

**COMMUNITY DEVELOPMENT
REHABILITATION SPECIFICATIONS
AND DESIGN STANDARDS**

December 16, 2016



CITY OF KNOXVILLE

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GENERAL SPECIFICATIONS - TABLE OF CONTENTS

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INTRODUCTION/PREFACE

FOREMOST, these “Community Development Rehabilitation Specifications and Design Standards” (also referred to as the “Rehabilitation Specifications and Design Standards”, or simply, the “General Specifications”) are intended as a full, unabridged specification that matches numerically with the abridged ‘outline’ of work, which is commonly referred to as the Work Write-Up (or New House Specification, as applicable). Incorporation of a line item and/or specification number in a work write-up or new house specification refers to the corresponding section of these General Specifications, and the requirements contained within these General Specifications for that item shall be provided as if the entire corresponding section of this document were contained within the work write-up or new house specification. This inclusion is provided within every rehabilitation contract executed, as well as in every work write-up generated, through this Department. Thus, all contractors participating in the Development Department’s programs and registered in the contractor registry maintained by the Dept. shall be agreeable to this provision, and be responsible for familiarity with, and performance to, these standards. Contractors are also responsible for providing this information to their subcontractors and/or materialmen for conformance. Refusal to recognize these General Specifications as a parallel document to the Work Write-Up (or new house specifications) as described above shall be considered as a breach of contract. See the related “Precedence of Documents” section that follows on page nine.

Further, these written “Rehabilitation Specifications and Design Standards” have been developed to serve as an explanation of methods and materials to be used in the rehabilitation of residential dwellings. It is intended to convey a picture of a completed, practical, and usable project. The Contractor shall assume the inclusion of all reasonable labor and peripheral items necessary to attain this result. If any item of significant proportion or difficulty is omitted from the specifications, it shall be the responsibility of the contractor to bring this to the attention of the Rehabilitation Specialist prior to the bid opening, so that notice can be sent to all bidders. If deficiencies in the specifications are found to exist after bid opening, the contractor shall be responsible for bringing the deficiencies to the attention of the Rehab Specialist early enough in the project to make reasonable adjustments.

Where change orders are executed to the existing contract documents, the provisions of these General Specifications shall apply to all items covered in the change order. Where alternates are specified in the work write-up, the provisions of these General Specifications shall apply to those alternates as well.

From time to time, it shall be necessary to revise portions of this General Specification. Unlike previous editions of these General Specifications, the sections are divided into individual pages and assembled into a loose-leaf type binding. The intent here is to revise individual work sections of the General Specifications Booklet as it becomes necessary, without the necessity of revising the entire booklet as in past editions, with the goal of keeping these General Specifications as up to date and practical as possible. As individual work sections are revised, they shall be distributed to all participating contractors for proper replacement/insertion into the loose-leaf Booklet. Each revised work section shall be dated, and it shall be the contractor’s responsibility for maintaining his/her General Specifications booklet(s) in an up-to-date fashion that includes the latest revised sections, as well as complying with the provisions of the latest revised sections.

ADMINISTRATIVE REQUIREMENTS OF THE GENERAL SPECIFICATIONS

AUTHORITY AND RESPONSIBILITY

The Community Development Department (also referred to as the Department), is the administrator and designated authority of the City of Knoxville that facilitates the creation of the Rehabilitation Programs, and administers the funding of the programs and projects (Owner Occupied Rehabilitation, Rental Rehabilitation, Blighted Property Redevelopment Program, etc.).

The Building Inspections Department, is the administrator and designated authority of the City of Knoxville that reviews plans and issues permits to allow performance of property improvement and new construction projects, and which approves the work performed under the specific permits issued for said projects, all in accordance with the codes currently adopted by the City of Knoxville. The Building Inspections Dept. shall offer final interpretation of the City's adopted building codes.

The Rehabilitation Specialist (also applies to Sr. Rehabilitation Specialist) is the staff member of the Community Development Department that is assigned to oversee assigned programs and/or projects, with the support of other City Staff. The Rehabilitation Specialist shall perform as an agent for the Property Owner, lending technical assistance and monitoring contract administration with the goal of providing project quality and promoting timely job completion in accordance with the contract and these General Specifications.

The Property Owner (also referred to as the Homeowner, or simply, the Owner), is the legal owner of the real property receiving rehabilitation assistance from the Community Development Dept., and is one of the parties to the rehabilitation contract (the General Contractor being the other party). The Property Owner is the party securing the financing through the Dept. and/or private sources to finance the rehabilitation project, is responsible for final selection of the contractor to perform the work, and must acknowledge final acceptance of the work performed.

The Contractor (also referred to as the General Contractor or Home Improvement Contractor) is the construction company and it's owners and agents performing the project under an executed contract with the Property Owner. The Contractor shall have active and proper State and Local licensures, and perform all work described in the work write up and plans in accordance with the provisions of all the Contract Documents and this General Specifications booklet. The Contractor shall perform as the construction manager, maintaining continuous contact with the Owner and the Rehabilitation Specialist regarding the project status and any problems that arise during construction.

The Rehabilitation Contract (also referred to as the Agreement) contains all the documents to define the responsibilities of the parties to the contract, as well as define the scope of work to be executed. The Rehabilitation Contract bears the signatures of the property owner and the contractor, who shall be the parties to the contract; the City of Knoxville is **NOT** a party to the contract. Per the provisions of the Contract document itself, the Contractors Bid Proposal, the Work Write-Up, any attached drawings, and these Rehabilitation Specifications and Design Standards shall be incorporated as part of the Contract.

THE DEVELOPMENT DIVISION'S CONTRACTORS REGISTRY

It shall be the policy of the Community Development Department to maintain a Registry of competent General Contractors and/or Home Improvement Contractors as a service to the clients the Dept. serves. **The Registry exists at the discretion of the Dept., and inclusion on the Registry shall be considered a privilege rather than a right; the Dept. reserves the right to amend (including the addition or deletion of contractors/firms), or eliminate the Registry in its entirety, at any time.** The Dept. shall not make recommendations to clients as to the individual qualifications of any contractor/firm participating on the Registry. The Dept. shall further not make recommendations of any subcontractors, materialmen, or suppliers to contractors participating on the registry.

Contractors participating on the Contractor's Registry shall have a State of Tennessee General Contractors or Home Improvement License and be properly insured per the current guideline defined in the Contract. Participating contractors shall also have displayed competency to perform construction work in a workmanlike manner, have the ability and resources to complete construction contracts in a timely manner, and be familiar with and execute their work in compliance with all building codes currently adopted by the City of Knoxville. Further, contractors participating within the Contractor's Registry shall be expected to display reasonable customer service to the clients they serve, including the timely response to valid warranty issues.

The Dept. shall continuously monitor the performance of the contractors on its Registry, and shall reserve the right to remove contractors who have not conformed to the Department's policies. Actions such as low quality or deficient workmanship, repeated overages in contract time, items in breach of contract, inability or unwillingness to provide reasonable customer service, untimely response to valid warranty issues, receiving kickbacks, and/or acting in an adversarial way to the operation or authority of the Dept., shall be considered in determining whether to remove a contractor from the Department's Registry.

REQUIRED PERMITS & INSPECTION PROCEDURES

Permits are required and shall be obtained by the Contractor from the Building Inspections Dept., for all improvement projects involving construction, alteration, addition, demolition, and grading. Building, plumbing, mechanical, electrical, demolition, grading, public works, and other permits when applicable, are required for all construction as stated by the applicable codes and the City of Knoxville. All required permits shall be obtained by the contractor (with no additional contract cost to the property owner) prior to the commencement of construction. Work commencing prior to the issuance of required permits is considered unauthorized, and payment for such work could be delayed or forfeited. To promote observation of this requirement, the value of any work executed prior to the issuance of a necessary permit shall not be counted toward the amount necessary to achieve the first progress payment.

Building Code Inspections of projects in progress and upon project completion shall be performed by the Building Inspections Department. The inspections performed by the Building Inspections Dept. review the projects progress primarily for code compliance. Arrangements for building code inspections, as necessary, shall be made by the Contractor, following the inspection request procedure of that particular dept. Any and all work performed without the required permits and inspections shall be subject to scrutiny and possible non-acceptance by the City.

Rehabilitation Specialists Inspections shall be as required in the Work Write Up, and the referenced General Specifications. It shall be the contractor's responsibility to notify the Rehabilitation Specialist in a timely manner that allows for the reasonable inspection of required items prior to proceeding further with that work item. In addition, the project shall be inspected regularly by the Rehabilitation Specialist assigned to the case primarily for contract compliance, though code compliance issues may be reviewed as well. Again, it should be noted here that some provisions of these General Specifications exceed 'minimum' code requirements, and where this occurs, the higher standard required by these General Specifications shall be required for contractual compliance. Only where these General Specifications do not meet minimum code requirements shall the provisions of these General Specifications be altered.

Pre-payment Inspections shall be performed by the Rehabilitation Specialist prior to the issuance of any partial progress payment. The Rehabilitation Specialist shall not approve a payment to the Contractor for unauthorized work, or for work that is not, or may not be, acceptable. All request forms for partial progress payment shall bear the original, dated signature of the Contractor, Owner, and Rehabilitation Specialist prior to the check being ordered from the Rehabilitation Finance Specialist. Requests for Pre-Payment Inspections shall be made by notifying the Rehabilitation Specialist in a timely manner that allows for reasonable scheduling (preferably 24 hours in advance).

Pre-Final (Punch-list) Inspection shall be performed by the Rehabilitation Specialist assigned to the case, with the assistance of a second Rehabilitation Specialist unfamiliar with the case. A Pre-Final Inspection shall be a pre-requisite of receiving a “final” inspection with the Construction Mgt. Supervisor. At the Pre-Final Inspection, the Rehabilitation Specialist shall review the work write-up, and a punch list of deficient work items shall be generated for correction by the Contractor. The Pre-Final Inspection shall only be scheduled after the Rehab Specialist assigned to the case, has determined that the contracted scope of work has been completed.

Final Inspection shall be performed by the Construction Mgt. Supervisor (or his designee, when unavailable), accompanied by the Rehabilitation Specialist assigned to the case. At this inspection, the Property Owner and Contractor shall also be present. This Final Inspection shall be scheduled only after the pre-final punch list is completed, and the Building Inspections Dept. has completed all Building, Electrical, Plumbing, Gas, and Mechanical inspections, and entered these inspections onto their database (a green tag onsite may substitute for database entry). All utility connections shall be completed, and the building suitable for immediate occupancy, prior to scheduling the final inspection. The Contractor shall be responsible for ensuring that all subcontractor work is completed early enough so final inspections are not delayed. At the Final Inspection, the Property Owner shall certify their acceptance of the work performed through their signature(s) on the payment request.

In some cases, on-site conditions may prevent completion of a portion of the specified work from occurring prior to substantial completion of the rest of the project (i.e., a wet yard may delay final grading and application of seed and straw). In this case, a final inspection of the property may occur (with approval of the Rehabilitation Specialist assigned to the case), with the items to be completed when conditions allow documented by change order. This change order shall also provide for the retainage of payment for these uncompleted items until they are finished and inspected by the Rehabilitation Specialist, and approved by the property owner. The retainage amount shall be determined by the case Rehabilitation Specialist, and shall be an adequate amount to ensure completion by the contractor at the earliest date possible.

Other Inspections may be necessary, depending on funding sources. On some projects, other agencies such as KCDC, THDA, TVA, and THC will be contributing to the project and their inspectors may also be making final inspections. It shall be responsibility of the Contractor to see that work required by another inspecting agency is completed to that agency's satisfaction, providing it was covered in the Work-Write-Up. Final compliance with their requirements shall be necessary for release by the Community Development Department of the final inspection.

REQUIREMENTS TO COMMENCE CONSTRUCTION OR REHABILITATION

Prior to the commencement of any Rehabilitation Project or new home construction contract, the contractor shall be responsible for observing the following procedures (and obtaining necessary documentation) as follows:

- a.) Per the Rehabilitation Contract, a “Notice To Proceed” shall be obtained from the Rehab Specialist, bearing the property owners signature, and authorizing the contractor to move on-site to start work. Work commencing prior to a “Notice to Proceed” is considered unauthorized, and payment for such work could be delayed or forfeited. To promote observation of this contractual requirement, the value of any work executed prior to the issuance of a Notice to Proceed shall not be counted toward the amount necessary to achieve the first progress payment.
- b.) A Building Permit shall be obtained from the Building Inspections Dept. Further, prior to the commencement of any work by an affected subcontractor, that subcontractor shall obtain appropriate permits from the Building Inspections Dept. To promote observation of this contractual requirement, the value of any work executed prior to the issuance of permit shall not be counted toward amounts necessary to achieve the first progress payment.
- c.) Where a move-out is required by contract, the homeowner shall have finished removing all personal belongings prior to the contractor moving on-site.
- d.) The contractor shall notify the Rehabilitation Specialist assigned to the project that work is commencing; this notification shall occur not less than 24 hours **prior** to the contractor moving on-site to start work.

SCHEDULING

The Contractor shall notify the Rehabilitation Specialist regarding their schedule so that residents can be moved out before construction starts, as applicable. The Contractor shall also keep the Rehab Specialist apprised of the estimated time of completion on a week by week basis so that the move home can be scheduled, and also to insure that the house does not sit vacant for very long. **It is not permissible for the Contractor or his employees to inform the residents directly about moves or schedules, as this too frequently contributes to tensions and anxieties for the homeowner.**

SPECIFIED WORK MAY EXCEED MINIMUM CODE REQUIREMENTS

These General Specifications shall not be interpreted as a Building Code. The General Specifications are intended to meet the minimum requirements of the Building Codes adopted by the City of Knoxville. However, certain provisions within these General Specifications exceed the minimum requirements set forth in the Building Codes currently adopted by the City of Knoxville. Where the General Specifications exceed the minimum requirements set forth in the Building Codes, Contractors are required to provide services and/or goods in compliance with these General Specifications, or will be considered to be in breach of contract. If, however, the General Specifications do not meet the minimum requirements of the Building Codes currently adopted by the City of Knoxville, the Contractor must meet the minimum requirements of the Building Codes.

PRECEDENCE OF DOCUMENTS

Generally, the work write-up is an abridged outline of the rehabilitation to be performed on a structure, and is not intended as a 'stand alone' document on the work and methods to be performed. Each contract signed for rehabilitation incorporates, among other things, the work write-up, drawings, schedules, and these "Rehabilitation Specifications and Design Standards (incorporated by reference)". This means that these Rehabilitation Specifications and Design Standards are cross-referenced to the Work Write-Up via the common numbering system. The inclusion of the numbered specification within this work write-up shall refer to the full requirements of the corresponding sections of these Rehabilitation Specifications and Design Standards as if included in entirety within this document.

Thus, all provisions and methods within these General Specifications shall be provided for the corresponding work item appearing within the Work Write-Up, as if the entire section of these General Specifications was included within the Work Write-Up (unless the site specific work write up specifically dictates materials and/or methods in conflict with these General Specifications).

The intent of the Work Write-Up is to be site-specific. Specific wording may be contained within the work write-up that conflicts with the matching section of these General Specifications due to on-site conditions particular to the subject property. In such a case, the work write-up shall take precedence over these General Specifications for that work item **only**.

Where a product's printed installation instructions conflict with the Work Write-Up **OR** the General Specifications, the manufacturers printed instructions shall prevail, and a copy of these instructions shall be provided to the Rehabilitation Specialist as file documentation.

Where a written specification is in conflict with an attached drawing, the written specification will generally take precedence over the drawing. Floor plans and other drawings provided with the Work-Write-Up are intended to clarify the specifications and not to supersede them. These are generally to scale or as marked, but field verification of the accuracy of all measurements is the responsibility of the Contractor.

ARCHITECTURAL SIGNIFICANCE

Many of the structures rehabilitated have significant architectural details and character, especially from a historic perspective. It is our goal to protect and preserve these details and not obscure or destroy any portion of the building that is potentially significant.

Certain areas of the City of Knoxville and certain individual properties have been determined to have historical significance, and all projects completed with the aid of program financing within these areas shall need to be reviewed by the Metropolitan Planning Commission (under a memorandum of agreement with the Tennessee Historic Commission) for compliance, per the Development Department's agreement with them. As a part of their review, MPC/THC will provide us with a list of requirements of compliance, and this will be written into the Specifications or attached to them as an addendum. For this reason, the Contractor should be sensitive to all areas that might have significance and be careful to not deviate from the specifications without the written consent of the Rehab Specialist.

Other areas of the City, such as Mechanicsville and 'Historic Overlay Areas', have special guidelines for rehabilitation that must be followed for all construction projects. It is the responsibility of the Contractor to familiarize themselves with these restrictions as they might apply to their project.

It may not be cost effective to restore some portions of a building to their original condition, but significant steps should be taken to preserve portions that are altered during rehab. Particular care must be taken during demolition that some significant item is not destroyed or discarded. The Contractor is responsible for informing their employees and subcontractors of the nature of the project and procedures for preserving these details. The Contractor may be held liable for loss of these details and may have to bear the expense of reconstructing or replacing them. When the project is complete, certain significant items that were removed may be required to be stored along with photographs, drawings and a narrative description of their location and condition and the reason for removal. As soon as these items are removed from the building during construction, they should be taken to a secure storage facility and protected from theft and weather until project completion.

MATERIAL SUBSTITUTIONS

Where name brands and models are specified within individual sections for appliances, fixtures, fittings, or furnishings, it is intended to set a minimum standard of quality, and not be restrictive to that one specified brand or model. Substitutions of comparable items from other **nationally recognized manufacturers** shall be acceptable; in some sections, acceptable alternate manufacturers are listed, and manufacturers not on that listing shall not be used for that section without the **written** permission of the Rehabilitation Specialist.

Alternate building materials and/or construction methods from those specified within shall not be acceptable without written authorization of the Rehabilitation Specialist. Written authorization shall occur only after submittal of shop drawings, cut sheets, specifications page, website reference, or other manufacturer (or testing laboratory) written specification of the alternate material/method has been received, reviewed, and approved by the Dept. Contractors submitting requests for use of alternate materials/methods should not expect 'instant' review or approval of proposed alternate methods.

ASSESSMENTS OF FINES FOR TIME OVERAGES

The Rehabilitation Agreement signed by the Property Owner and the Contractor provides for the assessment of a fine of \$50.00 per calendar day for overages in contract time. Fines shall be assessed unless the Contractor receives authorization from the Dept. documented in writing and/or in a fully executed change order. It shall be the responsibility of the contractor to obtain a fully executed change order from the Rehabilitation Specialist within a reasonable amount of time from the occurrence. If the Change Order is not presented to the contractor within a reasonable time (typically ten days) of the occurrence, the Contractor shall contact the Construction Manager directly for intervention and documentation; see Change Order Content and Timeliness section below. Typical reasons for delay may include weather delays caused by excessive rain/snow amounts that exceed the 'normal' amounts set by the National Weather Service for the Knoxville area during the construction period (note that on new construction, 50% payment is ordered when house is "dried-in", and no "beyond normal" rain dates shall be allowed after this point), special material orders, owner selections, or changes in the scope of work. Only requests for time extensions that are reasonable and limited to the actual time lost due to the delay will be considered. Any assessments under this provision shall be deducted from the amount due on the Final Payment form. The Contractor shall be solely responsible for defending against any assessment, and shall gather written documentation from any third party to support their claim for a delay; all appeals of time overage fines shall include written documentation to be considered.

When a fine for time overage is due, the Development Dept. shall determine the validity of the claim by weighing the time overage (per contract and executed change orders) against any written documentation submitted by the contractor and/or the property owner. Both the property owner and the contractor shall be notified in writing of the decision. Any appeal of the Dept's decision (i.e., a request for submittal to arbitration) shall be made by the affected party prior to the expiration of the ten-day final payment retainage period, and any appeal to arbitration shall suspend the release of any contested amount of money pending the results of that arbitration. After release of the final payment check, the Dept. shall not hear requests for appeal of fines assessed.

In some cases, on-site conditions may prevent completion of a portion of the specified work from occurring prior to substantial completion of the rest of the project (i.e., a wet yard may delay final grading and application of seed and straw). In this case, a final inspection of the property may occur (with approval of the Rehabilitation Specialist assigned to the case), with the items to be completed when conditions allow documented by change order. This change order shall also provide for the retainage of payment for these uncompleted items until they are finished and inspected by the Rehabilitation Specialist, and approved by the property owner.

The retainage amount shall be determined by the case Rehabilitation Specialist, and shall be an adequate amount to ensure completion by the contractor at the earliest date possible. The purpose of this policy is to document overages in contract time, and to calculate the costs caused by such contract overages to the Dept. The policy is not intended to penalize contractors for delays beyond their control. The Dept. receives no financial benefit from the assessment of fines.

SPECIFICATION TO 'INSTALL' SHALL INCLUDE REPLACEMENT IN REHABILITATION APPLICATIONS

'Install' (or 'installing'), where used within specification sections, shall mean to install a new component as specified; in rehabilitation applications, this shall include the removal of the existing component, and adapting surroundings as/if applicable to receive the new component. Thus, 'install' or 'installing' in rehabilitation applications shall be synonymous with 'replace' or 'replacement'.

WARRANTY PERFORMANCE

Per the executed Rehabilitation Agreement for rehabilitation projects, the contractor agrees to provide a warranty on all items installed and/or serviced during the rehabilitation for a period of one year from the date of final inspection.

When valid warranty issues arise, it shall be expected that the responsible contractor provide customer service in a timely, professional manner at the first available opportunity after the issue arises, and in any case, within a reasonable response time. Unless extenuating circumstances exist that will not allow performance, 'reasonable response time' shall be defined as resolution within twenty calendar days from the date of the notification, unless the issue is a life, health or property threatening issue, to which an **immediate** resolution shall be expected. In the event of an extenuating circumstance that delays performance of a valid warranty item, the contractor shall provide written notice to the Department within the same twenty calendar day period that includes the reason for the delay, and the expected date of problem resolution.

In cases where a subcontractor work item is identified as a valid warranty item, the contractor shall assume responsibility for contacting and ensuring performance by their subcontractor within the same 'reasonable response time' parameters; subcontractor non-performance shall not be an 'extenuating circumstance' for the General Contractor.

