

Cumberland County Community Development

Housing Rehabilitation: Contractor's Handbook

Revised: February 12, 2020

**CUMBERLAND COUNTY COMMUNITY DEVELOPMENT (CCCD)
HOUSING REHABILITATION PROGRAM
PO DRAWER 1829
707 EXECUTIVE PLACE
FAYETTEVILLE, NC 28302-1829**

REHABILITATION CONTRACTOR'S HANDBOOK

CONTRACTOR QUALIFICATIONS:

1. Application: CCCD will solicit and accept applications from Contractors that are interested in participating in the Housing Rehabilitation Program throughout the year. Contractors who are interested in participating in the Program, must obtain and complete an application from the above office. Contractors will be required to display in the application the ability to perform the construction work required of a rehabilitation contractor as well as the ability to follow the procedures and guidelines contained in this document. Based upon the information contained in that application, the CD Staff will determine whether the Contractor is eligible to participate in the Program. If the Contractor is approved, he/she will be notified, added to the Contractor's Register, and permitted to participate in the Housing Rehabilitation Program. The Contractor's Register will be provided to each homeowner in the Program to select the Contractors that will be allowed to bid on their project. If the Contractor is disapproved, he/she will be notified in writing of the reason(s) for the decision.

Applications may be submitted to the CCCD office by mail, fax, or email. The contractor must complete all sections of the application and provide completed job references.

2. Certificate of Insurance: When submitting the application, the Contractor must furnish CCCD with evidence of insurance coverage as follows:

- *General Liability Insurance \$300,000.00
- *Workmen's Compensation Coverage of all employees and subcontractors. (Regardless of the number of employees in the company).

3. Guaranty/Surety Deposit: The Contractor will guarantee the work performed for a period of one year and three years on all roof work from the date of final approval of all work required by the Contract. Any defect which may become evident during that period of time shall be corrected at the Contractor's expense, and all labor and materials shall be furnished free of cost for any damage to other work resulting there from. This provision applies to all work done by Sub-Contractors, as well as to the work done by the Contractor's employees.

4. Equal Opportunity Requirements: The Contractor is required to abide by Federal Equal Opportunity Requirements and hiring practices.

5. Standards of Work/Performance Criteria: Contractors approved for participation in the program are expected to maintain satisfactory credit records, to conduct and complete work free

of liens, to maintain continuous insurance coverage and to perform rehabilitation work that is satisfactory to the program. Specific performance standards are set out later in this section and should be reviewed carefully by the Contractor. Violation of any of these standards may be cause of rejection of bids, suspension from contracts and/or removal from the Contractors Register.

REHABILITATION WORK WRITE-UP

The work write-up constitutes the basis for each job. Floor plans and other drawings are diagrammatic only. They will illustrate the general scope of the work and do not necessarily show all of the work required, except dimensions of construction detail.

Rehabilitation specifications shall be followed without variation except as allowed in the "Change Order" section of this document. No changes in the scope of the write-up will be considered valid without an executed Housing Rehabilitation Contract and a signed and approved change order.

BID PROCEDURES

The property owner will be responsible for selecting contractors to bid on their project. Invitations to Bid along with bid packets will be sent via fax, mail, or email to the Contractors selected to bid on the project. Contractors receiving an invitation to bid will be mailed bid packets from Cumberland County Community Development, 707 Executive Place, Fayetteville, NC 28302. Bid packets will consist of Invitation to Bid, Bid Form, and Work Write-Ups.

Each job will be bid separately through the sealed bid process. All bids to be submitted must be typed or in ink. Illegible bids may be rejected. The Contractor must identify on the outside of the envelope the address of the project. Unless otherwise specified, the Contractor should be prepared to guarantee the bids for a period of sixty (60) days after the bid opening date. At the end of sixty (60) days, the Contractor has the option of withdrawing the bid.

1. Pre-bid Walk Through Conference: A pre-bid walk through conference will be held when possible after contractors have been selected by the Owner. Attendance at the walk through is required of the Contractors before submitting a bid. The Work Write-Up will be discussed in detail. Pre-bid walk through conference announcements will be sent with the Invitation to Bid forms.

2. Bid Openings: A time and place will be stated for each bid opening. Contractors are welcome to attend the openings but are not required to be present. At the openings, bids will be opened and recorded. Bid openings will be attended by two CD Staff. One person will open the bids and the other person will tally the bids. They both will sign the Bid Tally Sheet. The CD Staff will tabulate the bids, review each for content and price, determine which bids are acceptable or non-acceptable and the reasons therefore and make a recommendation to the Owner for the award of each project. The Owner reserves the right to reject all bids should there be less than three qualified bids of any project.

3. Award of Bids: Bids will generally be awarded to the lowest responsible bidder. The Program does, however, reserve the right to reject low bids based upon the bidder's inability to meet the performance standards outlined in the Handbook or to maintain sufficient job progress. Should your bid be disqualified, it is the Contractor's right to obtain the reasons for the disqualifications. The CD Staff will prepare cost estimates using the Work Write-Ups for each project. If the low and responsible bid is below 10% or more than 15% above this estimate, CCCD reserves the right to do the following: 1) meet with the low and responsible bidder in an effort to resolve the difference; 2) negotiate with the next highest bidder, or 3) rebid the project in question.

It will be the policy of CCCD that no more than three (3) contracts can be awarded concurrently to any one contractor. As projects are completed new awards may be sought. Additionally, no more than two (2) contracts can be in progress at the same time by the same contractor. As contracts are completed new projects may commence. The CCCD reserves the right to waive this policy should there be circumstances that arise that may adversely affect the progress of rehabilitation work within the community.

4. Contractual Agreement: The bidder is advised that CCCD will receive the bids solely on behalf of the Owner and that any contractual arrangement for performance of the work will be between the Contractor and the Owner. The County will neither be a party to the contract, nor liable under the contract. On behalf of the Owner, CCCD staff will conduct inspections of work in progress, final inspections, and assist the Owner with compliance with the warranty provisions. Warranty provisions are for one (1) year on all work performed.

The acceptance of the bid and awarding of the contract, may in some instances, be subject to the Owner receiving adequate financing.

PRE-CONSTRUCTION CONFERENCE

A Pre-construction conference will normally be held at the CCCD Office with the Contractor, Owner, and CD Staff present. During this conference, the following items will be accomplished:

1. The contract documents including method of payments will be reviewed and executed;
2. The Notice to Proceed will be reviewed and executed. The completion date of the Contract will be reviewed; and
3. Color and material selections will be made by the Owner and the Color Selection Form executed.
4. Review and sign the Housing Rehabilitation Contract

PROGRESS INSPECTIONS

The CD Staff will make frequent inspection visits to the job during the course of construction. It is expected that the Contractor will cooperate with the CD Staff during these inspections. If the Contractor is not on the job, the person who is regularly on the job should be designated as the responsible person to discuss conditions with the CD Staff and such a designee should be documented and included in the project file.

The Contractor will be expected to furnish the CD Staff for the project with every reasonable opportunity to determine if the work performed is in accordance with the contract, particularly in cases where interior plumbing and electrical wiring are to be installed. If the CD Staff so requests, the Contractor will remove or uncover such portions of the finished work as directed. After examination, the Contractor will restore the portions of the work exposed and replace any unacceptable work at his expense.

If the Contractor removes or uncovers finished work at the request of the CD Staff or other authorized representative, and the inspected work is found acceptable, the CD Staff will execute a Change Order to the contract to cover the Contractor's additional expense only if the CD Staff has been notified and given at least two (2) working days' notice to inspect the work prior to it being covered and finished.

PAYMENTS

1. Requests for Payments: Contractors wishing to receive a progress payment must request the payment from the CD Staff handling the project. Contractors should submit to the CD Staff a written statement of work completed on a company bill or letterhead. The CD Staff will then conduct an inspection of the work in place to determine what percentage of work has been performed. Provided that the work has been completed, the CD Staff will then execute a Certification of Work Completed on behalf of the Contractor to the Owner. Checks will be made payable to the Contractor. The Owner's signature on the Certification form signifies the Owner's approval and authorization of the payment due the Contractor under the terms of the Rehabilitation Contract.

2. Probationary Periods: A probationary period may be instated upon a Contractor who is not performing to standard. This probationary period will allow CD Staff to reevaluate the Contractor's continued participation in the Program. If put on probation, the Contractor will be notified in writing of the reasons for the action and the expectations for improvements as well as a deadline for the implementation of the improvements. Failure to bring performance up to standard may result in removal from the Contractor's Register. During the probationary period, at the request of either the County, a building supply company, or a subcontractor, checks may be made co-payable to the Contractor and the Supplier/Subcontractor. This shall be done at the agreement of CCCD and the Supplier/Subcontractor and shall be executed to protect the Owner and the Program and the Contractor from problems arising from non-payment of supply bills and liens that may arise.

3. Payment Schedule: Four (4) payments will be allowed per project; three interim payments and one (1) final payment. Final payment will be made upon all inspections being successfully performed and the Owner issuing a Certificate of Satisfaction. The Contractor will submit all necessary warranty information on all appliances or equipment installed termite treatment certificate, Minorities/Women Business Enterprise, Employee Status, the finalized Building Permit card, final invoice, and a completed, notarized Release of Lien form with the Request for Final Payment. The Contractor will submit other forms as necessary for finalizing the project as required by the Cumberland County Community Development.

Payments will be made for work in place at the time of the request for payment. A retainage of 10% will be held on each payment and the total of the three (3) interim payments are not to exceed 90% of the entire contract amount. The retainage will be paid with the final payment.

4. Change Orders: No variation in the Work Write-Up shall be made without a duly approved Change Order regardless of whether or not any cost is involved. The Change Order will be prepared by the Contractor and signed by the Owner and the Contractor with the Housing Services Manager's approval. No work covered by the Change Order shall be done until the Order is executed and fully approved. Any additional work completed without written authorization shall be considered unauthorized work done at the Contractor's expense. Such work may be ordered removed and replaced by the CD Staff at the Contractor's expense. Any approved Change Order request will become an amendment to the executed Rehabilitation Contract. No Change Order(s) will be accepted or approved prior to an executed Rehabilitation Contract and no Change Orders will be accepted after the Certificate of Occupancy has been issued by the Cumberland County Inspection Department.

NOTE: If a Change Order is requested by the owner, CCCD will in no way be held responsible for cost, damages, repairs, or other liabilities. However, the contractor must provide a written Change Order request, signed by the contractor and owner, and given to the CD Staff to become a permanent part of that file.

The CD Staff may grant a time extension to the Contractor for reasons beyond the control of the Contractor and without fault or negligence of the Contractor if deemed necessary by the Rehabilitation Inspector. This will include, but not limited to, the following:

1. Inclement weather which prohibits construction;
2. Wars, floods, fires, epidemics, embargoes, quarantine restrictions; and
3. Acts of nature.

Requests for time extensions must be made in writing to the CD Staff 10 days prior to the scheduled completion date detailing the reasons for the delay.

Should the CD Staff determine that there is not sufficient grounds for extension of the contract time, the CD Staff shall enforce the liquidated damages clause of the contract after the completion date (see below).

LIQUIDATED DAMAGES

After the expiration of the contract time and any extensions of time granted to the contract if the work is not complete, the Contractor shall be charged by the Program with liquidated damages in the amount of \$75.00 per day. The liquidated damages will continue to accrue until the CD Staff has completed a Final Inspection on the project or deems it necessary to remove the Contractor from the job in writing. Should a Contractor need to be removed from a project, funds remaining in the contract will be used to hire another Contractor to complete the project. If these funds are insufficient, legal action may be taken against the Contractor.

Contractors that are late in completion of a project will not be allowed to submit bids on future projects or given a Notice to Proceed on any new projects until all late projects are completed. If a Contractor is late on a project, yet has been awarded a new contract that is ready to begin construction, the CD Staff may disqualify the late Contractor for the new project. Failure to complete the job within the specified time period or within a time extension granted is sufficient grounds for termination of the Contract and can be sufficient reason to remove the Contractor from the Contractors Register. If a Contractor has to be removed from the project for any reason, that Company will be removed from the Contractors Register also.

FINAL INSPECTIONS AND PUNCH LISTS

Upon completion of the work, the Contractor shall request a final inspection from the CD Staff. The CD Staff and the Owner will conduct the final inspection to determine if the contractual obligations have been met. A Punch List will be prepared at this time, if necessary, and given to the Contractor for prompt attention.

Punch List items will be completed in a timely manner. Final payment will not be processed until all items have been satisfactorily completed. A final inspection will be conducted by the Owner and the CD Staff. If the project is complete in accordance with the contract documents, a Certificate of Satisfaction will be issued by the CD Staff and signed by the Owner. At the Contractor's Request for Final Payment, the following items must be submitted to the CD Staff:

1. Final Invoice;
2. Manufacturers' Warranties;
3. Certificate and Release of Liens Form completed;
4. Minority/Women Business Enterprise Form completed;
5. Employee Status Form completed;
6. Finalized Building Card;
7. Tax Statement (if applicable); and
8. Termite Treatment Certificate

The CD Staff and the Owner will then execute a Final Payment Request and the balance due the Contractor will be made available.

