

HERITAGE HOME PROGRAM (HHP)
**A Linked Deposit Program of the Cuyahoga County Treasurer and
the Cleveland Restoration Society**

13

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BID SPECIFICATIONS

Applicant's Name, Address, Phone:	Contractor's Name, Address, Phone:
1 *2*	*3* *11* Phone: *16* Contact Person:
Number of Units: 1	Federal I.D. No:
Specification Date:	Date of Bid:
	Bid Amount: \$*17*
	Addendum Amount: \$
	Total Bid Amount: \$*17*

CONTRACTORS:

How to complete and submit this document.

- Enter your company's information above.
- Return this document to homeowner with your respective section(s) completed.
- In addition to this document, provide homeowner with your company's standard itemized estimate.

HHLF funds cannot be used to fund the purchase or installation of the following items:

- Vinyl siding
- Vinyl windows
- Swimming Pools
- Hot tubs
- Decks

Appropriate permits shall be secured through the Building Department of *12* and Contractor shall be registered with such Building Department in order to secure permits.

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ALL REHAB AND INSTALLATION MUST BE PER CITY OF *12* BUILDING CODES AND MANUFACTURER'S SPECIFICATIONS.

PROJECT COSTS EXCEEDING CONTRACT AMOUNT ARE TO BE PAID BY HOMEOWNER(S).

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Article I. INSTRUCTIONS TO BIDDERS

Section 1.01 BIDDING & CONTRACT REQUIREMENTS

- (a) **Bid Amount:** Shall include materials, labor, permit and/or review board fees and all applicable taxes.
- (b) **Cleveland Restoration Society reserves the right to refuse financing any work not outlined in the original bids.**
- (c) **Bid Specifications:** This document is a contract between the homeowner and selected contractor. The Contractor should examine all parts of the Bid Specifications. Failure to do so will not relieve the contractor of any responsibilities delineated therein. These Bid Specifications are copyrighted material and may not be reused or reproduced in any way that is not associated with this job.

Section 1.02 SITE CONDITIONS & OCCUPATION

- (a) **Examination of Site Conditions:** The contractor shall examine the premises in order to become familiar with the existing conditions and limitations under which the work shall be performed. The contractor shall alert CRS to any discrepancies between Bid Specifications and actual existing conditions. Failure to make these examinations will not relieve the contractor of his/her obligation toward performing the labor and/or furnishing the materials that are required to complete each project in accordance with the true intent of the specifications.
- (b) **Acceptance of Existing Conditions:** The contractor shall make allowances for conditions as found and shall not, at any time after the execution of the contract, make claims based upon insufficient data or incorrect assumed conditions. Having examined both the site and Bid Specifications, the contractor shall not claim any misunderstanding in regard to the nature, conditions, or character of the work to be done under this contract during its progress. The contractor will assume all risks resulting from any damages that may occur during the progress of work.
- (c) **Verify In Field:** **The Contractor shall verify all measurements and quantities in the field.** CRS assumes no liability for the accuracy of such measurements and statements of quantity.
- (d) **Asbestos:** City and state health departments shall be contacted for any suspected asbestos containing materials. Identification, testing, and removal to a legal disposal site shall be done by a licensed asbestos abatement contractor in accordance with all applicable regulations. Clearance reports shall be submitted to homeowner.

- (e) **Site Occupation:** Before commencement of work, contractor shall consult homeowner to establish work areas that will not inhibit homeowner's continued occupation or use of existing buildings, driveways, parking areas, and walkways while work is in progress. Operating systems and utilities servicing the site shall be maintained during the progress of the contracted work, except for periods as defined in a mutually satisfactory schedule between the Contractor & Owner.