The Community Development Dept. considers valid warranty issues an important customer service function (as well as a basic provision of the executed contract), and if necessary shall take measures to promote a timely response. Contractors not responding as specified above to warranty issues shall have a notice of noncompliance placed within their file maintained by this department, and multiple notices may result in permanent removal of the contractor from the bidding registry; this shall be at the Dept's discretion, as our Contractor Policies define inclusion on the registry as a privilege rather than a right.

In addition, any contractor who has not responded to their outstanding warranty issues:

- shall not be issued a Notice to Proceed on subsequent rehabilitations (the Department and/or property owner shall reserve the right to proceed with an alternate bidder if the situation persists) and;
- shall not receive Invitations to Bid on new projects until the warranty issues are resolved.

Acceptable performance of outstanding warranty issues may reinstate the contractor's Notice to Proceed and active bidding status upon review of the Construction Management Supervisor.

Per the Rehabilitation Agreement, the contractor is required to provide the homeowner with all warranties and guarantees. This applies to everything installed on the job that carries a warranty or guarantee, such as the heating system, water heaters, appliances, roofing, etc. It is noted that the period provided by the manufacturer's warranty may exceed the one-year contractor warranty provided by this section; in such a case, the Property Owner shall be responsible for contacting the manufacturer directly to receive the relief provided by that warranty. A manufacturer's warranty shall not extend the warranty period provided by the contractor.

Change Orders: Contents and Timeliness

It is anticipated that items not specified in the original executed contract shall occur during the course of most rehabilitation related construction. When this occurs, there are usually contingency monies available to fund change orders that can easily add the necessary (but previously unspecified) work to the contract, and allow for reasonable payment to the contractor.

However, it shall be solely the contractor's responsibility not to install any change order items prior to a fully executed change order, signed by all parties to the original contract, having been delivered to him/her. The reasoning here is that there is no money committed to change order items until this document is fully executed, and thus, payment to the contractor cannot be assured. If the contractor chooses to install any change order items (or any other items not specified in the original contract) without a copy of the fully executed contract in hand, it shall be at their risk.

If there is a delay caused by the execution (preparation by Rehab Specialist and obtaining of signatures) of the change order, it shall also be the contractor's responsibility to ensure that this additional delay in time is documented so as to defend their position vs. the assessment of time overages; this delay in execution time should be in addition to the time necessary to perform the change order work. The timeliness of certain change orders is recognized to be critical; it is understood that change orders can be vital to the reasonable flow of the project. In cases where the contractor cannot obtain reasonable cooperation in the timeliness and/or execution of change orders by the Rehabilitation Specialist and/or property owner, the contractor shall immediately contact the Construction Manager for his/her intervention and follow-up.

The addition of this specifications section is to fully explain the Dept's position on Change Orders and their execution, performance, timeliness, and payment. It also gives a clear course of action to the contractor if timely execution and/or cooperation is not being provided. Again, payment to the contractor for additional items that are not documented by an executed change order **PRIOR** to installation will no longer be defended by the Community Development Dept., and the contractor should expect to absorb the loss.

**DEPARTMENT OF COMMUNITY & NEIGHBORHOOD SERVICES
DEVELOPMENT DIVISION GENERAL SPECIFICATIONS**

SPECIFICATION SECTION NUMBERING SYSTEM

<u>TITLE:</u>	<u>SECTION:</u>
General Requirements and Standards	a1.0
Extermination.....	a2.0 - a3.0
Site Work	a4.0 - a17.0
Demolition and Clean-Up.....	a18.0 - a23.0
Room Addition.....	a24.0
Foundation and Retaining Walls.....	a25.0 - a36.0
Chimneys	a37.0 - a41.1
Stairs and Railings	a42.0 - a62.0
Roofing and Guttering	a63.0 - a82.0
Siding and Soffit	a83.0 - a90.0
Carpentry	a91.0 - a133.0
Flooring and Floor Covering	a135.0 - a147.1
Interior Wall and Ceiling Finishes.....	a148.0 - a157.0
Windows	a158.0 - a178.1
Doors.....	a179.0 - a202.0
Cabinets	a203.0 - a207.1
Interior Painting	a208.0 - a212.1
Exterior Painting.....	a213.0 - a215.0
Insulation	a216.0 - a220.0
Heating.....	a221.0 - a228.0
Electrical	a229.0 - a250.0
Plumbing and Gas Piping.....	a251.0 - a287.0
Specialties	a288.0 - a299.0
Price	a300.0
Alternates	a301.0

CITY OF KNOXVILLE COMMUNITY DEVELOPMENT DEPARTMENT
GENERAL SPECIFICATIONS

December 16, 2016

a 1.0 **GENERAL REQUIREMENTS AND STANDARDS:**

The construction shall be accomplished without undue delay and with minimum inconvenience to the owner. All materials and products used shall be new unless otherwise specified, and applied or installed in accordance with the manufacturers printed instructions and the Rehabilitation Specifications. Reference in these Specifications to any article, device, product, material, or fixture by name, make, or catalog number shall be interpreted as establishing a standard of quality and shall not be construed to eliminate the use of competitive products equal in quality. The Contractor shall furnish all materials, labor, equipment, and services to perform all work in these Specifications by established building and construction practices, proceeding promptly to complete said work in the specified time so stated in the contract documents. The Contractor shall obtain all necessary licenses and permits before work commences, and all work shall be carried out pursuant to the currently recognized Residential, Plumbing, Gas, Electrical, and Mechanical Codes as adopted by the City of Knoxville Building Inspections Dept. At the completion of the designated work, the contractor shall remove all temporary construction equipment, salvage materials, trash, and other debris and dispose of legally, leaving the area for which the contractor is responsible in a neat condition. Cleaning of fixtures, doors, and windows shall be the responsibility of the Contractor.

The Contractor is required to provide the homeowner with all warranties and guarantees upon completion of the project. This applies to everything installed on the job that carries a warranty or guarantee, such as the heating system, water heaters, roofing shingles, siding, windows, faucets, etc. Failure to do so shall be considered a breach of the contract and may delay the final payment. The Contractor shall guarantee all work for a year period from the date of final inspection.

ALTERNATES:

Alternate work items, where called for, shall be listed separately at the end of the Specifications, and shall include P&O as indicated at the end of the Work Write-Up, but shall not be included in the bid total. Alternates for which prices are solicited shall only be included as part of the work if they are specifically listed as a part of the contract, or included by an executed change order.

SCOPE OF WORK:

The proposed work shall be sufficient to meet all applicable provisions of the Community Development Neighborhood Housing Standards. The proposed work provides for the correction of all code violations related to basic health and safety needs, and is sufficient to make the property safe, decent, and sanitary. This does not guarantee compliance with any other standards.

SPECIAL SPECIFICATIONS NOTICE TO THE CONTRACTOR:

The specifications contained within the Work Write-Up are an abridged outline of the work to be performed; they correspond numerically to these "Rehabilitation Specifications and Design Standards" adopted by the Community Development Department. Inclusion of the numbered specification within the Work Write-Up shall refer to the full requirements of the corresponding sections of these "Rehabilitation Specifications and Design Standards" as if they were included in entirety within the Work Write-Up. The Contractor (as well as any subcontractors and/or materialmen hired by the contractor) shall be responsible for familiarity with, and performance to, these "Rehabilitation Specifications and Design Standards".

In addition, the provisions of the unnumbered "Introduction/Preface" section of these "Rehabilitation Specifications and Design Standards" shall be incorporated into this specification section (a1.0), and in turn into the Work Write-Up, in its entirety through this reference.

In addition, the provisions of the unnumbered "Administrative Requirements of the General Specifications" section of these "Rehabilitation Specifications and Design Standards" shall be incorporated into this specification section (a1.0), in its entirety through this reference.

a2.0 - a3.0 **EXTERMINATION**

Exterminate structure for the pests specified in the Work Write-Up, using chemical treatments that are the current industrial standard for the specified pests. All work shall be performed by a licensed, professional pest control operator.

The certificate letter shall be given to the property owner for all pest treatments, with a copy of the letter given to the Rehab Specialist prior to the release of the final payment. The complete area of new foundations and slabs (if any) and the perimeter of the existing building shall be treated. The use of fuel oil or other petroleum products is specifically forbidden. Soil treatment shall be applied to dry soils during clear weather after filling and grading operations are completed. In concrete block foundations, all existing ports shall be serviced as part of this treatment; in new foundations, service ports shall be provided and treated.

On new construction projects (including demolition and reconstruction of a replacement home), Form NPCA-99b shall be required by HUD regulations, with a copy being provided to the homeowner, and a copy retained by the Rehab Specialist.

The termite treatment specified shall be a one-time service, with a renewable contract offered to the homeowner. Payment for continuing service shall be the sole responsibility of the homeowner, and is in no way guaranteed or the responsibility of the Development Dept.

a4.0 - a17.0 **SITE WORK**

General Note: Due to the varying topographical and geological conditions in the East Tennessee region, moisture and water rise into a crawl space or basement due to the water table nearly as often as an occurrence of horizontal infiltration (wall penetration). The contractor shall take normal steps to divert water away from a foundation (especially in work specified to help alleviate a problem case, i.e., concrete aprons) during site work in the course of construction, but it shall be the Community Development Dept's policy that there is no 'guarantee' of a dry and/or waterproof basement or crawl space after the completion of rehabilitation work.

a5.0 **Contouring:** Remove dirt from around house to six inches below the siding. Slope all dirt fill or cut for positive water flow away from the structure. Apply seed and straw to all bare soil and disturbed areas as specified in section a13.0 below. Haul all excess dirt away from the job site. See General Note for site work above.

a7.0 **Ditches:** Install a grass lined/rock lined/concrete lined ditch as specified in the Work Write-Up and/or illustrated on the attached drawings. See General Note for site work above. For Grass Lined Ditches, seeding is required (per section a13.0 below) for all bare or disturbed areas. Measures shall be taken to assure grass seed does not wash away before it takes root, such as straw. Ensure the contours of finished ditch allows for mowing with a conventional residential push mower.

For Rock Lined Ditches, the gravel shall be of two-inch average diameter and completely line all surfaces of the ditch.

For Concrete Lined Ditches, dig out and pour a four-inch thick concrete swale, a minimum of 18" wide. All concrete edges shall be thickened to 8" minimum depth (and at least 6" thick) to deter erosion under the concrete, and subsequent break-up of the slab.

a11.0 Trees: Remove tree limbs which hang over roof, or brush siding components; remove to six feet back from these surfaces. Dispose of material properly. Apply wound dressing to limbs over two inches in diameter.

a12.0 Tree Removal: Remove designated trees to no more than a twelve inch high stump. It shall be the Contractor's responsibility to remove and dispose of all debris to a legal dumpsite.

a12.1 Brush Removal: Remove brush as specified in the Work Write-Up. It shall be the Contractor's responsibility to remove and dispose of all debris to a legal dumpsite.

a13.0 Grass: Apply seed and straw over all bare areas and/or areas disturbed by work in the contract and/or at other areas specified in the work write-up. Fill all ruts and holes with topsoil. Rake new/disturbed yard area to provide an even surface free from lumps and holes. Use shade/mix grass seed on all bare ground. During cold weather months (October through March), rapid recovery winter rye seed shall be mixed into the grass seed to expedite sprouting. Seed shall be generously applied over all subject areas. Measures shall be taken to assure grass seed does not wash away before it takes root, such as straw.

a14.0 Remove Sidewalks: Remove existing sidewalks in locations specified. Use clean fill to bring resulting bare areas to adjacent grade, and apply seed and straw as specified in Section a13.0 above.

a15.0 – 17.2 Concrete Sidewalks, Driveways, and Parking Pads

See the specific sections for Sidewalks, Driveways, and Parking Pads that follow for specific construction requirements of those General Specifications sections. In general, no concrete for walks, driveways, or continuous footings shall be mixed on site unless specifically approved in writing by the Rehab Specialist.

For smaller items such as stoops, pad footings under jackposts, or HVAC pads, it is preferred that ready-mix be used if it is to be delivered to site for larger items; however, the contractor may use site-mixed concrete for these smaller items if necessary as long as the mix is prepared to manufacturer's instructions. All concrete walks, driveways and Parking Pads shall be constructed to the specifications of that item, and shall be inspected by the Rehabilitation Specialist prior to pouring concrete. All new concrete shall be poured over a min. 4" gravel base. All edges are to be tooled with a concrete edger to create a smooth uniform finish. Remaining areas are to receive a broom finish.

a15.0 Repair Sidewalk: Repair sidewalk at locations specified within the work write-up. Cut sections to be removed squarely across the entire width of the sidewalk, and provide fibrous expansion joints between all existing concrete and new concrete the full width of the cut. New sections of concrete sidewalk shall be 4" thick concrete, regardless of the thickness of the existing sidewalk. Top of repaired sections shall be level with existing/adjacent sections of walk. Edges of the new concrete sections shall be thickened on the edges to deter erosion. On large repaired sections, provide saw-cut construction joints at five-foot increments (or evenly spaced not exceeding five foot increments, as applicable).

a16.0 Install Sidewalk: Remove and replace existing sidewalk and/or install new sidewalk per the Work Write-Up. Sidewalks are to be a minimum of 36" wide. All sidewalks shall be 4" thick 3000-PSI concrete, and receive a thickened (8" deep x 6" wide minimum) edge to deter erosion. Finish smooth with a steel trowel, and then apply a broom finish. Finish all edges with an edging tool. Install over a min. 4" gravel base.

All new sidewalks shall be constructed so that the distance from the edges of the concrete shall be no more than 1 1/2" above the surrounding grade typically; to accomplish this, sidewalks may be 'cut' into the existing grade, or compacted fill (loose or aerated fill not acceptable) sloped gradually (not more than 1/12 slope) away from the edge to existing grade. Apply seed and straw to all cut or fill areas as necessary, per the requirements of section a13.0 above.

Concrete sidewalks shall have fibrous expansion joints every twenty lineal feet, at all changes of sidewalk direction (including intersections with driveways), and along the entire intersection of new concrete and existing concrete or masonry installations; on straight sidewalk runs between 20 and 40 feet long, expansion joint shall be placed at mid point of run. Intermediate saw-cut control joints shall be placed at intermediate five-foot increments between expansion joints (or evenly spaced not exceeding 5' increments if expansion joints are less than 20 feet). Sawcuts shall be straight, and be 1/5 (20%) the slab thickness in depth.

a16.5 Sloped Walkways: Specified walkway shall be constructed to the currently adopted accessibility code as adopted by the City of Knoxville Building. **All walkways** (except those immediately adjacent to the wall of the structure) shall have a 3 1/2" bumper and 36" high code-compliant railing with pickets along both sides of the walkway (if required by code). Walkway shall be constructed on concrete or pressure treated wood as specified in the write-up. When concrete is used, walkways shall be a minimum of 4" thick 3000-PSI concrete, and the use of expansion joints and control joints shall be as specified in section a16.0 above.

Pressure treated walkways shall be constructed of 2 x framing members adequate to support dead and live loads as the span/situation dictates and ramp decking shall be 2x6 boards of 5/4 decking. All necessary foundation/support necessary for these walkways shall be included as a part of this section.

a17.0 Blacktop Driveway: The contractor shall furnish all labor, materials, and equipment required to install a blacktop driveway and apron as indicated on the Drawing and/or described in the Work Write-Up. The contractor shall verify the locations of all property lines before setting batter boards. Blacktop shall shed water away from the garage and/or house. All necessary grading and/or sodding or reseeded of adjacent areas shall be included within this work, and completed after the driveway is finished; maximum drop off from top of driveway to surrounding grade shall be 1 1/2" typically; to accomplish this, driveways may be 'cut' into the existing grade, or provide compacted fill (loose or aerated fill not acceptable) sloped gradually (not more than 1/12 slope) away from the edge to existing grade.

Apply seed and straw to all cut or fill areas as necessary, per the requirements of section a13.0 above.

Sub-base (earth): Sub-base shall be well drained, uniformly graded and compacted to prevent harmful differential settlement.

Base (crushed stone): The base shall provide a layer (approximately 4 inches) of graded crushed stone having a complete range of sizes; compact with a roller.

Prime-coat (slow curing cutback asphalt): The prime-coat shall consist of a light bituminous material applied at an approximate rate of 0.25 to 0.50 gallons per square yard to act as a bonding agent for the new pavement and also as a retardant for the rise of ground moisture. Allow prime-coat to cure from 24 to 48 hours.

Surface coat (Bituminous pavement): Apply 1 1/2 inch compacted thickness of bituminous concrete. Bituminous concrete (T-35-C) shall not be applied to sub grades or existing surfaces when temperatures are under 40 degrees Fahrenheit.

Install driveway as to Drawing with spaces marked on pavement as shown.

a17.1 Gravel Driveway: Install driveway in location shown on the plans and/or as described within the Work Write-Up. Earth within the driveway area shall be uniformly graded and all vegetation shall be poisoned with "Roundup" (or equivalent) herbicide. Kerosene or other petroleum-based products are not acceptable as an herbicide. Gravel shall be a minimum of three inches deep. Perimeter of the driveway and/or parking areas shall receive curbing material (wood ties or other material approved by Rehabilitation Specialist) to prevent gravel from eroding or being introduced into adjacent yard areas.

a17.2 Concrete Driveway/Parking Pad: Provide a concrete parking pad/driveway as shown on the drawing and/or as specified in the Work Write-Up. All new concrete pads/driveways shall be constructed so that the finished distance from the top edges of the concrete shall be no more than 1 1/2" above the surrounding compacted grade; to accomplish this, driveways/pads may be 'cut' into the existing grade, or compacted fill (loose or aerated fill not acceptable) sloped gradually (not more than 1/8 slope) away from edge to existing grade. All concrete shall be poured over a min. 4" gravel base. Apply seed and straw to all cut or fill areas as necessary, per the requirements of section a13.0 above. This cost shall be included in the price of the driveway/parking pad.

Concrete Driveway slabs shall be a minimum of 4" thick 3000-PSI concrete, and be reinforced with welded wire fabric. All slabs shall have 8" deep x 6" wide thickened edge (minimum) around their entire perimeter to deter erosion under the slab.

Concrete Driveways shall also have fibrous expansion joints the full width of the driveway at distances not to exceed twenty lineal feet apart; on driveways/pad runs between 20 and 40 lineal feet long, the expansion joint shall be placed at mid-point of run. Fibrous Expansion Joints shall also be supplied along the entire length of any intersection between new concrete and existing concrete or masonry installations.

a18.0 - a23.0 **DEMOLITION AND CLEAN-UP**

a19.0 Demolition of building or section of building: The demolition of buildings (or sections of buildings) as specified shall include the removal of all portions of and that building including footings, walls, roofs, floor systems, slabs, etc. Also included (especially in the case of the demolition of a building section) is the repair of all adjacent portions of the building and site, as well as that of neighboring buildings scarred by the demolition activities. Reasonable precautions shall be taken by the contractor to protect neighboring adjacent structures to protect them from damage during demolition activities. All materials and debris resulting from these demolition activities shall be disposed of at a legal dumpsite; on-site burning or burying shall be strictly forbidden.

If nothing is to be built back in the area of demolition, all holes shall be filled with compacted topsoil and the land contoured and graded so water does not flow toward the house. Any existing foundation walls/components shall be removed to a minimum of 12” below surrounding grade, with compacted fill over them to match the existing land contour. Apply seed and straw to all fill areas to the requirements of section a13.0 above.

Care shall be taken to protect all workmen and visitors (including the homeowner) during the demolition and cleanup process and to warn them of the dangers involved.

When demolishing an existing structure in anticipation of construction of a new structure in its place, the entire structure and all site amenities (sidewalks, driveways, steps, railings, etc.) shall be removed from the site, unless specifically noted otherwise in the site specific Work Write-Up for that structure. In addition, any footings or subsurface elements of the existing structure shall be removed as necessary so as not to interfere with the construction of the new structure. Where the existing structure has a basement, clean fill shall be provided in the existing basement area to bring the entire site to level, unless specified otherwise within the site specific Work Write-Up. Prior to demolition of the existing structure, it shall be the Contractor’s responsibility to contact the Property Owner to ensure that all desired salvage activities are completed.

a20.1 Clean Crawl Space and/or Basement: Rake and remove all loose debris and trash from the crawl space and/or basement. This includes all existing debris (wood, rocks, concrete chunks, bricks, wood blocks, etc.) as well as all construction debris from the rehabilitation activities. If a vapor barrier is specified for installation in a crawlspace, the Contractor shall call the Rehabilitation Specialist for inspection prior to installation of the vapor barrier. Unless specified in the work write-up, work within this section shall not include installation of a vapor barrier; see section a220.0.

a21.0 Wall / Ceiling Covering Demolition: Remove all wall coverings (paneling, plaster and lath, tile, drywall, etc.) from the specified ceilings and walls to the wood framing prior to installing new wall coverings as specified elsewhere in the write-up (this section covers wall covering removal/demolition only). Pull or set all nails into the existing framing members so as not to damage new wall coverings when applied.

a22.0 Debris Removal: Remove all existing furnishings and debris from interior of house/crawlspace/basement/yard (as specified in the work write-up). Property Owner shall be responsible for the removal of any items of salvage value prior to arrival on site by the contractor; the contractor shall not be responsible for missing items of value not removed by the property owner. Dispose of debris at legal dumpsite; on site burying or burning is prohibited.

a23.0 Demolition: Remove the existing components of the structure as specified and dispose of properly; on-site burying or burning is prohibited. Refer to the site-specific work write-up for components to be removed/demolished, and scope of work under this section. All structural members that are removed/replaced shall be temporarily supported under this section, until new installations (including proper headers, posts, beams, etc. which are specified elsewhere in the write-up) can be installed.

a24.0 **ROOM ADDITION**

Refer to the Drawing and Work Write-Up for the location and dimensions of the room addition. A footing inspection by the Building Inspections Dept. shall be required prior to concrete placement in footings and/or slabs. A framing inspection by the Building Inspections Dept. shall be required prior to sheetrock installation. All provisions of the General Specifications, as well as applicable building code requirements for new construction shall be met within the area of the room addition. All work is to be level, plumb, and square. All floors shall be on the same plane as the existing structure unless otherwise stated, and all roof planes and slopes shall match the existing adjacent roof. Any demolition, tear out, or alteration to the existing structure is included within this section and it shall be the responsibility of the contractor to determine what might need to be done prior to the construction of the new addition. All other applicable sections of the General Specifications apply to this section in regards to installation, materials, and workmanship.