WARRANTY OF WORK AND MATERIALS

All work performed by the Contractor shall be warranted against defects in materials and workmanship for a period of one (1) year from the date of final acceptance of all work required by the Contract or any Change Orders to the contract. The Contractor will be expected to furnish the manufacturers' and suppliers' written guarantees and warranties covering materials and equipment furnished under the contract.

Whenever the Contractor fails to respond to a complaint within a reasonable amount of time or by a deadline specified by the Housing Services Manager, the Contractor will not be allowed to return to the job and the County will secure another Contractor to make the necessary repairs.

Failure to execute warranty work may be considered grounds for termination of the contract as stated above and removal of the Contractor from the Contractors Register.

PERFORMANCE CRITERIA

The County has established the following performance criteria to assist both the Contractor and the CD Program Staff in managing a program that is established to benefit the residents of Cumberland County. Failure of the Contractor to comply with these criteria may result in the rejection of bids, awards, contract termination and/or removal from the Contractors Register. The Contractor is required to:

1. Meet the time requirements for start and completion of the job as set forth in the contract;
2. Perform top quality work, to provide workmen, equipment, and materials adequate to perform the work in accordance with the Work Write-Up, the General Specifications and The North Carolina State Building Code;
3. Comply with the Equal Opportunity and Affirmative Action Requirements as set forth in this Handbook and contained in the Rehabilitation Contract;
4. Maintain continuous insurance coverage at the levels required by Cumberland County Community Development;
5. Complete warranty work in a prompt and satisfactory manner;
6. Maintain a solvent business and to secure adequate financing to perform the work; pay all suppliers, subcontractors, and employees all monies due; remain lien and judgment free;
7. Maintain professional decorum from all workmen while on the job site;
8. Not willfully misrepresent, defraud or attempt to deceive the Owner or Cumberland County;
9. Submit valid bids on a regular basis; and
10. Comply with all applicable State, Federal and Local regulations.

The Contractor will receive notification from CCCD whenever removed from the Contractors Register. The Contractor may be reinstated provided that he/she can demonstrate that corrective action has been taken to avoid reoccurrence of the deficient act. The decision as to whether or not the corrective action is sufficient enough is solely up to the Housing Services Manager. If the Contractor is reinstated and removed from the bid process a second time, there will be no further reinstatement.

**CUMBERLAND COUNTY COMMUNITY DEVELOPMENT (CCCD)
HOUSING REHABILITATION
BIDDING INSTRUCTIONS**

General Requirements:

1. The Contractor must meet all County licensing requirements as well as any licensing requirements of the municipality in which the work is to be performed. This also requires that continuous adequate liability insurance and workmen's compensation coverage be maintained. (Proof of coverage will be required to be listed on Approved Contractors Register.)
2. The Contractor must be pre-approved by CCCD for the Housing Rehabilitation Program. This requires that the Contractor has completed an application for the Contractors Register and has been accepted into the program.
3. All workmanship and materials must conform to the program's guidelines as stated in the work write-up, the General Specifications, the N.C. State Building Codes and be of acceptable quality.
4. The Contractor and/or his approved representative must be familiar with the project site and the work write-up, and must be present at the Pre-Bid Walk Through/Conference.

NOTE: A contractor must have written authorization on file declaring his representative is legally authorized to operate on his behalf in the pursuit of bids.

Documents:

The following documents are necessary in the preparation of a bid:

1. Work Write-Up - This report is prepared by the Rehab staff. It identifies eligible work items to be bid upon in a general scope. Any floor plans are diagrammatic only.
2. Bid Form - Obtained with the work write-up. Includes signature area for the Contractor and an area for the bid amount.
3. General Specifications - Issued to each Contractor at the time application is made for the Contractors Register. Defines materials and workmanship quality required for the project.

Instructions:

1. All bids must be submitted in ink or typed. Illegible bids may be rejected. Bids must be complete with the Bid Form and Work Write-Up included in the submitted package. The address of the project is to be noted on the outside of the envelope. The envelope must be sealed.

2. Bids are submitted to Cumberland County Community Development, 707 Executive Place, Fayetteville, NC during normal business hours. Contractors are invited to witness the bid opening but attendance is not required to be awarded a project. Bids are accepted on behalf of the Property Owner(s). Late bids will not be accepted.
3. The Contractor must guarantee the bid price for a period of sixty (60) days after the bid opening date. If, after sixty (60) days, this office has not received a Notice to Proceed on the project from the Property Owner(s), the Contractor has the option of withdrawing the bid.
4. Authorization to begin work is given with the Execution of a Notice to Proceed on the project, but not at any time prior to that execution.

Project Award:

Projects will generally be awarded to the lowest responsible bidder. CCCD reserves the right to reject a bid deemed to be too low for the bidder to maintain the performance standards outlined in the Handbook or to maintain sufficient job progress. CCCD has established that a low of (10%) ten percent and a high of (15%) above the CCCD staff cost estimate will disqualify the bid. Should your bid be disqualified, it is your right to obtain the reason(s) for disqualification.

Contractors who are late in the completion of a project will not be allowed to submit bids on new projects until the late project is completed. CCCD may, levy a charge of \$75.00 per day against the Contractor for the inconvenience to the applicant. In the event of inclement weather, with dates documented, this charge may be waived at the discretion of the CCCD.

If a Contractor has two (2) projects currently under construction with CCCD, and it is not foreseeable that either of them will be completed before the project being bid upon will be issuing a Notice to Proceed, CCCD may determine, based upon the past performance of the Contractor, that the Contractor will be unable to undertake an additional project. If a Contractor is deemed unable to manage more than three (3) projects, the bid will be awarded to the next lowest responsible bidder.

**CUMBERLAND COUNTY COMMUNITY DEVELOPMENT
HOUSING REHABILITATION PROGRAM**

GENERAL SPECIFICATIONS FOR REHABILITATION

00. GENERAL CONDITIONS

.01 Scope of the work shall include all labor, materials, equipment, permits, drawings and services necessary for proper completion of the rehabilitation of the property identified in the "WORK WRITE-UP".

.02 Work Write-Up shall take precedence over this General Specification and when in conflict, the material(s), equipment or workmanship called for in the "Work Write-Up" will be provided.

.03 Drawings of floor plans, if any, are diagrammatic only, illustrating the general intention of the owner; they do not show all of the work required, exact dimensions, or construction details.

.04 Changes in the work including substitution of material(s), change in the scope or workmanship required by these specifications, which may be proposed by the contractor, or found necessary or desirable as the work progresses, shall be in writing with price change(s) given, and shall be signed by the contractor and the owner and approved by the Housing Rehabilitation Staff of the Cumberland County Community Development Department (CCCD) before any work incidental thereto is started.

.05 Workmanship shall be in accordance with the standards of the several trades known as a "workmanship manner". All workmanship shall be such that it is acceptable to the owner and the Rehab Staff. Caution shall be exercised by contractors attempting to do work beyond their skills. Contractors that desire to do vinyl installation, floor covering, shingles, kitchen cabinets, bath cabinets, drywall, painting, staining, window glazing, etc., are cautioned that the quality level and workmanship must be equal to skilled trades standards. Work performed by the contractor which does not meet these quality levels will not be acceptable.

.06 Materials shall be new, in good condition, and of standard grade unless otherwise agreed to in writing before their delivery to the job.

.07 Repairs shall be made to all surfaces damaged by the Contractor resulting from his work under this contract at no additional cost to the Owner. Where "repair of existing work" is called for by the contract the feature is to be placed in "equal to new condition" either by patching or replacement. All damaged, loose, or rotted parts shall be removed and replaced and the finished work shall match adjacent work in design and dimension.

.08 Inspection of work during normal working hours by authorized inspectors shall be permitted by the Contractor, and the work shall be subject to the inspector's approval, acceptance of the homeowner, and the Cumberland County Community Development (CCCD).

.09 Subcontractors shall be bound by the terms and conditions of these specifications insofar as such applies to their work. This shall not relieve the General Contractor who is awarded a contract from the full responsibility to the Owner for the proper completion of all work to be executed under such contract, and he shall not be released from that responsibility by any subcontractual agreement he may make with others.

.10 Bids or proposals will be submitted at the Bidder's risk and the Owner reserves the right to reject any or all bids or proposals.

.11 Building codes - All work to be done shall be subject to the regulations of the Building Codes and General Specifications as may be interpreted by the Building Inspection Department and the CCCD respectively. The Contractor shall purchase the building permit before beginning any type of construction.

.12 Clean-up and removal of all debris and waste materials from the site resulting from his or her work, shall be the responsibility of the Contractor who will, haul off debris on a weekly basis and upon completion of the work, leave the premises in broom clean condition.

.13 Trade names are used in the basic specification to establish quality and type of material required; exact material to be used on a specific property will be described in the "Work Write-Up" for the particular property.

.14 Adjacent property - When adjacent property is affected or endangered by any work done under the contract, it shall be the responsibility of the Contractor to take whatever steps necessary for the protection of the adjacent property and to notify the owner thereof of such hazards.

.15 Replace - To be or provide a substitute with new.

.16 Install - To set in position and connect or adjust for use.

.17 Complete - Having all necessary or normal parts.

01. FOOTINGS

.01 Pier footings to be 20" x 20" x 8" deep. Wall footings to be 16" wide by (minimum)6" deep with top of footing at least 6" below grade. Top of footings shall be kept horizontal. Bottoms of footings must be founded on undisturbed earth at least 12" below finished grade. Corners of footings to be cut square.

Concrete shall meet the following standards:

a. Portland cement shall be ASTM C-150-47 Type 1.

b. Course aggregate shall be hard, durable, uncoated crushed stone or gravel free from deleterious substances and conforming to ASTM C33; well graded, minimum size 1/4" maximum size 1 1/2" or 3/4 the distance between reinforcing or 1/5 the minimum dimension of the forms, whichever is smaller.

c. Fine aggregate shall be clean, sharp sand conforming to ASTM C33, and graded from No. 4 to No. 100.

d. Mixing water shall be clean and free from oil, acid and injurious amounts of vegetable matter, alkalis, and other deleterious substances.

Minimum compressive strength shall be 2,500 p.s.i. at 28 days.

Do not pour concrete when temperature is below 35 Degrees F and falling or when freezing is predicted within the ensuing 24 hours. Maintain 50 Degrees F temperature around all concrete for 48 hours after pouring.

.02 Surface of concrete shall be float finished.

Reinforcing bars to be ASTM A 615, Grade 40 billet steel formed in accordance with ASTM A 305. Metal shall be clean and free from scale or coatings that will reduce bond.

Backfill around footings after piers or walls are built.

.02 MASONRY WORK

.01 Face brick shall conform to ASTM C-62, Grade MW. All brick(s) or block(s) shall match adjacent work unless wall is to be painted or plastered.

Concrete block(s) shall be solute concrete, autoclave cured, nominal modular size, free of cracks, chips or other spoils.

Patented mortar shall be used, equal to "Brixment" or "Flamingo" and mixed in the correct proportions as recommended by the manufacturer. Sand to be fine aggregate, clean and sharp, meeting the requirements of ASTM C-144.

Use method of measuring material at job so that specified proportions of mortar materials can be accurately controlled. Prepare mortar in batches of volume that will be used before initial set takes place, and not longer than 45 minutes before delivery to mason's mortar board at points of use.

Masonry work shall not be done when atmospheric temperature is below 32 Degrees F, and falling, or when freezing weather is predicted within the ensuing 72 hours. Anti-freeze compounds or other admixtures will NOT be permitted.

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

Walls shall be reinforced with standard "Dur-O-Wall" or equal, 16" on center. Back up units shall be sized in order to bond with four units.

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

Walls and piers shall be capped with solid masonry in conformance with the Building Code. New work shall be toothed into existing walls.

.02 Pointing shall be done only after joints have been chiseled out to a minimum depth of 1" or 2 ½ times the width of the joint, whichever is deeper, and wetted. All joints shall be completely filled with mortar and shall match existing joints. New mortar shall match color and consistency of existing mortar. Face of brick shall be kept clean of any mortar.

03. PARGING

.01 Parging shall be done with Portland cement plaster consisting of one part Portland cement to 2 ½ parts sand by volume. Hydrate lime may be used but shall not exceed 10% by weight nor 25% by volume of the Portland cement used. The temperature of the surrounding air shall not be less than 40 degrees F. during application and for at least 48 hours thereafter. Apply in two 1/4" thick coats; the second coat shall not be applied sooner than seven days after the first coat. Before applying first coat, completely cover surface with bonding agent, Acryl 60 or equal. Before applying the second coat, the surface shall be dampened evenly to obtain uniform suction. Minimum thickness of ½".

