblies and casings shall be installed expertly and in accordance with the plans and manufacturer's specifications, and shall be installed plumb, level, and square, true to line and be securely anchored properly flashed and frames wrapped. All units shall fit accurately, and shall operate freely without binding or dragging.

17.2

All windows shall be installed in proper frames and at the approved location and height. Nails and screws shall be neatly set and all wood raised in the driving of nails and screws removed. Interior and exterior corner joints on window casing shall be mitered. All exposed edges shall be eased. Jambs at nailing points shall have solid backing.

17.3

When window casings are to be removed and/or replaced for any reason, all voids shall be filled with non-expanding insulating foam sealant, R-13 unfaced batt insulation, or an approved alternative and a continuous vapor barrier shall be installed between framing and jambs.

17.4

When the Scope of Work calls for repair of existing wood window unit, all measures shall be taken to correct any defective component part(s) to include the following: tracks, all missing, deteriorated, decayed, broken or split sashes, balances, stools, sills, aprons, jambs, interior and exterior casings, stops, and all broken or cracked glass. Repair will also include the installation of new window locks, if hardware is missing or defective, new aluminum screen, and weather-stripping and caulking to provide a weather-tight unit. Match existing materials in dimension and detail unless otherwise specified. Ensure for smooth operation of window. Material and procedures for repair work shall be consistent with that specified herein for new window woodwork and glass. All repair materials shall be free of surface defects and imperfections. Remove all loose or deteriorated glazing and prime paint exposed rabbet prior to re-glazing. Glazing compound shall not be applied from caulking tubes. Apply glazing from can in a manner resulting in a smooth beveled finish. Prime repair work immediately upon installation, and paint in accordance with painting specifications. Note: Window repair includes the painting of the inside and outside sash and all exposed interior and exterior trim, unless otherwise noted.

17.5

New window installation includes removal of the existing window and deteriorated framing. Installation of new framing work is necessary to install new window unit plumb and weather-tight. New replacement or new construction windows shall match existing windows in detail

and dimension. New window installation includes insulating and caulking necessary to fill all voids and seal perimeter of window frame, screens and trim as needed to complete the installation. All replacement windows shall be low-E and, tempered windows must be installed in all locations that meet the requirements of a hazardous location per the North Carolina State Residential Building Code.

Additionally, when specified new vinyl windows with screens shall be installed in accordance with manufacturer's instructions and shall include, but not be limited to, the following:

- Opening must be prepared to correct size. Install new "J" channel and siding as required to ensure a water tight seal
- Unit should be mounted plumb, square and level. Properly shim windows in opening
- Do not force unit into place. Twisting or racking of frame will cause distortion
- Replacement windows shall be fastened with screws. New construction vinyl windows shall be fastened with 2 inch roofing nails directly to the framing
- To prevent jamb, head, and sill from bowing, use shim blocking
- To prevent air infiltration, insulate between frame and wall. (Do not use expanding foam insulation or caulking)
- Apply acrylic latex siliconized caulk to provide a weather-tight seal
- Check sill for proper drainage
- CAUTION: Do not use strong cleaning solution, such as brick cleaning muriatic acid or petroleum based cleaners. Use of such products may affect insulated glass seal defects
- Vinyl replacement window installation shall include replacing any deteriorated, decayed, broken, or split stools, sills, aprons, jambs, interior and exterior casings and siding around window. Prime paint all interior/exterior repair work immediately upon completion. Installation also includes capping exterior of unit with vinyl coated aluminum coil and caulk as per outlined above
- All extruded moldings shall carry a lifetime limited warranty; thermal pane glass shall carry a minimum 20-year limited warranty. Vinyl windows shall be equal in quality to those manufactured by CertainTeed
- Installation shall include removal of old window sashes, stops, and all other trim affecting the proper insertion of window within opening, in addition to the requirements listed above. Screens are required as a part of installation, unless noted otherwise!

17.6

Wood window stools shall be provided for all new installations unless written prior approval is given by the Rehabilitation Specialist.

17.7

New insulated glass shall be at least 7/16" thick, or equal to existing, dual sealed Low -E insulated glass equivalent to MW Twin seal. When thermal pane or insulated

glass window installation is specified, installation includes removable window screen.

17.8

New sash installation includes new glass and resetting of existing hardware. Sashes shall be made of grade C or better yellow pine, white pine or Douglas fir in accordance with the National Woodwork Manufacturers' Association standard NWMA IS-2. Prime paint sashes immediately upon installation; follow with two coats of paint in accordance with painting specifications.

17.9

New casings, aprons, stools, jambs, stops, and sills shall be finish grade white pine, grade C or better yellow pine, or Douglas fir with moisture content not exceeding 12% and free from surface defects and imperfections. Corners of casings shall be mitered and set back from frame 1/8" to 3/8".

17.10

Use 8d finish nails to fasten window casings, and 1-1/2" casing nails or brads to fasten stops. Finish nails shall be properly set and holes filled with wood putty or plastic wood. Use 16d galvanized or aluminum nails to fasten exterior brick molding.

17.11

New aluminum windows shall match existing windows in dimension unless otherwise specified. Windows shall be single-hung or sliding with mill or bronze finish, and shall have double panes with insulating air space, screen included. Acceptable manufacturers must meet the compliance standards of the Architectural Aluminum Manufacturers' Association (AAMA) for residential windows. Work includes removal of existing unit, and ensuring a weather-tight and plumb and level installation of new unit.

17.12

If existing storm window units are to be reused, the Contractor is required to size and install new window units to fit existing storm window units.

17.13

New window screens shall be removable aluminum screens. Screen frames shall be a minimum of 3/8 x .020 gauge wire with 14/18 or finer mesh aluminum or vinyl-coated fiberglass screen wire. A vinyl spline shall hold wire mesh in screen frame. Rescreening shall be performed with 14/18 or finer mesh wire; replace screen molding to match existing material.

17.14

When new windows are installed, the installation of new framing and the actual window installation shall be performed on the same day.

18.0 Storm and Screen Doors

18.1

When installation of a storm door is requested, a solid core type shall be required.

18.2

All new storm doors shall be equipped with door closing cylinders and catch chains.

18.3

Solid core storm doors shall be white or bronze with screen and all hardware equal to Larson's "Value Core".

18.4

Aluminum storm and screen doors shall be pre-hung on the frame, shall be custom-made to provide a weather-tight opening when necessary, and shall have a mill or bronze finish. Extruded door frame shall be at least 1-1/4" thick, with top rail and stiles at least 2" wide, and door shall have a heavy-duty kick plate. Minimum thickness of structural members shall be 0.055". Doors shall be fully weather-stripped. Storm door glazing shall be tempered glass or acrylic plastic. Screening shall be vinyl coated fiberglass or aluminum wire. Glass and screen inserts shall be removable. Aluminum storm and screen doors shall conform to the latest specifications of the Architectural Aluminum Manufacturers' Association AAMA 1102.06 (ANSI-A134.4), and shall be equivalent to Croft "Continental" or Andersen brand.

18.5

Installation of new storm door includes installation of all hardware including hinges, latch lock, closure cylinder and storm check. Repair or replacement and painting of damaged casing, jamb, and stop necessary for proper installation are required.

18.6

New wooden screen door shall be two-panel select preservative treated ponderosa pine or approved equivalent material of dowel joint construction, at least 1 -1/8" thick and furnished with 14/18 or finer aluminum or vinyl-coated fiberglass wire. Door shall be installed with three (3) new primed spring-loaded hinges, door closer, rod brace at bottom, and latch. New screen doors shall be installed level and shall be closely fitted to ensure protection from rodent and insect infiltration. Repair deteriorated mounting surfaces and paint in accordance with painting specifications.

18.7

When repair of an existing storm door is specified, replace all missing or torn/broken screens and glass. Install a new vinyl sweep and adjust/repair frame, closer, hinges, handle and latch to ensure proper operation.

19.0 Storm Windows

19.1

Aluminum storm windows shall be of the triple-track type, fully weather-stripped with interlocking inserts and screens. Frame shall be of extruded aluminum, mill or bronze finish. Storm windows shall be custom-made to provide a weather-tight opening when necessary. Minimum thickness of structural members shall be 0.045". Storm window glazing shall be B quality or better. Screening shall be vinyl coated fiberglass or aluminum wire, 14 x 18 or finer mesh size. Windows shall be capable of being locked in at least four positions. This specification includes installation according to manufacturer's specifications. Repair or replacement and painting of damaged casing, jamb, and stop necessary for proper installation are

required. Windows shall be installed with a margin space around perimeter necessary to prevent distortion of frame. Storm windows with screens shall conform to the latest specifications of the Architectural Aluminum Manufacturer's Association AAMA 1002.8 (ANSI-A134.3).

19.2

Caulk tops and sides of storm windows after installation; leave drainage openings at bottom of window.

19.3

When repair of an existing storm window is specified, replace all missing or torn/broken screens and glass. Seal the perimeter of the storm window with acrylic latex caulk and verify that weep holes are open to permit proper drainage.

20.0 Porches, Columns and Railings

20.1

All exterior porch, landing, and deck construction required by the Scope of Work shall be constructed in accordance with the minimum means of egress standards specified in Section R311 of the North Carolina State Residential Building Code.

20.2

All wood landing, porch, and deck construction specified in the Scope of Work shall be constructed in accordance with Appendix M "Wood Decks" of the North Carolina State Residential Building Code.

20.3

Replacement of wooden porch floors requires installation of 5/4" minimum weather-resistant, pressure-treated pine decking and installation of replacement joists if necessary to meet spacing requirements.

20.4

Repair wooden porch floors with pressure treated or approved durable wood material to match existing material. Re-nail loose porch floorboards and remove all damaged, wet, rotted, warped or insect-infested material when repairing porch flooring. Install new floor framing under repaired areas as necessary to meet structural requirements. If existing floor is painted, paint entire porch flooring accordance with painting specifications, unless otherwise noted.

20.5

For new porch ceilings that call for the installation of plywood, install 3/8" AC exterior plywood, spacing joints as evenly as possible. Install 3/8" thick lattice strips over joints. Trim perimeter with 2" bed molding. Prime and paint in accordance with painting specifications.

20.6

When repairing existing porch ceiling, remove, cut, re-nail, or patch to obtain a smooth surface and match existing porch ceiling. Use new AC exterior plywood for ceiling repairs. Replace any deteriorated ceiling mold to match existing material. If existing ceiling is painted, repair shall include the painting of the entire porch ceiling in accordance with painting specifications, unless otherwise noted.