The room addition shall include all components necessary for a structurally sound, code compliant, and comfortably inhabitable space including, but not limited to, the foundation, floor system, walls in layout shown on the plans, roof system, insulation of walls/floor/attic, trim and moldings, electrical, plumbing, HVAC, finished flooring (carpet, vinyl, etc.), doors and windows, moldings, and exterior siding or wall finish to match existing adjacent areas. All floor transitions from the existing structure to the new addition shall be level, unless approved in writing by the Rehabilitation Specialist (or shown on the plans). All interior finishes shall be drywall, unless specified otherwise by the Work Write-Up. If in the course of constructing a room addition an existing exterior wall becomes an interior wall, measures shall be taken as necessary (i.e., P.T. furring over brick/block with new drywall) to provide a new finish to match adjacent walls of the addition. Also, all demolition or repairs necessary due to the construction of the room addition shall be affected on the existing structure. All components of the room addition shall be assembled/installed per the relative section(s) within these general Specifications. The Rehabilitation Specialist shall be consulted before construction of the room addition begins to confirm the design considerations and intent of the subject addition.

a25.0 - a36.0 **FOUNDATION AND RETAINING WALLS**

General Note: Due to the varying topographical and geological conditions in the East Tennessee region, moisture and water rise into a crawl space or basement due to the water table nearly as often as an occurrence of horizontal infiltration (wall penetration). The contractor shall take normal steps to make a below-grade foundation water resistant in the course of construction, but it shall be the Community Development Dept's policy on new foundations (including new homes or replacement homes) and/or grading work that there is no 'guarantee' of a dry and/or waterproof basement or crawl space.

a26.0 Foundation: Specifications within this section may exceed minimum building code requirements. In such a case, construction of the foundation to these General Specifications shall be deemed a contract requirement, and not relieve the contractor of complying with provisions that exceed minimum code requirements.

All footings and slabs shall be inspected by the Rehabilitation Specialist following forming, grading and preparation with all specified components in place; **inspection and approval from the Rehabilitation Specialist shall be required prior to placing concrete in any footing.**

All footings shall also be inspected by the Building Inspections Department prior to pouring concrete.

All concrete shall be minimum 3,000 psi. All footings shall be excavated to not less than thirteen inches (13") below final grade. No concrete shall be poured when temperatures are below freezing, and calcium shall be added to concrete when temperatures are below 40 degrees or predicted to drop below freezing within 24 hrs. No concrete shall be poured when footing trenches contain water or are muddy. It is the responsibility of the Contractor to see that all footings are squared and the specified thickness and depth.

All footers shall have two #5 reinforcing bars running the continuous length of the foundation on wire or plastic chairs not exceeding 48" apart; lap bar splices a minimum of 18", and tie together with wire.

See Foundation "General Note" above regarding water infiltration.

No concrete for continuous footings shall be mixed on site unless specifically approved in writing by the Rehab Specialist. For smaller pad footings under jackposts/columns, it is preferred that ready-mix be used if it is to be delivered to site for larger items; however, the contractor may use site-mixed concrete for these smaller items if necessary as long as the mix is prepared to manufacturers printed bag instructions.

New foundations where specified shall be laid up level and plumb with minimum 8" x 8" x 16" concrete masonry units (CMU's). On replacement/new homes, grade may dictate the use of larger CMU components due to water and/or unbalanced fill; the contractor shall have the responsibility of constructing a foundation to code in these situations. **Nailing of the sill/plate to the foundation is prohibited by these specifications (even if allowed by code).** Foundation shall be installed so that sill/plate rests securely on it. All mortar joints shall be tooled.

All openings exceeding 16" (width of foundation vent) shall have a precast concrete lintel over the opening, with a minimum 4" of bearing on each side of the opening. All sections of new foundation shall be waterproofed below grade. Backfill to foundation with topsoil; slope so water will drain away from house. Seed and straw backfilled/bare areas adjacent to the foundation. Remove any unused dirt to a legal dumpsite. When replacing a foundation, remove all old foundation material that conflicts with the proper installation of the new foundation. The temporary shoring/support of structural members, and demolition of the existing foundation as necessary, shall be included within the scope of this section during foundation replacements.

a27.0 Concrete Porch: Pour 4" thick 3000-PSI concrete Porch Deck on metal pan, with minimum 1 1/2" bearing over foundation and minimum slope of 1/4" per foot away from house. Install metal flashing between all wood and concrete. Set pan and form concrete so pan will not show. Fill all honeycombs. Install in areas specified in the work write-up.

a28.0 Retaining Wall: Remove and replace old retaining wall and/or install new retaining wall as specified in the Work Write-Up and/or shown on the drawings. The retaining wall height shall be as specified in the work write up; in absence of that, the retaining wall shall extend a minimum of 6" above the surfaces the wall is retaining. Excavate footing to 13" below grade minimum. Pour 8" x 16" minimum concrete footing (larger if specified in the WWU) with 3000 psi concrete. Footings shall have two #5 rebars continuous on wire or plastic chairs. All footings and slabs shall be inspected by the Rehabilitation Specialist following forming, grading and preparation with all specified components in place; **inspection and approval from the Rehabilitation Specialist shall be required prior to placing concrete in any footing.** All footings shall also be inspected by the Building Inspections Department prior to pouring concrete.

Minimum 8x8x16 concrete masonry units (CMU's) shall be used for construction of the retaining wall; larger if unbalanced fill requirements of code dictate. Install vertical rebar reinforcement per code requirements, and grout cores solid that hold rebars. Provide horizontal joint reinforcement as required by code. Install 4" solid cap at top of wall. Install weep holes every sixteen inches.

Install PVC footing drain per the specifications of section a29.0 below. Backfill retainage side of wall with gravel to 8" from the top of the excavation, and lay builders felt (to prevent soil infiltration when fill is applied over). Cover with 4" of clean fill and an additional 4" of topsoil; seed, and straw per a13.0.

a29.0 Footing Drain: Install new perforated or slotted, corrugated or rigid PVC drain on the top of the new footing. Run outcropping to low side of yard with a continuous slope from the point where it leaves the foundation to the point where it emerges from the ground at a 1/16" fall per linear foot minimum. Backfill exterior of foundation (or retainage side of a retaining wall) with gravel to 8" from the top of the excavation, and lay builders felt and cover with 4" of topsoil, seed, and straw. See Foundation "General Note" above regarding water infiltration.

a30.0 Lintels: Install pre-cast concrete lintel or steel lintel (as specified in the work write up) above openings specified. In areas of new construction, place pre-cast lintel above all door, window, and/or HVAC openings in new foundation. All lintels shall have a minimum bearing of 8" on each side of the opening they are spanning.

a31.0 Concrete Apron: Form and pour a 4" thick, 36" wide, 3000-PSI concrete apron around the portions of the exterior located as specified in the Work Write-Up and/or shown on the drawings. Slope minimum 1/4" per lineal foot away from foundation and to drain. These aprons are intended to be finished as a sidewalk with a steel trowel, with final application of a broom finish. Edges are to be tooled and all exposed honeycombs shall be filled. Where concrete apron is abutting an existing slab, or masonry units or brick, provide a continuous fibrous expansion joint (the same thickness as the slab) along the entire length of the joint to deter cracking/separating. Provide "sawcuts" every five lineal feet as control joints; control joints shall be one fifth (20%) of the slab thickness. Unless otherwise specified, top of apron shall be no more than 1 1/2 inches above the finished grade; to accomplish this, apron may be 'cut' into the existing grade, or compacted fill (loose or aerated fill not acceptable) sloped gradually (not more than 1/12 slope) away from the edge to existing grade.

Apply seed and straw to all cut or fill areas as necessary, per the requirements of section a13.0 above. The outer edges of the apron shall have a thickened edge, a minimum of 8" deep x 6" wide to retard under-slab erosion. All aprons shall be inspected by the Rehabilitation Specialist following forming, grading and preparation with all specified components in place; **inspection and approval from the Rehabilitation Specialist shall be required prior to placing concrete in the apron area.**

a31.1 **Concrete Slabs:** Concrete slabs where specified shall be minimum 4" thick 3000-PSI concrete reinforced with 6x6 10x10 welded wire mesh, with thickened monolithically poured edges as follows:

Supporting 2x4 or 2x6 frame wall: 12" wide, with depth to provide bearing 13" below surrounding grade. Provide two #4 rebar continuous on wire or plastic chairs in footing.

Supporting 8" Concrete Block: 16" wide, with depth to provide bearing 13" below surrounding grade. Provide two #4 rebar continuous on wire or plastic chairs in footing. **Supporting no load-bearing wall:** Perimeter shall have 8" deep x 6" wide thickened edge to deter erosion of dirt from under slab. No reinforcing bars shall be necessary.

Lay interior slabs over vapor barrier and 4" gravel base; exterior slabs shall not be required to have vapor barrier, but must have a gravel base. Include earth removal or backfill as needed to bring slab to desired grade. Slabs over 4' x 4' shall have thickened edges/monolithic footings as specified above and six by six welded wire mesh in slab, 2 inches below top of the slab. Tamp surface so gravel will not show, and finish interior slabs smooth with a steel trowel; finish exterior slabs with a broom finish and tool edges. **Inspection and approval from the Rehabilitation Specialist shall be required prior to placing slab concrete.** All monolithic footings and/or slabs shall also be inspected by the Building Inspections Department prior to the pouring of concrete. See Foundation "General Note" above regarding water infiltration.

- a32.0 Foundation Vents: Install louvered foundation vents in locations specified in the write-up and/or shown on the drawing. Where gas powered furnace and/or gas water heater combustion air is drawn from below house, render the vent(s) closest to the appliance(s) to remain permanently open; non-operable vents shall match all other venting in exterior appearance. All vent installations shall be secured with set-screws as provided with vent, and sealed around the perimeter of the vent with spray foam, mortar or paintable caulk (trimmed at exterior faces) to prevent vermin penetration into crawl space/basement.
- a33.0 & a34.0 Exterior and Interior Stucco Coatings: Apply a fiber-reinforced surface bonding cement around specified areas; mix per the manufacturer's printed bag instructions. Wire brush foundation to remove all loose mortar and paint. Clean any dirty and/or mossy areas. Trowel smooth and finish with a white wash brush. Remove any stucco coatings from window casings, foundation vents, trim, shingles, etc.; ensure that operable vents are not prevented from opening/closing. Any loose brick in foundation shall be re-laid with mortar prior to applying stucco. Maintain thickness and application recommendations of manufacturer. All surface prep shall be done per the manufacturer's printed instructions.
- a35.0 Support Piers: Support floor system and remove all damaged or deteriorated support piers or jackposts as specified. Pour 24" square x 8" deep concrete footing and install block pier, metal screw type jackpost, or Pressure Treated wood post as specified in the work write-up. Cap blocks and/or deck blocks as bearing point support shall not be used for this purpose. Footings set on earth shall be dug into earth a minimum of 4" and formed above grade when occurring within a closed foundation building perimeter. Pad footings with exterior exposure shall be excavated to have bearing to 13" below grade. Footings set on an existing concrete floor shall be formed above the existing concrete and keyed to existing slab with two #4 rebar drilled into concrete a minimum of two inches (2").

a36.0 Tuck Pointing: Rake out all loose or sandy mortar to a depth of 3/4" to one inch. Remove all excess mortar and tool all joints to match existing. Relay any loose brick; replace missing brick with brick matching as closely as possible the original size, color and composition.

Tuck Pointing per this section shall not be synonymous with 'stuccoing'; see sections a33.0 and a34.0 for 'stucco' applications. Surrounding surfaces such as roofs and walls shall be protected during this operation. Roofs mortared when chimneys are tuck-pointed shall be replaced at the contractor's expense. Mortar applied to the face of bricks in a "stucco-coat" fashion shall not be acceptable under this section in any circumstance, and application in this manner shall require rebuilding of the brick in the effected area.

If there is ANY question as to the desired result, it shall be the Contractor's responsibility to consult with the Rehabilitation Specialist prior to undertaking the tuck-pointing.

a37.0 **CHIMNEYS**

a37.5 Chimney Caps for Operable Chimneys: Provide screened, hooded metal chimney cap to prevent bird/vermin infiltration to chimney. Attach with tapcon screws.

a37.7 Chimney Caps for Inoperable Chimneys: Seal the exterior chimney opening using solid masonry unit with mortar, or solid aluminum patch applied with tapcon screws each side and sealed at perimeter. Seal the throat of the chimney at top of firebox permanently; stuff insulation into throat prior to sealing.

a38.0 Remove Chimney: Remove the specified chimney(s) to a minimum of 8" below roof or floor (as specified in the work write-up) and cap permanently. Work within this section shall include all reframing and re-sheathing of roof and floors necessary to provide a sound, code compliant, finished surface. Permanent closure (drywall or masonry) of any existing flue holes in interior living spaces shall be included in this section; 'tin plate' closures shall not be acceptable.

- a39.0 Tuckpoint: Tuckpoint the chimneys as specified in tuckpointing section a36.0 above. Protect adjacent roofs from mortar; mortar damaged roofs shall be replaced at the contractor's expense. Mortar applied to the face of bricks in a "stucco-coat" fashion shall not be acceptable under this section in any circumstance, and application in this manner shall require rebuilding of the brick chimney. **If there is any question as to the desired result, it shall be the Contractor's responsibility to consult with the Rehabilitation Specialist prior to undertaking the tuck-pointing.**
- a40.0 Stucco: Apply fiber-reinforced surface bonding cement to the chimneys as specified in section a33.0/a34.0 above. The contractor shall protect adjacent roofs from stucco; stucco damaged roofs shall be replaced at the Contractor's expense.
- a41.0 Fireplaces and Mantels: Close the existing firebox in the specified fireplace with brick (or other material as specified in the site specific Work Write-Up). Seal damper with ½" gypsum board or wood panel, adequately supported. Fill throat of firebox with insulation before closing. Closures shall be set in one-inch from the face of the fireplace opening to create a reveal. Paint closure material. Tighten mantels and any loose parts. The intention here is to provide a safe, structurally sound chimney and/or prevent the use of an unsafe chimney by tenants.
- a41.1 Hearths: Repair or remove hearths at locations specified in the work write-up. Raised hearths that are to remain in rooms that are to receive carpet or vinyl floor coverings are to be left exposed and the new floor covering shall be installed with appropriate metal edging next to the hearth. Hearths that exist flush with adjacent flooring may be carpeted over. With written permission of the Rehab Specialist, vinyl may be installed continuous over these areas with proper floor preparation. Where existing hearths are specified to be removed, this shall include all necessary framing, blocking, and subfloor repair to ensure structural stability of the floor in the effected area, while bringing the patched area flush with existing adjacent surfaces.

a42.0 - a62.0 **STAIRS AND RAILINGS**

a44.0 Exterior Stairs, Rails and Decks:

a45.0 Concrete Steps: Install new concrete steps at locations specified in the work write-up. Concrete shall be a minimum of 3000-psi and receive a broom finish. Fill all honeycombs with vinyl concrete patch after forms have been removed. Use an edger on all steps. If new steps are to be poured over existing steps, no portion of the existing steps shall be within two inches of the surface of the new steps, and any existing concrete or masonry surfaces shall be roughed and treated to receive new concrete over them to ensure a strong bond between existing and new concrete surfaces.

All stairs shall have a code compliant hand railing (if required). Handrails shall be in accordance with the specifications of section a53.0 below. All riser heights and tread depths shall comply with the applicable Building Code.

a46.1 Concrete Slab Landings: Install 36" x stair width x 4" thick (or other size as specified in write-up) landing at base of steps specified in the work write-up. Top of slab shall be a maximum of 1 1/2" above finished grade; provide fill as necessary to accomplish this around perimeter of landing with seed and straw as applicable. Slope concrete 1/4" per foot away from structure. Thicken edges a minimum of 8" deep x 6" wide to retard erosion under slab. Landings shall receive a broom finish. Slab shall be poured over min. 4" gravel base.

a46.2 Apartments Step Coverings: Exterior stairs to apartments above the ground level shall require a roof over them. This roof structure and covering shall be constructed of either Pressure Treated Wood or Wrought Iron framing. Covering shall be the width of the stairs, plus minimum twelve inch overhang each side (where possible), and 7'-6" (clear) above stair nosing. Roof covering may be metal, roof canvas, or shingle roof with plywood sheathing and roofing to conform to specification a63.0/a64.0 below.

a47.0 Pressure Treated Wood Steps: Pressure treated wood steps shall be constructed with 2" x 12" stringers and double 2" x 6" or 5/4" deck board treads with 1/4" minimum space between. Stairs over eight feet high shall have three stringers or two 4" x 4" vertical braces at five feet on center maximum. Stairs with a total rise of more than twelve feet have an intermediate landing. All stairs shall have a code compliant hand railing (if required). Handrails shall be in accordance with the specifications of section a53.0 below. All riser heights and tread depths shall comply with the applicable Building Code.

All new pressure treated steps/stairways shall include a Concrete Slab Landing at grade, constructed per section a46.1 above. The bottoms of stringers shall not be in contact with soil. Stringers shall be mechanically fastened to the concrete slab landing referenced above.

a48.0 Pressure Treated Wood Deck: Construct a pressure treated wood deck at the specified entrance with steps to grade. Deck and steps shall include a railing (constructed per sections a51.0 and a53.0 below) when required by code. All nails, screws and fasteners shall be galvanized.

Posts	4" x 4" or 6" x 6" post with a code compliant footing. Post shall not be buried and encased with concrete. Footing shall extend a min. 4" above grade.
Stringers	2" x 12" with double 2" x 6" or 5/4" deck board treads with 1/4" minimum space between.
Joist	Pressure Treated 2" x 8" spaced 16" on center
Decking	Pressure Treated 2" x 6" with cups turned down, or 5/4" deck boards.
Railing	Pressure Treated 2" x 4" bottom and top rails. Install where decking is required by code. Railings shall meet the dimensional requirements specified in section a51.0 below.
Spindles	Pressure Treated 2" x 2" horizontal set prevent the passing of a four inch diameter sphere.

a48.1 Pressure Treating Landing/Stoop: Construct a pressure treated landing/stoop at the specified entrance with steps to grade. Landing and steps shall include a railing (constructed per sections a51.0 and a53.0 below) when required by code. All nails, screws and fasteners shall be galvanized. Framing sizes and requirements shall match those listed in section a48.0 above.

a49.0 Rail Spindles: Remove and replace any rotten or broken wood or wrought iron (as specified in the work write-up) spindles in railing. Match existing in size and detail.

a50.0 Rails: Remove and replace rotten or broken rails; top and/or bottom as specified. Match in size and in detail. Place new wood or wrought iron (as specified in the work write-up) horizontal member above existing railing to bring height of railing into code compliance.

a51.0 Porch Handrailings: Install vinyl/wrought iron/wood handrailing around specified porches. Handrails on single-family residences must comply with Residential Code. Handrails on multifamily residences must comply with codes for multifamily buildings.

Wrought Iron: Wrought iron handrail where specified consists of post, top, and bottom rails, and spindles complying with the dimensional requirements of the code. If handrail is to be installed in wood, posts shall require a collar and four lag screws. Posts shall be 1" square. Spindles shall be 1/2" square or solid metal. Collars shall be 3" x 3" x 1/4" square, with holes in four corners for four galvanized 1/2" x 2" lag screws with anchors. Handrails shall be painted as instructed in exterior paint section of the work write-up, including covering scratches that occur during installation. **Pre-manufactured aluminum or other hollow metal handrails are NOT an acceptable substitute for handrails specified via this section, unless specifically called for within the work write-up or executed change order.** Wrought iron posts, rails, and spindles, and posts and collars are to have welded connections. Post and rail connections shall be mitered. If porch floor and/or steps are of wood, locate outside face of collars back 1 1/2" from outside face of fascia board of porch.

If porch and/or steps are concrete, drill holes at post locations (outside edge of post holes to be back from nosings 2 1/2"). Holes to be 1 1/2" in diameter and three inches deep. Install post (centered and plumb) in wet mortar within these holes.

Exterior Wood Rails: Where specified shall be of pressure treated wood or redwood. Galvanized nails, screws, anchors and other fasteners shall be used to retard rusting and staining of wood. Remove all factory tags and staples from new wood. Wood railing members shall be free of major checking, splitting, knotting, or other defects that could reasonably be expected to be hazardous to the human touch.

Vinyl Railing: Install pre-manufactured white vinyl railing where specified in the Write-Up. All railing systems shall be installed per the manufacturer's installation instructions.

a53.0 Stairway/Step Handrailings: Install wrought iron/wood handrailing down specified steps. Handrails shall comply with the requirements of the applicable Building Code. Railings shall be provided on both sides of stairways (except where one side of the stairs butts an exterior wall). All handrails shall have intermediate rails or ornamental pattern such that a four-inch diameter sphere cannot pass through any opening.

When Wrought Iron Railings are specified in the write-up, aluminum or other hollow metal handrails are NOT an acceptable substitute, unless specifically called for within the work write-up.

a53.1 Garbage Can Bin: Construct garbage can bin to hold two cans per unit. Bin shall be constructed out of pressure treated lumber, with galvanized nails and fasteners. Set 4" x 4" corner posts 18" minimum below grade in concrete filled hole.