.02 Sure Wall - Do not apply the material if the temperature will be freezing within 48 hours. Dampen the wall just before applying the material (avoid saturating the blocks). Spread the mix with a finishing or plasterer's trowel into open joints and completely over the block at the minimum thickness of 1/8". You can apply a second coat after the first coat has taken its initial set and is capable of supporting the second coat-usually after 20-30 minutes. If you wait longer than 48 hours before doing this, a liquid concrete bonding adhesive must be added to the material.

Hairline Cracks - Dust dry sure wall cement into the crack.

Larger Cracks - If the crack is less than 1/4 inch and is caused by movement of the blocks, fill it with an exterior grade caulk.

Damaged Areas - Chisel the coating from the area to be repaired and one inch into the unaffected surface and apply freshly mixed sure wall.

Painting - A water-emulsion masonry paint can be applied to the finished material. Paint shall not be applied before the recommended 48 hours curing time.

****NOTE:** Do not use structurally on chimneys or areas that maintain high temperatures (150 degrees F.) and high humidity (80%).

04. CONCRETE WORK

.01 Stone fill under all concrete floor slabs on grade shall consist of #57 stone placed directly on the compacted subgrade. Stone shall be 4" in compacted thickness. Vapor barrier shall be .04 mil. polyethylene, with joints lapped at least 12". Expansion strips shall be non-extruding, asphalt impregnated, ½" fiberboard. Slab-on-grade floors shall be insulated around the perimeter of the floor with rigid type insulation having a minimum R-value of 3.75. Installation shall extend under the slab and turn up at foundation wall.

.02 Cement shall be light gray Portland cement meeting requirements of ASTM-C-150, Type I or II. Sand shall be clean, sharp siliceous material, free from silt, loam, clay or other deleterious materials and shall meet the requirements of ASTM-C-33. Coarse aggregate shall be crushed rock or washed gravel, dense and hard in accordance with ASTM-C-33, and graded from coarse to fine. Maximum size coarse aggregate shall be 1 ½" in footings and 1" in all finish concrete (walks, porches, etc.). Water shall be clean and potable.

.03 Wire Reinforcement - Wire mesh reinforcing shall be 10-10 welded steel wire fabric, conforming to ASTM-A-185. Sides and ends shall be lapped at least 6".

.04 Temperature - No work shall be done when atmospheric temperature is below 40 degrees F. and falling, or when freezing weather is predicted within the ensuing 72 hours. All concrete shall receive an application of curing compound, "Clear Bond" or equal, and applied according to manufacturer's instructions. All exposed surfaces of concrete shall be protected from premature drying and freshly placed concrete shall be protected from rain.

.05 Concrete Drives - Concrete drives shall be 4" thick with wire reinforcement. Concrete shall be 2,500 lb. mix. Concrete shall not be poured when the temperature of the surrounding air is below forty degrees F. Groove the driveway every 10 feet. Install ½" (inch) expansion joints every 20 ft. Round the edges of the driveway and give it a float and broom finish. Driveway is to be installed to provide positive drainage away from structure.

.06 Concrete Walks/Landings - Concrete walks/landings shall be 4" thick and 3' wide unless otherwise specified in work write up. Concrete to be 2,500 pound mix. No concrete shall be poured when the surrounding air is below forty (40) degrees F. Groove the walk every four (4) lineal feet. Round the edges of the walk/landing and give it a float and broom finish.

.07 Backfill - After removal of forms, backfill, fine grade, and seed.

05. CRAWL SPACE

.01 Access doors - Access doors to have 2" x 4" pressure treated pine frames, 3/4" A.C. exterior plywood doors, T-hinges, hasp and turnbuckle. Trim outside with 1" x 4" trim. Paint doors, frames and trim with three coats of paint- inside, outside, and all edges.

.02 Vents - Vents shall be 8" x 16", plastic, automatic static vents with screens installed to manufactures installation instructions, unless otherwise specified in work write up.

.03 Vapor Barrier - Use 6- mil clear polyethylene. Vapor barrier to cover all dirt areas. Overlap all joints at least 6 inches. There shall be minimal bunching and or folds. Anchor with wire, brick, block or rocks.

.04 Wood and Debris - Remove all wood and debris from underneath structure and haul away from premises.

.05 Underpinning - Vinyl or aluminum panels shall be GS 15.05 in thickness with perforated panels every eight feet for ventilation. Use fastening devices appropriate for the application of materials. All blocking and furring shall be with treated material(s).

06. PEST CONTROL

.01 Termite Treatment - Treatment shall be done by a professional pest control operator, properly licensed and bonded. The pesticide shall be of the type approved by the N. C. Department of Agriculture. The mixture and application shall be in accordance with manufacturer's recommendations and the N. C. Structure Pest Control Division. Soil treatment shall be applied to dry soils during clear weather after all grading is completed. The Owner shall be furnished with a Form 5 and certificate of treatment which shall warrant against termite infestation for a period of 1 year and provide that any damage caused by termite infestation will be repaired or replaced at the expenses of the pest control operator.

.02 Powderpost Beetle - Powderpost beetle treatment to be done by a professional pest control operator, properly licensed and bonded. Treatment for powderpost beetles shall be done by applying a pesticide approved by the NC Department of Agriculture. Treatment shall carry a one year warranty. The mixture and application shall be in accordance with manufacturer's recommendation and the NC Structure Pest Control Division.

07. FLOOR FRAMING

.01 Joists and Girders - New joists and girders shall be No. 2 dimension Douglas Fir, Construction Grade or Southern Yellow Pine No. 2. Lumber shall be air-or-kiln-dried, with moisture content not exceeding 19%. Floor framing under bathrooms and other areas exposed to excessive moisture shall have wood preservative treatment.

.02 Sills - Sills should be replaced with members of nominal size which will match as closely as possible to the existing, and shall be shimmed to fit properly. Sills shall have wood preservative treatment to protect against decay and insect attack. Treatment shall be in accordance with the specifications of the American Wood Preservers Association.

08. SUB-FLOORING

.01 Common Boards - Sub-flooring shall be 3/4" thick S4S Common boards, not over 8" wide, laid at 45 degree angle to joists. All end joints must fall over a joist. Nail board with 8d common nails or 6d threaded nails, providing two nails in 4" boards and three nails in 8" boards.

.02 Plywood - Sub-flooring shall be 3/4" T & G OSB or 3/4" interior grade plywood. Install OSB or plywood with outer plies at right angles to the joists and staggered so that the end joints in adjacent panels bear on different joists. Nail plywood sub-flooring to joists with 8d common or 6d threaded nails spaced 6" on center along all edges and 8" center along intermediate members.

09. PORCHES, COLUMNS AND RAILINGS

.01 Pine Treated Flooring - Use wolmanized pine treated flooring. Prime new flooring on all sides and paint per painting specification.

.02 Porch Ceiling - Remove, cut, re-nail, patch or whatever else is required to obtain a smooth surface on existing porch ceiling. Remove all ceiling molding. Install 3/8" A.C. exterior plywood, spacing joints as evenly as possible. Install 1/4" thick lattice strips over joints. Trim perimeter with 2" bed mold. Prime and paint two coats per painting Specifications.

.03 Concrete Porch Flooring - Remove existing concrete or masonry porch flooring; fill and tamp fill under floor if required; form edges of floor; install minimum of 4" thick concrete floor reinforced with 10-10 wire mesh; let concrete floor project approximately 1 1/2" beyond foundation and slope floor approximately 1/4" per foot; smooth trowel finish on slab and edges. All flashing at house walls is to be inspected prior to covering.

.04 Wrought Iron Columns - Wrought iron corner columns and flat columns to have 1" square framing members with four scroll design and socket mounts; each side of the column shall be at least 9" wide. Columns to be pre-finished and touched up after installation or primed and painted as per Painting Specifications.

.05 Wrought Iron Railings - Wrought iron porch railings to have 1 1/4" by 7/8" top and bottom rails, with spindles no more than 6" on center and intermediate supports spaced not more than 5' apart, anchored to house, columns or floor as applicable. Posts shall be at least 1 1/4" square. Railing to be pre-finished and touched up after installation or primed and painted as per Painting Specifications.

.06 4" x 4"s - Pressure treated 4" x 4"s shall be embedded into 12" of concrete when in ground contact, otherwise there will be aluminum post bottoms attached.

.07 Suspended Concrete Porch Slabs - Suspended concrete porch slabs shall have adequate metal piping, tin, etc. underneath to support the wet weight of the concrete. The concrete slab shall be a minimum of 4" thick and project approximately 1 1/2" beyond the foundation. The slab shall have a slope of approximately 1/4" per foot away from the structure. Concrete shall be reinforced with 10-10 wire mesh lapped 6". The finish on the slab and edges shall be a smooth trowel finish followed by a light broom finish. All structural contact is to be properly flashed.

.08 Decks - All wood material used for decks shall be pressure treated wood and all fasteners shall be galvanized. The complete outer band will consist of 2" x 8" and joists will be 2" x 6". Posts to be 4" x 4" embedded in 12" of concrete. Joists hangers or ledger strips shall be used for all joists ends. Joists shall be on 16" centers. Flooring shall be 2" x 6" or 5/4" thick deck plank. All nails shall be galvanized. Care shall be exercised during nailing of board ends to avoid split outs. Flashing is essential where house and deck meet, for attached decks. Deck construction must be in accordance with applicable code requirements.

.09 Railings - (a)Railing around top to have a 2" x 6" top plank with a 2" x 4" underneath top plank plus a second 2" x 4" located 3 1/2" above floor and 2" x 2" vertical pickets installed on 5" centers. (b)Railing around top to consist of a 2" x 6" top plank with three 2" x 4" horizontal side rails.(c)Install a 2" x 6" on edge extending approximately 2" above post tops for handrail type grasp. Edges of all handrails to be smooth and splinter free.

10. STEPS

.01 Wood Steps - Wood steps shall have two 2" x 6" treads, overhanging front of stringer 1" and side of stringer 1 1/2". Maximum rise to be 7 1/2". Use three stringers supported on 2" x 6" or a concrete footing at ground level. Wood shall be pressure treated Yellow Pine. Stringers to be 2" x 12" nominal size. Steps over 36" wide shall have an additional stringer. Steps shall have handrails as called for in the work write-up. A concrete footing for wooden steps may be omitted when 4" x 4" treated posts are used at each side of the bottom steps for railings and anchored in 12" of concrete.

.02 Pre-Cast Steps - Pre-cast steps shall have a 24" landing for the top step when there are 2 or more risers. Steps shall be free from all blemishes (No chips, etc...). Steps shall be installed on top of a 6inch by 6inch trench footing.

11. CHIMNEYS

.01 Removal - Haul off all debris. Replace any missing roof sheathing and/or framing. If existing roof shingles are to remain, patch in new shingles to match existing as closely as possible. Repair all disturbed areas from chimney removal-roof, ceilings, walls, floor, etc...Remove chimney(s) below roof line and when specified to the ground.

.02 Build or Rebuild - Masonry chimneys shall be constructed in accordance with the Building Code, of solid brick or block units supported on an approved foundation. Masonry chimneys shall be lined with fire clay tile liners or other approved liners that will resist corrosion, softening or cracking from flue gases. Clay tile flu liners shall be installed ahead of the construction of the chimney as it is carried up, using fire clay mortar with close fitting joints left smooth on the inside. Liners shall be separate from the chimney wall and the space between the liner and masonry shall not be filled. Masonry chimneys being rebuilt shall match as closely as possible the original work unless to be painted.

.03 Factory Built Chimneys - Factory built chimneys shall be installed in strict accordance with their listings and the manufacturer's instructions.

12. ROOFS

.01 Shingles Installed - Shingles shall be installed in accordance with manufacturer's instructions and all alignments of vertical slots and horizontal lines shall be in accordance with good workmanship practices. The starter course shall begin with shingles inverted. All valleys shall be closed valleys woven with shingles on an alternating pattern. The overhang for the starter and gable type ends shall be 3/4" to 1". Gable type ends shall be cut straight. Capping to be straight and in accordance with good workmanship practices. Defective shingles or shingles damaged during installation shall be replaced by the contractor prior to completion.

.02 Mushroom Ventilators - Mushroom type ventilators shall have throat openings of 9" to 10". Space as directed on roof near ridge of house. Air outlet shall be screened. Installed per manufacturers' instructions.

.03 Turbine Ventilators - Turbine ventilators to have throat openings. Space as directed on roof near ridge of house. Use manufacturer's base unit and install so as to make watertight. Air outlet shall be screened.