20.7

Wrought iron corner columns shall have 1" square framing members with scroll design and socket mounts. Each side of the column shall be at least 9" wide. Columns shall be prefinished and touched up after installation or primed and painted in accordance with painting specifications.

20.8

Wrought iron porch railings shall have 1-1/4" x 7/8" top and bottom rails, with spindles code approved. They shall be anchored to house, columns or floor as applicable. Support posts shall be at least 1-1/4" square. Railing shall be prefinished and touched up after installation or primed and painted in accordance with painting specifications.

20.9

New wooden porch guard railings shall be constructed in accordance with the North Carolina State Residential Building Code requirements.

20.10

Repair existing porch screens with 14/18 or finer mesh aluminum or vinyl-coated fiberglass screen wire. All laps shall run vertical and sections shall be securely stapled to frame. Repair all deteriorated wooden members with Southern Yellow Pine (C or Better Grade), or SPF (Trim Grade), rough redwood, or cedar, and paint after installation in accordance with painting specifications.

20.11

New porch screens shall be constructed of a 2" x 4" pressure-treated lumber frame and 1/4" x 1 -1/2" pre-painted screen molding, nailed every 6". Porch screen shall be 14/18 or finer mesh aluminum or vinyl-coated fiberglass screen wire.

21.0 Steps and Stairways

21.1

Repair existing wood steps and stringers to match existing material and to meet structural requirements of Section R311.5 of the North Carolina State Residential Building Code. New exterior wood steps shall have treads of two 2" x 6", spaced 1/2" apart, overhanging front of stringer 1-1/8". Maximum riser shall be 8-1/4". Tread shall not be less than 10" wide. Use three stringers supported on concrete footings at ground level. Wood shall be pressure-treated yellow pine. Stringers shall be 2" x 12" nominal size.

21.2

New interior stairways shall be constructed in strict accordance with Section R311 of the North Carolina State Residential Building Code.

21.3

Precast masonry steps shall be of a type approved by the American Concrete Institute or comparable, and shall be installed in accordance with Section R311 of the North Carolina State Residential Building Code and manufacturer's specifications. New concrete steps must be a minimum of 4 LF wide; footers shall be provided at least 12" below grade.

21.4

Wrought iron handrail shall be installed in accordance with Section R311 of the North Carolina State Residential Building Code and manufacturer's instructions.

21.5

Wooden handrails shall be, at a minimum, constructed of 4" x 4" pressure-treated posts, 2" x 4" pressure treated top and bottom rails, 2" x 2" pickets shall be installed in accordance with the North Carolina State Residential Building Code.

21.6

All new exterior steps, when specified, shall terminate into a finished concrete landing pad not less than 36" x36".

22.0 Interior Partition Wall Construction

22.1

New interior stud walls shall be constructed of materials and designed as outlined in Sections R602.4 (load-bearing walls) and Section R602 (non-load-bearing walls) of the North Carolina State Residential Building Code. Fire blocking shall be installed as outlined in Section R602 of the North Carolina State Residential Building Code. Wall covering, molding, and baseboard for repaired or new partitions shall match existing or specified materials in remainder of room, and material and installation requirements shall be as specified herein for repaired or new gypsum wallboard, paneling, molding and baseboard. Interior walls of new closets shall match existing or specified wall covering materials for remainder of room.

22.2

New interior walls separating unconditioned space from conditioned space shall be insulated to a minimum R-13 factor.

22.3

Any relocation or removal of existing partition walls includes the relocation and/or removal of all plumbing lines and electrical wiring.

22.4

In new clothes closets, install a double shelf consisting of two stacked 8" shelving boards or one 16" deep shelf, with a minimum of 8" clear space above shelf. Particle board shelving is not allowed. Install a 15/16" chrome closet rod or a properly braced wooden clothing rod with a minimum of 2" clearance below shelf.

22.5

In linen closets, install five 16" wide shelves spaced approximately 12" on center. The bottom shelf shall be between 18" and 24" above the floor and the top shelf shall have at least 8" of clear space above the shelf.

22.6

When a write-up or change order calls for the installation of a closet, install the size specified to include the following as a minimum:

- Shelf with rod
- Framing

- Wall finish as specified, or match existing wall finish
- Base and ceiling molding
- A minimum of a 2' 4" door complete with frame, casing, hardware and lockset
- Paint and/or finish all new materials
- Floor Covering

23.0 Attic Access

23.1

New attic access shall be installed in accordance with Section R807 of the North Carolina State Residential Building Code. When attic access is specified to be enlarged to meet code requirements, frame out ceiling so as to provide a net clear opening of 20" by 30". Install 3/4" AC or BC grade plywood or drywall hatch. Trim with 1 1/16" x 2-1/2" casing mold with mitered corners. Prime all wood surfaces, then paint with two coats of interior trim paint to match ceiling. If the insulation exceeds the height of the ceiling joists, a wooden retaining wall shall be installed in the attic area around the opening to contain the insulation. Weather-strip (with solid cell foam insulation strip) and insulate hatch to provide a resistance factor equivalent to R-31. No attic access shall be installed in closets.

23.2

Attic stairs (disappearing stair unit) shall be made of kiln-dried clear pine. They shall have two metal support arms and wood handrail. Hinges shall be concealed. Steps shall have steel spring counter balances. Install and trim with 1 1/16" x 2-1/2" casing mold with mitered corners. Prime all wood surfaces, then paint with two coats of interior trim paint, with color to match ceiling. Install R-10 attic tent over stair access. Please refer to:
http://www.pesinc.org/Energy_Shield/Energy%20Shield%20I.htm

24.0 Insulation

A certificate signed by the installer verifying the R-Value of the insulation is required to be attached in a conspicuous manner to a framing member immediately inside the attic or crawl space access door. Additionally, a copy of the certificate shall be provided to the Rehabilitation Specialist prior to final inspection and attached in the attic visible from the access door.

24.1

All insulation materials shall meet the material specifications outlined in Section R316 of the North Carolina State Residential Building Code.

24.2

When specified new ceiling insulation shall be installed over all conditioned areas to the maximum amount feasible in order to result in a rating factor of R-38. The Contractor should bid an amount to cover the installation of R-38; any reduction in R value that is required because of attic restrictions shall be adjusted in a change order. Contractor shall ensure that there are no voids present in the insulation assembly to include "tray and slanted ceilings" and attic knee walls. Install either blown-in or batt insulating material uniformly throughout the entire ceiling area to provide the maximum thermal resistance factor allowed. Baffles shall always be installed between rafters and soffit opening. When blown-in ceiling insulation is installed, construct a wooden retaining wall around the attic access door to a height sufficient to retain the insulation.

24.3

When floor insulation is specified, install faced batt insulation paper side up to provide an R-19 thermal resistance factor. Fasten properly with approved retainers to provide uniform support throughout the entire crawl space area without crushing and to fill all voids. Before insulating, seal all holes in the subfloor, including gaps around plumbing fixtures and utility chases with acrylic/silicone Low VOC caulk or expanding/ non-expanding foam. Insulation must be continuous, including at mudsill/band areas and through cross-bridging.

24.4

For new exterior stud walls, install faced batt insulation paper side in to provide an R-13 thermal resistance factor. Insulating material for exterior wall repair will be required only if specified in the Scope of Work.

24.5

New masonry block exterior walls should be insulated by installing pressure treated 1"x 4" nailing strips vertically or horizontally, 16" on center, on interior block surfaces, with ¾" rigid insulation board cut to fit snugly between nailers. A continuous 6 mil polyethylene moisture barrier must be stapled to the nailers prior to installation of finished wall material.

24.6

When asbestos insulation is discovered during demolition of existing walls, or during insulation work, do not remove the material. Please contact the rehabilitation specialist immediately for instructions.

24.7

Faced batt insulation shall have vapor barrier installed to warm side of house.

24.8

Insulation shall be installed according to manufacturer's specifications.

24.9

Weather-stripping shall be extruded aluminum and vinyl bubble type.

24.10

If specified, all water connection lines in unconditioned spaces shall be insulated with 1" preformed foam insulation or equivalent insulation material suitable for use on pipes and meeting the minimum standards of ASTM C592-80 and ASTM E84. Insulation shall be installed so that no gaps exist and shall be securely fastened in accordance with the North Carolina State Residential Building Code and the Manufacturer's instructions.

25.0 Gypsum Wallboard (Sheetrock)

25.1

All interior gypsum board (sheetrock) shall be installed in accordance with the material and installation requirements specified in Section R702 of the North Carolina State Residential Building Code.

25.2

Wallboard shall be gypsum wallboard with tapered edge plain complying with American Society of Testing Materials Standard C-79, and shall have a flame spread and smoke density rating in accordance with of the North Carolina State Residential Building Code. Wallboard shall match existing thickness for repair work, and shall be ½" thick for new construction, unless a greater thickness is required by the North Carolina State Residential Building Code for firewall construction, or a lesser thickness is specified to cover an existing surface. Wallboard shall be installed at right angles to the supporting structural members in as long a length as possible. Nails and screws shall be driven with their shanks perpendicular to the face of the board and seated below the surface of the board without breaking the paper. Nails and screws shall be driven at least 3/8" from panel ends and edges. Sheetrock shall be fastened with nails or screws as specified in the North Carolina State Residential Building Code.

25.3

Joint tape and compound shall conform to ASTM Standard C475, Treatment Materials for Gypsum Wallboard, and shall be applied according to manufacturer's specifications. A minimum temperature of 55°F shall be maintained in the room where the work is done until the cement is completely dry. Over joints the tape shall be embedded in joint compound and covered with a thin layer of compound; a second and a third coat shall be applied. Each coat shall be dry before applying the next coat. Each coat shall be feather-edged and extended beyond the previous coat approximately 2". The finish coat shall be sanded lightly and any imperfections filled in prior to any painting or decorating. Nails or screws shall have three applications of joint compound, allowing time to dry between each coat. The final coat shall be sanded lightly before application of paint or other decoration.

25.4

Inside corners shall be reinforced with tape embedded in joint compound. Outside corners shall be protected by galvanized wallboard corner beads for finishing with joint treatment. Corner beads shall be finished with three coats of joint compound.

25.5

Extend electrical outlets and switch boxes to accommodate gypsum wallboard.

25.6

Existing window, door and baseboard trim shall be left in place unless otherwise specified, and gypsum wallboard shall be carefully abutted thereto.