Section 1.03 PERMITS

- (a) **Obtaining:** Permits shall be obtained for all work as required by the municipality in which the subject property is located. Therefore, all selected contractors and subcontractors shall be eligible to register and obtain a permit to work within the municipality that the subject property is located. Each respective contractor is responsible for: 1) contacting the municipality to find out which jobs require a permit; 2) securing all necessary permits prior to beginning any work subsidized with Heritage Home Loan Program funds; and 3) scheduling and being present for all necessary inspections. See page 2 for contact information for the appropriate building department.
- (b) **Homeowner's Responsibility:** It is ultimately the homeowner's responsibility to confirm that appropriate permits are secured. **NOTE: Upon discovery that work requiring a permit has been completed without one, the Owner will be at risk of losing the interest rate being subsidized by the Cuyahoga County Treasurer through Cleveland Restoration Society.**

Section 1.04 SCHEDULING

- (a) **Project Schedule:** Prior to, or upon, the awarding of the contract, the contractor shall submit a project schedule showing proposed project start and completion dates, as well as interim performance dates. As stated within the terms of the loan, all projects shall be completed within one (1) year of the closing of the loan.
- (b) **Working Hours:** Normal working hours and days shall coincide with those established by city ordinances, and not to begin before 7:00 a.m. or whenever is sooner. Should the homeowner require that work be performed during other times or days, permission shall be gained from the respective city for a specified period of time. Work during such additional times and days shall continue only so long as necessary to complete the work within the stipulated one (1) year time period. No extension of time will be granted if the Owner or Contractor fail(s) to gain municipal approval causing the work to be temporarily or permanently halted.

Section 1.05 CLOSING & GUARANTEES

- (a) **Final Closings:** Upon agreement between the homeowner and the contractor that work has been completed according to Cleveland Restoration Society's Bid Specifications, the owner should notify CRS. CRS reserves the right to inspect the work for Bid Specifications compliance prior to disbursement of funds to contractor. It is the contractor's responsibility to inform the homeowner of his/her readiness for final inspection.
- (b) **Guarantees & Warranties:** The contractor shall guarantee all work performed under the contract against defects in material and workmanship for one (1) year after the date of final acceptance of the work. The contractor shall convey to the homeowner any manufacturer warranties that exceed one (1) year. Contractor guarantee shall extend to the successor in title, should the title to the property transfer during the guarantee period. The Contractor shall replace or repair, without delay, at no charge, any defects beyond normal depreciation, provided that, in the judgment of CRS, the same are not the result of misuse or abuse, and that such defects become apparent during the guarantee period.

Article II. GENERAL REQUIREMENTS

Section 2.01 PERFORMANCE STANDARDS

- (a) **Workmanship:** All work shall be performed by contractors skilled in their respective trades, in accordance with: the best practices of such trades, the requirements of the project, and in full compliance with all applicable ordinances and codes.
- (b) **Historic Properties:** All contractors and subcontractors shall note that all properties undergoing rehabilitation through the Heritage Home Loan Program are considered architecturally significant and should be viewed and treated as such. Properties shall be repaired and rehabilitated using materials, skills, and construction methods that respect and preserve historically significant materials, design elements, and the building and site as a whole.
- (c) **Site Protection:** The contractor shall make every effort to protect the existing contents and occupants of the rehabilitation site, including those on adjacent property, from damage or harm due to work undertaken during the contract period. The contractor is responsible for the repair of all property damage caused by employees and subcontractors. Materials shall be replaced in kind, returning all properties to equal condition as existed before damage. Existing contents include, but are not limited to: buildings, grounds, plants, pavements, utilities, fixtures, and work completed by others.
- (d) **Damage:** Defects or damage created by the contractor, his/her employees, or any subcontractor during the performance of the contract shall be corrected by the contractor at no additional cost to the homeowner.

Section 2.02 MATERIALS & EQUIPMENT

- (a) **Materials:** Every effort shall be made to retain and repair original materials before considering replacement. Existing elements being repaired/replaced shall be done so with same species as the existing element and shall meet or exceed all applicable codes. Existing elements being repaired/replaced shall be done so with same dimensions and design as the existing element and shall meet or exceed all applicable codes. Any proposed deviation in materials shall be approved by CRS. Excess materials shall remain the property of the homeowner unless an agreement was made prior to ordering. Salvaged original materials shall remain the property of the homeowner unless an agreement was made prior to the commencement of work.
- (b) **Storage:** Restrict storage and stockpiling of materials and equipment to work areas established between contractor & homeowner. Contractor is to ensure that all products are safe from damage due to weather. Contractor will at all times assume the responsibility for the safety and security of materials and equipment stored on site.
- (c) **Substitution:** Four (4) major circumstances warrant consideration of the use of substitute materials over retaining the original: 1) historic materials are no longer available; 2) craftspeople are no longer available to perform the work; 3) inherent flaws in the original materials; and 4) code-required changes. In any case, substitutions will only be considered with prior written permission of the homeowner & CRS.