.04 Power Roof Ventilator - Power roof ventilator shall be installed on roof near ridge of house. Installation includes all flashing, wiring and adjustable thermostat. Motor must be permanently lubricated and thermally protected and have Underwriters Laboratories approval. Hood shall be constructed of aluminum or flame retardant ABS plastic. Air outlet shall be screened.

.05 Built-Up - Install one dry ply of #15 felt, and three plies of #15 felt mopped down and mopped together. Use approximately 100# of asphalt per square. Use 26 gauge galvanized iron flashing at all intersections of other roofs or walls. Install gravel stops in appropriate places.

.06 Roll Roofing - Use #15 builders felt with 2" top lap and 4" side lap. Roll roofing to be 90# mineral asphalt; choice of color by owner. Seams to be blind nailed and cemented with asphalt roofing cement. Install with aluminum or galvanized nails of size recommended by the manufacturer. Roofing to be turned and nailed at eaves and rake. Protect existing shrubs and building. Clean up and haul off all old roofing, nails, paper and etc.

.07 Flashing - Metal flashing shall be installed at chimneys and all junctions of roofs and walls, flashing shall be 26 gauge or thicker galvanized metal, treated with bonding agent and painted, or thicker aluminum with baked on enamel finish. All chimneys to be flashed and counter flashed. Counter flashing shall be keyed into masonry joints and base flashing shall be turned up under Counter flashing a minimum of 3". All flashing shall be sealed with 100% silicone caulk.

.08 Fiberglass Shingles - Fiberglass shingles to be 215#, self sealing, conforming to Federal Specifications SS-S-294 A Type 1 and SS-S-001534 Class A Type 1: furnish 20 year guarantee from material supplier. Install with galvanized or aluminum nails, of size recommended by the manufacturer. Metal eaves strip of 0.019" or thicker aluminum, shall be installed around the entire perimeter of the roof edge. The roofer shall seal all nail holes in shingles that are a result of hold down supports used due to steep pitch. Sealing shall consist of lifting the shingles and applying roofing cement or silicone caulk underneath the shingle. Protect existing shrubs and building. Clean up and haul off all old roofing, nails, paper, etc.

.09 Asphalt Shingles - Use #15 builders felt with 2" top lap and 4" side lap. Asphalt shingles to be sealing, conforming to Underwriters Laboratories, Inc. Standard UL 55B Class C; furnish 20 year guarantee from material supplier. Install with galvanized or aluminum nails, of size recommended by the manufacturer. Metal eaves strip of 0.019" or thicker aluminum, shall be installed around the entire perimeter of the roof edge. The roofer shall seal all nail holes in shingles that are a result of hold down supports used due to steep pitch. Sealing shall consist of lifting the shingles and applying roofing cement underneath the shingle. Protect existing shrubs and building. Clean up and haul off all old roofing, nails, paper, etc.

.10 Tin Roof - Tin roofing material will consist of 24" wide V-groove, 26 gauge or heavier panels in lengths appropriate for the least amount of seams. Appropriate fastening devices and all apparatuses' (ridge caps, valley flashing, etc..) shall be used in conjunction with roofing panels and shall be applied per manufacture's installation instructions.

.11 Plumbing Vent Boots - Plumbing vent boots shall be replaced with new that fit correctly. Exhaust fan vents, etc., that come through the roof shall be removed, reinstalled and resealed etc., as necessary to provide a first class job.

.12 Gable Venting: - (a) *Rectangular* - Gable venting to be pre-painted aluminum rectangular vents complete with screens. Size to be such to comply with building code requirements. (b) *A Type* - Gable venting to be A Type wood or aluminum with screen as specified in work write-up. Aluminum to be pre-painted. Vent size to be adequate to comply with building code requirements.

.13 Ridge Venting: - Ridge vent shall consist of the roll out fibrous or plastic shingle over vents, unless otherwise stated in the write up. Install per manufacturer's instructions.

.14 Under-Eave Venting - Under eave venting to be aluminum or pre-painted 8" X 16" vents(installed 8' apart), 2" continuous, or 2½" or 3" round (installed 32" apart) soffit vent. Install per NCBC.

13. ROOF TRIM

.01 Fascia Boards - Fascia boards shall be spruce, yellow pine, or fir. Only Grade B or better wood shall be used, conforming to American Softwood Lumber Standard PS 20-70 of the United States Department of Commerce. Rafter ends shall be trimmed as necessary before installation of fascia board so as to obtain a straight line. The fascia boards shall be nailed to the end of each rafter with two 8d galvanized or aluminum nails. Fascia boards shall be primed one coat of paint immediately after installation.

.02 Plywood Soffits - Soffits shall be 3/8" thick A.C. exterior plywood. Soffits shall be fastened to 2" x 4" lookout boards at each rafter with galvanized or aluminum nails. A smooth horizontal surface shall be maintained. Soffits shall be primed one coat of paint immediately after installation.

.03 Vinyl Soffits - Soffits shall be .035" thick vinyl with a pre-painted finish, Reynolds, Certainteed, etc.. or equal, rib or V-groove type. Color shall be selected by Owner, and have a minimum 50 year paint guarantee. Soffits shall be applied according to manufacturer's specifications. Nailing shall be with aluminum nails to 2" x 4" lookout boards at each rafter. Nailing shall be done in a manner so as to allow expansion and contraction of the soffit panels. A smooth horizontal surface shall be maintained. Pre-painted vinyl vented soffit shall be used to provide intake air for attic venting. Spacing of soffit venting panels shall be such to comply with code requirements. When required, openings shall be made in existing wood soffit prior to installing vented soffit. Contractor shall ensure that air vents are not obstructed by blocking or insulation.

14. GUTTERS AND DOWNSPOUTS

.01 Aluminum Gutters and Downspouts - Aluminum gutters and downspouts shall have a baked-on enamel finish with minimum 20 year paint guarantee, and shall comply with the Architectural Aluminum Manufacturers Association's latest Specifications for Aluminum Gutter and Downspout Systems, AAMA 1405.1. Gutters and downspouts shall comply with the standards for Roof Drainage Products, Commercial Standard CS 244-62 of the U.S. Department of Commerce. Use continuous lengths as much as possible. Use 2" x 3" rectangular downspouts spaced so as to adequately carry off water onto splash blocks. Securely fasten gutters and downspouts to house with aluminum hidden fasteners. Gutters shall have fasteners spaced at a minimum of 2' intervals. Rivet all joint connections with color coordinated rivets. Gutters shall be sealed on the inside with gutter sealant/adhesive.

.02 Steel Gutters and Downspouts - Steel gutters and downspouts shall have baked-on enamel surface (white) with 20-year paint guarantee. Gutters and downspouts shall comply with the standards for Roof Drainage Products, Commercial Standard Cs of the U.S. Department of Commerce. Use continuous lengths as much as possible. Use 2" rectangular or 3" round downspouts spaced so as to adequately carry off water. Securely fasten gutters and downspouts to house with approved anchors spaced not more than 48" apart.

15. EXTERIOR WALLS

.01 Hardboard Siding - Hardboard siding shall be 8" wide factory primed "Masonite" or equivalent and comply with the standards for Hardboard Siding PS 60-73 of the U. S. Department of Commerce. The bottom edge shall be at least 7/16" thick. Existing walls shall be made as even as possible by furring, blocking and cutting prior to application of hard-board siding. Vertical wood strips to be used at outside corners. Fasten siding with 8d galvanized or aluminum nails with 3/16" heads. Paint two coats, as per Painting Specifications.

.02 Aluminum Siding - Aluminum siding shall be "Alcoa", "Alcan", or equal and comply with the Architectural Aluminum Manufacturers Association latest specifications for Aluminum Siding, AAMA 1402.3. Color and style shall be selected by Owner, and shall have a minimum 20 year paint guarantee. Existing walls shall be made as even as possible by furring, blocking and cutting prior to application of siding. Siding shall be applied according to manufacturer's instructions. Install all necessary corners, angles, stops at windows, doors, etc., and all matching accessories to make a first-class job. Nailing shall be at approximately 16" intervals with aluminum nails; nails should not be driven tight.

.03 Aluminum Trim - Aluminum trim shall be "Reynolds", "Alcoa", "Alcan" or approved equal and complying with the Specifications for Aluminum Soffit and Fascia, Architectural Aluminum Manufacturers Association, AAMA1404.1. Color shall be selected by the owner. The prepainted finish shall have a minimum 20 year warranty. Aluminum stock to be a minimum of .019" thick. Includes all items where applicable such as fascia boards, eave or gutter boards, gable trim, window trim and sills, door trim, soffits, lower trim, etc. This item is meant to cover all exposed wood trim on the house. Perforated soffits shall be used at intervals designated by the Building Inspector. The installation includes all accessories, shims, leveling boards, etc. necessary to do a first class job. Prepainted aluminum nails shall be used to fasten aluminum trim. Caulk as necessary.

.04 Vinyl Siding - Vinyl siding shall be "Reynolds", "Certaineed", etc., or approved equal and shall comply with provisions of the National Bureau of Standards Voluntary Product Standard PS-55-72. Color and style shall be selected by the owner. Siding shall have at least a 50 year warranty. Siding shall have a minimum thickness of .040". Siding shall be installed over a minimum 3/8" Styrofoam insulation, the R value of this insulation board shall be no less than R-3.6. Existing walls shall be made as even as possible by furring, blocking and cutting prior to application of siding. Siding shall be installed according to manufacturer's instruction. Install all necessary corners, angles, stops at windows, doors, etc., and all matching accessories to make a first class job. Nailing shall be on approximately 16" centers. Nails shall not be driven tight. Nails shall be aluminum.

.05 Vinyl and Aluminum Products - Vinyl and aluminum products shall comply with the following:

Vinyl siding to be a minimum of .040" thick.

Vinyl soffit to be minimum of .035" thick.

Aluminum coil stock for wrapping shall be a minimum of .019 thick.

Guttering shall be a minimum of .027" thick.

All vinyl products shall carry a minimum 50 year warranty.
All prepainted aluminum products to carry a minimum 20 year warranty.

.06 Vinyl Trim - Vinyl trim shall be "Alcoa", "Bird", "Certainteed" or equal and shall comply with the provisions of National Bureau of Standards Voluntary Product Standard PS 55-72. Color and style shall be selected by Owner. Trim shall have at least a 50-year guarantee. Includes all items where applicable such as corner boards, fascia boards, eave or gutter boards, gable trim, window trim and sills, soffits, louver trim, etc. This item is meant to cover all exposed wood trim on house. Soffits shall have a minimum thickness of .035". Perforated soffits shall be used at intervals designated by the Building Inspector. Vinyl trim shall be installed strictly in accordance with manufacturer's instructions. All window trim, sills, casings, etc.. will be installed so as to require the minimum of caulking and not allow water to permeate into wood. Storm windows and doors are to be removed prior to breaking metal for trim so metal will be installed in its entirety. Caulk as necessary. Caulking used must be the type recommended by manufacturer and neatly applied.

.07 Plywood Panels - Plywood panels to be 303-6-W "premium" grade. Installation includes all trim, including window facings, band boards, corner boards and moldings; trim to be fir. Seal all plywood panel edges with water repellent preservatives compatible with finish before installation. Plywood panels to receive oil base stain with color to be selected by owner; contractor to provide owner with not more than three brush-out samples of stains.

16. DOORS

.01 Door Installation - Unless otherwise specified, work includes the removal of existing exterior door, jamb, etc., and the installation of a new prehung door unit insulated and shimmed. The new unit to be completely weather-stripped, primed and painted. Door stops installed. The door shall contain a new tumbler type lock-set. All new locks to be keyed alike. Installation includes all required repairs to the adjoining areas to be finished. Door to be complete with all required trim inside and outside. Doors for prehung units shall be owners choice of six panel or flush steel insulated door with or without glass in the top half portion.

.02 Standards - Solid and hollow core flush doors shall conform to the standards of the National Wood Manufacturer's Association IS-1 and have face panels of "Good" grade or better. Wood panel doors shall conform to Department of Commerce CS-120 and be Grade No. 1. Exterior doors shall be treated with a water-repellent preservative. If alteration of hollow core doors requires shortening the height to the extent that the bottom or top inside frame member must be removed, a new frame member must be properly installed in its place.

.03 Interior Doors - Interior doors shall be 1 3/8" thick. Interior doors shall be installed with two butt hinges 3 1/2" x 3 1/2" and passage locksets. Bathroom doors and bedroom doors shall be provided with "privacy lock" sets. Closet doors shall be provided with proper "passage lock" set. Door stops installed.