25.7

When repair of sheetrock walls or ceiling is specified in the write-up, the repair includes, but is not necessarily limited, to the following:

- Taping and finishing all areas where tape is loose or peeling, or where existing joints are improperly finished
- Nail holes and other indentions smaller than a dime may be filled with compound and sanded smooth. Patch all larger holes cutting out section of damaged sheetrock and apply a sheetrock patch secured to wall framing and finish in accordance with specifications for new sheetrock installation above
- Nails that have "popped" out and bulges should be removed and a drywall screw applied when the condition of the drywall permits; otherwise, drive existing nails back into stud, mud and finish in accordance with proper techniques described for new sheetrock construction above
- Sand out any existing imperfections and clean surface. Apply stain block primer equal to "Kilz" prior to painting in accordance with painting specifications.

26.0 Plaster

26.1

All interior plaster finishes shall be installed in accordance with the material and installation requirements specified in Section R702 of the North Carolina State Residential Building Code.

26.2

If lath is in sound condition, nail securely and apply plaster. Wood lath shall be wetted down prior to applying plaster. If lath is in poor condition, remove and replace with expanded metal lath. Use 4-mesh rib lath, installed according to manufacturer's directions. Nail to studs or block out with 2" x 4" lumber as needed. Fasten with 4d nails spaced approximately 6" on center. Gypsum plaster materials shall be standard commercial brands. Mix and application of gypsum plasters shall be in accordance with ASTM No. A42.1, American Standard Specifications for Gypsum Plastering. Thickness shall be in accordance with Table 702.1(1) of the North Carolina State Residential Building Code; minimum thickness shall be 1/2". Repair of plaster walls or ceilings includes filling all cracks and holes and provision of a monolithic, smooth and blemish free professionally-finished surface.

27.0 Wall Paneling

27.1

Paneling shall be 1/4" or thicker when installed over stud walls, or 1/8" or thicker when installed over existing wall covering, prefinished or plastic-finished hardboard (Masonite) panels, luan plywood panels, or plywood panels, with color specified by Homeowner, from a minimum of four samples. Paneling material shall be in accordance with specification R702.5 of the North Carolina State Residential Building Code, and shall have a flame spread and smoke density rating in accordance with the North Carolina State Residential Building Code. Composition or pressboard paneling is not acceptable. Paneling should be applied in accordance with manufacturer's specifications. Fasten with 1-1/4" long nails spaced 6" apart at edges and 12" apart elsewhere. Use prefinished, color coordinated nails or cover holes with stick putty made to match paneling. Contact glue should be used in all cases when applied over existing wallboard or plaster walls. Apply with caulking gun in accordance with manufacturer's instructions. If paneling is installed over an existing wall covering, utilize 1-5/8" or longer nails to penetrate into framing members. Extend electrical outlets and switch boxes to accommodate new paneling. Where there is no backing or studs are spaced more than 16" on center, additional studs shall be installed to achieve required spacing. Installation of paneling includes installation of new 2- 1/2" crown molding, 3 - 1/4" baseboard, and corner molding, unless otherwise specified.

27.2

When installation of new paneling is requested and old paneling is in place, remove old paneling and discard prior to new application, unless specifically noted.

27.3

When paneling is to be applied over plaster, loose and bulging plaster shall be removed prior to installation. Be sure remaining plaster is secured and stable to prevent crumbling when paneling is applied.

27.4

If loose paneling is to be repaired, paneling shall be glue and nailed to form a tight bond with the underlying surface.

27.5

Existing baseboards and door and window casings shall be left in place except where specified in Scope of Work, and paneling shall be carefully fitted around all door and window casings and butted against the baseboard.

28.0 Water Resistant Wall Finishes

28.1

On new exterior or partition stud walls, 3/8" BC exterior plywood or 3/8" water-resistant gypsum board conforming to Section R702 of the North Carolina State Residential Building Code shall be screwed to studs and blocking with corrosion-resistant drywall screws spread approximately 7" apart prior to installation of ceramic tile or non-absorbent finish material (tile board or tub/shower enclosures). Tile board shall have a flame spread and smoke density rating in accordance with the North Carolina State Residential Building Code. Installation of tile board over bare studs or masonry walls is not allowed. When installing finish material over existing walls (gypsum, plywood, or plaster only), remedy defects in existing surface and framing to provide a sound, level and smooth surface or install backing if specified in Scope of Work. Finish material shall be installed according to manufacturer's specifications. Apply a waterproof adhesive meeting the requirements of ASTM Specification C-557-65T to back of panel and then install on proper backing. No nails or other fasteners shall be used to attach tile board panels to underlying surface. Do not apply water-resistant material to masonry surfaces without applying a proper backing.

28.2

The installation of crown molding is required with the installation of tile board unless otherwise noted. Install molding trim in accordance with manufacturer's instructions. Do not fit the panels tightly into the molding; leave approximately a 1/8" space for expansion. In wet areas, using silicone caulk, caulk the full length of the inside of panel moldings to cover panel edges and, caulk around fixtures. Use trim at corners, edges and all joints.

28.3

Tub enclosure units shall consist of molded fiberglass material, consisting of three panels with integral soap dish, and shall be of the type that each section interlocks with the other. Units shall be installed strictly in accordance with manufacturer's recommendations.

28.4

Tile shall be 4-1/4" x 4-1/4" x 5/16" glazed finish, standard grade as defined by the American National Standards Institute and Section R702 of the North Carolina State Residential Building Code. Tile shall be set in mastic adhesive complying with National Standards Institute A-136.1 and applied according to manufacturer's instructions. Grout all joints using latex, epoxy, or mastic material. Clean up all surfaces after installation.

29.0 Ceiling Finishes

29.1

New gypsum board (sheetrock) specified for repair or replacement of existing ceilings, and for new ceiling construction, shall be installed in accordance with Section R702 of the North Carolina State Residential Building Code.

29.2

To install new ceiling tile with furring strips, install 1" x 4" pine furring strips spaced 12" on center on existing ceiling joists. Fasten to each ceiling joist with two 8d or longer nails. Shim ceiling joists or existing ceiling as necessary to provide a level surface. Install 12" x 12" thick mineral fiber or wood fiber tile, similar to Armstrong "Cushiontone." Tile shall have Class C flame resistance. Tile shall be white or off-white, with rough finish. Tile shall have tongue and groove edge, to be blind stapled to wood furring in accordance with manufacturer's recommendations. Lay out ceiling tiles so that the border tiles on the opposite side of the room are of equal width. Install crown molding to produce finished ceiling job. All installed ceiling tiles shall be free from dirt and hand prints.

29.3

If textured spray finish is specified over existing ceiling, repair and finish ceiling properly first, prime ceiling with "kilz" or equivalent stain block product in quantity necessary to prevent all bleed-through effect prior to applying the finish application. Add approved interior paint to finish mixture at the rate recommended by manufacturer.

30.0 Vinyl Flooring and Carpeting

30.1

When repairing existing underlayment, re-nail or screw loose subfloor and underlayment, remove existing damaged materials to nearest point of undamaged material, and install new underlayment grade plywood to match thickness of existing material. All underlayment grade plywood shall be manufactured with exterior glue. Re-nail subfloor before installation of new underlayment.

30.2

All foreign materials shall be removed from existing or new underlayment prior to installation of new vinyl or carpet floor covering. Nails and screws shall be countersunk and all holes shall be filled.

30.3

When new underlayment is specified for a room, first remove existing floor covering materials to subfloor, then re-nail/screw subfloor to joists as required to provide a solid base for installation of new underlayment. New underlayment shall be at a minimum, 3/8" underlayment grade nailed with 4d ring shank nails, slightly recessed. ALL underlayment grade plywood shall be manufactured with exterior glue, spacing to be not more than 6" center to center in the panel interior, and 4" center to center along panel edges. Sand and fill underlayment so as to provide smooth, even base. Allow for expansion of underlayment at perimeter of area. Store the underlayment material in the area of installation for 24 hours before installation.

30.4

Install a minimum 1/4" luan or a manufacturer approved leveler base over existing subflooring/underlayment before laying new vinyl floor covering. Sand and fill underlayment to provide a smooth, even base for vinyl installation. Finally, sweep underlayment and recess exposed nails prior to installing vinyl. Before spreading adhesive, be sure underlayment is completely clean and dry. Use water-resistant adhesive recommended by flooring manufacturer and apply in accordance with manufacturer's instructions. Seams will be permitted only if room dimensions are larger than stock sizes of flooring material. Any seams shall be placed in inconspicuous locations, away from heavy traffic areas and welded together using the proper seam sealer recommended by the manufacturer or supplier. Fitting and cutting shall be done carefully so as to produce an inconspicuous finish. Use aluminum edge trim at doors and other open spaces. Aluminum strips shall not be allowed to be installed over seams within room area, only at cased openings! Roll vinyl to remove bubbles and ensure firm adhesion. Vinyl installation shall include installation in closets unless otherwise specified.

30.5

New vinyl floor covering shall be FHA-approved, equivalent to or better quality than the no-wax "Toughguard Initiator" series manufactured by Armstrong with a minimum thickness of .055" of printed construction. Vinyl floor covering shall have a mildew resistant rearguard protection and shall be scuff resistant. Note: A manufacturer's warranty and specification sheet is required to be turned into the Rehabilitation Specialist along with all other project warranties prior to close-out.

30.6

For repair or new installation, color and pattern of cushioned sheet vinyl flooring shall match existing material, or shall be selected from at least four samples by Homeowner. Flooring shall go under all fixtures that can be removed without damage to the fixture. All vinyl floor covering must be installed in accordance with manufacturer's requirements, and shall be installed by a professional installer approved by the rehabilitation inspector. The installer shall provide a minimum one-year warranty covering the quality of workmanship.

30.7

After installation of new vinyl floor covering, install new 3/4" shoe moldings, which shall be painted or varnished prior to installation. Miter or cope all corners and joints. Reinstall any fixtures removed. Thoroughly clean floor to remove any adhesive, manufacturer's marks, scuff marks and dirt.

30.8

To repair concrete floors, remove grease, dirt and other substances from concrete base. Patch any cracks, holes or other irregularities using a mastic underlayment containing Portland or gypsum cement with a chemical binder such as latex, asphalt or polyvinyl acetate resins. Trowel to a smooth, hard finish. After the patches are completely set, prime concrete in accordance with manufacturer's recommendations.

30.9

New carpeting shall be installed by an approved professional installer in accordance with manufacturer's instructions. Carpet shall be FHA-approved 28 oz. face weight, low VOC nylon with a stain guard protection, shall carry a minimum of a 10-year warranty, and shall be installed with a 6 lb. rebond pad; minimum thickness of carpet pad shall be 3/8". Note: A manufacturer's warranty and specification sheet is required to be turned into the Rehabilitation Specialist along with all other project warranties prior to close-out. Pattern and color shall be selected by the Homeowner from among four samples. Selection shall be limited to a maximum of four color choices per dwelling. Installation of carpet shall include installation in closets unless otherwise specified.