- a55.0 Wall Mounted Handrail: Install new wood handrail. Secure to wall with metal brackets spaced every five feet. Stain and seal with two coats of sanding sealer. Cut ends to be vertical and smooth when installed. Railing shall have a circular cross section with a diameter of 1 ¼" to 2", or a non-circular cross section with equivalent grasping capability. Handrail shall be installed to meet the requirements of the applicable Building Code. Handrails shall extend 6" beyond the bottom step.
- a55.1 Floor Mounted Handrail: (Floor Mounted) Install new handrail on open side of steps and/or around stairwell and 2" x 2" (or turned) spindles, and 4" x 4" newel posts. All wood must be clear fir S4S and sanded smooth. All handrails and guardrails shall have intermediate rails or ornamental pattern such that a four-inch diameter sphere cannot pass through any opening, and have a bottom rail or curb that will reject the passage of a two-inch diameter sphere. Handrails shall extend 6" beyond the bottom step.
- a56.0 Repair Newel Posts and Spindles: Replace broken or missing newel post and/or spindles on stairs as specified. Match existing by duplication, or match in style with permission of owner and Rehab Specialist. Finish to match existing. All handrails and guardrails shall have intermediate rails or ornamental pattern such that a four-inch diameter sphere cannot pass through any opening, and have a bottom rail or curb that will reject the passage of a two-inch diameter sphere.
- a58.0 Treads: Remove and replace broken tread(s) and/or broken riser(s) in the interior stairway. Use oak lumber of equal thickness and finish to match existing adjacent members.
- a59.0 Install Stairs: Install three foot (minimum clear dimension) wide stairway as specified. Use three 2" x 12" stringers. Use doubled header where joists are cut out. Match size of existing/adjacent joists. Trim outside edge of stringer in 1" x 12" and base molding. Landing shall be decked in 3/4" plywood. Includes installation of and finish of sheetrock (Type-X where fire separation is required) on the exposed bottom side of stringers. Handrails shall be in accordance with the specifications of section a53.0 below. All riser heights and tread depths shall comply with the applicable Building Code.

a60.0 Basement Steps: Install new basement stairs. Stringers shall be pressure treated 2" x 12" lumber and treads shall be pressure treated 2" x 10" lumber. All hardware and fasteners shall be galvanized. Secure stringers to concrete floor or secure to poured concrete footings where concrete basement floor does not exist. A code compliant hand railing shall be installed.

a62.0 Remove Stairway: Remove/abandon existing interior stair. Frame over stairwell opening with framing and subflooring to match size of existing/adjacent members. Ceilings below these areas shall be continuous and flush with the adjacent finished ceilings; include furring needed to accomplish this.

a63.0 - a70.0 **ROOFING AND GUTTERING**

a64.0 Shingle Roof Replacement: Replace roof by removing existing roofing down to sheathing. Contractor shall be responsible for determining amount of demolition necessary (i.e., number of existing layers of shingles or other roof coverings) prior to bidding; no change orders shall be executed for 'additional demolition' due to multiple layers of shingles. Contractor is responsible to make accurate estimates of exact size of area. Over the exposed sheathing, lay minimum 15# roofing felt, and new architectural dimensional asphalt shingles with a minimum twenty-five year warranty, attached with galvanized roofing nails per the manufacturers printed instructions. Shingles shall be Tamko, GAF, CertainTeed, Owens-Corning, or equal from a nationally recognized manufacturer. The property owner shall make color selections from a minimum of ten samples provided by the contractor. **Provide a copy of the manufacturer's warranty to the property owner.**

The Contractor shall take all necessary precautions to protect the structure during the time the roof is off and/or being restored; any damage to walls, ceilings, flooring, furnishings, etc., while roof is off for repair shall be the responsibility of the contractor. Include metal eave drips at all eaves and rakes; upper pieces lapping lower pieces; no open corners.

All valleys, flashings, boots and eave drips shall be installed and/or replaced during roof replacement. All valleys shall be at least 18" V-groove if exposed, **or**, be laced with shingle application. Protect aluminum from contact with concrete or stucco with a coat of asphalt or other protection. All sanitary sewer stacks and electrical masts projecting through the roof shall have boot flashings. Where the roof intersects a brick wall or chimney, counter flashing shall be installed. Where the roof intersects siding, the joint shall be flashed with metal step flashing tucked under existing siding. Repair of any damage to the existing siding during this operation is the responsibility of the contractor.

a66.0 Asphalt Shingles - Repair Damaged Area: Repair roof by removing damaged shingles and sheeting in area specified in the work write-up. Replace with sheeting and shingles to match existing/adjacent as closely as possible. Seal at walls and around all vents or chimneys.

a68.0 New Metal Roof: Contractor shall remove existing roof to bare sheathing or stripping. New roof covering material shall be pre-finished, galvanized, and have a min. 30 year warranty. Metal roof coverings shall be installed in accordance with manufacturer's printed instructions. Contractor's price shall include all accessories as required for a complete roof system. All valleys and flashing required for weather tight installation shall be included within this section. All valleys, flashings, boots and eave drips shall be installed and/or replaced during roof replacement. Owner to select color from a minimum of 5 color samples.

a69.0 Roll Roofing: Remove existing roofing down to sheeting and install new roll roofing. Use asphalt granular Commercial Roll Roofing and install according to the manufacturer's printed instructions. Do not use half lap 90# Asphalt felt. Property Owner shall be furnished with a copy of the manufacturer's printed warranty. If being installed in conjunction with other roofing materials, new roll roofing shall match in color as closely as possible.

a70.0 Rubber Roofing: Remove existing roofing and install a fully adhered 60 mil (minimum) rubber roof . Install per the manufacturer's printed instructions, and provide a copy of the Manufacturer's Printed Warranty to the property owner.

- a71.0 Sheeting: Remove and replace all damaged sheeting up to specified square feet allowed in the work write-up. If existing roof sheeting is 1x material, 1x material shall be used for patching; however plywood of equal thickness (only) may be used in large areas (more than 30 SF) of damage. In cases where plywood is the existing sheeting material, all new sheeting material shall be of equal thickness to existing; the use of plyclips (if required by code) shall be included on replacement materials. It shall be the contractor's responsibility to notify Rehab Specialist if additional sheeting is needed while the sheeting is exposed. Ensure that all new sheeting material is attached to the supporting framing members per code requirements.
- a72.0 Sheeting: Lay new 1/2" CDX (4-ply) plywood or 7/16" roof sheathing grade oriented strand board (OSB) over the entire roof. In instances where the work write up specifically calls for a material with 'no exceptions', that work write-up section shall take precedence over this general specification section. Nail per current code requirements. Where specifically called for in the work write-up, this section shall include the removal of existing sheeting material to the rafter framing members.
- a73.0 Aluminum Awnings: Aluminum Awnings: Install 4' x 4' aluminum manufactured awning (or other specific size if called for in the work write-up) in the location specified in the write-up (pre-finished). Install per manufacturer's directions. Provide proper flashing as required. Ensure a watertight transfer seal and/or flashing is provided between adjacent wall or roof and awning.
- a74.0 ATTIC VENTILATION:
- a75.0 Turbine Vents: Install aluminum turbine vents in the quantity specified in the work write-up. Vents are to be flashed properly and set plumb vertically. No roofing cement shall be applied on the visible surfaces. Bottom of vent at sheeting shall have heavy hardware cloth over throat of vent. Turbine shall be freely operable, and properly balanced to deter squeaking/whining when vent is in operation (balance and noise shall not be covered via warranty after final inspection).

- a77.0 Gable Vents: Install aluminum, vinyl, or wood gable vent as specified in the write-up. Size: 14X28 rectangular, or triangular vent with 390 square inch minimum vent area. All vents shall have screening on the attic side of the vent to deter infiltration of pests/vermin; where vent screen is not provided. Vent edges shall be properly trimmed (as applicable) and sealed at edges to be weather tight.
- a77.1 Gable Vent Re-screening: Apply heavy hardware cloth (conventional light-gauge screening not acceptable) to the attic side of existing vents at locations specified in the work write up. All hardware cloth shall be securely fastened at perimeter of vent.
- a77.2 Gable Vent Repair: Repair the existing gable vents as specified in the work write up for the site-specific application. Match existing materials and appearance as closely as possible.
- a78.0 Ridge Vents: Install a shingle-over ridge vent systems, with proper connectors and end caps, installed as per manufacturer's instructions. Cut roof sheeting continuously under vent area to allow proper air-flow.
- a78.1 Soffit Vents: Install 6" x 12" screened aluminum vent inserts 48" on center at horizontal eaves (or other locations specified within the work write-up). Install with fins facing house. Cut openings behind vents and remove any insulation that may block venting. When installing new insulation, provide baffles in rafter space to prevent vent from being clogged with insulation, providing a continuous, uninterrupted flow of air into the attic space.
- a79.0 Gutter and Downspouts: Install 4" x 5" aluminum continuous seam gutters and 3" x 4" downspouts. Gutters shall be properly pitched to drain by gravity. Gutters and downspouts shall be caulked at all joints where a connection is made. All downspouts shall be furnished with 20" long precast concrete splashblocks or 4" flexible PVC pipe installed below grade. Pipe shall be installed with proper pitch to drain the line.

Gutters shall be nailed at 30" on center maximum. No nails shall penetrate shingles; in applications where fascias are not perpendicular to the ground, pre-manufactured spacers shall be attached to the back side of the guttering to level the guttering; straps to shingle surfaces shall not be permissible. Downspouts discharging directly onto a roof surface shall occur only with the written permission of the Rehabilitation Specialist, and where occurring, shall have an aluminum 'splash' area under the discharge area to protect the shingles from premature weathering and failure. The elbows at the discharge end of the downspout shall aim water in the direction shown on the floor plan, or as conditions reasonably mandate, and in line with the reasonable placement of the splashblocks.

a80.0 Splash Blocks: Install one 20" long (minimum) precast concrete splash block beneath downspout discharges. Direction of discharge (and corresponding block placement) shall be as shown on the floor plan, or as on-site conditions reasonably dictate.

a81.0 Leaf Guards: Install leaf guards in guttering. Leaf guards shall vinyl components. Install leaf guards per the manufacturers printed instructions. Leaf guard color shall match gutter. Hard-wire screen type guards will not be accepted.

a82.0 Plastic Drain: Install the downspouts to discharge into 4" plastic drain to discharge as specified and/or shown on the Drawing. Drain material shall be PVC schedule 20 (minimum) with glued fittings, or flexible corrugated black plastic pipe with proper snap together fittings.

a83.0 - a90.0 **SIDING AND SOFFIT**

Siding General Provisions: All siding shall be installed level, plumb, and in a uniform manner. When a manufactured material is used, such as vinyl or aluminum siding, then it shall be installed as to the manufacturer's printed instructions. Caulk joints between siding or coil stock and all window and door trim shall be made with a Urethane Acrylic Sealant such as Siroflex DUO-SIL, or equal; application of caulking shall be to the manufacturer's printed instructions.

All types of siding shall be fastened securely to existing walls. In cases where the existing substrate has deteriorated or is missing, contact Rehabilitation Specialist for inspection when/while deteriorated substrate is exposed. When walls bow or are out of plumb, then any necessary furring strips shall be installed to make the wall level and plumb. Siding shall be installed so that a minimum number of butt joints shall be used to a run of siding, and butt joints shall be staggered to create a pleasing appearance at completion; left over short pieces used in open runs shall not be acceptable. All nails that are used in exposed locations on siding or trim shall be galvanized.

Installation of siding shall be over a breathable moisture barrier. Installations over existing siding shall have a layer of ¼" Polystyrene, fanfold, R-1 underlayment board such as Owens-Corning PROPINK, or equal, applied as an underlayment for the siding. Siding for new construction shall be installed over a breathable membrane such as TYVEK Home Wrap.

Refer to individual sections, as outlined in the Work Write-Up, that follow for complete construction/installation requirements of that section.

a84.0 – a87.0 Vinyl Siding and Trim: Refer to the “Siding General Provisions” section above. Install vinyl siding around the entire house (or other area specified in the work write up). The property owner shall select the color from a minimum of five samples. The use of a proper starter strip is mandatory, unless specifically excluded per the manufacturer’s printed instructions. Vinyl siding shall be nailed properly in the center of nailing slots to allow for expansion/contraction of vinyl siding according to weather conditions; heads of nails shall not be driven home but allow for the ‘sliding’ of the vinyl siding (allow approximately 1/32”, or the thickness of a dime between nailing slot and nail head). Quality of material shall be a minimum ‘mid-range’ vinyl thickness of .042 to .044 inch; siding thinner than .042 inch (‘economy siding’) shall not be acceptable. All vinyl siding shall meet the requirements of ASTM standard D3679, as well as the provisions of the Vinyl Siding Institute’s booklet “Vinyl Siding Installation: A How-To Guide”; a full copy can be found on the Internet at www.vinylsiding.org. For new wall construction applications, the use of OSB or plywood sheathing shall be required as a substrate; ‘black board’ is specifically excluded as an acceptable substrate sheathing material.

Wrap all fascia and eave rakes in aluminum. Soffits shall include the installation of all vented vinyl soffit panels. Remove existing vinyl or aluminum soffit prior to installation of all vented panels. Include insulation baffles at rafters to avoid vents from being clogged with attic insulation. If rafters have solid blocking between, and/or wood soffit is present, drill two 1 1/2" vent holes in each space between rafter tails before wrapping.

Wrap all window sills, door, and window casings in aluminum coil stock. Place corner trim at all exterior corners that matches the siding.

The use of insulated foam board around the areas receiving new vinyl siding shall be dependent on the application. For existing houses the use of foam board between existing substrate and new siding shall be **mandatory**, except on brick or masonry walls. For new construction (only) with insulated walls and OSB substrate, or masonry walls, the use of foam board is not required.

- a88.0 Repair Wood/Masonite Siding: Remove missing, deteriorated, and split siding in the quantities specified in the work write up. Install new siding to match existing. See that proper side faces outward. Caulk all joints and end butts. Siding at joints shall be shimmed to correct variations of thickness between old and new mills. Install any needed corner boards; match existing or use 1" x 3". Splits in new siding shall not be acceptable. Refer to the "Siding General Provisions" section above.
- a88.1 Corner Trim: Repair or replace (as specified in the work write-up) trim members at the corners. New trim shall match existing in both dimension and appearance, unless specifically designated otherwise. Refer to the "Siding General Provisions" section above.
- a88.2 Repair Aluminum Siding: Remove and replace bent, dented or punctured aluminum siding at the locations and/or quantities specified in the work write-up. New siding members shall match existing/adjacent siding as closely as possible both in appearance and dimension. Refer to the "Siding General Provisions" section above.
- a89.0 Composite Siding: Replace broken or missing pieces of composite siding in the location and/or quantity specified in the work write-up. Siding pieces broken by the contractor or his subcontractors shall be replaced at no additional cost to the contract. Refer to the "Siding General Provisions" section above.
- a90.0 Plywood Siding: Install 5/8" thick plywood reverse board and batten siding. Use galvanized nails. Install any needed corner or trim boards; use 1" x 3". Refer to the "Siding General Provisions" section above.

a91.0 - a133.0 **CARPENTRY**

Carpentry General Provisions: All framing shall be installed level, square and plumb. Where attaching to a surface that is not level, square, nor plumb, that surface shall be furred out or shimmed so that the new material can be installed correctly. **All lumber shall be No. 2 grade or better, and bear a grade stamp on the surface of the member that is easily viewable; ungraded/unstamped lumber shall not be permitted.** Refer to the currently adopted Building Code and use referenced span tables issued, to size joist, headers, or rafters. All framing shall be nailed with the appropriate spacing, size and type of nail, per the Building Code. Splits and/or major defects in any new framing members shall not be acceptable, and shall be removed and replaced by the contractor.

Notching and boring of studs and joists shall be within the limitations of the Building Code for stud framing and joist framing.

All framing shall be inspected by the Building Inspections Department before it is concealed; it shall be the responsibility of the Contractor to call and arrange for inspections.

NOTE: EXISTING WALLS, FLOORS AND CEILINGS SHALL NOT BE LEVELED, SQUARED OR MADE PLUMB UNLESS SPECIFICALLY WRITTEN IN THE WORK WRITE-UP, OR A PROPERLY EXECUTED CHANGE ORDER. NO JACKING OR SHORING, OTHER THAN THAT SPECIFIED SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL OF THE REHAB SPECIALIST. ANY DAMAGE TO A STRUCTURE CAUSED BY UNAPPROVED JACKING SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

a94.0 Sills (or Mud Plates or Mud Sills): Install pressure treated 2" x 6" (minimum) sill in the areas specified in the Work Write-Up. New sills shall be anchored to the foundation at 48" on center (maximum) as specified in section a26.0 of these General Specifications. See "Carpentry General Provisions" above.

a95.0 Box Sills (or Rim Joists): Install pressure treated box sills at the locations specified in the Work Write-Up. Size shall match existing/adjacent framing. Where non-compliant bearing (not less than 1 1/2") occurs at foundations, supply joist buckets attached to the box sill that support the joists framing into it. See "Carpentry General Provisions" above.

a96.0 Joists: Install floor joists where specified in the work write-up. Refer to the span tables published by the Building Code. Floor joists shall be pressure treated if there is less than 18" between grade and bottom of joist. Install new ledger if existing is damaged, or install joist hangers where ledgers are not used. See "Carpentry General Provisions" above.

On new construction applications (replacement homes or room additions), wood trusses (or 'truss-joist' type "I" members) may be substituted for conventionally framed systems. Where trusses are used, all members shall be pre-engineered and pre-fabricated by a certified truss manufacturing company. 'Field-built' trusses shall not be acceptable as a substitute for specified framing members. When trusses are to be integrated with conventional framing, all finish floor elevations shall be consistent throughout, unless specified otherwise.

Where floor joists and girders or beams are being laid as a system (such as in replacement houses or room additions), the tops of all members shall be at the same elevation. The use of dropped beams or girders, unless specifically allowed (in writing) in the work write-up or properly executed change order, shall be prohibited.

a97.0 Metal Joist Hangers: Install metal joist hangers at areas specified in the work write-up. Joist hangers are generally required at all instances where a wood framing member (floor joist or rafter) butts directly into another member (girder or beam), except where an appropriate ledger is installed. When specified, the metal joist hangers shall be of the size appropriate for the supported framing member, and fastened per the manufacturer's recommendations (or code requirements). See "Carpentry General Provisions" above.

a98.0 Girders: Remove damaged girder and install new girder. Girder shall be a minimum of three 2" x 8" members (or larger, if existing is larger) nailed and glued together, placed on edge. Stagger lumber joints; glue and nail in "W" pattern the length of the girder. Replace hangers when applicable and/or required by Building Official. All girders within twelve inches (12") of grade shall be of pressure treated lumber. See "Carpentry General Provisions" above.

Where new floor joists and girders or beams are being laid as a system (such as in replacement houses or room additions), the tops of all members shall be at the same elevation. The use of dropped beams or girders, unless specifically allowed in writing in the work write-up or properly executed change order, shall be prohibited.

a99.0 Shoring: Install doubled 2x6 members (or larger if specified) nailed and glued together as shoring in areas specified. Shoring shall fit snugly below floor joists; where joists are uneven, install shims between the bottom of the joists and the shoring. Shoring shall be supported with piers or metal jack posts as specified in section a35.0 of these General Specifications. As a minimum, the ends of all shoring members shall be supported, with intermediate supports as specified in the work write-up and/or drawings. Supports shall be securely fastened to shoring members. See "Carpentry General Provisions" above.

a100.0 Roof System:

a101.0 Rafter Tails: Install new pressure treated rafter tails where existing tails are rotten or damaged. Use same size lumber as existing. Scab rafter tails securely onto the existing rafters beyond any rotten or damaged areas. See "Carpentry General Provisions" above.

a101.1 Barge Rafter Braces: Replace deteriorated braces in the locations/quantities specified in the work write up. New braces shall replicate existing adjacent braces as closely as possible in dimension, material, and appearance. Secure new support securely to a structural member of the house; top of braces shall be level. See "Carpentry General Provisions" above.

a102.0 Rafters: Install new rafters in the locations and/or quantities specified in the Work Write-Up. Rafters shall run the full span between supports, without splicing or scabbing. Refer to the span tables published by the Building Code. Rafters shall be securely anchored to top plates at walls and ridge boards or jack rafters. When a gable end is called for, ladder framing shall be installed. In new rafter framing ‘pairs’, the installation of collar ties per section a103.1 below shall be required where necessary as a part of this section. Unless specified otherwise in the work write-up, rafters shall be installed at the same rise/run as the existing/adjacent roofs.

On new construction applications (replacement homes or room additions), wood trusses may be substituted for conventionally framed rafter systems. Where trusses are used, all members shall be pre-engineered and pre-fabricated by a certified truss manufacturing company. ‘Field-built’ trusses shall not be acceptable as a substitute for specified framing members or pre-engineered trusses. When a gable end is called for, ladder framing shall be installed. When trusses are to be integrated with conventional framing, all rise/runs shall be consistent throughout unless specified otherwise; it shall be the contractor’s responsibility to field verify existing rise/run/slope measurements and conditions. See “Carpentry General Provisions” above.

a103.0 Rafter Support: Construct a 2" x 4" knee-wall to support rafters at an intermediate point in the span, as specified. Knee walls shall rest directly over existing ceiling joists and within 8" of a parallel bearing partition below. Knee wall shall have a continuous 2" x 4" bottom plate, a continuous 2" x 4" top plate, and ‘studs’ or ‘jacks’ between the top and bottom plates directly under each rafter. Minimal jacking that causes no structural damage may be done as a part of work in this section; however, it is recognized that rafters with permanent sag cannot be fully straightened. In rehabilitation jobs where the roof coverings (shingles, tile, etc.) are not being replaced, any jacking of existing members is especially discouraged. See “Carpentry General Provisions” above.

a103.1 Collar Ties: Install 1 x 6 collar ties in the upper third of the roof height to every third pair of rafters. See “Carpentry General Provisions” above.