- .04 Exterior Doors (Solid Core) - Exterior doors shall be 1 3/4" thick, solid core, constructed of Ponderosa Pine or Douglas Fir. All exterior doors shall be provided with a "key in knob" lockset. All new locks shall be keyed alike. Doors shall be prime painted immediately following installation, then painted two coats as per painting specifications.
- .05 Interior Door Prehung Unit - Remove existing interior door, jamb and trim and replace with a new prehung unit, shimmed. Door shall be 1 3/8" thick hollow core. Doors shall be complete with locksets and doorstops.
- .06 Door Finishing - All door finishing shall consist of sanding after primer coat to provide a smooth surface prior to finish coats.
- .07 Metal (6 Panel) Door Unit - Work includes installation of insulated metal door unit, prehung in wood frame, installed according to manufacturer's instructions. Door to have self-sealing bottom door sweep and magnetic weatherstripping. Doors shall be hung on three 4" x 4" butt hinges and shall be provided with a tumbler type lockset, doorstop, and peephole. All new locks to be keyed alike. Doors and jambs shall be primed and painted two coats as per painting specification. Door to have an R factor of at least 14.5.
- .08 Exterior Wood Doors (6 Panel Design) - Exterior doors shall be 1 3/4" thick 6 panel design constructed out of Douglas Fir. (Flush Design) Solid core Lauan. All exterior wood doors shall be primed, painted, or sealed (to include all edges) immediately upon installation.
- .09 Exterior Doors with Glass. (Wood) Exterior doors shall be 1 3/4" thick fir door with insulated glass in the top half. (Steel) Door shall be insulated 1 3/4" thick with insulated glass in top half. All exterior doors shall be hung on three 4" X 4" butt hinges and shall be provided with a tumbler type lockset. All new locks to be keyed alike. Doors shall be prime coated immediately after installation, then painted two coats as per painting specification. All glass shall be clean and streak free.
- .10 Door Weather-Stripping - Door weather-stripping shall consist of an aluminum threshold with a vinyl insert and the three piece vinyl/aluminum-jamb up weather-stripping or in-jamb weatherstrip. The door strips and threshold shall be installed in such a manner to prevent air to enter around any portion of the door. The weather-stripping shall not be installed in a manner which will prevent the door from operating properly.
- .11 Doorstops - All doors shall have doorstops installed. Doors that have existing door stops that are in good repair need not be replaced.
- .12 Dead Bolt Locks - Dead bolt locks shall have case hardened rim and throw bolt at least 1" long. Locks on solid doors shall have thumb-turn on inside. Locks on doors with glass windows that can be reached shall be keyed on both sides(double cylinder) unless otherwise specified by Owner.
- .13 All Door Locks. All door locks to be kwikset or equal.

17. WINDOWS

.00 All windows shall be installed strictly in accordance to manufactures installation instructions. Insulation to be pressed into voids around the window jambs prior to installing window stops. Install new window stops. Window stops to be primed and painted as required to blend in with associated area. Caulk as required. All window glass shall be clean and streak free.

.01 Window Installation - Window installation includes frame, jambs, casing, stops, sashes, weatherstripping, glass and hardware, a complete job. Windows shall match existing windows in detail and dimensions unless otherwise specified. Vinyl windows shall be made of solid color vinyl, insulated glass, welded frames and sashes with mitered corners. Wood windows shall be made of Ponderosa pine, white pine or Douglas Fir in accordance with the National Woodwork Manufacturer's Association Standard NWMA IS-2. Prime windows immediately upon installation and follow with two coats of paint in accordance with Paint Specifications. All windows shall be shimmed and all voids are to be insulated. Supply all warranties.

.02 Vinyl Windows - (a)New Construction- Window installation includes jambs, frame, casing, stops, sashes, weatherstripping, insulated glass and hardware, a complete job. Vapor barrier shall be installed around the opening prior to new window installation. Windows shall match existing windows in detail and dimensions unless otherwise specified. Windows shall be double hung Simonton or approved equal, with welded frame and sash. (b)Replacement Type- Will be double hung with tilt-out sashes and half screens and inclusive of frame, casing, stops, sashes, weatherstripping, insulated glass and hardware, a complete job. Window will be Simonton 5300 Series or an approved equal (verify with Rehab CD Staff prior to installation if different).

.03 Wood Double Hung Window - Existing wood windows shall be completely removed and replaced with wood double-hung window units with half screens. Vapor barrier to be installed around the opening prior to new window installation. Install new trim. All exterior wood shall be primed immediately after window installation.

.04 Glass - Glass shall be single strength, clear, grade B conforming to Federal Specification DD-G-451 C. Putty shall consist of pure linseed oil, pure whiting, and at least 10% pure white lead, natural color. Glass shall be bedded in putty and secured in place with glazier points and face puttied. All excess putty shall be removed and all glass left clean. All glazing shall be done in such a manner to produce a first class-like new condition.

.05 Sash Installation - Sash installation includes new glass, resetting and repair of existing hardware. Window sash shall match existing window sash in detail and dimension unless otherwise specified. Windows shall be made of Ponderosa pine, white pine or Douglas fir in accordance with the National Woodwork Manufacturer's Association Standard NWMA IS -2. Prime windows immediately upon installation and follow with two coats of paint in accordance with Painting Specifications.

.06 Window Repair - Existing window repair shall consist of repairing, reglazing, repainting, etc., as required to restore the jambs, sills, sashes, glass, ropes, weather-stripped, etc., to a like

new condition. All sashes operate freely at completion of job. Any sash not repairable to a like new condition shall be replaced. All glass to be cleaned.

.07 Window Locks - All windows shall have window locks installed. Existing window locks that are in good repair need not be replaced.

.08 Replace Wood Sashes - Remove all existing sashes, ropes, pulleys, etc., and replace with wood sashes of the same window configuration. Sashes to be mounted in white aluminum weather-strip channels (Quaker or equivalent). Weatherstripping channels to be installed in accordance with manufacturer's instructions. Tension to be such that sashes will operate freely and stay in any open position without moving on their own. Prime all sashes before installation.

18. STORM AND SCREEN DOORS

.01 Storm doors shall be solid core Larson or an approved equal. Installed strictly to manufactures instructions. Extruded door stiles shall be a minimum of 1 1/4" thick for three hinge, with top rail and stiles a minimum of 1 1/2" wide. Doors shall be fully weather-stripped. Doors to be self-storing type with screens. Storm door glazing shall be tempered glass. The specification includes installation of all hardware including latch lock, hydraulic closer, and check/safety chain. Storm doors shall conform to the latest specifications of the Architectural Aluminum Manufacturer's Association AAMA 1102-6 (ANSI-A134.4). Storm doors to be furnished in white or brown aluminum. Owners choice of color. Supply warranty.

19. STORM WINDOWS AND SCREENS.

Aluminum storm windows with screens shall be of the triple-track type, fully weather-stripped and inter-locking inserts. Frame shall be of extruded aluminum. Storm window glazing shall be B quality or better. Screening shall be aluminum wire, 14 X 18 or finer mesh size. Windows shall be capable of being locked in at least four positions. The specification includes installation according to manufacturer's specifications, including caulking with the exception of weep holes. Storm windows with screens shall conform to the latest specifications of the Architectural Aluminum Manufacturer's Association AAMA 1002.8 (ANSI-AI34.3). Storm windows shall be furnished in white, bronze brown or anodized aluminum. Owner's choice of color. Sashes of each storm window shall operate freely after installation without evidence of binding. The contractor shall remedy the problem if binding occurs. Storm windows must have three (3) removable inserts from the interior of house. Any other type must be approved by owner and CCCD. Storm window sashes shall be in the correct positions at completion of job, i. e. outer sash to be at the top, etc.

20. GYPSUM WALLBOARD (Drywall)

.01 Gypsum Wallboard - Wallboard shall be gypsum wall-board with tapered edge plain complying with American Society of Testing Materials Standard C-79. Wallboard shall be

installed at right angles to the supporting structural members in as long a length as possible. Wallboard shall be nailed with 1 1/4" long annularly threaded nails or drywall screws having heads at least 1/4" indicate. Nails or screws shall be driven with their shanks perpendicular to the face of the board and seated below the surface of the board without breaking the paper. Nails/screws shall be driven at least 3/8" from panel ends and edges. Use double nailing(or screws), with pairs of nails spaced 12" on center and 2" apart. Use single nailing(or screws) around the perimeter of the panel, space 7" on center. Joint tape and compound shall conform to American Society of Testing Material Standard C-475, Treatment Materials for Gypsum Wallboard, and be applied according to manufacturer's specifications. A minimum temperature of 55 degrees F. shall be maintained in the room where the work is done until the cement is completely dry. Over joints the tape shall be embedded in joint compound and covered with a thin layer of cement; a second and a third coat shall be applied. Each coat shall be dry before applying the next coat. Each coat shall be feather-edged and extended beyond the previous coat approximately 2". The finish coat shall be sanded lightly and any imperfections filled in prior to any painting or decorating. Caution shall be used to avoid roughening of the wallboard surface. Cover nails with three applications of joint compound, allowing time to dry between each coat. The final coat shall be sanded lightly before application of paint or other decoration. Inside corners shall be reinforced with tape embedded in joint compound. Outside corners shall be protected by galvanized wallboard corner beads for finishing with joint treatment. Corner beads shall be finished with a minimum of three coats of joint compound. Extend electrical outlets and switch boxes to accommodate gypsum wallboard. Unless otherwise specified, Existing window, door and baseboard trim shall be left in place, and gypsum wallboard shall be carefully abutted thereto.

21. PLASTER

.01 Ordinary Plaster - Apply plaster and nail securely if lath is in sound condition. Wood lath shall be wetted down prior to applying plaster. If lath is in poor condition, remove and replace with expanded metal lath. Use 4-mesh rib lath, installed according to manufacturer's directions. Nail to studs or block out with 2" x 4" lumber as needed. Fasten with 4d nails spaced approximately 6" center to center. Gypsum plaster materials shall be standard commercial brands. Mix and application of gypsum plasters shall be in accordance with American Standards Association No. A42.1, American Standard Specifications for Gypsum Plastering. Apply plaster in 3 coat or in 2 coat double up work minimum thickness 1/2".

.02 Flexi-Wall - "Faster Plaster" and/or "Plaster in a Roll" shall be installed by skilled, experienced commercial wall covering applicators or factory trained Flex-Wall System applicators. Remove all burrs or protrusions, fill all cracks wider than 1/2" with gypsum plaster material and then apply wall finish in strict accordance with manufacturer's directions. Install each roll in sequence and each strip in same sequence as cut from roll. Butt seams or double cut on wall. Always bring material around outside corners. If inside corners are straight and true, material may also be brought around the corner. Be sure to force Flexi-wall into corner to prevent spanning. Should any problems be encountered during installation, do not proceed. Notify the CD Staff immediately. Workmanship must be inspected as work proceeds. Adequate

lighting shall be provided during installation. All adhesive shall be removed from adjacent surface of walls, floors, ceilings, etc.

.03 Plaster Repair - Repairs to cracked and damaged plaster shall be made as follows:(a) If the plaster "key" system has been damaged, drill into the damaged area with a ½" drill creating a 6" o.c. grid pattern. Apply P.V.A. (Polyvinyl Acetate) to the holes, then plug with canvas wadding soaked with a lightweight PVC Plaster. (b) Cracks shall be cut out removing all loose material, brushed thoroughly and sealed with P.V.A. before applying plaster repair. Fiberglass tape shall be used as necessary to effect an acceptable repair. (c) Holes shall be cut smooth around the edge taking care to splay the cut so the new patch will act as a dove-tailed plug. The edge of the old plaster shall be sealed with PVA before the plaster repair is applied. (d) All repairs shall be made flush and feather edged into the surrounding area.

22. WALL PANELING

.01 Paneling - Prefinished plywood paneling shall conform to the standards of the United States Department of Commerce PS 51-71 for the Hardwood and Decorative Plywood, and have a Class C flame spread rating. Paneling composed of a particle board backing shall not be used. Simulated wood grain on lauan backing or on hardboard backing must be approved by the CCCD prior to use. Paneling shall be installed in accordance with manufacturer's specifications. When nails are used, the nails shall be spaced 6" apart at edges and 12" apart elsewhere. Paneling shall be started and worked out in a manner to allow edges to hit stud centers. Use prefinished, color coordinated nails to match paneling. If adhesive is used, apply with a caulk gun. All inside corner trim not permitted unless specified in the Work Write-Up. Outside corners shall be finished with pre-finished molding or molding stained to match paneling. All paneling in a given room shall be full widths (4') panels except finish up corners may differ. Piecing of vertical heights less than 8' not acceptable. Wall stud locations shall be located to allow paneling to start and stop on stud centers. Whenever this is not possible, the start and stop vertical sides of panel shall be glued and nailed.

.02 Trim Removed and Saved - All trim for doors, windows, crown molding, baseboard, etc., shall be carefully removed and saved for reuse. Paneling shall be installed so it will fit under all trim. Add spacers of basswood the same thickness of the paneling around all window and door jambs. Reinstall all trim that is in good repair. Trim that is damaged shall be replaced with trim of the same size and configuration.