30.10

If specified, new laminate flooring shall be installed in accordance with the manufacturer's instructions and shall be equivalent to the "Swiftlock" laminate floor manufactured by Armstrong. Installation includes underlayment pad and 3/4" shoe molding varnished to match the flooring material. The Contractor shall provide the Rehabilitation Specialist with the manufacturer's specification sheet and installation instructions prior to installation of laminate flooring systems.

31.0 Molding and Baseboard

31.1

Finish work shall be finished smooth, free from machine or tool marks, abrasions and raised grain on exposed surfaces, and shall be sanded and hand dressed to a smooth finish. Nails shall be countersunk and nail holes puttied smooth with surface.

31.2

All crown molding for repair, replacement, or new construction shall be clear or better grade white pine or poplar, or shall be pre-finished wood. Crown molding shall be at least 1-5/8" wide. Mill work shall be accurately milled with clean-cut moldings and profiles. Repair work shall match dimensions and type of existing

molding. Millwork shall be planed, scraped and/or mill sanded to produce proper surface for painting or varnishing. All joints shall be carefully fitted, with mitering of external angles and coping of internal angles.

31.3

Baseboard shall be wood, clear or better spruce or pine, free of surface defects and imperfections, fastened with 8d finish nails, properly set and puttied. Baseboard size for repair work shall match existing. New baseboard shall be a minimum of 1/2" X 3-1/4".

31.4

Prime paint or stain new wood molding prior to or immediately after installation; paint in accordance with painting specifications for interior trim.

31.5

Finger joint material must be painted, and will not be stained or clear finished under any circumstances.

32.0 Cabinetry

32.1

Cabinets shall be sized in accordance with the Scope of Work, and shall comply with the requirements of the American National Standards Institute (ANSI) A-161.1, "Recommended Minimum Construction and Performance Standards for Kitchen Cabinets". Cabinets shall be installed, plumb and true, in accordance with manufacturer's specifications. Cabinets shall be attached with screws to studs or other framing members. Trim out all joints between cabinets and wall and ceiling with prefinished trim. All new cabinets shall be color matched. Homeowner shall be provided with color samples prior to ordering or construction. Cabinets must be constructed of wood or plywood as specified below. The design and materials of custom made cabinets must be approved by the Rehabilitation Specialist prior to construction/installation. Cabinets that come with exposed particle board components will not be permitted under any circumstance. Base cabinets shall include preformed Formica counter tops and trim. On-site construction of counter tops and the installation of Formica shall not be allowed without prior approval of Rehabilitation Inspector. Installation of cabinets includes application of wood sealer to all wooden shelves and provision of all required hardware. Please review selection of cabinets with Rehabilitation Inspector prior to installation. Mecklenburg County requires an electrical permit be pulled for any kitchen and bathroom cabinet replacement.

32.2

Kitchen base cabinets shall be 36" high and 24" deep. Base cabinets outside the sink area shall have minimum of one shelf. Unless otherwise specified.

32.3

Kitchen wall cabinets that are 15" to 29" high shall have one shelf; wall cabinets 30" or taller shall have two shelves.

32.4

Shelving for base and wall cabinets shall be a minimum of 1/2" standard softwood; plywood fronts must have veneer edge.

32.5

Standard softwood shall be utilized for interior framework (no particle board). 3/8" thickness shall be required for cabinet backs and drawer sides and bottoms, and 1/2" thickness shall be required for cabinet bottoms and unexposed end panels.

32.6

Solid maple or approved equal shall be utilized for all face frame members, drawer faces, doors, and exposed end panels.

32.7

All doors and drawer facings shall be plain with beveled edges. Door and drawer pulls shall be included.

32.8

All joints shall be screwed together, flush and even.

32.9

Hinges shall be recessed "European" style adjustable hinges.

32.10

Countertops in kitchen to be "Formica" or "Wilsonart" post formed brand laminate with 4" back splash. Counter top deck shall be B grade 3/4" plywood with a 1 -1/2" nosing. Customer to choose color and style of laminate from builder supplied samples. Underside of drip edge shall be sealed with clear polyurethane at kitchen sink location.

32.11

Medicine cabinets shall be equivalent to Nutone "Ashton" Model 625N244BZPX and always recessed into wall cavity unless otherwise noted by the Rehabilitation Specialist. Minimum size of medicine cabinet shall be 24"x 15"x4". Cabinet shall have at least 3 shelves and mirror.

33.0 Painting

33.1

The Contractor shall perform a preliminary examination of all surfaces before beginning any paint application in order to determine that all work of other trades

and all surface preparation have been properly completed and that the surfaces are in approved condition to receive paint or stain. All woodwork to receive paint or stain is to be caulked and thoroughly sanded, dusted, and is clean. Collected dust is to be removed before preliminary paint work is begun.

33.2

All paint shall be low VOC and of quality acceptable to the Rehabilitation Specialist. Acceptable manufacturers include the following: Glidden, Benjamin Moore, Devoe, Duron, Pittsburgh, Sherwin-Williams, Sears, and Lowe's. Other brands must be approved by the Rehabilitation Inspector. Paint shall be delivered to site in manufacturer's sealed containers. Each container shall be labeled, giving manufacturer's name, type paint, color and instructions. Paint shall be used without thinning. All paint colors selected shall be standard pre-mixed colors.

33.3

Interior finish paint shall carry a minimum 10-year warranty. Exterior finish paint shall carry a minimum 15-year warranty. The use of lead-based paint for any application is strictly prohibited.

33.4

Reduction and application of paint, stain or varnish shall not be performed in any way except as recommended by the manufacturer. Use solvents or thinners only of type and in quantity recommended by paint manufacturer. All written instructions of the manufacturer shall be read and followed by the Contractor.

33.5

Colors shall always be selected by the Homeowner from a color document provided by the Contractor. A maximum of four colors of paint or one stain/clear finish may be designated for each interior room, with a maximum of three color combinations for an entire interior. A maximum of two colors may be designated for the exterior.

33.6

Paint shall remain on-site in original containers until the final inspection has been performed.

33.7

Paint shall be applied in dry weather to dry surfaces, within a temperature of 50°F. to 95°F.

33.8

Finished work shall be uniform, of approved color, smooth and free from runs, sags, and defective brushing or rolling, with no evidence of poor workmanship. Make edges of paint adjoining materials or colors sharp and clean. Care shall be exercised to avoid lapping of paint on glass or hardware. Paint sharply cut lines. Finished paint surface to be free from defects or blemishes. All exposed nails shall be set and holes filled prior to painting.

33.9

All areas not being painted shall be protected at all times with drop cloths. Any surfaces damaged by painters shall be repaired or replaced. Remove existing storm windows and doors before painting exterior trim, reinstall following painting. All window glass shall be left clean and free of paint and windows shall be in operable condition. All shrubs and plants shall be protected in an approved manner or replaced by Contractor at no added cost to the Homeowner.

33.10

If spray painting is specified in the write-up, the Contractor must have the Rehabilitation Specialist's approval of the application mix prior to application. Under no circumstances shall spray painting be substituted for brushing or rolling without the approval of the rehabilitation specialist. Any surface spray painted without prior approval will be repainted with brush or roller.

33.11

All surfaces to be finished shall be adequately covered with sufficient coats, and a uniform color and finish. The number of coats herein specified as being a minimum shall be one prime coat and two coats to produce a first class job. All unpainted wood shall receive a prime coat before painting, and two finish coats.

33.12

All electrical fixtures and cabinet hardware shall be removed prior to painting. Missing and damaged cover plates and hardware shall be replaced after painting is complete. Any such items that have residual old paint, or are painted over, shall be cleaned or replaced at Contractor's expense.

33.13

Walls and ceiling surfaces with moisture or mildew conditions shall be made free of those conditions and properly prepared for painting.

33.14

Contractor shall be responsible for sealing any greasy or soiled surfaces prior to painting as necessary to prevent any bleed through effect.

33.15

Contractor shall shellac all knotholes, pitch pockets or sappy portions in existing woodwork before preliminary painting. Nail holes, cracks or other defects shall be carefully puttied. New wood shall receive a prime coat before painting.

33.16

All new exterior and interior wood surfaces to be painted shall be inspected by the Contractor to determine if all other trades have made proper and complete installation. All knots, pitch pockets or sappy portions to be shellacked or sealed with knot sealer. All exposed nails to be set. Fill all imperfections and sand

smooth. All dust to be collected and removed from job. New wood shall receive a sealer/prime coat before painting. Two coats of paint alone will not be sufficient.

33.17

Existing exterior wood surfaces to be painted shall be thoroughly scraped and sanded to remove loose, cracked and scaly paint and rough spots. Where previous paint coats have chipped and peeled, the edge shall be sanded down to obtain a smooth surface before new paint is applied. Thoroughly wash siding before painting. Scrub any mildewed areas, using a solution of chlorine bleach and water. Preparation of previously painted wood shall be performed by the Contractor by scraping, wire brushing and power sanding. Remove all defective material such as peeling, blistered, or scaling paint. Replace rotted, damaged and defective siding or other inadequate material prior to painting. Fill all imperfections. A surface conditioner shall be applied to all weathered or bare wood before any paint is applied.

33.18

Before painting the exteriors of windows, remove loose or shrunken glazing compound or putty. Thoroughly clean the rabbet, and apply one coat of primer. After primer is dry, re-glaze.

33.19

Masonry surfaces to be painted shall be scraped; wire brushed and allowed to dry thoroughly. Preparation of stucco or masonry block shall be scraped, wire brushed, sandblasted or another method will be used to remove all loose and defective material. Before painting, scrape the surfaces with a mixture of TSP and water, and brush the surfaces to remove dust or other materials. Clear all cracks, chipped corners, fill with proper material. All unpainted surfaces must be sealed and primed prior to painting. Other preparation methods must have prior approval from the Rehabilitation Specialist.

33.20

Metal surfaces to be painted shall be scraped, wire brushed and sanded to remove loose paint, rust and scale. All foreign material; i.e., oil, rust, grease, etc. shall be completely removed. All existing and new surfaces shall be primed before painting. Prepared metal surfaces shall receive sufficient paint to insure complete coverage. Any indication of defective surface preparation will be cause for repeat preparation and repainting at no extra cost to Homeowner.