Section 2.03 TEMPORARY FACILITIES

- (a) **Facilities:** For larger jobs, contractor shall coordinate providing adequate toilet facilities, water service, electrical power, and heating as required by the job.

Section 2.04 CLEAN-UP

- (a) **Materials:** Use cleaning products and tools that are appropriate for the job and will not damage the surface(s) being worked on and/or cleaned.
- (b) **Clean-up During Construction:** Job site shall be kept clean throughout construction. All construction debris, scrap, and waste materials shall be removed from the site or placed in an on-site dumpster by the contractor and/or his or her crew on a daily basis. The homeowner's personal refuse containers shall not be used. The contractor shall not rely on the respective City's weekly collection without prior agreement.
- (c) **Final Clean-up:** Vacuum all lead chips and dust from exterior hard surfaces, including roofs, gutters and paving; leave broom clean. Rake up and dispose all soil that contains lead chips or dust from lawns and landscaped areas. Remove all equipment, surplus materials, dust and debris from site and dispose of properly.

Article III. SITWORK

Section 3.01 DEMOLITION

- (a) **MATERIALS**
 - (i) **Equipment:** Type and quantity adequate for specified demolition and disposal.
- (b) **WORKMANSHIP**
 - (i) **General:** Includes removal of items from interiors and exteriors of buildings and yards as specified, and removal of abandoned piping or conduit interfering with construction. Foundations shall be removed to 18" below grade. Framing material to be re-used should have all nails pulled and material stored, otherwise bend nails over and haul away. Trim wood and doors to be re-used should be labeled and stored in a safe location with finish nails pulled through to prevent splintering. **Do not discard any fixtures or hardware without approval from Homeowner or CRS.**
 - (ii) **Plaster:** (a). Remove plaster to wood lath and re-secure lath as needed. (b). Remove plaster and wood lath to studs or joists. Existing framing to be furred so new finish material will flush with jambs. Install solid backing as needed to support drywall.
 - (iii) **Asbestos:** For any suspected asbestos, identification and removal is to be done by licensed asbestos abatement contractor in accordance with all applicable regulations. Clearance reports shall be submitted to CRS.
 - (iv) **Clean-up:** During and after demolition, clean-up of the job site and property shall be done daily at the end of the day.

Section 3.02 SITE PREP, FENCING & LANDSCAPING

(a) MATERIALS

- (i) Fill: Clean, uncontaminated cohesive soils including silty clay, sandy clay, gravelly clay, sand, and gravel, free from debris, trash, frozen materials, roots and other organic or compressible materials of any kind.**
- (ii) Topsoil: Fertile soil, free of debris, trash, pieces of concrete or masonry, stones larger than 2", or wood.**
- (iii) Wooden Fence: all cedar construction (posts may be pressure treated). Holes should be a minimum of 40" below grade. Post to be backfilled with equal parts soil and #57 river rock, and tamped in every 6" to 8" lifts. Backfill should be mounded at top of grade to prevent puddling. Posts that support rails and pickets should have weather cuts or be designed to shed water.**
- (iv) Chain-Link Fence: All fence materials and accessories shall be black. End posts, corner posts and gate posts shall be minimum 2" inside diameter. Line posts shall be 1-1/2" inside diameter, evenly spaced, 10 ft. o.c. All posts shall be set in concrete in holes approx. 30" deep. Concrete shall be exposed slightly above grade and crowned to shed water. Top rod shall be minimum 1" inside diameter. Fabric shall be vinyl-coated 2" mesh, minimum 10-gauge, with knuckled selvages, stretched taut, approximately 2" above ground, securely fastened to all posts and fastened to the top rail 24" o.c.**
- (v) Wrought Iron/Steel Fence: Match existing or install new with approval of CRS Historic Preservation Specialist and Homeowner. Install per manufacturer's specifications.**
- (vi) Plant Materials: Healthy, vigorous stock of size and species indicated.**
- (vii) Bark Mulch: Pine bark, or approved equal, over landscape fabric, minimum 2" deep.**
- (viii) Seed: URI #2, or approved equal. Hydro-seeding with an equivalent seed is acceptable.**
- (ix) Sod: Bluegrass blend, appropriate to shade/sun conditions. Submit sod farm source for approval.**