.03 Trim Removed and Discarded - All trim for doors, windows, crown molding, baseboard, etc., shall be removed and discarded. Paneling shall be installed so it will fit under trim. Add spacers the same thickness of the paneling around all window and door jambs. Install new door trim, crown molding, baseboard and shoe molding as applicable.

.04 Room Over 8' High. The acceptable method of paneling a room that is over 8' high shall be as follows: Install the 8' lengths as the first bottom panel, install short pieces of paneling at the top. Care shall be exercised to insure that all grooves line up and panel finish pattern is

consistent. The horizontal mating line of the paneling shall be covered with wood trim such as mull casing. Trim shall be finished in the same manner as other trim in associated room(s).

23. WALLPAPER

.01 Wallpaper shall be fabric backed solid vinyl or vinyl laminated to paper. Use paste specified for use by the manufacturer of the wallpaper. Apply according to standard practice, including joining of seams. Paper shall be carefully trimmed where it meets all adjoining surfaces. Carefully match patterns at all seams. Surfaces to be covered by wallpaper shall be properly prepared in accordance with manufacturer's instructions prior to application of wallpaper. All seams and edges to be rolled with roller and all excess paste to be removed with a sponge. A seam sealer for all seams shall be used at completion of bathroom installations. Seam sealer should also be applied in kitchen areas close to source of steam such as stove top and sink. Use wallpaper with the same lot numbers.

24. WATER RESISTANT WALL AND FINISHES

.01 Tileboard - Tileboard is to be installed according to manufacturer's specifications. Glue to waterproof underlayment using a waterproof adhesive meeting the requirements of American Society of Testing Materials Specification C-557-65T. No nails or other fasteners to be used to attach panels to underlayment.

.02 Trim - Trim with plastic molding available from the manufacturer. Use trim at corners, edges, and all joints.

.03 Tile - Tile to be 4 1/4" x 4 1/4" x 5/16" glazed finish, standard grade as defined by the American National Standards Institute A 136.1 and applied according to manufacturer's instructions. Grout all joints using latex, epoxy or mastic material, use grout sealer after applying grout. Clean up all surfaces after installation.

.04 Tub Enclosure Units - Tub enclosure units shall be 1/16" or thicker molded fiberglass, consisting of three panels with integral soap dish. Units shall be installed strictly in accordance with manufacturer's recommendations except the installer shall use a minimum of two (2) additional tubes of adhesive.

25. CEILINGS

.01 Tile - Install 1" x 4" pine furring strips spaced 12" on center; fasten to each joist with two 8d or longer nails. Shim furring strips as necessary to provide a level surface. Install 12" x 12" thick mineral fiber or wood fiber tile, similar to Armstrong "Cushion-tone". Tile to have Class C flame resistance. Tile to be white or off-white, with surface pattern to be selected by Owner. Tile to have tongue and groove edge, to be blind stapled to wood furring in accordance with

manufacturer's recommendations. Lay out ceiling tiles so that the border tiles on all sides of the room are of equal width. Install 3" wide molding to produce finished ceiling job.

.02 Suspended Ceiling - (a) Suspension grids shall be of the inverted "T" type. Grid shall be 2' x 4' or 2' x 2' with longitudinal dimension of tile running longitudinally with room. Use "L" type wall angles on all walls, nailed to each stud. Use splice plates at all splices of tees. Fasten screw eyes to joists, with spacing not to exceed 48", and hang tees using 12 gauge or thicker annealed wire. Install cross tees to fit panels. Ceiling should be hung as close to old ceiling as possible, with net height after installation to be not less than 7' - 6". Tile to be white or off-white, with surface pattern to be selected by owner.(b) Concealed suspension grids shall be of the type that does not show after the installation of the tile, similar to Armstrong "Intergrid Installation System". Grid shall be of 1' x 4'.

.03 Sheetrock - Install 1" x 4" furring strips spaced 16" on center at right angles to joists; fasten to each joist with 8d or longer nails. Shim as necessary to provide a level surface. Install gypsum wallboard and finish per specification 20.01.

.04 Lowered Ceilings - Lowered ceilings shall be framed out of #3 SPF or better sized according to the building code span table. A band joist shall be installed around the perimeter of the room to allow no less than 7' 6" finished ceiling height. The band joists shall be securely nailed to the wall studs. Joist hangers shall be provided for each ceiling joist. Ceiling joists shall be spaced 16" o.c. Gypsum Board shall be installed in accordance with specification 20.01.

.05 Blown Textured Ceilings - Add paint to stipple material at the rate of 1 gal. per bag of mix. On blown textured ceilings Kilz (or equivalent) shall be used as a primer.

26. VINYL FLOORING

.01 Underlayment - Underlayment shall be 1/4" thick lauan plywood and shall be nailed with steel flat countersunk headed screw type nails or screws, slightly recessed and spaced not more than 6" center to center along panel edges and not more than 6" center to center along panel interior (peg board pattern). Fill and sand underlayment so as to provide a smooth, even base.

.02 Vinyl Flooring - Color and pattern of cushioned sheet vinyl flooring to be selected by owner. Flooring to go under all fixtures unless otherwise specified in work write-up. Before spreading adhesive, be sure underlayment is completely clean and dry. Use water resistant adhesive recommended by flooring manufacturer and apply in accordance with manufacturer's instructions. Cushioned sheet vinyl flooring shall be laid in a manner which will minimize the need for seams. Seams shall be placed in inconspicuous locations, away from heavy traffic areas. All seams shall be in accordance with manufacturer's instruction and seams to be sealed using seam-sealer recommended by manufacturer. Seams in the standard running length of any vinyl shall not be permitted. Fitting and cutting shall be done carefully so as to produce a workmanlike job. Use aluminum edge trim at doors. All doors requiring cut-off after vinyl installation shall be cut off carefully without splintering or damaging the door. Appliance

removal and replacement for installation is the responsibility of the contractor to insure no gouges or tears before homeowner acceptance.

.03 Shoe Molding - Install new 3/4" round shoe molding, which shall be prime/painted or stained prior to installation. Miter or cope all corners and joints. After installing new 3/4" round, set and fill nail holes and touch up as required. Reinstall any fixtures or appliances. Extreme care shall be exercised when reinstalling appliances to avoid rips or tears in vinyl. Thoroughly clean floor of any adhesive.

.04 Contractor(s)' Responsibility - Contractor is responsible for all floor covering until the job is accepted by the CD Staff, and therefore, it is recommended that vinyl and carpet installations be the last item installed. Any damage to vinyl flooring or carpeting prior to acceptance of job by owner and CCCD shall be corrected by the contractor to the satisfaction of owner and CCCD.

.05 Vinyl Composite Tile - Color and pattern of vinyl composite tile shall be selected by Owner. VCT shall go under all fixtures. Before spreading adhesive, be sure underlayment is completely clean and dry. Use water resistant adhesive recommended by flooring manufacturer and apply in accordance with manufacturer's instructions. Tile shall be carefully laid out so that the first row of tile on the opposite sides of each room are of the same width. Lay tile straight and true. Fitting and cutting shall be done carefully to produce a professional job. Install rubber cove base or new 3/4" round shoe molding, which shall be primed/painted or varnished prior to installation, as specified. Miter or cope all corners and joints. Touch up as required after installing shoe moulding. Reinstall any fixtures or appliances removed during installation.

.06 Concrete Floors -Remove grease, dirt, and other substances from concrete base. Patch all cracks, holes, or other irregularities using a mastic underlayment containing portland, gypsum or aluminous cement with a chemical binder such as latex, asphalt or polyvinyl acetate resins. Trowel to a smooth, hard finish. After patches are completely set, prime concrete in accordance with manufacturer's recommendations.

27. CARPETING

.01 Carpet Padding and Carpet - Carpet padding and carpet shall comply with FHA standards UM-44A, "Use of Materials" for moderate traffic areas as follows: (a)Padding shall be 1/2" thick-6 lb. rebond padding. (b) Carpet shall be FHA approved Hi-Low (sculptured) or plush nylon with a minimum pile yarn weight of 28 ounces per square yard. Owner's choice of carpet. Use tack strips along all walls. Cut off doors as necessary to clear carpet. Care shall be exercised when cutting off doors to prevent splintering or damage to the doors. Install metal carpet strips where carpet abuts other types of flooring surfaces. Carpet to be installed in closets of rooms where carpet is specified. All laying to be done by professional carpet installers. Seams shall not be permitted in the standard running length. Carpet shall be laid in such manner which will minimize the need for seams. Any seams shall be placed in inconspicuous locations, away from heavy traffic areas. Install 1/2" thick particle board where underlayment is to be used. Nail

particle board with 6d nails, flush, and spaced not more than 8" center to center in middle of each panel and not more than 6" center to center around perimeter; keep nail at least ½" from edges.

NOTE: Measurements shown in the work write-up constitutes square footage based on room dimensions. The contractor must make all allowances for carpet waste.

28. HARDWOOD FLOORS

.01 Polyurethane Finish - Set all exposed nail heads to recess below wood surfaces. Sand floors to remove existing finish, using fine sandpaper for final sanding. Carefully vacuum to remove all traces of dust before applying finish. Apply polyurethane finish in two coats, sanding between coats. Allow ample time to dry between the first and second coat.

.02 Floor and Deck Enamel - Scrape and sand entire floor area to remove all loose paint. Renail as required. Set nail heads, fill all holes, and sand floor(s). Apply primer to all bare areas. Apply two (2) coats of floor and deck enamel to entire floor.

.03 Tung Oil - Thoroughly clean floors with mineral spirits and/or TSP. Set all exposed nail heads. Finish with a tung oil based varnish and wax.

29. PAINTING

.01 Exterior Wood Surfaces - Exterior wood surfaces shall be thoroughly scraped and sanded to remove loose, cracked and scaly paint, and rough spots. Where previous paint coats have chipped and peeled, the edge shall be sanded down to obtain a smooth surface before new paint is applied. Thoroughly wash siding before painting. Scrub any mildewed areas, using a solution of trisodium phosphate. Spot prime any bare wood with an oil based primer prior to painting.

.02 Asbestos Shingles - Asbestos shingles shall be thoroughly scraped to remove loose, cracked and scaly paint and rough spots where previous paint coats have chipped and peeled. Shingles shall then be scrubbed with a solution of trisodium phosphate and thoroughly rinsed.

.03 Exterior of Windows - Before painting the exterior of windows, remove loose or shrunken glazing compound or putty. Thoroughly clean the rabbet, and apply one coat of primer. After primer is dry, reglaze per specification number 16.02.

.04 Reset Loose Nails. - Reset any loose nails, fill holes with putty and sand. Caulk all windows and doors with silicone or butyl type compound. Use caulking gun and apply uniformly.

.05 Masonry Surfaces - Masonry surfaces shall be painted shall be scraped and wire brushed prior to painting.

.06 Metal Surfaces - Metal surfaces to be painted shall be scraped and wire brushed prior to painting..

.07 Interior Walls - Drywall or plaster interior walls to be painted shall have cracks and indentations filled with spackling or joint compound, and then lightly sanded to provide a smooth surface before painting. Painting includes all closets serving rooms to be painted.

.08 Interior Wood Surfaces - Interior wood surfaces shall be cleaned of all grease and dirt using a mild alkaline such as TSP; rinse thoroughly. Remove all loose, blistered or otherwise defective paint where previous paint coats have chipped and peeled, the edge shall be sanded down to obtain a smooth surface before new paint is applied. Fill in all cracks and other minor irregularities, sand thoroughly, and prime all bare wood. Special care shall be used when applying a new coating over an enamel surface so as to secure proper adhesion.

.09 Paint Quality - All paint and other finished materials shall be of best quality as shown in Table A or of equal quality if some other brand is used. All paint shall be delivered to site in manufacturer's sealed containers. Each container shall be labeled, giving manufacturer's name, type of paint, color and instructions. Paint shall be used without thinning. Paint to be applied in dry weather, to dry surfaces within an air temperature of 50 degrees to 95 degrees F. Finished work shall be uniform, of approved color, smooth and free from runs, sags, defective brushing and rolling. Make edges of paint adjoining other materials or colors sharp and clean. Only use solvents or thinners of type and in quantity recommended by paint manufacturer.

.10. Areas Not Being Painted - All areas not being painted shall be protected at all times with drop cloths. Any surfaces or property damaged by painters shall be repaired or replaced. All window glass shall be left clean and free of paint. Windows shall be in operable condition.

.11. Color Selection - Before proceeding with painting, color samples shall be shown to the owner for selection. Only premixed colors shall be used. Only one wall color, one trim color, and one ceiling color shall be designated for each room.