33.21

Interior wood surfaces shall be cleaned of all grease and dirt using a product designed to produce a clean and paintable surface. Rinse thoroughly. Remove all loose, blistered or otherwise defective paint. Set nails; fill in all cracks and other minor irregularities. Sand thoroughly, and prime all bare wood. Nail holes, cracks or other defects shall be carefully puttied with paintable wood filler product. All knotholes or sappy surfaces shall be shellacked prior to painting. Proper preparation

is required when applying a new coating to an existing painted finish. Enamel surfaces shall be primed prior to painting.

33.22

Interior sheetrock to be painted shall be prepared for painting regardless of whether the sheetrock is repair or new construction. Existing sheetrock should be prepared for painting in a manner similar to that utilized for new work, so that new construction and existing walls have a uniform appearance when painting is completed. All existing sheetrock shall have screw indentation and holes filled. All damaged or missing portions shall have new sheetrock properly installed. All tape at joints that is loose or missing will require new tape and finish to have a uniform and professionally finished surface. All drywall joints are to be taped and finished in a workmanlike manner, including texture. All mudded surfaces and raw/new drywall shall be primed before painting.

33.23

Cracks and holes in existing plaster walls and ceilings shall be filled and plaster shall have a uniform and professionally finished surface.

33.24

To finish wooden floors, set all exposed nail heads to recess below wood surfaces, unless otherwise specified. Sand the floors to remove existing finish, using fine sandpaper for final sanding. Carefully vacuum to remove all traces of dust before applying finish. Apply polyurethane finish in two coats, allowing ample time to dry between the first and second coat.

33.25

All debris related to painting activities shall be removed from the job site, and the job site shall be left clean and ready for use. All windows shall be free of paint and operate properly.

33.26 Surface Preparation

- Drywall (Interior and Exterior)
- Must be clean and dry. All nail heads must be set and spackled. Joints must be taped with joint compound. Spackled nail heads and tape joints must be sanded smooth and all dust removed prior to painting. Exterior surfaces must be spackled with exterior grade compounds
- Galvanized Metal
- Allowed to weather a minimum of 6 months prior to coating. Clean per SSPC-SP1 using detergent and water or a degreasing cleaner, then prime as required. When weathering is not possible or the surface has been treated with chromate's or silicates, first Solvent Clean per SSPC-SP1 and apply a test area, priming as required. Allow the coating to dry at least one week before testing. If adhesion is poor, Brush Blast per SSPC-SP7 is necessary to remove these treatments

- Previously Coated Surfaces
- Maintenance painting will frequently not permit or require complete removal of all old coatings prior to repainting. However, all surface contamination such as oil, grease, loose paint, mill scale, dirt, foreign matter, rust, mold, mildew, mortar, efflorescence, and sealers must be removed to assure sound bonding to the tightly adhering old paint. Glossy surfaces of old paint films must be clean and dull before repainting. Thorough washing with an abrasive cleanser will clean and dull in one operation, or, wash thoroughly and dull sanding. Spot prime any bare areas with an appropriate primer
- Recognize that any surface preparation short of all removal of the old coating may compromise the service length of the system. Check for compatibility by applying a test patch of the recommended coating system, covering at least 2 to 3 square feet. Allow to dry one week before testing adhesion per ASTM D3359. If the coating system is incompatible, complete removal is required
- Wood (Exterior)
 - Must be clean and dry. Prime and paint as soon as possible. Knots and pitch streaks must be scraped, sanded, and spot primed before a full priming coat is applied. Patch all nail holes and imperfections with a wood filler or putty and sand smooth
- Wood (Interior)
 - All finishing lumber and flooring must be stored in dry warm rooms to prevent absorption of moisture, shrinkage, and roughening of the wood. All surfaces must be sanded smooth, with the grain, never across it. Surface blemishes must be corrected and the area cleaned of dust before coating

33.27

The types of paint to be applied to various surfaces shall be in accordance with:

Type	Primer	Minimum Coats	Finish	Minimum # of Coats
Interior Walls & Ceilings	Latex/Alkyd Sealer (1)	1	Semi-gloss Latex Wall Paint Low	2
Kitchen and Bathroom Walls	Latex/Alkyd Sealer (1)	1	Semi-gloss Latex	2
Interior Trim	Latex/Alkyd Sealer (1)	1	Acrylic Latex/Alkyd Semi-Gloss Enamel or Clear Wood Finish	2
Clear Finish	Clear Wood Sealer	1	Varnish, Polyurethane	2
Painted Wood Floors	Enamel Undercoat	1	Alkyd Enamel Floor Paint	1
Wood Siding	Latex Exterior Primer	1	Acrylic Latex Paint	2
Iron	Zinc Chromate	1	Acrylic Semi -Gloss	2
Galvanized Steel	Zinc Chromate	1	Acrylic Semi- Gloss	2
Masonry:			Latex Flat	
New	Acrylic Masonry	1	Acrylic Masonry Paint	2
Previously Painted	Primer	1	Acrylic Masonry Paint	2
	Alkali Resistant		Acrylic Masonry Paint	2

Concrete	Primer None			
Exterior Doors & Trim: Wood Metal	Latex Wood Primer Zinc Chromate	1 1	Acrylic/Alkyd Trim Enamel Acrylic Latex Enamel	2 2
Exterior Porches (3)		1	Acrylic/ Enamel with Anti Slip Additive (2)	2
	See 13.24			

[1] Alkyd "Odorless" Primer Sealer is required for all existing interior painted surfaces.

[2] Add Anti - Slip Additive to Exterior Painted Porch and Step Decking

33.28

Do not paint pressure-treated wood on exterior porches.

33.29

All existing painted surfaces must be prime and painted with alkyd primer sealer prior to application of the finish coat. Additionally, please note that neither latex primer nor finish paint is permitted on exterior trim unless specified in the write-up.

34.0 Plumbing

34.1

Any interruption of water/sewer service during plumbing repair of an occupied unit shall not exceed 24 hours. The Homeowner shall be notified at least 24 hours prior to expected interruption, and shall be notified again when the system is operational.

34.2

Plumbing fixtures and material for repair and new construction, if not specified herein or in the Scope of Work for rehabilitation work, shall be of a type specified and installed in accordance with the North Carolina State Plumbing Code. All work shall be performed by a licensed plumbing Subcontractor. Fixtures and material installed or repaired during rehabilitation shall operate safely, without leakage, undue noise, vibration, or water hammer. Faulty fixtures or material not covered by the Scope of Work should be reported to the Rehabilitation Specialist.

34.3

No cross connection between the supply and waste systems shall be allowed. No plumbing fixtures or device shall be installed that will provide a cross connection of any sort between a potable water supply intended for drinking and a polluted water supply, waste pipe or drainage.

34.4

Access for waste system inspections shall be provided. Any drainage or building sewer, or part thereof, which is installed, altered or repaired, and is covered or concealed before being inspected, tested and approved, shall be uncovered for inspection upon notice.

34.5

Plumbing vents shall be extended with PVC or galvanized steel as necessary to clear top of roof a minimum of 8" and not less than 12" from any vertical surface. All installed vents shall be located in interior walls unless specifically stated otherwise in the Scope of Work or approved by the Rehabilitation Specialist through a change order. All new and existing plumbing vents shall be properly flashed and sealed to prevent water damage to the roof and ceiling.

34.6

When required, the new main shut-off valve shall be located in room where water heater is installed.

34.7

All plumbing penetrations through floors and walls and escutcheons shall be sealed with approved insulating material to ensure a weather-tight seal.

34.8 Upgrade and Repair Interior Plumbing Connection System

To ensure that all new plumbing fixtures and appliances specified in the Scope of Work operate properly and are properly connected to the plumbing system, and that the finished plumbing connection system operates trouble-free, without leaks, water hammer or vibration, the Contractor shall perform the following work items if "Upgrade and Repair Interior Plumbing Connection System" is specified in the Scope of Work:

- For new fixtures or appliances specified in the Scope of Work by individual room, the Contractor shall make any and all improvements to the existing plumbing connection system, including installation of upgraded or new valves, vents, traps, clean-outs, etc., from the point of service connection, to ensure that the new fixture, and the connection system serving the new fixture, operates trouble-free and in accordance with rehabilitation standards enforced by the local building inspection authority. These local standards may involve replacement or upgrade of the plumbing connection system related to installation of the new fixture to meet new construction standards. The Contractor is advised to discuss plumbing standards for rehabilitation with the Rehabilitation Specialist prior to bid submittal. All new materials shall be of a type specified by, and installed in accordance with current standards of the North Carolina State Plumbing Code as enforced by local authority.
- The Contractor shall make any and all improvements, to the plumbing connection system serving existing fixtures and appliances, from the point of

exterior service connection to the fixture connection point, necessary to ensure that the system operates trouble-free and in accordance with rehabilitation standards enforced by the local building code inspection authority. These local standards may involve replacement or upgrade of the plumbing connection system related to existing fixtures to meet new construction standards. The Contractor is advised to discuss plumbing standards for rehabilitation with the Local Building Inspector and the Rehabilitation Specialist prior to bid submittal. All new materials shall be of a type specified by, and installed in accordance with, current standards of the NC Plumbing Code, as enforced by local authority. This work item does not include repair or replacement of existing fixtures or appliances unless such repair or replacement is specified in the Scope of Work by individual room. However, if deficient fixtures not addressed in the Scope of Work are noted during rehabilitation, please contact the Rehabilitation Specialist immediately.

- Contractor shall insulate all existing and new water connection lines in unconditioned spaces.
- For purposes of this specification, the term "fixture" includes hot water heaters, commodes, sinks or lavatories, faucets, garbage disposals, tub valve kits, tubs or showers, i.e., all occupant-operated plumbing items. Repair or replacement of fixtures will be specified in the Scope of Work by individual room.
- Install an exterior cut-off valve for the water system, located at the entry point of service or suitable alternate location. The cut-off valve shall be encased in a box w/cap or lid of sufficient size to allow easy operation of the valve.
- All hose bibs or sill cocks shall be installed to extend through underpinning/curtain walls. Existing exterior spigots having connection lines running outside of underpinning shall be disconnected and properly installed through underpinning. Abandoned exterior connection lines shall be removed. Two hose bibs are required to be installed at each dwelling, one in the front and one in the rear.