- a104.0 EAVE TRIM:
- a105.0 Repair Fascia/Rakes: Remove all damaged fascia/rakes and install new wood fascia/rakes to match existing adjacent in dimension and appearance. Where specified fascia/rakes have aluminum or vinyl wrapping, the replacement of similar wrapping shall be made a part of the work within this section. See “Carpentry General Provisions” above.
- a106.0 Install Fascia/Rakes: Install new fascia/rakes on all eaves specified in the work write-up. Unless specified otherwise in the work write-up, use 1x material that is two inches (2”, nominally) larger than the rafter tail material. See “Carpentry General Provisions” above.
- a106.1 Drip Trim: Install drip edge at all eaves and rakes at the locations specified in the Work Write-Up.
- a107.0 Wood Soffit: Build plywood soffit under roof overhang. This shall be done by installing 3/8" exterior plywood from end of rafter to wall of structure. Soffit shall be constructed at 90 degrees to wall, parallel to ground, and shall not be attached to bottom of rafters unless otherwise specified, or illustrated on the drawings. Maximum spacing for soffit blocking shall be 24", and shall be finished at wall with molding strip, and at end of rafter with a fascia board. Unless specified otherwise in the work write-up or drawing, all soffit shall have a continuous screen vent. All newly installed wooden soffit shall receive one coat primer and finished with exterior oil base semi-gloss enamel (apply as many coats as needed to uniformly color soffit). Nails shall be galvanized, countersunk, and filled with putty. See “Carpentry General Provisions” above.
- a107.1 Repair Soffit: Replace damaged or rotted sections of existing soffit with material to match existing in dimension and appearance. See “Carpentry General Provisions” above.
- a108.0 Porch Framing: Work specified in section a109 through a118.0 below shall apply to porches as specified in the Work Write-Up. See “Carpentry General Provisions” above.

- a109.0 Decking: Install new T & G Porch decking. On decks where structural framing is parallel to the exterior walls, the decking boards shall run the full depth of the porch (from front to back). On decks where the structural framing is perpendicular to the exterior wall, decking boards shall be run the full width of the porch where practical; where full width runs are not practical, the number of joints shall be minimized, and the joints staggered. All joints shall occur over framing members. All decking shall be blind nailed in tongue of board. Treat deck with wood preservative or use pressure treated T & G lumber. All decking shall slope away from the house 1/8" per foot minimum; provide framing/shims as necessary to accomplish this where level framing exists. See "Carpentry General Provisions" above.
- a109.1 Decking: Install pressure treated 5/4 or 2x6 decking, cups down. On decks where structural framing is parallel to the exterior walls, the decking boards shall run the full depth of the porch (from front to back). On decks where the structural framing is perpendicular to the exterior wall, decking boards shall be run the full width of the porch where practical; where full width runs are not practical, the number of joints shall be minimized, and the joints staggered. All joints shall occur over framing members. See "Carpentry General Provisions" above.
- a110.0 Porch Sill: Install new pressure treated sill; size to match existing. See "Carpentry General Provisions" above.
- a111.0 Joists and Sill: Install new pressure treated 2" x 8" joists (or larger if specified and/or span tables dictate) at 16" on center and new box sill. See "Carpentry General Provisions" above.
- a112.0 Joist Replacement: Replace existing deteriorated joists with same size joist. Use Pressure Treated lumber if required by code. Existing joists may remain, unless specified otherwise. See "Carpentry General Provisions" above.
- a113.0 Trim: Install 1" wood quarter-round next to house.

- a114.0 Posts: Remove and replace wood post. Size and design to match existing unless otherwise specified in WWU. Temporary support of structural system supported by a post being replaced shall be included within the cost and scope of this section. See “Carpentry General Provisions” above.
- a115.0 Beam: Replace header beam with triple 2 x 8 (or new beam to match existing in size). Trim with 1 x 8, or match existing in size or style. Preserve or reproduce corner brace/trim if applicable in historic structures. See “Carpentry General Provisions” above.
- a116.0 Ceiling: Remove existing ceiling and install new 3/8” exterior plywood ceiling with lattice strips over joints. Install any needed dead wood blocking for secure installation. Trim with 1” quarter round around perimeter.
- a116.1 Ceiling Joists: Remove existing ceiling joist framing and provide new code specified sized members before installing new ceiling.
- a117.0 T & G Ceiling: Install/replace (as applicable) T&G on ceiling. Trim with 1” quarter round around perimeter.
- a118.0 Vinyl Porch Ceiling: Install vented/solid vinyl soffit panels (as specified in the work write up) as a ceiling.
- a120.0 WALL FRAMING:
- a121.0 Wall Framing: Construct new walls as shown on the drawing and/or specified in the Work Write-Up. Wall framing shall be 2" x 4" studs to be 16" on center; studs may be 24" on center if 2" x 6" studs are used. All lumber used for interior, non-load bearing applications shall be grade-stamped ‘stud’ or better; all lumber for exterior walls or load bearing partitions shall be grade-stamped #2 or better.

Bath walls housing the main vent shall be framed with 2" x 6" studs to accommodate venting. Bathroom walls that are to have grab-bars attached to them shall be constructed with necessary deadwood blocking in place. Non-load bearing walls shall have single bottom and top plates; load-bearing walls shall have double top plates. All bottom plates in contact with a concrete slab shall be pressure treated. Install headers per current building code. Where new wall framing is for a closet, install any necessary blocking needed for shelf supports; all clothes closets shall be a minimum of 24" deep. See "Carpentry General Provisions" above.

a121.1 Fireblocking and Draft Stopping: Provide fireblocking at locations specified in the work write-up and/or the locations dictated by the Building Code. Fireblocking shall be constructed as dictated by the Building Code.

Draftstopping shall be provided at the locations specified in the work write-up and/or the locations dictated by the Building Code. Draftstopping materials shall be as dictated by the Building Code. See "Carpentry General Provisions" above.

a122.0 Ceiling Framing: Frame down ceiling to height specified in the work write-up. Ceiling shall be installed level. If wall covering is damaged above the new ceiling, then nail scrap plywood or sheetrock over wall so as to prevent air infiltration. Size joists and frame ceilings to satisfy building code requirements. See “Carpentry General Provisions” above.

a123.0 - a128.0 Finish and Trim Carpentry:

General Provisions of Finish & Trim Carpentry Sections: All finish lumber shall be clear grade lumber in installations where stain will be applied; finger-jointed lumber is acceptable only where the finish coat shall be paint. All cuts shall be mitered and coped to fit properly. All nails shall be finish type, countersunk and filled. Split wood and mid-run splices of less than four lineal feet (4 LF) shall not be accepted. **Refer to the individual Finish and Trim sections below for additional installation requirements.**

- a124.0 Colonial Baseboard: Install 3 ¼” colonial wood baseboard in the areas specified within the work write up. Install per the provisions of the “General Provisions of Finish & Trim Carpentry” above. See “General Provisions of Finish & Trim Carpentry” section above.
- a125.0 1 x Baseboard: Install SPF #2 baseboard to match existing in dimensions and appearance in the areas specified within the work write up. Install per the provisions of the “General Provisions of Finish & Trim Carpentry” above.
- a126.0 Shoe Molding: Install ¾” wood shoe molding in the areas specified within the work write up. Install per the provisions of the “General Provisions of Finish & Trim Carpentry” above.
- a127.0 Casing: Replace casing around the doors, windows, and/or openings specified within the work write-up. Install per the provisions of the “General Provisions of Finish & Trim Carpentry” above.
- a128.0 Crown: Install crown molding in the areas specified within the work write up. Crown Moldings shall match other/existing trim (i.e., if colonial base is installed in the room, crown shall be of a design that matches). Install per the provisions of the “General Provisions of Finish & Trim Carpentry” above.

a129.0 through a132.0 Closet Shelving:

General Provisions of Shelving Sections:

Wood Shelves: Stain and seal or paint wood shelves (consistent with work write-up and/or existing conditions). Use shelving grade lumber. Install wall mounted center support bracket for rod if rod is over four feet in length; bracket shall be screwed to both the shelf and wall (at stud locations). Bar support ‘hooks’, without bracket, shall not be acceptable. Shelf shall be 72" above the floor. Wall cleats shall be continuous 1" x 4" members, screwed to the wall at stud locations. Wall cleats shall be placed continuously at back of shelf, and under both ends. Screw shelves to cleats to prevent warping of shelves. Shelf and rod shall be level.

Vented Wire Shelves: Vented wire shelving shall have clothes hang bar continuous the length of the shelf. Vented wire shelving shall be Closet Maid or equal. Only hanging/attachment hardware compatible with vented wire shelving installations shall be used on these installations.

Refer to the individual Shelving sections below for additional installation requirements.

- a130.0 Closet Rod and Shelf: Install vented wire shelving with hang bar (Closet Maid or equal) or a 1" x 12" shelf and metal closet rod in specified closets. Refer to the "General Provisions of Shelving Sections" above for installation requirements.
- a131.0 Linen Closet Shelves: Install four rows of 18" deep vented wire shelving or four rows of double 1" x 8" wood shelves in linen closet. Refer to the "General Provisions of Shelving Sections" above for installation requirements.
- a132.0 Laundry Closet Shelves: Install 12" deep vented wire utility shelving or 1" x 12" wood shelving in laundry closet above washer/dryer. Refer to the "General Provisions of Shelving Sections" above for installation requirements.

a135.0 - a147.1 **FLOORING AND FLOOR COVERING**

- a136.0 **Repair and Reframe Floor:** Remove existing flooring and floor joist in the rooms specified in the work write-up. Install new floor joist size and spacing as called for in the work write-up (in cases where floor joist sizing and spacing is not provided in work write-up, refer to the Building Code). Use pressure treated lumber if distance to soil is 12" or less. New floor shall be installed level, including the installation of any needed supports or shims to obtain this. Finished floor shall be as flush as possible with adjacent existing floor(s); in rooms where a level floor will not allow for this, it shall be the responsibility of the contractor to consult with the Rehabilitation Specialist regarding desired results prior to installing the new floor. Provide ¾" BC plywood (B side up) subfloor over joists. Attach subfloor per Building Code requirements. Install blocking beneath commode when new floor system is installed in bathroom area. In new construction (including room additions or replacement homes), or where entire sections of an existing house are being reframed, the use of Advantech panels is an acceptable alternative.
- a137.0 **Repair Flooring:** Remove damaged sections of flooring to the joist framing and refloor. Provide necessary blocking/framing as required to stabilize the damaged area. Match existing flooring if floor boards are to be exposed (i.e., use oak if floor is currently oak). If flooring will be carpeted or have vinyl laid, then ¾" BC (B side up) plywood may be used.
- a137.1 **Plywood:** Install ¾" BCX plywood T & G floor in areas specified in the Work Write-Up. Attach to floor framing as specified in Building Code nailing schedule.
- a138.0 **Underlayment:** Underlayment in the rooms specified shall extend wall to wall, including under new cabinetry, fixtures, appliances, etc.

- a139.0 Plywood Underlayment: Install void-less birch premium underlayment or approved equal equivalent to Sureply with printed attachment pattern. Install per manufacturer's printed instructions. Underlayment in the rooms specified shall extend wall to wall, including under new cabinetry, fixtures, appliances, etc.
- a142.0 Refinish Flooring: Remove shoe molding carefully. Sand floors to remove all old paint, stains, and/or varnish. After thorough cleaning of surface, apply one coat of stain and two coats of satin polyurethane; finish shall be smooth and uniform throughout. Reinstall shoe molding. Replace any broken or missing shoe molding with matching material. All re-finishing shall be completed by a professional flooring company.
- a143.0 Paint Floors: Scrape and clean floors to remove all wax and/or loose paint. Fill and sand all holes, dents, cracks, and nicks with proper filler. Sand floors as needed to 'rough' surfaces to provide good bonding between old and new paint. Apply a minimum of two coats of floor paint, but apply as necessary to completely cover floor in a uniform, non-streaking manner with no 'bleed-through'. Painting of floors in the rooms specified shall extend wall to wall, including under new cabinetry, fixtures, appliances, etc.

a144.0 Vinyl Tile: **No Longer Used**

a145.0 Sheet Vinyl: Install new sheet vinyl floor covering in the areas specified in the work write-up. Material shall be installed and surface shall be prepared in accordance with manufacturer's recommendations. All shoe moldings, etc., damaged during removal shall be replaced with new matching molding and painted to match adjacent trim. Care shall be exercised to prevent damage to adjacent finishes. All new sheet vinyl shall be fiberglass backed with a 10 mil minimum wear surface. Vinyl is to be installed per the manufacturers printed installation instructions. Any visible plywood seams and nail heads will not be accepted. Vinyl is to be installed as squarely as possible. Vinyl and underlayment are to project into doorways so that the break or threshold is directly beneath the door. Install all needed threshold strips. Owner to choose style and color. Vinyl cost as per work write-up for material (not including underlayment). Install shoe molding at all new sheet vinyl installations. Caulk edge at tub intersection so water cannot get below floor covering. The perimeter and all penetrations of finished floors in bathrooms, laundry rooms and kitchens shall be caulked with caulk. Installation of sheet vinyl on floors in the rooms specified shall extend wall to wall, including under new cabinetry, fixtures, appliances, etc.

a146.0 Hardwood Flooring: Install hardwood flooring according to manufacturer's specifications. Flooring shall be straight edge tongue and groove. Sand, stain, and finish floor with two coats of satin polyurethane (unless pre-finished is used). All finishing of hardwood flooring must be completed by a professional flooring installer. Provide invoice to Rehab Specialist. Owner to select finish. a147.0 Carpet: Install padding and perimeter tack strips and carpet. Carpet is to be installed by professional installer. Install all needed threshold strips. All seams are to be installed in such a way as not to be noticeable. All carpet strips at thresholds will have the tacks bent over so they will not irritate bare feet. Carpet allowance will not exceed amount specified in the write-up for carpet, exclusive of padding and installation. Owner shall select carpeting (only) that is in the specified price range.

a147.1 Carpet – Clean and Repair: Clean the existing carpet in the areas specified in the Work Write-Up. A professional carpet cleaning service shall perform the carpet cleaning. Provide legible copy of invoice or receipt to the Rehabilitation Specialist. This section shall not include any re-dyeing of carpet, unless specifically called for in writing.

a148.0 **INTERIOR WALL AND CEILING FINISHES**

a149.0 Reserved:

a150.0 Suspended Ceiling: Install suspended ceiling. Suspension grids shall be inverted "T" type main beams and cross tees, installed in accordance with manufacturer's recommendations. Ceiling tile shall be a minimum of 1/2" thickness. Grid shall be 2' x 2'. Minimum size for hangers shall be 9-gauge wire for 16 supported square feet. All flat hangers & wall molding shall be protected with a zinc coating or rust resistant paint. Any tile soiled or damaged during installation shall be replaced. On dropped ceilings, the minimum height shall be 7'-6" above finished floor. Perimeter tiles shall be equal on opposite sides of room and 12" or more in width. Prior to installation of grid, remove all loose plaster that might fall on new suspended ceiling, if applicable.

a150.1 Suspended Ceiling Repair: Replace tiles only; match existing tiles as closely as possible (exact matches not guaranteed). Tighten, level and replace all missing pieces of grid, including main beams, cross tees, wall moldings, and/or splices.
a151.0 Patching _____ Plaster _____ and/or Sheetrock: Patch cracks in walls and/or ceilings of designated rooms. Rake cracks clean, remove loose plaster, wet and fill with patching plaster. New plaster shall be struck level with surrounding surface and finished to match existing plaster. Use tape on cracks over 12".

- a152.0 Wood Paneling: Contractor shall furnish and install pre-finished plywood paneling with a minimum thickness of 3/16", installed on existing backing where studs are spaced not more than 24" on center. Where backing is not existing or studs are spaced more than 24" on center, additional studs shall be installed to bring spacing into the above requirements. New matching baseboard and shoe molding shall be installed with all paneling except when otherwise specified in the work write-up. Masonite paneling is not acceptable. All cuts shall be closely fitted and no saw cuts shall be visible on exposed surfaces. Splicing will only be allowed on vertical joints. No horizontal splicing of joints will be allowed where ceiling height is eight (8) feet or less. In cases where ceilings are in excess of 8 feet above base trim, joints shall be covered with a pre-finished molding matching paneling color as closely as possible. Pre-finish paneling nails and panel adhesive shall be used to install panels. Nails and molding and corner molding shall be installed and finished to match paneling. All cuts in trim shall be miter cuts. Paneling, trim, and all accessories shall be included in bid price.
- a153.0 Wood Paneling Trim: Trim out existing paneling to give finished appearance. Include corner molding, crown, base, strips and stained patches over holes and voids.
- a154.0 Wallpaper: Remove wallpaper from the walls and ceiling. Rake out all cracks and loose plaster. Replaster these areas using fiberglass joint tape. Build out level with existing.
- a155.0 DRYWALL:
- a156.0 Drywall Applied to Walls: Unless specified otherwise in the Work Write-Up (or change order), all drywall applied to non fire rated walls shall be of 1/2" thickness. In bathrooms or laundries (or other areas where moisture will be present), drywall shall be moisture-resistant greenboard. All drywall shall be attached to framing members not exceeding 24" on center; if existing framing exceeds 24" on center, additional framing shall be provided to bring spacing into compliance (additional framing is not included within the requirements of this section, and shall be done by executed change order as/if applicable). All drywall shall be attached by screw applications; adhesives may be used in conjunction with screwing, but shall not substitute. Screws shall be provided in accordance with the Residential Code.

Drywall installed on walls shall be finished so that all joints, cracks, and gaps are taped with paper or fiberglass wall board tape, and shall receive a minimum of three (3) coats joint compound. Compound shall be sanded after second coat and third coat so that all joints, cracks, screw heads, gaps, and holes become unnoticed after painting. All outside corners on all sheetrock installations shall have a metal corner bead installed for reinforcement and protection from bumps/scars.

Fire-rated Type X drywall shall be used when required by Code. All taping and compound applications shall be Firecode sealant and compounds. It shall be the responsibility of the contractor to call for proper building inspections on fire-rated wall assemblies.

a157.0 Drywall Applied to Ceilings: Unless specified otherwise in the work write-up (or change order), all drywall applied to ceilings shall be of a min. ½” thickness. All drywall shall be attached to framing members not exceeding 24” on center; if existing framing exceeds 24” on center, additional framing shall be provided to bring spacing into compliance (additional framing is not included within the requirements of this section, and shall be done by executed change order as/if applicable). All drywall shall be attached by screw applications; adhesives may be used in conjunction with screwing, but shall not substitute. Screws shall be provided in accordance with Code.

Drywall installed on ceilings shall be finished so that all joints, cracks, and gaps are taped with paper or fiberglass wall board tape, and shall receive a minimum of three (3) coats joint compound where a smooth finish is required (minimum two coats for sprayed or stomped ceilings). Compound shall be sanded after second coat and third coat so that all joints, cracks, nail heads, gaps, and holes become unnoticed after painting.

Fire-rated Type X drywall shall be used when required by Code. All taping and compound applications shall be Firecode sealant and compounds. It shall be the responsibility of the contractor to call for proper building inspections on fire-rated wall assemblies.

When ceilings are textured, they may either be sprayed or "stomped" with a texturing brush. Finish shall be thick enough to conceal all joints. If joints show through, ceiling shall be redone. Clean all splatter and compound from walls and ceilings.

a158.0 - a178.1 **WINDOWS**

Window General Requirements: All new prime and replacement windows shall be vinyl frame (except where specified in the work write-up and/or for historic building applications). All new units shall be Energy Star labeled for this Climate Zone. All new windows shall have screens included. The specified windows have a guarantee from the manufacturer, a copy of which shall be furnished to the homeowner (substitute windows shall have a similar warranty requirement). Wood windows, where applicable for historic installations (and/or as specifically called for in the work write-up) shall be of similar construction specified in this section in regard to energy efficiency, operation, and appearance.

Installation of any new window shall include all necessary trim, casing, and caulk; finish new wood as per existing woodwork. Caulk around the entire unit with a pliable, non-hardening urethane acrylic sealant; color shall match siding and/or trim (sealant shall be reasonable match, or sealant applied shall be paintable). Use expanding foam sealant (designed for use with doors and windows) to seal any exposed areas between the window frame and building framing.

The head of the new window opening shall be at 6'-8" above finished floor, or in alignment with existing adjacent windows. Tempered glass shall be installed when required by Code. Required egress from sleeping rooms shall be per code. Where shutters are specified to be replaced or provided, the height of the shutters shall be equal to the height of the window. Shutters shall receive painted finish to adequately cover existing colors or factory primers.

- a161.0 Remove Basement Window: Remove designated basement window(s) or coal chutes and close opening permanently, using materials that match the existing adjacent surfaces as closely as possible.
- a162.0 Install New Prime Window: Install new prime windows at locations designated on the window schedule and/or work write-up. All 'new construction' windows shall be single or double hung windows. Install per the provisions of the Window "General Requirements" section above.
- a163.0 Install Replacement Window: Install replacement windows at locations designated on the window schedule and/or work write-up. All replacement windows shall be single or double hung windows. When a replacement window is installed in an "out of square" opening, the window shall be set square, level, and plumb, and the jamb shall be cased out in order to make it weathertight. Install per the provisions of the Window "General Requirements" section above.
- a164.0 Reglaze Existing Window: Reglaze windows at locations designated on the window schedule and/or work write-up. Remove all cracked and/or loose glazing. Install any missing and/or needed points. Reglaze window with white, pliable, non-hardening glazing compound. Glazing is to run continuous and smooth.
- a165.0 Replace Broken Glass: Replace broken glass on windows at locations designated on the window schedule and/or work write-up. Replace any broken, cracked or missing glass with new double strength glass. Install eight points per piece of glass minimum. Reglaze with glazing compound. Install per the provisions of the Window "General Requirements" section above.
- a167.0 Replace Sash Ropes/Chains: Replace sash ropes on windows at locations designated on the window schedule and/or work write-up. Use brass window chain or 1/4" (minimum) diameter nylon reinforced, cotton braided rope. Care shall be taken not to damage casings or walls during removal and replacement; any damage shall be repaired as a part of this section. Provide any missing weights or pulleys. Spring clips may be used only with the specific written approval of the Rehabilitation Specialist.