.12. Contractor(s)' Responsibility - Contractor shall be responsible for sealing any greasy or soiled surfaces prior to painting as necessary to prevent any bleeding effect. This is to include sealing and painting wall paneling when specified in write up.

.13. Lead-based Paint Prohibition - The use of lead-based paint for any application is absolutely prohibited. Lead-based paint means any paint containing more than six one hundredths of one percent lead by weight (calculated as lead metal) in the total non-volatile content of the paint or the equivalent measure of lead in the dried film of paint already applied.

ACCEPTABLE PAINTS BY BRAND NAME

TYPE	PITTSBURG	GLIDDEN	SHERWIN WILLIAMS
FLAT CEILING PAINT	CEILING WHITE 50 SERIES	CEILING WHITE 3200 SERIES	C99 CEILING WHITE
LATEX INTERIOR FLAT WALL PAINT	WALL HIDE 8 SERIES	SPRED - SATIN 3400 SERIES	C99 FLAT LATEX
ALKYD SEMI-GLOSS TRIM ENAMEL (INTERIOR)	WALL HIDE 27 SERIES	SPRED-LUSTER	C99 ALKYD SEMI-GLOSS ENAMEL
VARNISH	REZ 77 SERIES	WOODMASTER	S/W OIL BASE VARNISH
ALKYD GLOSS FLOOR ENAMEL	PPG PORCH AND FLOOR ENAMEL 3 SERIES	FLOOR ENAMEL 842 SERIES	POLYURETHANE OR OIL BASE ENAMEL
EXTERIOR OIL BASE PAINT	PPG EXTERIOR OIL 1 SERIES	GEL-FLO	SWP ALKYD ENAMEL
METAL ENAMEL	PPG ENAMEL 54 SERIES	GLID-GUARD	INDUSTRIAL ENAMEL
LATEX EXTERIOR SEMI-GLOSS TRIM	PPG SUNPROOF 78 SERIES	SPRED-GLOSS 3900 SERIES	A-100 GLOSS HOUSE & TRIM

The Brands omitted from the above list does not indicate that other brands are not acceptable; however, brands not listed above must be approved by the owner and CCCD prior to use.

NOTE: The use of lead-based paint for any application is absolutely prohibited by federal law.

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

TYPE	PRIMER	MIN. COATS	FINISH	MIN. COATS*
INTERIOR WALLS & CEILINGS	OIL/LATEX PRIMER	1	LATEX FLAT/SEMI-GLOSS WALL PAINT	2
INTERIOR TRIM	ENAMEL UNDERCOAT	1	ALKYD SEMI-GLOSS ENAMEL	2
CLEAR FINISH	CLEAR WOOD SEALERS	1	CLEAR WOOD FLOOR ENAMEL	1
PAINTED WOOD FLOORS	ENAMEL UNDERCOAT	1	ALKYD GLOSS FLOOR ENAMEL	1
WOOD SIDING	OIL EXTERIOR PRIMER	1	OIL BASE EXTERIOR PAINT	2
GALVANIZED STEEL	ZINC CHROMATE	1	ALKYD TRIM ENAMEL	2
IRON	ZINC CHROMATE	1	METAL ENAMEL	2
MASONRY	ALKLI RESISTANT PRIMER	1	PORTLAND CEMENT POWDER PAINT	AS SPECIFIED
CONCRETE FLOORS	NONE		ALKYD GLOSS ENAMEL	2
KITCHEN & BATHROOM WALLS	LATEX PRIMER	1	ALKYD SEMI-GLOSS ENAMEL	2
EXTERIOR TRIM	OIL EXTERIOR PRIMER	1	OIL BASE EXTERIOR PAINT	2

*ADDITIONAL COATS MAY BE REQUIRED SO AS TO PROPERLY COVER ALL SURFACES.

30. ATTIC ACCESS

1. Scuttle Hole - Provide framing for a 24" x 30" attic access and install necessary trim for a 3/4" AC plywood drop-in cover. Prime all wood surfaces, then paint two coats semi-gloss enamel, with color to match ceiling.

.02. Attic Stairs - Attic stairs shall be made of kiln-dried clear pine. They shall have two metal support arms and wood handrail. Hinges shall be concealed. Steps shall have steel spring counterbalances. Install and trim with 11/16" x 2 1/2" casing molding with mitered corners. Prime all wood surfaces, then paint two coats semi-gloss enamel, with color to match ceiling.

31. INSULATION

.01 Ceilings - A thermal resistance factor of R-30 in ceilings will require the following thicknesses of insulating material:

<u>MATERIAL</u>	<u>THICKNESS</u>
Fiberglass (Batts)	9 1/2"
Fiberglass (Blown)	13"
Rock Wool	10"
Cellulose	8"
Vermiculite	13 1/2"

.02 Walls - A thermal resistance factor of R-13 in walls will require the following thicknesses of insulating material:

<u>MATERIAL</u>	<u>THICKNESS</u>
Fiberglass (Batts)	3 1/2"
Mineral Wool	3 1/2"
Cellulose	3 1/2"
*Foam	1 1/2"

***Liquid foam insulation is prohibited**

.03 Floor - A thermal resistance factor of R-19 under floor will require the following thicknesses of batt insulating material:

<u>MATERIAL</u>	<u>THICKNESS</u>
Fiberglass	6
Mineral Wool	6 1/2"

Batts shall have barrier installed to warm side of house.

.04 All Insulation - All insulation shall be installed according to manufacturer's specifications, local ordinances, and NCBC.

32. INTERIOR TRIM

.01 All interior trim shall be Select or Better Grade White Pine or Poplar. Millwork shall be accurately milled with clean-cut molding and profiles. Millwork shall be planed, scraped and/or mill sanded to produce proper surface for painting or varnishing. All joints shall be carefully fitted, with mitering of external angles and coping of internal angles. Use 8d finish nails to fasten door and window casings, aprons and baseboards. Use 1 ½" casing nails or brads to fasten door and window stops. Stools shall be blind nailed at the ends with 8d finish nails so that the side casings will conceal the nailheads. Finished nails shall be properly set and holes filled with wood putty or plastic wood. Millwork with hammer indentations will not be accepted. Trim to be stained shall not be finger-joint.

33. PARTITIONS

.01 Construction - Framing to be 2" x 4" studs, sole plates and double headers with not more than 19% moisture content. No. 2 dimension Douglas Fir, construction grade or Southern Yellow Pine No. 2, spaced not more than 16" on center. Cover with ½" thick gypsum wallboard on both sides unless otherwise noted. Tie into existing walls and ceiling with joint tape and compound. Install base and shoe mold to match existing base and shoe mold in remainder of room. Install ceiling mold to match existing ceiling mold in remainder of room..

.02 Clothes Closets - Install 12" deep shelf with a minimum of 8" clear space above shelf in clothes closets. Install 1 ¼" wood rod for closets with rod and shelf supports with a minimum of 2" clearance below shelf. Minimum of 2' X 3' inside measurement. Paint shelves with semi-gloss paint.

.03 Linen Closets - Install five 12" deep shelves spaced approximately 12" on center in linen closets. The bottom shelf shall be between 18" and 24" above the floor and the top shelf shall have at least 8" of clear space above the shelf.

.04 Relocation or Removal - Any relocation or removal of partitions includes the relocation and/or removal of all piping, plumbing fixtures, and electrical wiring.

34. CABINET WORK

.01 Cabinets - Must comply with the requirements of the American National Standards Institute ANSI A161.1 "Recommended Minimum Construction and Performance Standards for Kitchen Cabinets". Cabinets shall be installed level, plumb and true, in accordance with manufacturer's specifications. Cabinets shall be attached with screws to studs or other framing members. Trim out all joints between cabinets and wall and ceiling with pre-finished trim. All new cabinets shall be color matched. Cabinets shall be of the "Estate" series as manufactured by Woodstar or an approved equal.

.02 Medicine Cabinets - Must conform to U.S. Commercial Standards CS 27- Cabinets shall have at least two glass shelves. If lighting is specified, Contractor's price shall include all wiring. Fluorescent lights shall be complete with plastic diffusers, bulbs and grounded outlet. Lighting fixtures must carry Underwriters' Laboratories approval label.

.03 Custom-Made Cabinets - All custom-made cabinets shall have 1"x 2" basswood stiles. Door and drawer fronts to be 3/4" birch veneer with lipped edges. All drawers to be mounted on center slides. Exposed base or wall cabinet ends shall be of 3/4" birch veneer. Base cabinet kickspace to be approximately 4" high by 3 1/2" deep. Base cabinets shall be approximately 24" deep. Door hinges to be self closing type. Door and drawer pulls to match hinges. Base cabinet bottom to be of 3/4" AC exterior plywood. Base cabinet shall be approximately 36" high including countertop. Wall cabinets that are 15" to 29" high shall have one shelf plus top and bottom of cabinet. Wall cabinets that are 30" or more tall shall have two shelves plus top and bottom. Base cabinets shall contain shelving except beneath the sink area. Shelving for wall cabinets to be 1" x 12" nominal shelving free of knot holes, shelving for base cabinets shall be 1" x 12" nominal shelving free of knot holes or 3/4" BC plywood. If plywood is used, the front edges shall be covered with a thin piece of wood. Cabinet backs shall be 1/4" lauan. Glue used in cabinet construction shall be water resistant.

.04 Care During Construction - Care shall be used during construction of cabinets to avoid nail splits, use of defective wood, allowing glue to get on surfaces that will be stained later, using dark and light veneers on fronts, etc. Any filling required for stained cabinets shall be applied after the cabinet has been stained and dried.

.05 Cabinets Installed - Cabinets shall be installed level, plumb and true. Cabinets shall be attached to studs or other framing members with screws. Trim out all joints between cabinets, wall, and ceiling with trim.

35. COUNTERTOPS

.01 Countertops Post Formed - Countertops shall be post formed laminated plastic with back splash. Counter top to be approximately 25" deep including back splash. Unfinished exposed ends shall have commercial laminated end caps (of same color and design) installed in accordance with manufacturer's instructions. When counter tops exceed 12' long and two pieces must be used the joint shall not be close to the sink area.

.02 Countertops Custom-Made - Custom-made countertops shall be made using 3/4" thick AC plywood with 3/4" thick by 4" high backsplash. The front edges and ends when required, shall be approximately 1 1/2" thick including the 3/4" plywood top. Countertop, back splash, front edge and any exposed ends shall be covered with 1/16" thick plastic laminate. The plastic laminate shall be installed with contact cement in accordance with manufacturer's instructions. When counter tops exceed 12' long and two pieces must be used the joint shall not be close to the sink area.

36. HANDICAP FACILITIES

Rails - Must be stainless steel, 1 ½” outside diameter. Rails shall be mounted parallel to floor, with 1 ½” clear space between rail and wall. Rails shall be fastened to support 250 lb load. Mounting heights and length shall be in accordance with the State Building Code and in ADA compliance.

37. PLUMBING

.01 Plumbing Fixture and Materials - Plumbing fixtures and material shall comply with and be installed in accordance with the North Carolina State Plumbing Code (ONLY UNITED STATES MADE FIXTURES PARTS AND MATERIALS SHALL BE USED UNLESS PRIOR APPROVAL IS GIVEN). All piping shall be installed in a manner which will not cause serious damage to structural members. Waste lines shall be PVC plastic pipe with compatible fittings; use solvents recommended by pipe manufacturer. Sewer lines when replaced shall be PVC piping. Water lines shall be type L hand drawn with wrought copper fittings; use non-lead based solder with non-corrosive flux. Water lines may be neoprene in lieu of copper.

.02 Water Heater - Water heater shall have a glass lined tank or a vitreous porcelain enamel tank lining, blanket type glass fiber insulation, drain valve, temperature and pressure relief valve. Water heater shall have a minimum 40 gallon capacity and a 5 year warranty, and be equal to that manufactured by Enviro-Temp, Rheem, or G.E.. Upright types installed inside of house shall have extension piping added to the relief valve to direct relief to underneath house. Low-Boy types that can be mounted under the structure shall be placed on a 4” thick concrete slab. All water heaters shall be the Energy-Miser dual element type. Provide all electrical, venting, gas or plumbing connections to the water heater as applicable.

.03 Kitchen Sink - Kitchen sink shall be a dual basin stainless steel sink with 7” deep bowls complete with basket strainers. Sink shall comply with U.S. Commercial Standard CS 243-62. Mount sink to countertop with fitting as recommended by manufacturer. This item includes new piping and trap under sink..

.04 Single Lever Sink Supply - Single lever sink supply fitting shall have at least 8” long swing spout, aerator and lever control sprayer. Sink supply fitting shall be Delta 400 or equivalent. Fittings whose principle components are plastic shall not be used.

.05 Washing Machine - Washing machine supply and drain unit shall have outlet box as manufactured by Guy Gray Manufacturing Company or equal. Model BE-200 with duplex electric receptacle, including all electric wiring.