(b) WORKMANSHIP

- (i) Scope: Refer to site plan and/or specifications below.**
- (ii) Fill: In areas to be filled, remove all trash, demolition debris, and organic materials. Place new fill in layers maximum 12" deep and compact to minimum 90% optimum dry density.**
- (iii) Grading: Bring all areas to be landscaped to uniform grades to provide slope for drainage with no low spots.**

- (iv) **Pruning:** Where indicated, prune existing trees. Treat all cuts with tree-wound paint. Protect all trees to remain from damage with temporary fences, or approved equal.
- (v) **Fence Installation and Repair:** All new steel and wood posts shall be set in concrete and all new fences shall be installed true-to-line and plumb. Where existing fences are to be repaired, make the fence sound and serviceable again, as indicated below or directed by the CRS Construction Manager. Note: It is the Owner's responsibility to clearly denote to the Contractor the exact location for fence installation and lot line location. Neither the Contractor nor CRS assumes any responsibility for encroachment onto adjacent property.
- (vi) **Plantings:** Place all plantings in prepared holes, minimum 6" larger than root ball. Water and maintain in healthy condition until acceptance by Owner.
- (vii) **Grass:** Rototill minimum 6" deep, level and fertilize. Lay sod and plant seed in accordance with good trade practices on prepared seedbeds. Water and mow until established, or accepted by Owner, whichever comes first.
- (viii) **Completion:** On completion, leave all pavement areas broom clean and all landscaped areas raked clean.

Section 3.03 CONCRETE PAVING

(a) MATERIALS

- (i) **Ready-Mix Concrete:** Mix shall consist of 6 ½ sacks of Portland cement per cu. Yd. of concrete, with air content of 6% to 7% by volume, ¾" aggregate, slump of 4" plus or minus 1", and a minimum compressive strength of 3,500 psi. at 28 days. (A delivery ticket must accompany all ready-mix concrete invoices.)
- (ii) **Dry-Mix Concrete:** Mix shall comply with ASTM Standard C387, and shall be power mixed with clean water according to manufacturer's specifications.
- (iii) **Steel Mesh:** All concrete shall be installed with 4" by 4" steel mesh embedded into the center of the slab.
- (iv) **Fillers:** Celotex "Flexcell" or equivalent.
- (v) **Gravel:** Well graded, of appropriate size for paving. Clean and free of vegetation.
- (vi) **Curing Agent:** Per manufacturer's specifications.
- (vii) **Fill:** Clean, uncontaminated cohesive soils including silty clay, sandy clay, gravelly clay, sand, and gravel, free from debris, trash, frozen materials, roots and other organic or compressible materials of any kind.