- a168.0 Adjust Window Operation: Adjust windows for proper operation at locations designated on the window schedule and/or work write-up. Adjust designated windows to open, close and latch properly. No new parts shall be included as part of this section, unless specifically called for in the work write-up or window schedule; any new parts shall be noted separately by window.
- a169.0 Install Sash Lock: Install (or replace) sash locks on windows at locations designated on the window schedule and/or work write-up. New lock shall be shimmed as/if necessary for smooth operation.
- a171.0 Install Exterior Window Sill: Install (or replace) window sill at locations designated on the window schedule and/or work write-up. Caulk joints, and paint or wrap with metal to match existing adjacent windows.
- a172.0 Install Interior Window Stool: Install (or replace) window stool at locations designated on the window schedule and/or work write-up. Install new fir window stool, and paint to match existing adjacent surfaces. Boring of "finger holes" shall be unacceptable in all situations.
- a173.0 Replace Exterior Trim: Replace exterior trim at locations designated on the window schedule and/or work write-up. Use fir lumber sized to match existing/adjacent components. Caulk all joints, and paint or wrap to match existing adjacent components.
- a173.1 Replace Interior Trim: Replace interior trim at locations designated on the window schedule and/or work write-up. Use fir or pine lumber sized to match existing/adjacent components. Caulk all joints, and paint to match existing adjacent components.
- a173.4 Fix Window in Closed Position: Secure windows in designated locations in a permanently closed position. Remove ropes and hardware, and fill screw holes. Apply screws to sashes/frames to prevent operation. Caulk perimeter to weather seal.

- a174.0 Reserved:
- a175.0 Install Storm Window: Install (or replace) new storm window at locations designated on the window schedule and/or work write-up. Install aluminum storm windows with screens. Windows shall have white or bronze finish; aluminum 'mill' finish shall not be acceptable. Install per the provisions of the Window "General Requirements" section above.
- a176.0 Install New Screens: Install (or replace) new screen with aluminum frame at locations designated on the window schedule and/or work write-up. a177.0 Install Screen in Existing Frame: Replace screen in existing frame at the locations designated by the window schedule and/or specified in the work write-up.
- a178.0 Remove Window, Close Opening: Remove existing window and trim at openings specified on Window Schedule and/or specified in the work write-up. Frame in and insulate opening to R-13 and install interior and exterior wall coverings to match finishes on adjacent areas. Stagger siding to hide opening. For "Out of the ordinary" exterior wall coverings that cannot be adequately matched (i.e. shingle siding), black painted plywood with a storm window, or a black painted concrete board without a storm window may be used with the written permission of the Rehabilitation Specialist. Install per the provisions of the Window "General Requirements" section above.

a179.0 - a198.1 **DOORS**

General Requirements, Doors: All new doors, whether prehung or new door (slab) in existing jambs, shall be hung level and plumb; in the case of new prehung units, the door shall be level at the jamb and on the door face. All necessary demolition, framing, dead wood blocking, and wall repair shall be included in locations where a new opening is to be cut into a wall, or where an existing opening is to be expanded in width/height. All exterior doors shall have the top and bottom rail sealed and/or painted. All nail head and/or staple holes will be filled and sanded. Stain shall be applied with a clean rag and be uniform. Sanding sealer shall be applied in two coats and shall be sanded between the first and second coat. All exterior doors that are finished natural or stained shall be sealed with two coats of exterior varnish. New prehung units are to be stained before installation. When paint is applied it shall be semi-gloss latex, and shall be brushed on; brush strokes shall be uniform and smooth. Run and/or streaks shall be sanded off and the door repainted. All doors, when installed, shall clear the floor and/or carpet by 1/4" - 1/2". Hollow core doors, when cut, shall not be cut into their hollow area. Cuts with splintering shall not be accepted. Casings on prehung doors shall reach floor on both sides; cut as needed. All prehung doors shall be shimmed as/if necessary at the following locations - each hinge and lockset and the top and bottom of each jamb. Drive finish nails through all shims to secure in place.

Door design and material shall be as specified within the individual sections below. All new door installations shall include the installation of hardware as specified in “General Requirements, Hardware” that follows.

NOTE: SEE INDIVIDUAL SECTIONS BELOW FOR ADDITIONAL REQUIREMENTS. WHERE ON-SITE SITUATIONS DICTATE REPLACEMENT OF DOORS, HARDWARE AND/OR FRAMES, NORMAL DEMOLITION AND/OR REMOVAL OF EXISTING COMPONENTS SHALL BE INCLUDED WITHIN THE WORK SPECIFIED.

General Requirements, Hardware: All new or replacement doors shall have opening hardware, including a knob and hinges. Exterior doors (only) shall also have a single-cylinder deadbolt and peep site. Knobs for doors entering a Bathroom or Bedroom shall be privacy type locks, with the locking mechanism inside the Bathroom or Bedroom. All interior closet doors (including Laundry Rooms) shall have non-lockable passage knobs (or non-operable knobs in case of bifold units). Exterior doors shall be equipped with keyed entry sets, as well as a single-cylinder deadbolt that is thumb-turned from inside. All new deadbolts and entry locksets shall be keyed alike, and deadbolts shall have a one-inch throw when fully engaged. In apartment building situations, one key shall unlock all knobs/deadbolts to each apartment, and in addition, a master key shall be supplied to the property owner that operates all locks/all apartments. All strike plates shall be fastened to solid wood. A minimum of three hinges shall be required at all exterior doors, and a minimum of two hinges shall be required at all interior doors. All strike plates and hinges shall be properly mortised at the door and frame. All doors shall have a doorstop; doorstop shall be wall mounted in every location possible, with hinge mounted stops only where wall stops are impractical. At exterior doors, as well as interior doors to unheated areas (i.e., basements or attics), new doors shall be properly weatherstripped at head and jambs, and have a metal threshold with vinyl insert at the bottom (where thresholds with a vinyl insert are not available or used, threshold work shall include a vinyl seal installed to door bottom). At exterior doors, the required peep site shall be mounted at a height that accommodates the property owner; coordination of this is the responsibility of the contractor. An approved mechanical or hydraulic closer shall be required at all fire rated doors.

NOTE: SEE INDIVIDUAL SECTIONS BELOW FOR ADDITIONAL REQUIREMENTS. WHERE ON-SITE SITUATIONS DICTATE REPLACEMENT OF HARDWARE, NORMAL DEMOLITION AND/OR REMOVAL OF EXISTING COMPONENTS SHALL BE INCLUDED WITHIN THE WORK SPECIFIED.

- a180.0 Metal Exterior Prehung Door: Provide a new prehung, six panel, metal clad insulated exterior door unit at the locations specified in the work write-up and/or Door Schedule; refer to “General Requirements, Doors” above. Door shall be factory finished painted or spray paint with two coats of flat acrylic paint. Provide hardware, including keyed entry set, deadbolt, hinges, peepsite, weatherstripping, threshold and door stop, as specified in “General Requirements, Hardware” section above. Install door casing around interior side of jamb. Set and fill nail heads, and paint jamb and brick molding with two coats (minimum; paint as required for proper coverage). Where coil stock wrapping is installed, wrapping of new members to match shall be included, and painting may be omitted.
- a181.0 Prehung Exterior Doors (Wood): Install new 1-3/4" wood, six panel, exterior prehung door unit at the locations specified in the work write-up and/or Door Schedule; refer to “General Requirements, Doors” above. Provide hardware, including keyed entry set, deadbolt, hinges, peepsite, weatherstripping, threshold and door stop, as specified in “General Requirements, Hardware” section above. Provide casing at the interior side. Install exterior trim to match original, or reinstall existing exterior trim when appropriate. Stain and seal door, jamb, and casing. Set and fill all nail heads.
- a182.0 Replace Exterior Door: Install new 1-3/4" wood, six panel, exterior door at the locations specified in the work write-up and/or Door Schedule; refer to “General Requirements, Doors” above. Provide hardware, including keyed entry set, deadbolt, hinges, peepsite, weatherstripping, threshold and door stop, as specified in “General Requirements, Hardware” section above. Repair and paint existing jamb in order to obtain secure and weathertight fit. Paint or stain and seal door, as to homeowner's preference.

a183.0 Install Storm Door: Provide new storm door at the locations specified in the Door Schedule and/or as specified in the work write-up. Storm door, as it applies to this section, shall not be synonymous with a 'screen door' or a 'security door'. Two styles of doors (with similar cost) shall be acceptable, with the homeowner having the choice of the following styles:

Storm door with Operable Window and Screen: Door with one over one operable window, with a screen, lever handle, safety glass, door closer, and exterior keyed lock. Manufacturer's warranty shall be supplied to the property owner.

Storm Door with Full Lite Panel: Door with full safety glass removable lite, an interchangeable screen panel that is included, lever handle, door closer, and exterior keyed lock. Manufacturer's warranty shall be supplied to the property owner. 'Special order' colors that are available at extra cost (cost shall be borne by property owner, if desired).

a183.1 Install Security Door: Provide new security door at the locations specified in the Door Schedule and/or as specified in the work write-up. Screen mesh style doors will not be accepted. Door shall have vertical bars and tempered safety glass. Provide lock set and deadbolt, keyed to match the other exterior doors. Homeowner shall choose between black and white colors.

a184.0 Install Screen Door: Install wood screen door. Install handle, hinges, latch, and spring. Paint with two coats (minimum; paint as necessary to properly cover) of exterior grade paint.

a185.0 Install Interior Prehung Units: Install new pre-hung 6-panel composite door unit at the locations specified in the work write-up and/or Door Schedule; refer to "General Requirements, Doors" above. Install lock assembly, hinges, and door stop per the requirements of "General Requirements, Hardware" above. Paint unit. All units shall be 2'-8" x 6'-8" unless otherwise specified.

- a186.0 Install Door in Existing Jamb: Install new 6-panel composite interior door unit at the locations specified in the work write-up and/or Door Schedule; refer to “General Requirements, Doors” above. Install lock assembly, hinges, and door stop per the requirements of “General Requirements, Hardware” above. Paint unit. Size door to the existing opening.
- a187.0 Install Wood Bi-fold Unit: Install new bi-fold door unit(s) at the locations specified in the work write-up and/or Door Schedule; refer to “General Requirements, Doors” above. Sizes shall be as specified on the plans or schedule, or as dictated by existing openings. Bifold doors shall be composite material, louvered on closets containing mechanical equipment; otherwise, use flush or 6-panel composite type. Install wood knob and hinges per the requirements of “General Requirements, Hardware” above. Paint entire unit.
- a188.0 Remove Door and Close Opening: Remove existing door, jamb, and trim at specified locations. Close opening with like materials. Where frame cavity exists at exterior walls, insulate opening with batts to fill cavity. Install wall finishes on all sides to match finishes for adjacent areas. At walls with exterior siding, stagger siding to hide opening. When closing openings in exterior walls, R-13 batts shall be provided in framing prior to covering.
- a188.1 Remove Door and Leave Opening: Remove door and all hardware. Fill all holes and mortises smooth and level. Leave casing around opening and finish to match existing adjacent surfaces.
- a190.0 Install Cased Opening: Install a cased opening at locations shown on the Door Schedule and/or as specified in the work write-up. Unless otherwise specified, cased opening shall be 3’-0” wide x 6’-8” clear. Installation shall include all alterations and repairs to the wall, including demolition and framing as needed. Trim casing shall occur on both sides of opening, with wood wrap around jambs and head.
- a190.1 Replace/Repair Casing: Repair, or remove and replace, damaged casing as specified in the Work Write-Up and/or Window Schedule. New casing shall match existing/adjacent casing in style and appearance.

- a191.0 Adjust Existing Door Operation: Adjust existing door unit so that it operates properly. Section includes patch, fill and caulking of door, as well as planing and tightening of existing parts. No new parts shall be included within the work of this Section.
- a193.0 Install Weatherstripping: Provide (or replace) aluminum clad vinyl bead type weather-stripping around both jambs and head of door. Flat, Foam, or Felt type weatherstripping is not acceptable. Adjust vinyl bead to door while in closed position. When door is closed, no exterior sunlight shall be visible from the interior side.
- a194.0 Install a Metal Threshold: Install (or replace) a metal threshold with vinyl insert weatherstrip at the locations specified in the Door Schedule and/or work write-up. Caulk along all edges of the threshold. Where thresholds with vinyl insert are not available or used, work of this section shall include installation of a vinyl seal on the bottom of the door to seal the bottom of the door to the threshold. Refer to the “General Requirements; Hardware” section above for additional scope of work required for this section.
- a195.0 Install Knob Assembly: Install (or replace) new door knob assembly and striker at the locations specified in the Door Schedule and/or work write-up. Refer to the “General Requirements; Hardware” section above for additional scope of work required for this section.
- a195.1 Install New Hinges: Install (or replace) new hinges on doors specified in the Door Schedule and/or work write up. Install two hinges on hollow doors, three on solid and all exterior doors. All hinges shall be properly mortised at both the door and frame. Refer to the “General Requirements; Hardware” section above for additional scope of work required for this section.
- a195.2 Install Pneumatic Closer: Install (or replace) pneumatic closer and guard chain on doors specified in the Door Schedule and/or work write up. Install spring closer on screen doors. Install code compliant closer on all fire-rated doors.

- a196.0 Install Deadbolt: Install (or replace) single-cylinder deadbolt lock with 1" minimum throw on doors specified in the Door Schedule and/or work write up. Key to match new door knob assembly as/if applicable; also see keying notes in "General Requirements, Hardware" at the beginning of this Section.
- a197.0 Install Peep Site: Install (or replace) peepsite on doors specified in the Door Schedule and/or work write up. Install peep sites at eye height of occupant; contractor is responsible for coordinating this installation. Refer to the "General Requirements; Hardware" section above for additional scope of work required for this section.
- a199.0 Access Doors:
- a200.0 Attic: Install a 22" x 36" attic access. Frame and block rafters. Access shall have at least a 24" clear height above the access hole for reasonable accessibility. Door shall be 1/2" plywood, with 6" (minimum) batt insulation stapled to the backside. Install 1" x 4" fir (or clamshell base properly mitered) trim to support the lid. Paint trim and door with two coats (minimum; apply as needed to properly cover) of semi-gloss latex. Installation of attic acces includes the construction of an insulation dam and cover for insulation retainage purposes. Provide weather-stripping along the perimeter of the insulation dam.
- a200.1 Pull-down Attic Stair: Install (or replace) a pull-down stairway for attic access. Verification of ceiling height (and proper sizing of ladder) shall be the responsibility of the contractor. Cut/trim bottom of ladder as necessary for proper fit to floor when ladder is fully extended. Attic stair installation shall be installed level, so door will seal properly when closed. Installation of stairway includes the construction of an insulation dam and cover for insulation retainage purposes. Provide R-19 insulation on the rear of the cover. Provide weather-stripping along the perimeter of the insulation dam.

a201.0 Crawl Space Door: Install (or replace) a crawl space access door. Frame shall be 2" x PT lumber with PT 1 x 2 minimum door stop on all 4 sides. Door panel shall be constructed of PT material or painted to provide a weatherproof installation. Install galvanized locking hardware and hinges. Clear door opening shall be a minimum of 18" x 24", unless otherwise noted. Size shall be large enough to remove mechanical equipment without disassembly. Install in existing location, or refer to drawing for new location.

a202.0 Garage: Install (or replace) garage door with/without (as specified in work write-up) windows at locations specified in the work write-up. Doors shall be raised panel style, hot-dipped galvanized steel front, U-shaped bottom seal, hot dipped galvanized stiles, and baked on 2 coat finish paint.

a203.0 **CABINETS AND COUNTERTOPS**

a203.1 Cabinet Repairs: Repair the existing cabinets as specified in the work write-up. Where existing cabinets are being removed to effect repairs, or being relocated, the standards of installation provided in section a204.0 (for base cabinets), section a205.0 (for overhead cabinets), and section a207.0 (for countertops) shall be observed. However, this section shall include no work that includes new base and/or new overhead cabinets and/or new countertop.

a204.0 Base Cabinets and Countertop: All new cabinets shall be constructed with wood doors and wood fronts; no pressboard or particleboard shall be allowed on cabinet fronts, drawer fronts, or doors. Base cabinets shall match wall cabinets in color and style where new cabinets are provided for both. All door hinges shall be metal; absolutely no plastic hinges shall be accepted. Installation of any new base cabinet shall be inclusive of a countertop, unless specifically written otherwise. Countertop shall have a plastic laminate finish, with an integrated 4" backsplash.

When both new base and new overhead cabinets are to be installed, the color choice for the new cabinets shall be made by the owner, selecting cabinet stain from a minimum of one light and one dark color sample provided by the Contractor; both the new base and new overhead cabinets shall match the one selected color. When new base cabinets (only) are to be installed, and the overhead cabinets are to remain, the color and style of the base cabinets shall match the existing overhead cabinets as closely as possible.

Base cabinets shall be installed level and fastened securely together. If floor is unlevel, then new base molding shall be run to hide gap at bottom. When base cabinets lack 1"-3" from meeting wall, a filler strip shall be installed to match base. Where new base cabinets turn 90 degrees, the corner unit shall have a lazy-susan tray within it.

Unless specifically provided otherwise, the specification of new base cabinets shall include the provision of new countertop. New countertop shall be provided and installed per the provisions of section a207.0 below.

On all new base cabinets, handles for doors and drawers shall be installed unless the cabinet and doors are specifically designed to be operated by the use of fingers only. Where doors and/or drawers form a flush (or butted) joint against the face of the cabinet, handles (not knobs) shall be mandatory (no exceptions). Where handles are mandatory, but not supplied from the cabinet manufacturer, it shall be the contractor's responsibility to obtain and install these handles. If you have any questions regarding the scope of this requirement, please consult with your Rehabilitation Specialist or the Construction Manager prior to installation of the cabinets.

a205.0 Wall Cabinets: Wall cabinets shall be installed level and plumb. Furr out wall as needed in order to accomplish this. Trim out any gaps with trim that matches in color and style. Cabinets are to be fastened securely to wall with screws that penetrate into studs or blocking. Wall cabinets shall be 18"-20" above base cabinets. Wall cabinet units shall be 30" in height, except over stoves or refrigerators; these shall be 12" in height over the refrigerator, and 18" in height over the range. The tops of all cabinets shall be at a uniform height, preferably 7'-0" above the finished floor.

When both new base and new overhead cabinets are to be installed, the color choice for the new cabinets shall be made by the owner, selecting cabinet stain from a minimum of one light and one dark color sample provided by the contractor; both the new base and new overhead cabinets shall match the one selected color. When new wall cabinets (only) are to be installed, and the base cabinets are to remain, the color and style of the new overhead cabinets shall match the existing base cabinets as closely as possible.

On all new wall cabinets, handles for doors shall be installed, unless the cabinet and doors are specifically designed to be operated by the use of fingers only. Where doors and/or drawers form a flush (or butted) joint against the face of the cabinet, handles (not knobs) shall be mandatory (no exceptions). Where handles are mandatory, but not supplied from the cabinet manufacturer, it shall be the contractor's responsibility to obtain and install these handles. If you have any questions regarding the scope of this requirement, please consult with your Rehabilitation Specialist or the Construction Manager prior to installation of the cabinets.

a207.0 Countertops: All new countertops shall have a plastic laminate finish, with an integrated 4" high backsplash. Countertops shall be fastened securely to base. All seams where the top of the backsplash meets the wall, as well as where countertops butt into a wall, shall be caulked with matching color caulk. When walls are out of square and a gap appears between the wall and the counter top, then shoe molding shall be installed to conceal the gap; countertops shall run continuous to walls.

Gaps exceeding the width of shoe molding shall not be accepted, and shimming of walls shall be necessary. All exposed ends of countertops shall have matching end caps of plastic laminate, cut to the cross section form of the countertop. In no case shall cabinets protrude beyond countertops. Provide shims as necessary to stabilize and reinforce countertop at Kitchen sink.

The owner shall choose the countertop color/pattern for a minimum of ten samples provided by the contractor.

a208.0 - a212.0 **INTERIOR PAINTING**

Material: The materials shall be the paint manufacturer's first quality, and be the product of a single manufacturer to the greatest extent possible (see list of qualified paints at the end of Painting Section). No paint shall be used that contains more than 0.5 percent lead by weight. Contractor shall furnish all labor and material to apply paint to the interior of building in the areas specified in the Work Write-Up. In all areas except kitchen, bathroom, and utility areas, paint shall be Latex; kitchens, bathrooms, and utility rooms shall be an oil base enamel, Epoxy or Urethane finish, or latex semi-gloss enamel. All painted woodwork shall be semi-gloss. Stained woodwork shall be wipe stained evenly with a clean rag, and covered with two coats of sand and seal, sanding between and after the sealing.

Preparation of Surfaces NOT Containing Lead Based Paint: All hardware (to include light fixtures, switch plates, etc.) shall be removed prior to painting and shall be replaced upon completion. All cover plates around receptacles, cable TV outlets, switches, etc., shall be removed before painting, and then replaced after final coat; any cover plates, switches, receptacles, etc. that have paint on them shall be replaced or cleaned thoroughly at the Contractor's expense.

All wood trim shall be replaced as specified (elsewhere in the work write up and corresponding General Specifications sections) and/or filled and sanded to a smooth surface before finish coat of paint is applied.

All loose and scaling paint shall be removed prior to primer or first coat. All cracks, seams, ridges, nail holes or otherwise damaged wall and ceiling shall be repaired by taping and floating or by spackling after proper preparation. All soiled or dirty surfaces shall be washed down with a Trisodium phosphate solution and allowed to dry before application of first coat. Drywall surfaces to receive semi-gloss finish coat shall be primed with flat paint first.

First coat of primer for woodwork or interior trim shall be enamel undercoat and applied according to manufacturer's specifications.

Protection of surfaces: It shall be the responsibility of the contractor to protect all adjacent surfaces that are not to receive paint. All drips, splatters, sags, over sprays, runs, etc. shall be removed, or the object or surface on which these occur shall be replaced; this shall be at the expense of the contractor.