34.9

When "Replace Interior Plumbing Connection System" is specified in the Scope of Work, the Contractor shall be responsible for the following:

- In addition to the installation of plumbing service and/or fixtures noted in the Scope of Work by specific room, the Contractor shall replace the entire existing plumbing connection system complete, including plumbing connection lines, valves, vents, traps, clean-outs, etc., in accordance with current new construction standards of the North Carolina State Plumbing Code, as enforced by local authority
- For purposes of this specification, the term "fixture" includes hot water heaters, commodes, sinks or lavatories, faucets, garbage disposals, tub valve kits, tubs or showers, i.e., all occupant-operated plumbing items. Repair or replacement of fixtures will be specified in the Scope of Work by individual room

- This work item shall include the installation of an exterior cut-off valve for the water system, located at the entry point of service or suitable alternate location. The cut-off valve shall be encased in a box with cap or lid of sufficient size to allow easy operation of the valve
- All hose bibs or sill cocks shall be installed to extend through underpinning/curtain walls. Existing exterior spigots having connection lines running outside of underpinning shall be disconnected and properly installed through underpinning. Abandoned exterior connection lines shall be removed. Two hose bibs are required to be installed at each dwelling, one in the front and one in the rear
- All new water connection lines in unconditioned spaces shall be insulated with 1" preformed foam insulation material

34.10

New water connection lines shall be Type L hand-drawn copper or "PEX" material.

34.11

New water service line shall be 3/4" minimum copper or PEX material.

34.12

New waste lines and sewer service or septic tank service lines shall be Code-approved PVC.

34.13

All piping shall be installed so as not to cause critical damage to structural members.

34.14

Repair of existing or installation of new plumbing fixtures and water and sewer connections and service includes all necessary connections to, and installation of new or existing lines, valves, vents, traps, clean-outs, etc., as specified by North Carolina State Plumbing Code to provide a complete and trouble-free fixture.

34.15

Repair of existing or installation of new sewer and water service lines includes excavation, backfilling, reseeding, fertilizing, and strawing. Work also includes any necessary pavement demolition and restoration to match existing pavement.

34.16

New kitchen sink shall be 33" x 22", 20 gauge, type 302 nickel chrome stainless steel, Elkay Model CR-3322 or equivalent, with at least a 7" deep bowl, complete with basket strainer. Sink shall comply with U.S. Commercial Standard CS 243-62. Mount sink to counter top with trim and fittings as recommended by manufacturer. This item includes new trap.

34.17

New single lever sink supply fitting shall have at least 8" swing spout and aerator. Sink supply fitting shall be American Standard "Reliant", Delta Model No. 120, or equivalent. Fittings whose principal components are plastic may not be used. Consumption rate of new sink faucets shall not exceed 2.2 gpm at 60 ps.

34.18

New hot water heater shall have vitreous porcelain enamel tank lining, blanket type glass fiber insulation, drain valve, temperature and pressure relief valve. Water heater shall have a 5-year warranty, and shall have an Energy Factor of .93 or greater if electric and .61 if natural gas or propane. Provide all electrical or gas and plumbing connections to hot water heater. Note: All interior gas line connections must be certified as safe and trouble-free by a factory or retail representative, or a properly-licensed plumbing or HVAC Subcontractor. The Contractor is responsible for providing gas connections to the hot water heater from the service connection point (tank or utility company lateral). The Homeowner is responsible for gas service hookup at the service connection point, including new tank if required, unless otherwise specified in the Scope of Work.

34.19

New washing machine supply and drain unit shall have outlet box as manufactured by Guy Gray Manufacturing Company or equivalent, Model BE-200 with duplex electrical receptacle, including all electric wiring. Supply and drain outlet box shall be inset in partition wall or properly framed to provide a solid fit and workmanlike appearance.

34.20

Dryer venting shall be ducted to the exterior. All openings shall be rodent-proof and weatherproof.

34.21

New hose bibs shall be of a type to meet North Carolina State Plumbing Code for new and rehabilitation construction, and shall be the frost proof type with vacuum breaker.

34.22

New wall-hung lavatory shall be American Standard "Declyn" Model 0321.026 or equivalent. New drop-in oval lavatory shall be American Standard "Aqualyn" Model 0476.028 or equivalent. New lavatory shall comply with U.S. Commercial Standard CS 20-63. Color shall be white. This item includes new p-trap. New vanity must be constructed of wood or plywood. The practice of installing vanities with exposed fiberboard or particle board and covering the material with plywood or tile board shall not be permitted.

34.23

New lavatory faucet shall be a single lever type with aerator. Lavatory supply and indirect lift waste fitting shall be chrome finish, Crane "Riviera", American Standard "Heritage Aquaseal", Kohler "Triton II" or equal. Fittings whose principal components are plastic may not be used. Consumption rate of new lavatory faucets shall not exceed 1.5 gpm at 60 psi. New lavatory faucets shall include new supply lines, full port ball type shut off valves and escutcheon plates.

34.24

New commode shall be complete with seat, seal, supply line with valve and all other fittings. Commode to be of the siphon jet type, free-standing close-coupled closet combination, vitreous china complying with U.S. Commercial Standard CS20-63, and shall be a 1.6 gallon water-saver as required by the North Carolina State Plumbing Code. Commode shall be American Standard, Eljer, Mansfield, or Kohler brands. Color shall be white.

34.25

New toilet seat shall be high strength solid plastic or enamel-coated wood. Hinges shall have internal metal post reinforcement. Color of toilet seat shall be white.

34.26

New cast iron tub shall have slip-resistant surface. Color shall be white. Tub shall be American Standard "Builder," Kohler "Dynametric," or equivalent.

34.27

New enameled steel tub shall have slip resistant surface. Tub shall be American Standard "New Salem," Crane "Oakbrook," or equivalent. Color shall be white.

34.28

If painting of existing bathtub is specified in Scope of Work, paint bathtub with Sherwin Williams Tile-Clad II Enamel (2-part coating), according to manufacturer's instructions.

34.29

New fiberglass tub/shower shall be Eljer "Melbourne," Crane "Galaxy," Owens-Corning, or equivalent. Color shall be white. Tub surround shall have integrally molded soap dish and grab bar. Install in accordance with manufacturer's instructions. Installation includes shower curtain rod.

34.30

New bath and shower faucets shall be single lever type. Faucet and fittings shall be chrome finish. Type shall be Crane "Riviera," American Standard "Heritage Aquaseal," Kohler "Triton II," or equivalent. If new fittings are to be installed in lavatory, they shall be of the same design and style as those used for tub. Fittings whose principal components are plastic may not be used. Consumption rate of new shower heads may not exceed 2.5 gpm at 80 psi.

34.31

If the Scope of Work calls for installation of a bath accessory group or bath accessories, install a five-piece chrome-plated accessory group including toothbrush/glass holder, soap dish, toilet paper holder, and two (2) towel bars. Wooden accessory groups will not be allowed unless approved by rehabilitation inspector prior to installation.

34.32

Sump pump shall be installed at lowest point underneath house. Pump is to be installed in a 12" x 24" flue liner, unless otherwise specified. Top of flue liner is to be set so as to allow water to flow to it. Install 6" thickness of #3 washed stone in bottom of liner. Pump shall have 1/3 horsepower or greater rated capacity. Drain line shall be buried if run to outside and run sufficient distance to carry water away from house. If drain line is connected to sewer, check valve must be installed.

34.33

New septic tank, where specified in Scope of Work, shall be installed in accordance with the requirements of the Local Building Inspector and to the specifications of the issued permit. Installation includes all excavation, backfilling, seeding, fertilizing, and strawing; and connection to waste lines.

34.34

When crawl space access is available, no overhead installation of plumbing lines will be permitted.

34.35

If house is built slab-on-grade, or if crawl space access is impractical, overhead installation of plumbing lines will be permitted only by specific written authorization from the local authority's building Inspector.

34.36

Accessibility Features - Always review accessibility construction with the local building code authority prior to construction. If specified "Peened "grab bars shall be installed at each toilet and in each tub/shower or shower accordance with the current standards of the North Carolina State Accessibility Code. Pressure -treated blocking shall be installed before tub/shower is set at elevations required for support grab bars.

35.0 Electrical

35.01

Electrical fixtures, wiring, and materials required for repair and new construction, if not specified herein or in the Scope of Work for rehabilitation work, shall be of a type specified and installed in accordance with the North Carolina State Electrical Code. All work shall be performed by a licensed electrical Contractor. Faulty fixtures or wiring not covered by the Scope of Work, including aluminum branch

wiring, should be reported to the Rehabilitation Specialist. All electrical fixtures installed during rehabilitation shall carry the Underwriters' Laboratories seal of approval.

35.02

To ensure that all new electrical light fixtures and appliances specified in the Scope of Work operate safely, and that the finished rehabilitation work meets local standards for electrical upgrade work, the Contractor shall perform the following work items when "Upgrade and Repair Electrical Wiring System" is specified in the Scope of Work:

- Install new electrical outlets as required to bring all rooms up to current standards of the North Carolina State Electrical Code for new construction, as enforced by local authority. This item includes installation of GFCI outlets, smoke detectors, and exterior outlets as required by local authority. Existing outlets do not need to be replaced or rewired if they meet local criteria for proper operation of a rehabilitated electrical system. All rooms shall be free from electrical hazards such as missing outlet covers or exposed wiring. All wiring shall be fished in wall cavities unless surface-mounted wiring (wire mold or EMT conduit) is approved in writing by the Rehabilitation Specialist
- Finished upgrade shall provide at least one electrical wall outlet on each wall (where construction permits), and one permanently-fixed light fixture in each habitable room. Install new wall switches for all existing overhead interior light fixtures and exterior light fixtures that are not currently switch-operated. Install new wall switches for all new light fixtures, both interior and exterior, specified in the Scope of Work
- Any outlet within 4 feet of a permanently fixed sink or lavatory must be a GFCI outlet/circuit
- Replace or upgrade electrical panel (200 amp minimum), meter base, mast and service entrance, and interior wiring as required to meet local code requirements for proper circuit loading, grounding, and fire protection. This work item includes wiring for all new fixtures and appliances specified in the Scope of Work, and all existing fixtures and appliances. Existing wiring does not need to be replaced if it meets local criteria for proper operation of a rehabilitated electrical system
- This specification does not include installation of new light fixtures or appliances, unless those items are specified in the Scope of Work by individual room. However if any deficient fixtures or appliances not addressed in the Scope of Work are discovered during rewiring, please inform the Rehabilitation Specialist immediately
- Please discuss all electrical upgrade work with the Rehabilitation Specialist prior to submitting your bid and prior to beginning work to obtain a clear understanding of the local interpretation of the electrical code for upgrade on an existing structure.