(b) WORKMANSHIP

- (i) Excavation and Compaction: All necessary excavation is to be performed and the earth sub-grade thoroughly tamped.**
- (ii) Forms and Gravel: Appropriate forms shall be constructed and remain in place for at least 24 hours after the job is complete. Forms and grade stakes should be set by transit or lasers. Levels and lines to be used for short distances only. 4” of well-graded gravel shall be installed over the sub-grade. Forms and gravel shall be dampened with clean water just prior to installing concrete.**
- (iii) Fillers: 1/2” thick Celotex “Flexcell” shall be installed at curb junctions, and where concrete abuts existing slabs, buildings, or other fixed objects. Any voids existing between Flexcell and building shall be filled with a sealer per the manufacturer’s specifications.**
- (iv) Concrete: 4” thick concrete shall be installed with 4” by 4” steel mesh embedded into the center of the slab. 6” thick concrete shall be installed on driveway aprons. Owners’ choice of broom or trowel finish.**
- (v) Concrete Repair: Saw cut edges of existing paving wherever patches or replacement is to be made. Match grade and finish of adjacent existing pavement.**
- (vi) Temperature: Concrete shall not be installed when air temperatures are below 40-deg. F. or when such temperatures can reasonably be expected within three days following completion of the work.**
- (vii) Pitch: Concrete shall be pitched 1/8” to ¼” per ft. away from building.**
- (viii) Control Joints and Edges: Control joints, running from one side of the driveway to another, shall be cut at least 1” deep, and shall be evenly spaced no more than 10ft. apart. A 1” deep control joint shall be cut the entire length of the driveway, down the center. Control joints, running across walkways, shall be cut at least 3/4” deep, and shall be evenly spaced no more than 5 ft. apart. All edges shall be rounded to a 1/4” radius.**
- (ix) Liquid Membrane: Per manufacturer’s specifications, concrete shall be cured with a liquid membrane sprayed or rolled on the surface, meeting ASTM-309 Standards, as soon as is practical after finishing.**
- (x) Fill: After forms are removed, all affected areas shall be backfilled with clean dirt. All debris and excess dirt shall be hauled away. The contractor shall not replace grass unless specified. HOMEOWNER is responsible for applying a sealer after concrete has cured to minimize the damage of salt or de-icing agents.**

Section 3.04 ASPHALT PAVING

(a) MATERIALS

- (i) Asphalt:** Class 1 asphalt, with minimum 2” binder course and 2” finish course, or per specifications below.
- (ii) Gravel:** #411 Limestone 4” deep, well graded, or appropriate size for paving.
- (iii) Sealer:** Per manufacturer’s specifications.
- (iv) Fill:** Clean, uncontaminated cohesive soils including silty clay, sandy clay, gravelly clay, and gravel, free from debris, trash, frozen materials, roots and other organic or compressible materials of any kind.
- (v) Vegetation Kill:** “777 Zep Herbicide,” “Weed-B-Gone,” or equivalent.

(b) WORKMANSHIP

- (i) Removal of Existing Driveway:** Dig out, remove existing driveway, and haul away debris. Apply a herbicide to any vegetation in driveway prior to installing base.
- (ii) Excavation and Compaction:** All necessary excavation is to be performed and the earth sub-grade thoroughly tamped. Note: Finished asphalt is to be 4” below basement window sills and door thresholds.
- (iii) Gravel:** 4” well-graded gravel shall be installed over the sub-grade.
- (iv) Asphalt:** Install asphalt per specifications, pitched 1/8” to 1/4” per ft. away from building.
- (v) Sealer:** Per manufacturer’s specifications, asphalt shall be cured with liquid sealer sprayed or rolled on the surface as soon as is practical after finishing. Homeowner is responsible for applying sealer approximately 60 days after installation and will keep gasoline- oil or other similar chemicals away from the asphalt.

Section 3.05 ALUMINUM SIDING REMOVAL

(a) MATERIALS

- (i) Equipment:** Type and quantity adequate for careful removal and disposal of aluminum siding, insulation, and any associated hanging system. Includes: scaffolding, ladders, pry bars, hammers, chisels, cat’s paws, nippers, nailset, hardhat, goggles and heavy work gloves.
- (ii) Fill for Nail Holes:** For small, nail-sized holes, paintable caulk or glazing compound may be used. Epoxy-based wood filler may be used to fill larger holes.