Second and subsequent Paint Coats: In all areas except kitchen, bathroom, and utility areas, paint shall be flat latex; kitchens, bathrooms, and utility rooms shall be latex semi-gloss or eggshell finish. All painted woodwork shall be semi-gloss. Stained woodwork shall be wipe stained evenly with a clean rag, and covered with two coats (minimum) of sand and seal, sanding between and after the sealing. All interior wall paint shall be of a single color unless specified in writing otherwise; all ceiling paint shall be ceiling bright white, unless specified in writing otherwise. Paint shall be applied by either brush, roller, or sprayer in a workmanlike manner to leave a blemish-free surface, fully covered with no brush or roller marks showing; large areas may be sprayed with proper surface protection. Finish coat for woodwork or interior trim shall be semi-gloss enamel and applied in workmanlike manner. Finish coat on all wood window sashes and trim shall be semi-gloss. **All interior paint shall be applied to provide a uniform finish throughout the area to be painted; this shall be accomplished by applying proper primer and applying as many coats as necessary to achieve uniform finish with complete coverage.**

All existing painted surfaces specified for re-painting shall have at least **two** coats of new paint applied; additional coats shall be applied as/if necessary to cover bleed-through or in attaining a smooth, uniform finish. All new surfaces shall be properly primed, and then shall have at least **two** coats of paint applied; additional coats shall be applied as/if to attain a smooth, uniform finish with complete coverage.

Final "Touch Up" painting shall be performed with matching paint. Do not touch up semi-gloss paint with flat, or flat paint with semi-gloss.

Ceiling texture shall be applied as noted under a157.0.

Final clean-up: upon the completion of the work of this section, all waste materials, paint containers, and debris attributable to the work shall be cleaned up and be removed from the site and disposed of properly. All paint stains shall be removed from the finished work of other trades. All window glass and screens shall be left clean and free of paint and in an operable condition, and premises shall be left in a broom-clean condition. Leftover partial cans of paint shall be sealed and left in crawl space/basement for owner use in touch-up.

a213.0 – a215.0 **EXTERIOR PAINTING**

Material: The materials shall be the paint manufacturer's first quality, and be the product of a single manufacturer to the greatest extent possible. No paint shall be used that contains more than 0.5 percent lead by weight. Contractor shall furnish all labor and material to apply paint to the exterior of building in the areas specified in the Work Write-Up.

Preparation Surfaces **NOT** Containing Lead Based Paint: THIS SECTION IS FOR ITEMS THAT DO NOT CONTAIN LEAD BASED PAINT. All loose boards or siding shall be nailed down prior to painting. All rotted and/or broken siding shall be replaced with materials that match existing boards and/or siding as closely as possible; all siding replacement shall take part prior to the commencement of painting.

Replacement of siding shall not be borne as a cost under this painting section; all replacement siding shall be as specified elsewhere in the work write-up and corresponding General Specifications section. All peeling and/or blistered paint shall be removed as close to bare wood as practical by scraping or sanding; all remaining existing paint shall be securely adhered to the surface. Pressure washing and sand blasting shall not be used in any circumstance. Further preparation per surface type includes:

Wood: All indentations and holes in the surface shall be filled and then sanded out to a feather-edge or to a degree that renders the filled section even with the rest of the surface. For transparent finishes, putty shall be colored to match wood. Cracks in siding and the joints between boards and where siding meets trim shall be caulked; horizontal joints between courses of horizontal siding shall not be caulked. All soiled or dirty surfaces shall be washed down with a trisodium phosphate solution and allowed to dry before application of first coat.

Ferrous Metals: Clean to remove grease, rust, or scale. Touch up with primer surfaces missed during shop coats. For surfaces with excessive rust, wire brush all surfaces, then apply one coat of rust inhibitive primer prior to painting.

Galvanized Metals: Clean with solvent to remove any grease or dirt. Treat metal with acid-bond resinous or Crystalline Zinc Phosphate priming coats.

Gypsum Wallboard or Drywall: Finish to specification section a155.0, a 156.0 and a157.0 above as applicable.

Concrete and Masonry: Wire brush loose or crumbled masonry and remove dust and dirt. Clean any form oil and/or grease from surfaces. Wash visible efflorescence with a 10% zinc sulfate solution and rinse. Patch honeycombs and voids with mortar; smaller holes may receive putty. Make sure surface is thoroughly dry before application of final coat.

Prime coat or first coat shall be of the qualified brands and shall be mixed according to manufacturer's directions. Applications shall be applied in a workmanlike manner. Finish coat shall be one of the listed name brands or equal. Color shall be chosen by the owner, and material to be used according to manufacturer's directions. Owner may select up to one color for siding and one additional color for trim. If porch decks and steps are to be painted, they shall be primed. Finish coat shall be porch and deck oil base enamel of same brands or equal specified for exterior paint.

Protection of Adjacent Surfaces: It shall be the responsibility of the contractor to protect all adjacent surfaces that are not to receive paint. All drips, splatters, sags, over sprays, runs, etc. shall be removed, or the object or surface on which these occur shall be replaced; this shall be at the expense of the contractor. Contractor shall also be responsible for reasonable protection of adjacent shrubbery or trees.

Second and subsequent Paint Coats: Exterior paint shall only be applied when temperature is above fifty degrees (unless lower is allowed by manufacturer's instructions). Application shall be as applicable for the painted surface, employing brush, rollers, or sprayer. All painted edges shall be sharp, clean and straight. Metal siding, when specified to be painted, shall be painted with a product designed for metal siding. Where the siding is bare to the metal, a primer designed for metal shall be applied prior to painting. Concrete block piers, cement piers, brick piers shall also be painted to match the house. Where surface of building requires paint, a roller or spray may be used. All exposed exterior walls, eaves, fascias shall receive a painter's finish, to include railings, awnings, and basement window frames, unless the work order expressly exempts. **All exterior paint shall be applied to provide a uniform finish throughout the area to be painted; this shall be accomplished by applying proper primer and applying as many coats as necessary to achieve uniform finish with complete coverage.**

All existing painted surfaces specified for re-painting shall have at least **two** coats of new paint applied; additional coats shall be applied as/if necessary to cover bleed-through or in attaining a smooth, uniform finish. All new surfaces shall be properly primed, and then shall have at least **two** coats of paint applied; additional coats shall be applied as/if to attain a smooth, uniform finish with complete coverage.

Clean Up: Contractor shall leave work site in an orderly and acceptable condition daily. Upon completion of all painting work, waste materials, paint containers, and debris attributable to the work shall be cleaned up and removed from site and disposed of properly. All windows and window screens, after glazing and painting, shall be left clean and all window screens rehung. If storm windows are removed for painting purposes, rehung of these storm windows shall be a part of the work of this section. After painting, the contractor shall ensure that all windows are left in operable condition, and not painted shut. Contractor shall clean paint chips from ground and exterior slabs.

a216.0 **INSULATION**

a217.0 Attic Insulation: Ceilings shall be insulated to R-38 by use of fiberglass insulation. Where batts with paper vapor barriers are used, vapor barrier shall be next to ceiling. It shall be the responsibility of the installer to check and make sure that he/she does not insulate over frayed or dangerous wiring; any apparent wiring problems shall be reported to the Rehabilitation Specialist immediately, and prior to any further installation. Any damage to the ceiling during the insulation process shall be the responsibility of the contractor, and repaired at no additional cost to the contract. Where a platform exists in the attic for storage, a curb shall be provided so insulation may be brought to R-38 in areas under and adjacent to the platform; do not cover platform in insulation material. Insulation shall be added under the platform to the greatest extent possible. Where an existing pull-down stair exists, a similar curb shall be provided to allow maximum insulation coverage. For typical attic access panels, staple an R-19 (minimum) piece of batt to the backside of the panel. Where soffits are vented, use cardboard or plastic baffles attached to rafters/trusses to ensure proper air movement in attic.

- a218.0 Crawl Space or Basement Insulation: Floors over unconditioned areas shall be insulated to R-19 with fiberglass batt insulation backed with a paper vapor barrier; barrier shall be installed so it is against sub-floor. Attach insulation with metal spring rods or baling wire strung around roofing nails, spaced at 18" centers. Insulation roll width shall be sized to joist spacing, and fill this space entirely. Ensure all voids around pipes, exterior walls and all other penetrations are properly stuffed.
- a219.0 Exterior Wall Insulation: All 2x4 exterior walls (or walls bordering other unconditioned areas) shall be insulated with R-13 fiberglass batts; 2x6 walls shall be insulated with R-19 fiberglass batts. All batt insulation in walls shall have a paper vapor barrier that shall be installed closest to the interior wall covering. Batts shall be attached to studs with staples. Fill all voids, blocking cavities, and penetrations fully.
- a220.0 Vapor Barriers: Vapor barriers where specified shall be 6 mil black polyethylene. All vapor barriers shall be laid over cleaned crawl spaces free of material that can puncture vapor barrier. Lap all necessary joints in the vapor barrier a minimum of 8".

a221.0 **HEATING**

a224.0 through a225.1 New HVAC Equipment:

a.) All central heating systems shall be sized by the HVAC sub-contractor using the most recent version of Manual J calculations, the Contractor shall be responsible for providing a copy of these calculations to the Rehabilitation Specialist prior to system installation. HVAC systems shall be properly balanced for air delivery to all parts of the house to create a uniform environment throughout the structure. HVAC units shall be fully guaranteed (material and labor) to operate properly for a min. of one full year, with additional factory warranties (condenser units shall carry not less than a five-year warranty from the manufacturer) as applicable provided to the property owner at final inspection. **ALL NEW HVAC EQUIPMENT USED IN REHABILITATION, RECONSTRUCTION, OR NEW CONSTRUCTION, SHALL BE RATED A MINIMUM AFUE, HSPF, and/or SEER, AS LISTED ON THE WRITE-UP.**

b.) Specification of any type of heating unit shall be taken to include all gas or electrical connections, wiring, ducting, safety switches, thermostats, power vents, and all other work to provide a complete, efficient, balanced and operational system.

c.) All wiring to furnaces, Heater Blowers, Electrical Resistance Heaters, Heat Pumps, etc., shall be on separate circuits. Switched disconnect boxes shall be installed adjacent to all air handling equipment. Wiring from the electrical panel to the disconnect box (box included) shall be provided by the Electrician; final hook-up from the HVAC unit(s) to the disconnect box shall be provided by the HVAC contractor.

d.) All forced air heating (gas, oil, heat pump, etc.) shall include insulated ducting to all rooms, with adjustable registers. Return air vents shall not be installed in a bedroom. The price of any installation shall include the cost of framing and finishing sheetrock for all necessary chases, soffits, and plenums. Ducts shall run as directly as possible to registers. 180-degree turns in ducts shall not be accepted. Ducts shall be hung with 1” (minimum) wide strapping; no wire hangers shall be accepted.

e.) Piping for gas-fired units shall include the connections to the nearest gas line, meter and all connections in the building. The Property Owner shall pay deposit on meters unless otherwise specified.

f.) Flues for all combustion heating units shall extend above the roof 3'-0" minimum. Flues shall meet all state and city codes for fire protection and air tightness. Insulate all flues that are within 18" of any combustible material. Where existing chimneys or flues are used they must be structurally sound, clean, airtight, and fire protected and extend 3'-0" minimum above the roof.

g.) All heating and/or cooling units (i.e., furnaces in basements, condensing units, gas packs, etc.) shall be installed on a solid and secure permanent base. Where such a base does not exist a 4" concrete slab base with thickened edges to deter erosion shall be installed (manufactured pre-cast and/or composite equipment pads are acceptable). Equipment slabs shall be larger than the equipment. Where furnaces sit on wood framing or hung from ceilings, additional framing and/or platforms shall be constructed. The provision and cost of the slab and/or additional framing shall be coordinated between the General Contractor and their HVAC subcontractor. Where new (or replacement) installations are specified and an existing exterior HVAC pad is significantly out of level, cracked, or eroded, the old slab shall be removed and a new slab installed in its place. The heaping of dirt and/or debris under a slab to raise it significantly (more than 4") above the surrounding grade shall not be acceptable. Where an exterior unit is provided on a sloping grade, a level area shall be cut into the grade, with acceptable retaining barrier to prevent soil from washing onto the slab/unit.

h.) Furnace closets, where constructed, shall not be accessible from a bedroom. Combustion air must be obtained in a code-compliant manner.

i.) Where combustion air is drawn from crawl space, at least two non-closing foundation vents shall be provided. A note on the front of the furnace should instruct residents to keep all materials clear of these openings, and not stuff materials in the vents to close them.

j.) Flexible duct shall be supported at the manufacturers' recommended intervals, but at no greater distance than ten feet. Maximum permissible sag is 1/2" per foot of spacing between the supports. A connection to another duct or equipment is deemed a support point. Hanger or saddle material in contact with the flexible duct shall be of sufficient width to prevent restriction of the internal diameter of the duct when the weight of the supported section rests on the hanger or saddle material. In no case will the material contacting the flexible duct be less than one inch wide. Narrower hanger material or wire may be used in conjunction with a sheet metal saddle formed to cover one half the duct circumference. This saddle must be of 1" wide (minimum) material. All hangers shall be adequately attached to structural building components sufficient to support the weight of the duct. Factory installed suspension systems integral to the flexible duct are acceptable when manufacturers' recommended procedures are followed.

k.) Cutting and notching of studs and joists shall conform to the Building Code limitations. When in doubt, consult with the Building Inspector.

l.) For new construction or replacement housing, contractor shall coordinate location of HVAC equipment, and if penetrations of exterior walls or foundations are necessary, a proper rough opening shall be incorporated into the assembly to deter modifications or demolition (i.e., a rectangular opening for ducting at foundation walls, instead of sledge-hammering an opening in the foundation).

m.) Where ducts or equipment penetrate walls, a proper header shall be installed over the opening. This includes a precast concrete lintel in block walls, a heavy steel angle in brick walls, and double 2x8 headers in frame walls. All headers and lintels shall have adequate bearing on both sides of the opening. The opening shall be flashed and sealed as necessary to prevent air or vermin infiltration.

n.) All condensate drains shall be fitted with a P-Trap (regardless of existing Mechanical Code not requiring them).

o.)

p.) In rehabilitation applications where an existing system is being replaced, reasonable patching of old steam pipe holes, return and supply grilles, and other floor/wall penetrations shall be included within the work. In areas where floor coverings are not being replaced, this shall include the placing of a patch (painted black) under the existing grille; patch shall be sealed airtight. In areas where floor coverings are being replaced, patches of the same thickness as the surrounding floor shall be provided and sealed around.

a226.0 Not used:

a227.0 Repair Existing HVAC Equipment: Repair the HVAC components as specified in the site-specific work write-up. Units that require repairs, cleaning or alterations shall be tested and left in working condition, including flue, thermostat, wiring, registers, radiators, and all controls. Notify the Rehabilitation Specialist immediately of any necessary, but unspecified, work that needs to be addressed. Repair of HVAC components shall not extend a full guarantee to the entire system, but all parts replaced (and associated labor) shall be guaranteed for a minimum of one year from the date of final inspection.

a227.1 Duct Replacement: Replace the existing duct system with a new trunk and takeoff system. New ductwork must have a total leakage rate of less than 8%.

a228.0 Flue: Install a new flue to code through the roof, or provide power venter, as specified in the work write-up. For flues through the roof, the work of this section shall include the construction of finished soffits or chases, as well as repair and sealing of roof and/or floor penetrations to a finished condition to match adjacent surfaces. All power venting shall be installed to the manufacturer's instructions and to current code.

a229.0 - a250.0 **ELECTRICAL**

Electrical General Requirements:

All wiring shall be installed by licensed electrical contractors and shall be in compliance with all requirements of the City of Knoxville Inspections Dept., as a minimum (some items described herein exceed minimum code requirements, and where specified, shall be installed/performed as a matter of contract compliance). The bid price is to reflect all materials, installation, overhead and profit necessary to meet these code and/or contract requirements.

The electrical contractor (or subcontractor) shall furnish all materials, labor, and permits to complete the installation of the electrical system as specified within the work write-up and these General Specifications. All materials shall be new, UL listed materials; no used materials shall be used, except where specified in the work write-up.

The electrical contractor (or subcontractor) shall verify the adequacy of all existing electrical devices and systems that are to remain in use. All existing phone connections, cable TV connections, intercoms and doorbells shall remain in existing locations, except where specifically indicated. **The Contractor shall be responsible for verifying their proper operation prior to the start of construction and for informing the rehabilitation specialist and the homeowner in writing of any devices that do not function properly at that time. Failure to do so may subject the contractor to repairing all items not operable at final inspection.** Except as otherwise noted, the contractor shall reinstall these devices and assure their proper function at the time of completion of construction. All devices that must be relocated to facilitate design changes shall be reinstalled as closely as practical to their original locations. Due to subcontracts directly with homeowners, and the technical nature of the systems, **burglar alarm and/or security systems shall not be included within this section;** due to typical rehabilitation work (possible replacement of doors, windows, lighting, etc.), the homeowner shall be responsible for contacting their provider and having the system updated after rehabilitation as their service provider deems necessary.

All new ceiling light fixtures shall have a 60-watt light bulb (or lower, maximum wattage if specified for that fixture) in **each** socket. If the work requires a 'light bar' application, such as that above a medicine cabinet in a bathroom, frosted 3" round 40 watt bulbs shall be provided in each socket; CFL or standard shape bulbs shall not be acceptable in these installations.

'Wiremold' (or other surface mounted conduits/casings) shall not be allowed, except by written permission of the Rehabilitation Specialist. When installing additional plugs or switches, install them at the height of existing adjacent plugs or switches; however, all newly installed duplex receptacles must be a minimum of 6" above floor. The Contractor shall be responsible for checking the location of all appliances with the layout drawing and installing receptacles at proper locations so as to not conflict with the locations of cabinets, countertops, and door frames. All existing receptacles, switches, and junction boxes that are located above heaters, ranges, sinks, or in inaccessible locations shall be moved as a part of this contract.

Cutting and notching of studs and joist shall be in conformance to building code limitations. If running wires along/across joists (not through drilled holes) in a basement or crawl space, wires shall be securely fastened to those members, and not allowed to 'drape'.

When installing additional circuits to an existing meter center, the cost of installation is to include additional sub panels and/or rearranging the existing circuits as may be necessary to accommodate the additional circuits. All circuits shall be marked in permanent ink within the meter center. Provide the homeowner with any warranties applicable.

Refer to the individual Electrical sections below for additional installation requirements.

a230.0 Electrical Service:

Installation (or replacement) of new 200 Amp meter, panel, and service entrance to code includes all necessary components required by the Electrical Inspector for code compliance, including service entrance, mast, breakers, panel, and pop box. Refer to the requirements of the “Electrical General Requirements” above.

a233.0 Update and repair existing meter center and service entrance to current codes as specified in the work write-up and dictated by local electrical code. Replace breakers, panel, and pop box. Refer to the requirements of the “Electrical General Requirements” above.

a235.0 Rewire Structure: Remove all existing wiring and devices, except grounded copper Romex where within code. Rewire entire house to current codes. Exposed utility wiring, such as to the furnace or water heater, shall be installed neatly and be properly trimmed. The use of wire mold, or similar surface mounted conduit encasement, is specifically not allowed, except by written permission of the Rehabilitation Specialist. Includes light fixtures as specified in section a238.0.

236.0 Ground Fault Circuit Interrupter Receptacles: Install one GFCI receptacle in each Bath, one on exterior adjacent to each entrance door, and on all Kitchen / Bath outlet installations as required by code. Refer to the requirements of the “Electrical General Requirements” above.

237.0 Ceiling Fan: Install a ceiling in rooms as specified in the write-up. Ceiling Fan shall include a light fixture. Each function shall be switched separately.

a238.0 Overhead Lighting: Install overhead light circuits with new fixtures and switches for all rooms when rewiring, or the specified rooms in the work write-up. Include a porch light and switch for each exit door and a ceiling mounted light and switch for each enclosed porch and utility area. Any room having two or more entrances to that room shall have a switch controlling the overhead lighting at EACH opening to the room.

In hallways (only), a switch shall be located at the main entrance to the hallway from the Living Area, and at any/every remote end of the hallway exceeding five feet from the main entrance described above. Switches shall be located on the knob side of the entrance to that room; on openings without doors, switches may be located on either side of the opening. In no case shall a new switch be located behind a door. For all ceiling mounted lighting, the ceiling box shall be a 'fan box' (a deep junction box with brackets to joists on either side of box) capable of receiving and supporting a ceiling fan; fan boxes are not required in Laundry Rooms, hallways, utility rooms, closets, basements, or other 'utility' type installations. Fans shall not be included, unless specified in work write-up. Light fixtures in all stairways shall be included.

Work in this section shall include the installation of a code-compliant UL listed ceramic or plastic switched bulb-holder (including bulb) in the crawl space (or basement) and accessible attic. Attics or basements/crawl spaces that are 'sectioned' into multiple compartments shall receive a fixture in each 'section'. Light(s) shall be switched immediately adjacent (beside or above) to access panels for the areas they serve.

"All Rooms" as designated in the work write-up and within this section shall include the bathroom(s), utility room(s) and hallway(s). In Bathroom(s), a ceiling light shall be provided even if a lighted medicine cabinet or light over the medicine cabinet exists, or is specified. Include lights for each room. If a room has more than one light existing, a similar quantity of fixtures shall be provided in any new wiring scheme. All lights shall be switched separately, with multiple switches in rooms with more than one entrance into them.

Installation of fixtures provided by the property owner (or re-installation of existing fixtures) may be installed at the owner's request. It shall be the Contractor's responsibility to get a written release of liability when installing such fixtures. The one-year warranty shall not apply to fixtures provided by the owner, or existing fixtures re-installed at the owners request.

Refer to the requirements of the "Electrical General Requirements" above.

- a239.0 Wall Mounted Light over Sink or Medicine Cabinet: Install a wall mounted light over the sink/medicine cabinet. Switch separately from any other light or appliance. No fluorescent fixtures shall be acceptable in this application. Exposed light bar applications shall have 3" decorative round bulbs (frosted), CFL type or LED equal; installation of standard bulbs in a light bar application shall not be acceptable. Refer to the requirements of the "Electrical General Requirements" above.
- a240.0 Light over Kitchen Sink: Install a light over the kitchen sink in addition to the ceiling lights. Switch separately from any other light or appliance. Light shall be a 24" ceiling mounted fluorescent fixture complete with cover. Refer to the requirements of the "Electrical General Requirements" above.
- a241.0 Flood Lights: Dual-headed flood lights shall be provided at locations specified in the work write-up and/or shown on the drawing. Unless specified otherwise, switch to floodlights shall occur at the exit door closest to the floodlight installation. Unless specified otherwise, all new flood light fixtures shall not include motion detector features. New units shall be switch operated only. Where floodlights are installed, fixture to box joint shall be completely sealed against water infiltration. Refer to the requirements of the "Electrical General Requirements" above.