35.03

If "Replace Existing Electrical Wiring System" is specified in the Scope of Work, the Contractor shall perform the items of work outlined in the following paragraph:

- In addition to the installation of electrical fixtures noted in the Scope of Work by specific room, the Contractor shall completely replace the existing electrical

wiring system, including distribution panel (200 amp minimum), service entry and mast, in accordance with the current new standards of the North Carolina State Electrical Code, as enforced by local authority. Meter base, mast and service entrance shall be upgraded or replaced if necessary in accordance with local interpretation of North Carolina State Electrical Code. This specification does not include installation of new light fixtures or appliances or provision of electrical service, unless those items are specified in the Scope of Work by individual room. This specification does include replacement of the entire electrical wiring system for all existing fixtures and appliances, and for new fixtures and appliances specified in the Scope of Work. This specification also requires the number and placement of electrical outlets and smoke detectors in all rooms as well as GFCI and exterior outlets to meet current local standards for new construction. Finished electrical system shall provide at least one electrical wall outlet on each wall (where construction permits), and one permanently-fixed light fixture in each habitable room. Install new wall switches for all existing overhead interior light fixtures and exterior light fixtures that are not currently switch-operated. Install new wall switches for all new light fixtures, both interior and exterior, specified in the Scope of Work. If any deficient fixtures and/or appliances not addressed herein are discovered during rewiring, please inform the Rehabilitation Specialist immediately

35.04

Wiring shall be concealed to the maximum possible extent. Do not use wire mold unless in-wall installation is impractical and installation is approved in writing by the Rehabilitation Specialist. Use non-metallic sheathed cable with copper conductors. All cutting of walls, floors, ceilings and partitions for the passage of electrical work, the closing of superfluous openings around same in connection with electrical work and the removal of all debris caused thereby, shall be performed by the Subcontractor performing the electrical work.

35.05

New service panel box shall have, at a minimum, 200-amp and 20-circuit capacity, but shall in all cases have a capacity equal to Code requirements for the electrical demand of a specific dwelling unit. Provide a circuit index on service panel showing which circuits are served by each circuit breaker. Tie in existing and new circuits. New service panel box must have circuit breakers, not fuses.

35.06

New bathroom exhaust fan shall be ducted to outside with necessary flashing per the North Carolina State Mechanical Code. Exhaust fan shall have an air delivery rate required by code and Energy Star Rated. Vent duct shall be attached to an appropriate vent cap located on the exterior of the dwelling; venting duct in the attic or soffit is not permitted. Work includes all wiring, including wall control switch with functions switched separately if in combination with a light or heater. Fan shall be Nutone or equivalent, shall have an exhaust rating of at least 80 CFM as installed, and have a maximum sone rating of 2 or less.

35.07

Range hood fan shall have 2 speed fan and light controlled by separate switches. Filter shall be aluminum mesh grease filter. Fan shall be ducted to outside, with necessary flashing. No self-venting hood fans will be permitted unless specifically approved. Exhaust fan shall have an air delivery rate of not less than 100 cfm at normal speed, max 2 sones. Work includes all wiring. Fan shall be Nutone or equivalent and Energy Star Rated. If exposed, use rectangular exhaust pipe, painted or papered to match adjoining wall. Install in accordance with manufacturer's instructions and state and local fire codes.

35.08

Thru-wall range ventilation fans shall conform to the quality and specifications of American Design Model #AD-898L. Thru-wall fans must have proper filter and be operated by a wall switch. No pull-chain-operated thru-wall fans will be permitted.

35.09

All Smoke detectors shall be installed per the North Carolina State Residential Building Code. Smoke alarms shall be of the ionization dual chamber type, be located in accordance with Code requirements, and have Underwriters' Laboratories, Inc., seal of approval. Detectors shall be permanently wired to 120-volt electrical system, and must have light emitting diode device to indicate power on and battery backup. Detectors shall have provisions for testing. Detectors shall carry a one-year limited warranty.

35.10

All new interior and exterior light fixtures Energy Star Rated where applicable www.energystar.com specified in the Scope of Work shall be of a type specified for the specific locations indicated below. All lighting fixtures shall be made of metal and shall be installed complete, including lamps, glassware, mounting hardware, frames and trim, stems, ballasts, sockets, and Compact florescent bulbs; installation includes provision of a separate wall switch in accordance with the North Carolina State Electrical Code.

Location	Fixture Type	Rating
Bedroom	2-lamp fixture, bedroom type Ceiling Fan	Energy Star Rated
Living Area	3-lamp fixture, bedroom type Ceiling Fan	Energy Star Rated
Hall	1-lamp ceiling fixture, enclosed globe	Energy Star Rated
Kitchen	2-lamp ceiling fixture, enclosed globe	Energy Star Rated
Bathroom	1-lamp ceiling fixture, enclosed globe	Energy Star Rated
Utility Room	1-lamp ceiling fixture, enclosed	Energy Star Rated

	globe	
Porch	1-lamp waterproof outdoor fixture (incandescent lamps)	Energy Star Rated

36.0 Heating

36.1

All new heating system installations, whether electric, wood, oil, or gas fueled, must be installed per the North Carolina State Mechanical Code and the National Electrical Code and must meet the HUD Model Residential Property Rehabilitation Standards for heating, which require that rehabilitated dwellings must have a heating system capable of maintaining a temperature of 60 degrees or above at least 3 feet above floor level in all habitable rooms and bathrooms, under ordinary minimum temperature conditions. If there is doubt as to whether existing and/or specified new heating systems will meet this requirement, please contact the Local Building Inspector and the Rehabilitation Specialist.

36.2

All upgrades of existing, and installation of new, heating and cooling units/systems must be performed in compliance with the requirements of the North Carolina State Residential Building Code and the 2012 North Carolina State Plumbing, Mechanical, Fuel Gas, Fire, and Energy Conservation Codes and the National Electrical Code.

36.3

If installation of a new heating and/or cooling system is indicated, the choice of the system must be based on efficiency of the system and its appropriateness to the dwelling unit. The keys to efficiency are ratings of systems (HSPF, AFUE, SEER, etc.), proper sizing (number of BTU's per hour, etc.), and the quality of installation.

36.4

New central heating systems, central cooling systems, and heat pumps must be ENERGYSTAR rated and labeled (www.energystar.com) with a Seer not less than 14.

36.5

In order to achieve optimal efficiency and Homeowner safety, all retained heating and cooling equipment shall be inspected, cleaned, tuned, and/or repaired by a licensed HVAC Contractor.

36.6

New central heating systems must be sized in accordance with ACCA Manual J specifications and must never exceed the Manual J calculated size by more than 1/2 ton. A copy of the sizing calculations shall be provided to the Rehabilitation Specialist.

36.7

Condensate pans on central cooling systems and heat pumps must be installed in accordance with the North Carolina State Mechanical Code and the manufacturer's specifications.

36.8

When possible, new heat pumps and outside cooling units should be located:

- In an unobtrusive location, not diminishing the home's curb appeal
- Away from porches
- With at least three feet of clearance all around
- Above the 100-year floodplain
- In areas not subject of direct sunlight or heat buildup

36.9

If existing delivery system ductwork is to be retained, it must be of appropriate size and design so as to function adequately and in accordance with the existing or new HVAC forced-air system with which it is being used. Additionally, it must be insulated, and sufficiently sealed such that the total leakage does not exceed 100 CFM at 25 Pascals (100 CFM₂₅) when tested with a duct tester or a blower door. The HVAC Subcontractor must provide an Air Sealing Data Sheet on which is recorded the targeted air flow rates, and the results of those pressure tests, including the dates, name of the technician performing the test, the leakage rates of the ducts, and any other relevant findings resulting from the tests. In no case shall the building envelope or framing be used as part of the duct system.

36.10

If limited ductwork component repair, replacement or additions are required:

- All affected seams, joints, and boot-to-thermal envelope connections shall be sealed with duct mastic or city-approved equally-durable alternative
- New ducts installed in unconditioned spaces, such as basements, crawl spaces, garages, storage/utility rooms shall be insulated to at least R-6, and where ductwork is located in an attic or on the exterior of the building, minimum R-8 required

36.11

If the existing delivery system ductwork is to be removed and replaced, the new system shall be designed in accordance with the North Carolina State Mechanical Code and ACCA Manual D standards as follows:

- Avoid "spider system" design by use of a supply trunk/plenum
- Size the return air duct for minimum noise
- Locate intake centrally
- Strap all ductwork to eliminate crimping or sharp bends in ducts (To include a minimum of one 1-1/2" strap every 4 feet to support flex duct. Sag in duct should be less than or

equal to ½ inch per foot)

- Locate registers at perimeter portions of house
- Use radius elbows or turning vanes in all supply trunks with 90 degree turns and do not diminish the cross-sectional area or throat
- Allow for insulating supply and return ductwork
- Allow for actual air flow to each room to be within 10% (+/-) of the Manual D designed air flow
- Cover filter slots such that the cover may be easily removed for cleaning and/or replacement of the filter. Metal ductwork with exterior insulation is preferred. A copy of the duct design calculations and drawings shall be provided to the Rehabilitation Specialist. In no case shall building envelope or framing be used as part of the duct system.

36.12

HVAC duct system seams, joints, and boot-to-floor/drywall connections shall be sealed with duct mastic or Agency-approved equally-durable alternative. For new duct systems, total duct leakage at 25 Pascals must not exceed 3% of the conditioned floor area served by the system, expressed in CFM (*e.g., if the system serves a total conditioned floor area of 1200 sq. ft., then the duct leakage must not exceed 3% of that area expressed in CFM of .03 x 1200 = 36 CFM₂₅*). The HVAC Subcontractor must provide an Air Sealing Data Sheet on which is recorded the targeted air flow rates, and the results of those pressure tests, including the dates, name of the technician performing the test, the leakage rates of the ducts, and any other relevant findings resulting from the tests.

36.13

All new supply and return-air ducts and plenums in unconditioned spaces, such as basements, crawl spaces, garages, and storage/utility rooms shall be insulated to at least R-6. Where ductwork is located in an attic or on the exterior of the building, it shall be insulated to at least R-8. Vertical clearance of 18" or more shall be deemed "accessible" in attics or crawlspaces.

36.14

Duct insulation shall include a vapor barrier on the outside surface; have a flame-spread rating not greater than 24, and have a smoke density not greater than 50. Do not use batt insulation (commonly used for walls, ceiling, and floors) as duct insulation.

36.15

Staples used to secure duct insulation shall be minimum ½" outward-clinching heavy-duty staples or an approved alternative fastening system. Do not use "duct tape" to seal duct insulation. Given time, it will fail. Seal insulation seams against moisture intrusion using pressure-sensitive metallic tape, or as prescribed by the insulation manufacturer.