.06 Hose Bibbs - Hose bibbs shall be of the frost proof type with back siphonage protection, Woolsford 14 CP or equivalent.

- .07 Lavatory - Lavatory to have overflow and polish chromium plated metal frame. Lavatory to comply with US Commercial Standard CS 20-63. Color to be white. This item to include trap and piping under sink.
- .08 Lavatory Faucet - Lavatory faucet to have aerator. Lavatory supply and indirect lift waste fitting to be chrome finish, Delta 520, 522.524, 525 or equivalent.
- .09 Commode - Commode shall be complete with seal, supply line with valve and all other fittings. Commode to be of siphon jet type, free standing, close-coupled closet combination, vitreous china complying with Commercial Standard CS 20-63. Commode to be Mansfield or equivalent. Color to be white.
- .10 Toilet Seat - Toilet seat to be high quality solid plastic, equipped with removable and replaceable bumpers. Hinges to have internal metal post reinforcement. Color of toilet seat to be white.
- .11 Cast Iron Tub - Cast iron tub to have slip resistant surface. Color to be white. Tub to American Standard "Bidder", Kohler "Dynametric" or equal. Bath and shower faucets and fittings to be chrome finish. Shower shall be operated by a diverter spout. Type to be Delta 635 or equivalent. If new fittings are installed in lavatory, they shall be of the same design and style as those of tub.
- .12 Enameled Steel Tub - Enameled steel tub to be American Standard "New Salem", Crane "oakbrook" or equal. Color to be white. Shower shall be operated by a diverter spout. Type to be Delta 635 or equivalent. If new fittings are installed in lavatory, they shall be of the same design and style as those of tub.
- .13 Fiberglass Tub/Shower One Piece - Fiberglass tub/shower to one piece Eljer "Melbourne", Crane "Galaxy", American Standard "Pembroke II", Owing-Corning or equal. Color to be white. Tub surround to have integrally molded soap dish and grab bar. Install in accordance with manufacturer's instructions.
- .14 Water Service - Water service from meter to house shall be 3/4" black roll or approved plastic, installed according to Plumbing Codes. Connect to water meter and run to new main cut-off valve inside of house or crawl space. Work include excavation, backfilling, re-seeding, fertilizing and strawing of affected areas.
- .15 Sump Pump - Sump be shall be installed at lowest point underneath house. Pump is to be installed in a 12" x 24" flue liner, unless otherwise specified. Top of flue liner to be set so as to allow water to flow to it. Install 6" thickness of #3 washed stone in bottom of liner. Pump shall have 1/3 horse power or greater rated capacity. Drain line to be buried if run to outside and run sufficient distance to carry water away from house; drain line shall not be connected to sewer.
- .16 Fiberglass Tub/Shower Four Piece - Fiberglass tub/shower to be four piece, Owens coming or equal. Color to be white. Tub surround to have integrally molded soap dish and grab bar. Install in accordance with manufacturer's instructions.

.17 Vanity Sink - Vanity sink to be 16 x 19 oval sink, Mansfield or equivalent. Install in accordance with manufacturer's instructions.

.18 Septic Tanks - Septic tanks and all components related to drain field and system shall be inspected by Cumberland County Health Department, Environmental Health Specialist. All Health Department specifications shall be adhered to. All areas that are disturbed due to work on septic system shall be seeded with a carpet grass seed, Pennington or an approved equal, and mulched. A Landscaped appearance is expected.

38. ELECTRICAL

.01 National Electrical Code - All new wiring, GFCI's, service panel, receptacles, switches, door bell, and detectors shall be installed in compliance with the applicable provision of the current edition of the National Electrical Code. All electrical fixtures shall carry the seal of approval of Underwriter's Laboratories.

Wiring shall be concealed to the maximum possible. Use non-metallic sheathed cable with copper conductors. All branch circuit wire gauges shall be in accordance with the National Electric Code.

All cutting of walls, floors, ceilings and partitions for the passage of electrical work, the closing of superfluous openings around same in the connection with electrical work and the removal of all debris caused thereby, shall be performed by the contractor performing the electrical work.

.02 Service Panel - Provide circuit index on service panel showing which lines are served by each circuit breaker. Panel to have main breaker and accommodate 20 circuits breakers. All major appliances to be on separate circuits.

.03 Bathroom Exhaust Fan - Bathroom exhaust fan shall be vented to outside with necessary flashing. Exhaust fan shall have an air delivery rate of not less than 80 cubic feet per minute. Grille shall be chrome or plastic. Work includes all wiring, including separate control switch. Fan shall be Nautilus or equal.

.04 Range Hood - Range hood fan to have two speeds and fan light controlled by separate switches. Filter to be vented to outside, with necessary flashing. Exhaust fan shall have an air delivery rate of not less than 160 cubic feet per minute. Work includes all wiring. Hood shall be Broan or equal. Any vent piping that is exposed over the top of the cabinets shall be enclosed.

.05 Range Hood Ventless Type - Range hood to be the ventless type with a two speed fan and light controlled by separate switches. Filter to be the activated charcoal type. Hood to be constructed of steel with an enamel finish. Work includes all wiring. Hood shall be Broan or equivalent.

.06 Lighting Fixtures - Lighting fixtures shall be complete with lamps, glassware, mounting hardware, frame and trim, stems, ballasts, and sockets to provide a complete operating fixture at each location. UL approved.

.07 100 AMP Service - All houses are to have a minimum of 100 AMP service unless otherwise specified.

.08 Detectors - Detectors shall be of the ionization type dual chamber, be located in accordance with code requirements, and have Underwriters Laboratories Inc approval. Detectors shall be permanently wired to 120 volt electrical system, and have LED to indicate power on. Detectors shall have provisions for testing. Detectors shall carry a one-year limited warranty.

.09 Existing Wiring - Existing wiring, outlets, switches, fixtures, covers, etc., shall be in accordance with prior code requirements when initially installed. All shall be safe, operable and in good repair or replaced as needed to comply with code.

.10 GFCI - Eagle electric GFCI receptacle, trip response time of .025 seconds at 4-6 MA shall be used or equal. GFCI receptacles shall be installed in areas where dampness may occur such as bathrooms, kitchen, on exterior walls, and the laundry room. Install per NEC.

39. HEATING

.01 Furnace - Furnace installation shall include wall mounted thermostat, wiring, piping, ducts, and cold air returns. Furnace must be capable of maintaining 70 degrees F. in every habitable room when the outside temperature is 10 degrees F. Furnace shall be equipped with a temperature-actuated fan control and temperature actuated limit control. All wiring shall be installed in conformity with the current edition of the National Electrical Code. Furnace shall have an approved cut-off valve for the fuel supply at the furnace.

.02 Ducts' Insulation - All ducts in crawl or unfinished attic spaces shall have 2" of foil back insulation. Ductwork shall be adequately supported.

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

.04 Duct Work Insulated - All duct work shall be insulated in compliance with code requirements.

.05 Concrete Slab - Furnace shall be mounted on a one piece concrete slab.

.06 Electric Baseboard Heaters - Electric baseboard heaters to be installed to comply with the current edition of the National Electric Code. Units shall meet the standards of the National Electrical Manufacturer's Association and be UL listed. Heating units shall be securely fastened

to wall and installed in accordance with manufacturer's instructions. Heaters shall be complete with line voltage baseboard thermostats.

.07 Bathroom Wall Heaters - Bathroom wall heaters shall be located as far as practicable from plumbing fixture and at least 30" from tub or shower. Wall heaters shall have polished aluminum reflector, aluminum grill and thermostat with "off" switch.

.08 Dryer Vent Kit - Lambro dryer vent kit, No. 1315 B/1312 W, 4 inch diameter or equal shall be used.

Flexible vinyl venting system can be installed through a wall or a floor to the outside of the foundation wall. Vent hood must be secured to the exterior wall or the foundation wall.

Metal dryer vent pipes shall be used when installing a venting system through enclosed walls. Screws shall not be used to secure the pipes together.

40. SITE IMPROVEMENTS

.01 Chain Link Fence - Chain link fence to have corner posts at least 1 1/2" in diameter. Line posts to be spaced not more than 10 feet apart, and be not less than 2" in diameter. Posts to be set in concrete filled holes at least 6" in diameter and 24" deep. Top rail to be not less than 1 5/8" in diameter. Wire fabric to be 11 1/2 gauge. All metal to be galvanized steel or aluminum alloy.

.02 Wood Storage Building - Construct a wood storage building with a minimum floor area of 100 square feet at an approved location in the rear yard. Set the building on a concrete slab, 4 inches thick and sized to provide a waterproof seal around perimeter of building. Put 6" by 6", #10 reinforcing wire in the slab. Install a .04 mil thick polyethylene moisture barrier under the slab. Give the slab a steel trowel finish. Frame the building using treated 2' x 4's for plates, studs and rafters. Install 1/2" CD plywood for decking. Install 15 lb. felt followed by self-sealing fiberglass shingles. Install galvanized drip eave around the entire outer perimeter of roof. The exterior to be covered with 3/8" exterior Ac plywood for siding with vertical batten strips and 1 by corner boards. Eaves and gables to have a minimum of 6" overhang. Leave an opening for and install a pre-hung 3' 0" x 6' 8" x 1 3/4" exterior solid core wood or steel door unit complete. Install a keyed entrance lock. Prime storage building with two (2) coats of exterior semi-gloss latex paint.

.03 Storage Building - Storage building shall be of double ribbed galvanized steel construction with gable roof. Steel shall have undercoat, prime coat and baked-on enamel finish. Building shall have double steel sliding doors with provision for padlocking.

.04 Building Concrete Slab - Set the building on a concrete slab, 4" thick and sized to provide a waterproof seal around the perimeter of building. Put 6", #10 reinforcing wire in the slab. Install a .04 mil thick polyethylene moisture barrier under the slab. Give the slab a trowel finish. Building must be properly anchored and sealed to slab.

.05 Storage Building Metal Floor - Level site of storage building. Install metal floor framing system composed of steel support joists and hold-down zees to lock flooring supports into bottom frame of building. Anchor framing system into ground with galvanized metal stanchions. Install 5/8" thick exterior plywood anchored to metal floor framing system with metal screws.

.06 Storage Building Wood Floor - Level site of storage building. Install wood floor framing system composed of 2" x 4" (minimum) treated Southern Yellow Pine joists and exterior frame. Anchor framing system into ground with galvanized metal stanchions. Install 5/8" thick exterior plywood anchored to wood floor framing system.

.07 Areas To Be Seeded - Areas to be seeded shall be loosened to a depth of at least two inches. Apply materials at the following rates:

Limestone	10#/100 square feet
Kentucky Tall Rescue	1#/100 square feet
10-10-10 Fertilizer	2#/100 square feet
Straw	1/4 Bale/100 square feet

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

41. ASBESTOS REMOVAL

The removal and disposal of asbestos shall be carried out only by qualified persons in accordance with applicable USEPA (United States Environmental Protection Agency) and OSHA (U. S. Department of Labor Occupational Health and Safety) standards and regulations. Contractor shall provide a copy of the "manifest" to CCCD after removal of asbestos has been completed.

42. WELLS

Water Supply - All water supply wells shall be disinfected upon completion of construction, maintenance, repairs, pump installation, and testing as follows:

.01 Chlorine shall be placed in the well in sufficient quantities to produce a chlorine residual of at least 100 parts per million (ppm) in the well.

.02 Chlorine tablets may be dropped in the top of the well and allowed to settle to the bottom.

.03 Chlorine solutions shall be placed in the bottom of the well by using a bailer or by pouring the solution through the drill rod, hose, or pipe placed at the bottom of the well.

.04 Permit/Inspection- A permit is required before drilling a well. The Environmental Health Specialist and a representative are required to inspect the well after completion.

- .05 Equipment - PVC water pipe, strainer, fittings, and required water pump and water tank shall be used when installing the pump system.
- .06 Water pump - Flotec water pump (FP4322) or equal for deep and shallow well installation in 2" wells or larger. Capacities to 20 gpm dual voltage, 3/4 horse power.
- .07 Pressure tank - Flotec vertical 19 gal (No. FP7110T-00) or equal. Air valve allows reduction of pre-charged pressure to match pressure switch. Replaceable seamless vinyl air/water separator prevents tank water logging and prolongs the pump life. Universal mounting bracket included.
- .08 PVC water pipe - Scheduled 40 DWV solid core pressure rated pipe.
- .09 Water Pump Strainers - Water Ace PVC water pump strainer or equal.
- .10 Pressure Gauge - Water Ace pressure gauge or equal measuring up to 200 lbs., No. 8102.
- .11 Fittings - PVC pressure fittings will be used with PVC pipes. Stainless steel fittings will be used with stainless steel pipes.
- .12 Grout the well in accordance with the North Carolina well construction Standards.