- a242.0 Separate Circuits: The following appliances shall be on separate dedicated circuits:
- Refrigerator: install plug at 42" above floor behind refrigerator
 - Range: include installation of a new four-prong pigtail to match new plug
 - HVAC: provide electrical hook-up and disconnect boxes as necessary for the existing/specified system components. In HVAC installations, electrician shall be responsible for providing power from the breaker box to the disconnect box adjacent to unit (including disconnect box); HVAC installer shall make final connection from unit to disconnect box.
 - Clothes Washer: at location shown on drawing or specified in work write-up
 - Clothes Dryer: include installation of a new four-prong pigtail to match new plug only if dryer is available prior to release of final check; this shall not be viewed as a 'warranty item' for future purchases by the property owner.
 - Air Conditioning Outlet at Window #:
 - Water Heater: includes disconnect box per code
 - Electric Heaters: at locations specified in work write-up
 - Freezer: at location shown on drawing or specified in work write-up
 - Sump Pump: at location shown on drawing or specified in work write-up

Refer to the requirements of the "Electrical General Requirements" above.

- a243.0 Smoke Detectors: Install a UL approved 110V smoke detector in rooms as required by code. Provide hardwired smoke detectors in basement, and in any attic or utility area housing electrical or mechanical equipment. Hardwired smoke detectors shall have battery back ups (battery to be installed/included) and be interconnected. The edge of the detector shall not be closer than 4" from any wall; do not install a detector in dead air space where the ceiling meets the walls. The top of the detector shall be 4" to 12" from the ceiling if wall mounted.
- a245.0 Door Bell: Install a front door bell, including wiring, chimes, and push button. Unless specified otherwise, install doorbell push button at primary entrance to structure. Battery operated units will not be accepted.

a248.0 Bathroom Vent/Light Combination: Install vent/light fixture in Bath with hard ducting to exterior. Each function shall be switched separately; vent shall be switched independently of any other Bath lights. Unit shall be Energy Star labeled and less than 2 sones. Refer to the requirements of the “Electrical General Requirements”.

a249.0 Range Hood: Provide a lighted range hood. New multi-speed hood shall be vented via hard duct through the exterior wall or through the roof, as specified in the work write-up. Refer to the requirements of the “Electrical General Requirements” above. The color of the new hood shall match the color of the range.

a251.0 - a287.0 **PLUMBING AND GAS PIPING**

Plumbing General Requirements: For purposes of this plumbing section, ‘nationally recognized manufacturers’ for plumbing fixtures shall include: Kohler, Crane, Eljer, AquaGlass, American Standard, Universal-Rundle, Peerless, Delta Faucet, Price-Phister, and Moen. The use of any fixtures outside of the manufacturers group listed above shall not be installed without specific written approval of the Rehabilitation Specialist, and only after submittal, review, and approval of applicable shop drawings (including pictures, literature, and web site information).

a252.0 Supply Lines: All new supply lines will be PEX. Install new hot and cold supply lines to each fixture, and/or to individual fixtures specified in the work write-up. Installation of new supply line system shall include the installation of a pressure-reducing valve as/if determined by Plumbing Inspector. All supply lines shall be installed to the current requirements of the plumbing codes observed by the City of Knoxville Plumbing Inspections section.

All new supply line installations shall be insulated in basements, crawl spaces, and in exterior walls; insulation shall be sized according to the pipe it surrounds, and fit snugly to the pipe without gaps or open seams. Tape all joints and splices in the insulation; elbows shall also be insulated and securely taped.

Where supply lines penetrate walls and/or floors, the holes shall be caulked, and escutcheons installed at all interior exposures. Unless otherwise infeasible, supply lines shall enter interior spaces from the wall, as opposed to the floor. All supply lines and wall faucets shall be securely anchored to prevent movement. All fixtures receiving new supply lines shall also receive cut-off valves at the fixture, except for bathtubs and showers.

Unless otherwise specified, all existing fixtures and/or faucets shall remain in place. All fixtures that are specified to be removed, then re-used, shall be reinstalled with new seals on drain and supply and with shut-off valve installed for each fixture.

Cutting, notching and boring of studs and joists shall be in conformance to building codes. All framing members cut for plumbing installations shall be blocked, braced, headed, or properly framed to ensure structural integrity. Cutting and boring that weakens structural integrity shall be reinforced as necessary at the Contractor's expense.

Refer to the requirements of the "Plumbing General Requirements" above.

a252.1 Refrigerator/Icemaker Lines: Where refrigerators with icemakers are being installed (either existing refrigerators, or as specified in section a288.4, an water line (including necessary fittings, ready for hook-up) from a potable water source shall be provided for the icemaker service. Icemaker lines shall have a cut-off valve in an accessible location.

a253.0 New Supply Line from Meter/Street: Provide a new water line from the water meter to the water heater. Line shall be ¾" PEX. Cost of trench excavation, backfill, and seeding/straw application to the disturbed area is included in the cost of this section. Backfilled area shall be compacted and brought level with surrounding grade; filling of all depressions appearing after completion shall be considered a warranty item. KUB shall be contacted by the Contractor for any revisions or replacements necessary to the meter or box.

a256.0 Drain/Waste/Vent (DWV) System Piping: All new waste and vent lines shall be PVC Schedule 40. All vents shall be installed within the wall when walls are exposed and such installation is feasible. Existing vent stacks may remain when wall cavities are not exposed during the rehab work, and in good repair. All new vents shall have new roof boots installed. All vents shall extend above the roofline 12"-18"; termination in attic spaces is expressly forbidden. P-Traps shall be sealed where they penetrate walls, with escutcheons installed.

Cutting, notching and boring of studs and joists shall be in conformance to building code limitations. All framing members cut for plumbing installations shall be blocked, braced, headed, or properly framed to ensure structural integrity. Cutting and boring that does not comply and/or weakens structural integrity shall be reinforced as necessary at the contractor's expense.

All discharge lines that are run off water heater pressure relief valves shall terminate at the exterior of the building, and not in the basement or crawl space. Discharge lines run off of water heaters set in overflow pans may be terminated at the pan (see paragraph below).

The plumbing subcontractor shall immediately notify the general contractor of any need for floor joist removal, retrofit, or cutting for water closet, bathtub or shower plumbing clearance.

a257.0 Clean: Clean and unclog waste lines from the house to the street using a mechanical roter. This item shall be completed within the first ten (10) calendar days of construction. Report any blockages encountered to the Rehabilitation Specialist immediately, including suspected cause of blockage (i.e., line crushed or broken, roots, lateral, etc.).

a258.0 through a264.0

Repair Existing Fixtures: Repair existing fixtures/faucets as specified in the site specific work write-up.

a265.0 FIXTURES:

a266.0 Remove Fixtures: Remove the specified fixtures. Cap off supply lines and drains below the floor to code. This shall include all necessary closures of wall, floor, and cabinet openings to comply with code and to assure exclusion of insects and rodents. Blank metal or plastic cover plates are acceptable with approval of Rehabilitation Specialist

a267.0 Bathroom Fixtures:

a268.0 Tub/Shower Unit: Install new tub/shower unit, including faucet sets at locations shown on the plans. Tubs shall be 5'-0" in length unless specified otherwise and be white in color. In new homes, or homes receiving extensive construction that allows movement of the tub, a one-piece fiberglass tub/shower unit is preferable and shall be installed. One-piece tubs shall from a nationally recognized manufacturer listed in section a251.0 above.

In rehabilitation projects where a one-piece tub is not possible, two or three piece molded tub kits are permissible that assemble to similar appearance as the one-piece tub specified above.

On all installations, provide an access door on opposite side of wall from tub/shower controls for future service. Make all necessary connections for correct operation of the tub/shower unit.

Caulk along wall and floor and along all penetrations with tub and tile caulk. Install deadwood at all edges for sheetrock and deadwood for shower rod.

The plumbing subcontractor shall immediately notify the general contractor of any need for floor joist removal, retrofit, or cutting for water closet plumbing clearance. A Tub/Shower faucet combination shall be provided with all new tub/shower units. Water temperature shall be adjusted to deliver hot water between 115 and 120 degrees to the faucet prior to final plumbing inspection. Refer to the requirements of the "Plumbing General Requirements" above.

a269.0 Shower Stall: Install fiberglass shower stall at location shown on the plan. The plumbing subcontractor shall immediately notify the general contractor of any need for floor joist removal, retrofit, or cutting for shower plumbing clearance.

A Shower faucet set shall be provided with all new shower units. Faucet shall be from a nationally known manufacturer listed in section a251.0 above. Water temperature shall be adjusted to deliver hot water between 115 and 120 degrees to the faucet prior to final plumbing inspection.

Refer to the requirements of the “Plumbing General Requirements” above.

a270.0 Vanity Cabinet and Top: Install vanity, vanity top, and faucets. Vanity shall be **all** wood (due to moisture exposure potential long term); no pressed board or particleboard shall be accepted within the construction of the vanity. A vanity top shall be provided with each vanity to corresponding length; top shall be molded cultured marble or solid surface; owner shall have choice of color from in-stock inventory. Caulk new vanity top to wall.

A faucet set with pop-up assembly shall be supplied with all vanity installations. Faucet shall be low flow model. Make all necessary connections with flexible hosing from cut-off valves. Refer to the requirements of the “Plumbing General Requirements” above.

a271.0 Wall Hung Lavatory: Install new wall-hung lavatory. Lavatory shall be china, 19” x 17”, with 3 holes, 4” center. Legs installed for additional support shall not be acceptable. Wrap hot water pipes in accessible locations. Caulk along wall with tub and tile caulking. A faucet set with pop-up assembly shall be supplied with all lavatory installations. Faucet shall be from a nationally recognized manufacturer listed in section a251.0 above. Make all necessary connections with flexible hosing from cut-off valves. Refer to the requirements of the “Plumbing General Requirements” above.

a272.0 Toilet: Install new toilet. Toilet shall be from a nationally recognized manufacturer listed in section a251.0 above. Toilet shall, unless otherwise specified, be a elongated front bowl, two piece unit with 2” (minimum) trapway. New toilet shall be accessible height and Water Sense labeled.

The plumbing subcontractor shall immediately notify the general contractor of any need for floor joist removal, retrofit, or cutting for toilet piping clearance. Sawing of joists without proper headers is forbidden.

Toilet installations shall include a new seat, all interior workings (flush valve, flapper, flush handle, etc.), wax ring, and flexible cold water supply line from wall/floor cut-off valve.

Refer to the requirements of the “Plumbing General Requirements” above.

a273.0 Kitchen Fixtures:

a274.0 Kitchen Sink: Install new double bowl stainless steel Kitchen sink. Kitchen sink shall be min. of 33” x 22” x 7” deep, from a nationally recognized manufacturer. Sink installations shall include rims, throats, and strainer baskets. Sinks shall be four hole design, 8” centers. Seal edges of sink when setting into countertop.

All new Kitchen sink installations shall include a faucet with aerator and sprayer. Faucet shall be single handle, with sprayer. Make all necessary connections with flexible hosing from cut-off valves. Refer to the requirements of the “Plumbing General Requirements” above.

a276.0 Water Heater: Install a new water heater; gas or electric as specified in the site specific work write-up. Size shall be minimum 40 gallon; see work write-up for any variation from this capacity, or for dimensional requirements (i.e., low-boy model). Water heaters shall be glass-lined, quick recovery type, and shall be equipped with a safety cut-off and pressure/temperature relief valve. All water heaters shall have a minimum 5-year manufacturer's warranty, a copy of which shall be provided to the property owner. Gas unit shall have a gas shut-off valve. Inlet and outlet pipes shall be same size. Water heaters shall rest on cap blocks, or installed on a stand in crawl spaces and/or basements. For gas water heaters, all basement installations shall require a stand meeting code requirements.

All hot water heaters installed in interior spaces, or in attic or other utility spaces above the first floor, shall rest within pans that have a drain for overflow, run to the exterior of the building (not terminating in the crawl space or basement), with 90 degree elbow to discharge onto ground. Pressure relief lines from water heaters not installed in pans shall be run directly to the outside (not terminating in the crawl space or basement), with 90 degree elbow to discharge on ground.

a277.0 Washer Connection Box: Install an in-wall plastic (metal is not acceptable) washer connection box in location shown on drawing. Installation of a new connection box shall include replacement of cut-offs, and all necessary connections to supply and drain piping. Ensure connection box clears washer electrical receptacle to prevent shock hazard. Provision of normal hosing (drain and supply) to washer shall be the responsibility of the owner. However, when installing an elevated washer connection box in a basement (or any other utility area), the provision of any extension hoses (drain and supply) necessary to reach box (beyond the standard hoses) shall be provided as a part of this section.

- a278.0 Hot Water Heater Repair: Repair water heater with new thermostats and/or elements as needed to restore proper operation. Replacement of thermostats and/or elements does not place a one-year warranty on the water heater as a whole; a warranty shall only apply to the replaced parts.
- a279.0 Pressure Relief Line: Water heaters installed in overflow pans that have a drain for overflow shall have a line from the pressure relief valve to the pan. Pressure relief lines from water heaters not installed in pans with an overflow shall be run directly to the outside (not terminating in the crawl space or basement), with 90 degree elbow to discharge on ground.
- a279.1 Overflow Pan: Water Heaters installed in remote locations such as suspended ceiling spaces, closets, or in attics shall rest in an overflow pan. Overflow pans shall be no less than 1 ½” deep and provide a min. of 2” clearance between the water heater and the edge of the pan. The pan drain shall extend to the exterior of the structure.
- a280.0 Sump Pump: Install a new min. 1/3 H.P. with 10' lift automatic sump pump in a pre-manufactured plastic basin, complete with all associated wiring, discharge hose to include backflow preventer. Locate sump pump for maximum effectiveness and make all necessary alterations for proper water discharge. Set float to leave 6" of water in the sump.
- a281.0 Hose Bib: Install freeze proof hose bib in locations specified in the work write up and/or shown on the floor plan. If existing hose bibs are located away from house (i.e., from a stub-up in the yard), that hose bib shall be removed completely and capped below surface, with a new freeze proof bib installed in the house foundation as closely as possible to the removed bib. Use an all metal unit (plastic is not acceptable) anti-siphon type.
- a282.0 Insulation: All new supply line installations shall be insulated with foam or closed cellular rubber pipe insulation in basements, crawl spaces, and in exterior walls; insulation tubes shall be sized according to the pipe it surrounds, and fit snugly to the pipe without gaps or open seams. Tape all joints and splices; elbows shall also be insulated and securely taped. Wrap cutoff and pressure reducing valves in batt insulation.

- a283.0 Water Heater Insulation Blanket Kit: Insulate the existing water heater with an insulation blanket kit. Blanket kits shall be of size to completely surround water heater, with no gaps or voids.
- a286.0 Gas Piping: Install new 3/4" black iron gas piping to units. Contractor shall include cost of piping from nearest service in his bid if the house is not presently supplied with gas. All piping shall be concealed wherever possible. Meter deposit as/if required by KUB shall be paid by the owner in all cases, with service installed in the name of the property owner.
- a287.0 Gas Piping Repair: Repair defective and obsolete gas piping to the entire structure by disconnecting and capping at the meter. Re-pipe to City and State Codes using 3/4" black iron gas piping. All piping shall be concealed whenever possible. The Contractor shall make all repairs to walls, floors, and ceilings required by gas piping installation or repair.

a288.0 - a298.0 **SPECIALITIES**

a288.3 **Electric Range:** Provide one white or black electric range (owner's choice) as manufactured by one of these nationally recognized major manufacturers:

Maytag, GE, Whirlpool, LG, Frigidaire, Amana, or Kenmore. Any brand not listed here, must be approved in writing by the owner and Rehab Specialist.

Specified range shall be 30" wide, have lift-up cooktop for cleaning, window in oven door with interior light, full-width storage drawer below oven, two large and two small cooking elements, and an automatic timer with clock. Smooth surface cook top models are acceptable. The range shall have a minimum one year parts and labor warranty from the manufacturer, which shall be provided to the property owner. Cord (purchased separately) shall be included within this installation.

a288.4 **Refrigerator:** Provide one white or black refrigerator (owner's choice) as manufactured by one of these nationally recognized major manufacturers:

Maytag, GE, Whirlpool, LG, Frigidaire, Amana, or Kenmore. Any brand not listed here, must be approved in writing by the owner and Rehab Specialist.

Refrigerator shall be a two-door, frost-free model with interior light. Refrigerator shall have minimum 17.9 cubic foot total capacity. Specified refrigerator shall carry a minimum full one-year parts and labor guarantee by the manufacturer. This warranty shall be provided to the property owner. The refrigerator shall be equipped with an ice-maker. It shall be the contractor's responsibility to hook up the icemaker. This includes the purchase and installation of water connection lines and taps as necessary. The refrigerator shall be an Energy Star certified model.

The refrigerator door swing shall be reversible. The door swing shall be in the logical direction for the installation situation (generally, with hinging adjacent to walls when installed in an end location and/or with hinging as far away from the sink as possible when not installed in an end location). Final installation of door opening shall be at the option of the homeowner and/or Rehab Specialist, and cost of reversing swing as/if necessary shall be included in this item.

a288.5 Dishwasher: Provide one white or black dishwasher (owner's choice) as manufactured by one of these nationally recognized major manufacturers:

Maytag, GE, Whirlpool, LG, Frigidaire, Amana, or Kenmore. Any brand not listed here, must be approved in writing by the owner and Rehab Specialist.

Dishwasher shall carry a minimum full one-year parts and labor guarantee by the manufacturer.

This warranty shall be provided to the property owner. It shall be the contractor's responsibility to hook up the dishwasher including the installation of water supply lines, drain lines, and electrical connections as necessary. The dishwasher shall be an Energy Star certified model.

a289.0 Bath Accessories:

a290.0 Bath Accessory Kit: Install bath accessory kit. Kit to include two towel bars (or one towel bar and one ring) and a toilet tissue holder. All items, unless otherwise noted, shall metal. No plastic will be accepted. All items are to be installed plumb and level. Consult owners as to locations. Wood bathroom accessories shall not be permitted, except with written consent of the Rehabilitation Specialist.

a291.0 Shower Rod: Install a metal shower rod; tension type rods are not permitted.

- a293.0 Tub Wall Kit: Provide a tub wall kit at existing bathtub. Kit shall be a 3-piece or 5-piece kit that can be trimmed for windows. Use adhesives recommended by the tub kit manufacturer. Edges must be tight or trimmed. Install per manufacturers' instructions.
- a294.0 Medicine Cabinet: Install a medicine cabinet with mirror. The cabinet body shall be made of wood and be surface mounted. Minimum size of the cabinet shall be 16" x 24".
- a295.0 Dryer Vent: Install dryer vent assembly. Run hard duct to exterior and include flapper fitting at exterior.
- a296.0 Ceramic Tile: Install ceramic tile around the tub up to a height of 5' above the tub. Install so that all lines are level and plumb. Caulk corners and along the tub and around all penetrations with Tub and Tile caulk prior to grouting. Ceramic tile shall be 4" x 4" (nominal) standard grade thin-set over moisture resistant (green) gypsum board or wonder board.
- a297.0 Fire Extinguishers: Install one 5 pound type 2A multipurpose (A, B, C) fire extinguisher on wall mounted bracket in each of the locations shown on the floor plan drawing.
- a297.1 Penetration Protectives: Provide and install all protectives on fire rated walls, ceilings and floors for all penetrating pipes, wires and ducts. All devices and protective methods are subject to the approval of the Building Inspector.
- a298.0 Grab Bars: Install grab bars in Bathroom at locations specified in the work write-up. Stainless steel handrails shall be installed. Each grab bar shall be able to support a minimum 250 lb. load. Coordinate location of the grab bars with the property owner. Use concealed fastener grab bars only. Exposed fasteners will not be accepted.

a299.0 House Numbers: Install raised hard plastic or metal house numbers to identify street number. Place in location at front of house in location easily viewed from street. Each numeral shall be minimum 4" tall and securely attached with 2 screws.

a300.0 **OVERHEAD, PROFIT & TOTAL BID PRICES**

Price: Prices shall be provided for all line items provided for in the Work Write-Up, and totaled in section a300.0. A twenty-five percent (25%) maximum overhead and profit is allowed, though the contractor may adjust this downward, if desired, to fit their preferences or bidding strategy. The total at section a300.0 shall be transferred to the bid proposal sheet accompanying the work write up in the bid submittal package; the total bid shall be printed in both letters and numbers on the bid proposal sheet, similar in form to a bank check. Also, review the important information about bidding and alternate pricing in section a301.0 below.

a301.0 Alternates: Include separate prices for all of the alternates listed. The prices for alternates shall be all-inclusive prices that include material, labor, overhead and profit. Do not include the prices of alternates in the total base bid price in section a300.0.

IMPORTANT NOTE ABOUT ALTERNATE PRICING: Alternate prices must be included for an acceptable bid, and the Contractor shall be expected to honor these alternate prices at any time between the bid submittal and the final inspection of the rehabilitation or new construction. Thus, the bidding contractor(s) should consider the pricing of the alternates seriously, in anticipation that the alternates could be added to the contract. Include alternate prices even if the total base bid price plus the alternate would exceed your license limit. Alternates to be included shall be signed for in the original contract (if possible, and known by the date of the contract), or executed by change order signed by the contractor and property owner. As the Contractor shall be expected to honor alternate prices submitted in a bid package, failure to sign a legitimate change order for alternates shall be construed as a breach of contract and/or grounds to suspend or remove a contractor from the rotating bid list. There shall be no negotiation of alternate pricing between the owner, City, and contractor unless the design or specification of the alternate significantly changes, a final inspection on the property has taken place, or a change order for the alternate was executed prior to the final inspection. Conversely, alternates priced extraordinarily high (beyond ten percent of the Rehabilitation Specialists estimate), especially on items that are strongly anticipated to become a portion of the contract at some stage, can be grounds for rejecting the entire bid submission, and awarding of the contract to an alternate bidder.