36.16

If the Scope of Work calls for a wood-burning space heater, the new unit must be installed according to North Carolina State Residential Building Code and be certified by EPA. New wood or coal heater shall be "Temp Coal" without blower or equivalent. Heater must be U.L. and American Standard approved and of cast iron construction. It shall be the Contractor's responsibility to insure that equal wood burning heater is in compliance with state and local building and fire codes; any installation of a wood-burning heater should include direct piping of combustion air into the stove, essentially decoupling the combustion air/combustion products from the air inside the house. For a list of EPA-approved models, see their web site at www.epa.gov.

36.17

Furnace installations shall include Digital Programmable (White Rodgers 1F85 or Equal) wall mounted thermostat, wiring, piping, ducts and cold air returns. Furnace shall be equipped with a temperature-actuated fan control and a temperature-actuated limit control. All wiring shall be installed in conformity with the current edition of the North Carolina State Electrical Code. Furnaces shall have an approved cut-off valve for the fuel supply at the furnace.

36.18

Installation of oil tank and piping shall comply with NFPA Standard No. 31. Oil tank shall be sturdily mounted on legs and painted with two coats of aluminum paint. Connect to furnace.

36.19

Electric baseboard heaters shall be installed to comply with the current edition of the National Electric Code. Units shall meet the standards of the National Electrical Manufacturer's Association, shall be UL listed, and shall be properly sized for area to be heated. Heating units shall be securely fastened to wall and installed in accordance with manufacturer's instructions. Heaters shall include line voltage baseboard thermostats.

36.20

New bathroom wall heaters shall be located as far as practical from plumbing fixtures and at least 30" from tub or shower. Wall heaters shall have polished aluminum reflector, aluminum grill and thermostat with "off" switch.

36.21

New 75,000 BTU oil heaters shall be Sears Stock No. 46416 or comparable. If comparable, minimum BTU shall be federal rating 75,000 inputs. Contractor shall install oil lines to suitable oil tank location. Heater shall be properly vented, and U.L. approved.

36.22

New 50,000 BTU oil heaters shall be Sears Stock No. 46411 or comparable. If comparable, minimum BTU shall be federal rating 50,000 inputs. Contractor shall install oil lines to suitable oil tank location. Heater shall be properly vented and U.L. approved.

36.23

New gas heater shall be of a type and have a BTU output as specified in the Scope of Work, shall be installed in accordance with the North Carolina State Building Code and manufacturer's recommendations, and be American Gas Association (AGA) approved. Contractor shall install gas lines to gas tank location. All gas heaters must be vented.

36.24

All repairs, disconnections and connections of existing or new oil or gas heaters must be performed and certified by a properly licensed factory representative or plumbing or HVAC Subcontractor. Installation of new heaters includes provision of gas/oil connections to the new heater from the service connection point (tank or utility company lateral). New connection lines shall be installed and sized to adequately service existing conditions. The Homeowner is responsible for gas/oil service hookup at the service connection point, including new tank if required, unless otherwise specified in the Scope of Work. See Rehabilitation Specialist if clarification of this item is required.

37.0 Fire Prevention

37.1

Fireproof material to be installed where specified in Scope of Work, or where required by state and local building and fire codes, shall consist of approved non-combustible material. The use of sheet asbestos will not be permitted. During demolition, if asbestos insulation or fireproof sheathing is discovered, please contact the Rehabilitation Specialist immediately.

37.2

Fire blocking shall be installed in new partitions as required by the North Carolina State Residential Building Code.

37.3

If rehabilitation work involves the installation of a new wood heating unit, or the installation of a new chimney, or the modification of an existing chimney, the Contractor shall be required to submit a statement certifying that new installation or modification meets all applicable national, state, and local codes governing the work performed.

37.4

If rehabilitation work involves the installation of a gas or oil heater, or gas or oil fixture, the Contractor shall be required to submit a statement from the retail representative or utility company certifying that the installation meets all applicable national, state and local codes, and that the fixture operates safely and trouble-free.

38.0 Accessibility Requirements

38.1

When wheelchair ramps, grab bars, or other barrier-free construction items are specified in the Scope of Work, please confer with the Rehabilitation Specialist, and refer to the North Carolina State Residential Building Code and the current North Carolina Accessibility Code concerning proper barrier-free construction techniques and accessibility requirements.

39.0 Appliances

39.1

When requested in the Scope of Work, the Contractor may provide the following types of appliances, properly wired and set for operation. The Scope of Work will also set a cost allowance for the package.

- Range: Minimum 30" [gas or electric]
- Refrigerator: Minimum 20 cu. ft. frost-free preferably side by side with icemaker
- Dishwasher: 2 cycle
- Garbage Disposal: ½ hp with stainless steel chamber
- Range Hood: Vented to outside with 2 speed fan to operate at normal speed 100 cfm, max 2 sones with task light

39.2

Appliances shall be manufactured by GE, Whirlpool, Maytag, Hotpoint, or approved equivalent manufacturer. All new refrigerators and dishwashers shall be ENERGYSTAR rated (www.energystar.com). The installation of brands not mentioned above shall be approved by the Rehabilitation Specialist. Any cost allowance under-run shall be deducted from the contract price by written change order.

PART IV: STANDARD TREATMENTS FOR HISTORIC DISTRICTS

1.0 Repair and Replacement

All Federally funded projects must be pre-approved through the State of North Carolina Historic Preservation Office. Partners should review their contracts for more information on these requirements. The local Historic District Commission (HDC) strongly holds that ordinary repair and replacement projects and routine maintenance do not require any review and approval, as long as the work does not result in any changes in design or material. HDC staff can help property Homeowners, the City and their partners determine if their projects are true repair and replacement, or if a Certificate of Appropriateness is necessary under the terms of the local Historic District Ordinance.

- True repair and replacement projects do not require a Certificate of Appropriateness
- Staff may use its discretion to determine whether or not a project is true repair and replacement or whether the Homeowner must file an application for a Certificate of Appropriateness. The HDC can be contacted if assistance is needed (<http://charmeck.org/city/charlotte/planning/HistoricDistricts/Pages/Home.aspx>)

2.0 Replacement Roofing

One of the most important aspects of building maintenance is ensuring that a structure has a sound roof. At the same time, the style and materials used on roofs can be one of the most basic elements in defining the style and character of a building. The policy statements outlined below are designed to encourage us to maintain roofs in their original styles and materials, while accommodating changes when warranted and when the change would not alter the overall style of a structure.

A Certificate of Appropriateness is not required for re-roofing with similar materials. If a change in materials is desired, staff will use its discretion to determine whether a staff approval is possible. Specialty roofing materials such as slate, tile or metal shingles are often an integral part of a building's character, and a change to other material could have an adverse effect on the property's integrity.

3.0 Replacement Windows and Doors

The placement and relationship of windows and doors are often critical parts of the style of a building. The demands of the modern energy efficiency and security standards often lead Homeowners of older building to consider replacement windows. These guidelines are designed to accommodate replacement windows in a manner that respects the original character of historic district properties.

- All replacement doors and windows must retain the same configuration and details as the originals
- Replacing panes with stained, leaded, or beveled glass is acceptable as long as the configuration remains the same
- Metal replacement doors are acceptable as long as they are of the same configuration as the original door. These metal doors must be painted or clad to match the trim of the house

- All replacement windows must have either true divided lights, or molded exterior muntins, if appropriate flat or interior false muntins are not in keeping with the character of older structures. Muntin design should reflect the original window configuration. False muntin bars, if used, will be applied to the exterior of the new windows
- Ideally, window and door openings should not be reduced or enlarged in size. When approved by the City and HDC, alterations to window and door openings must remain in proper proportion to the overall design of the building
- Sensitively designed exceptions to these guidelines will be considered by the HDC when such proposals are conceived to accommodate the adaptive reuse of older structures in conformance with the provisions of the Americans with Disabilities Act
- Glass block replacement windows are allowed only on side and rear elevations not substantially visible from the street. Only one such change is allowable per elevation. Such windows are eligible for administrative approval if the window opening is not altered

4.0 Storm Windows and Doors

Storm windows and doors can be an important part of the renovation of an older structure to modern living and energy standards. The principle behind the policies listed below is to accommodate the use of storm windows and doors in a manner that has minimal impact on the appearance of windows and doors, which are often some of the most distinctive features of a building.

- Storm windows and doors must be painted or clad to match or complement the trim of the structure. Any material is acceptable as long as it is clad or painted
- Storm doors should avoid obscuring the design of the front door
- Storm windows must be of a configuration that will not obscure the window behind
- Storm windows and doors must match existing windows and doors sizes

5.0 Surface and Cleaning

The cleaning of buildings can often help assure a longer useful life for a structure. However, some cleaning techniques, such as sandblasting (not applicable to Lead Hazard Reduction practices), can often cause irreversible damage to the materials and details of buildings. Also, heat guns, heat plates and mechanical sanders can cause unintentional yet serious damage if used improperly. The guidelines listed below are designed to encourage the use of techniques that have proved effective while having little or no impact on the underlying materials.

- The HDC discourages abrasive cleaning techniques, such as grit or high-pressure water blasting and mechanical sanding
- Prior to using cleaning methods other than those listed below, Homeowners are strongly encouraged to consult with HDC staff to help ensure that the correct method is chosen for the building material involved
 - Low-pressure water cleaning

- Scrubbing with a brush and detergent
 - Hand sanding and scraping to remove paint
 - Gentle chemical washes
- The need to correct damage caused by the use of improper cleaning techniques will not obligate the HDC to approve correction methods that otherwise violate HDC policy

6.0 Paint Colors

The HDC does not regulate paint color, since colors are a matter of personal taste, and can be easily changed. However, the HDC does strongly encourage all historic district property Homeowners to use proper contrasts in their paint schemes. Trim and foundations should be visually differentiated from the main body of the structure. Also, only traditionally painted materials should be painted.

- The selection of paint colors is considered to be a matter of choice for property Homeowners, and has no bearing on the preservation of structures. Therefore, the Historic District Commission does not regulate the choice of paint colors. HDC staff can provide advice on historic color choices if a property Homeowner desires
- Only traditionally painted materials, such as wood, should be painted
- The painting of unpainted brick or masonry will require a Certificate of Appropriateness. Painting brick or masonry is not considered a change of color, but a fundamental change in the character of a building. The painting of brick or other masonry will not be permitted except in such special circumstances as:
 - The repainting of buildings first painted prior to the establishment of the appropriate historic district
 - Cases where a brick building has poorly matched additions or repair work, and where the painting is designed to unify the disparate parts of the building