(b) **WORKMANSHIP**

- (i) **General:** Includes careful removal of aluminum siding, soffit and eaves from exterior of building as specified. Includes underlying materials such as nails, furring strips, various papers and all other types of non-original siding. All loose material that is original to house details shall be labeled and stored in a safe location with finish nails pulled through to prevent splintering. **Do not discard any fixtures or hardware without approval from Owner or CRS.**
- (ii) **Aluminum Siding Removal:** Work from the top of the house downward. Begin by slipping a “zip tool” or flat hand-sized prybar into a horizontal seam at the top of each section of the house to unlock first row and reveal the nailing edge of the panel below. Push tool behind panel, peel back and pull nails/clips from remaining panels with care. Fill nail holes as work proceeds to avoid moisture infiltration.
- (iii) **Clean-up:** All debris shall be haul away and disposed of responsibly according to City Code. See also Section 1.7 Clean Up.

(c) **SCOPE OF WORK**

Work shall be carried out according to the materials and workmanship specifications listed above.

- (i) Close and seal all windows before beginning. Gently and securely cover shrubs and bedding.
- (ii) Carefully remove aluminum siding from all areas listed above, taking care not to damage the original wooden shingles, siding, and trim underneath. Remove nails/clips, and any building papers, insulation, and/or hanging system that may be present.
- (iii) Fill holes from hangers with materials as specified above.
- (iv) Haul away and properly dispose of removed materials from site. Begin by investigating disposal requirements and restrictions with City Hall.
- (v) Leave all areas of property broom and/or raked clean and entirely free of debris.

Article IV. MASONRY

Section 4.01 MASONRY CLEANING

(a) MATERIALS

- (i) Masonry Cleaner: Prosoco Sure-Klean or approved equal.**

(b) WORKMANSHIP

- (i) Sample: Before starting work, clean a sample area of at least 4 square feet to determine the mildest solution that effectively cleans the masonry surface. Obtain approval from CRS Historic Preservation Specialist and Homeowner. This approved sample shall be the standard for the rest of the work.**
- (ii) Masonry Cleaning: Following all label direction, remove all paint and discoloration from designated masonry surfaces. Application, handling, and disposal of all sludge and chemical waste must meet all Local, State, and Federal Regulations.**
- (iii) Protection: Properly cover and protect all adjacent non-brick and stone surfaces. Protect plants and landscaping. Beware of drifting of sprayed materials and rinse residue.**
- (iv) Pre-wetting and Rinsing: Thoroughly pre-wet and rinse masonry surfaces with a 25-40 degree fan tip. Cleaning solution shall be applied using a low pressure spray, or by roller or brush. Pre-wetting and rinsing shall be completed at no more than 600 psi.**
- (v) Temperature: In general cleaning shall not be done when temperatures are below 45-deg. F. or when such temperatures can reasonably be expected within three days following completion of the work. Obtain approval from CRS Construction Manager before starting if work is to be done under above conditions.**
- (vi) Contractor Addendum: Completely describe additional work you feel is needed to complete the above scope of work, and the materials to be used. If the addendum is not used, place NA on the bid line below.**

Section 4.02 MASONRY TUCKPOINTING

(a) MATERIALS

- (i) Brick: Reuse old brick or stone wherever possible. If use of old brick is not feasible, use new brick grade SW or better that matches the color and size of the old exactly. Provide a sample for approval.**
- (ii) Mortar: Use a high-lime, low Portland cement mix to match color and hardness of the old mortar closely. Do not add anti-freeze or water repellents to the mix. The following mortar composition is suggested as starting point for the new mortar. Mason shall alter as needed to match existing mortar.**

- 1) **Composition:**
 - a) **19th Century Mortars**
 - b) **Type O Mix: One part type I Portland cement**
 - c) **Two parts type S lime**
 - d) **Nine parts well graded sharp mason sand**
 - e) **Add pigment as necessary**
 - f) **(Use white Portland to match mortars with high/full line content)**
 - 2) **20th Century Mortars**
 - a) **Type N Mix: One part type S lime**
 - b) **One part type I Portland cement**
 - c) **Six part well-graded sharp mason sand**
 - d) **Add pigment as necessary**
- (b) WORKMANSHIP**
- (i) **Temperature: In general, tuckpointing shall not be done when temperatures are below 45-deg. F. or when such temperatures can reasonably be expected within three days following completion of the work. Obtain approval from the CRS Construction Manager before starting if work is to be done under above conditions.**
 - (ii) **Mortar: Mortar shall be thoroughly mixed, and only in such quantity as needed for immediate use. Over wetting of mortar shall be avoided. Water shall be clean and free from injurious amounts of acids, alkalis, or organic materials. For hand mixing, the sand, lime, and cement shall be thoroughly mixed before water is added. Add approx. 3/4 of the water required and mix until material is uniformly damp. Continue to add water in small amounts until mortar mix achieves workable consistency.**
 - (iii) **Tuckpointing: Remove deteriorated mortar to a depth of at least 3/4". Obtain permission from the Construction Manager before using power tools. Wash out all joints. Lightly dampen bricks or stone prior to tuckpointing. Project adjacent masonry. All mortar shall be applied only with tuckpointing tools. Mortar shall be applied in a number of lifts no deeper than 1/4" to 1/3". All new mortar joints shall match the old joints in profile, size, tooling, and color exactly, and match the composition as close as possible. Remove all mortar stains on completion.**

Section 4.03 MASONRY REBUILDING

(a) MATERIALS

- (i) Brick:** Reuse old brick or stone wherever possible. If use of old brick is not feasible, use new brick in grade SW or better that matches the color and size of the old exactly. Provide a sample for approval.
- (ii) Closing in openings:** When changing opening sizes brick must be toothed in to maintain staggered joints.
- (iii) Mortar:** Use a high-lime, low Portland cement mix to match color and hardness of old mortar closely. Do not add anti-freeze or water repellents to the mix. The following mortar composition is suggested as a starting point for the new mortar. Mason shall alter as needed to match existing mortar.
 - 1) Composition:**
 - 2) 19th Century Mortars**
 - a) Type O Mix:** One part type I Portland cement
 - b) Two parts type S lime**
 - c) Nine parts well graded sharp mason sand**
 - d) Add pigment as necessary**
 - e) (Use white Portland to match mortars with high/full lime content)**
 - 3) 20th Century Mortars**
 - a) Type N Mix:** One part type S lime
 - b) One part type I Portland cement**
 - c) Six part well-graded sharp mason sand**
 - d) Add pigment as necessary**

(b) WORKMANSHIP

- (i) Temperature:** In general, rebuilding shall not be done when temperatures are below 45-deg. F. or when such temperatures are reasonably be expected within three days following completion of the work. Obtain approval from CRS Construction Manager before starting if work is to be done under above conditions.
- (ii) Mortar:** Mortar shall be thoroughly mixed, and only in such quantity as needed for immediate use. Over wetting of mortar shall be avoided. Water shall be clean and free from injurious amounts of acids, alkalis, or organic materials. For hand mixing, the sand, lime, and cement shall be thoroughly mixed before water is added. Add approx. 3/4" of the water required and mix until material is uniformly damp. Continue to add water in small amounts until mortar mix achieves workable consistency.

- (iii) **Rebuilding: Document existing masonry patterns and configuration before dismantling. Carefully take down masonry units where noted. If reusing old units, clean and lightly dampen them before relaying. All new courses shall be plumb, level and true to line immediately when first set. Face coursing shall be laid out before setting. All head joints for the face brick and back-up work shall be completely full of mortar. Slushing is not permitted. All new mortar joints shall match the old joints in width, profile, size, tooling, and color exactly, and match the composition as close as possible. Remove all mortar stains on completion. Remove all mortar stains from faces on completion.**
- (iv) **Footers: If upon inspection it is determined that footer is damaged or unsound the footer shall be replaced. Size and thickness to be determined by the wall size.**

Section 4.04 CHIMNEY REBUILDING

(a) MATERIALS

- (i) **Brick: Reuse old brick or stone whenever possible. If use of old brick is not feasible, use new brick grade SW or better that matches the color and size of the old exactly. Provide a sample for approval.**
- (ii) **Mortar: Use a high-lime, low Portland cement mix to match color and hardness of old mortar closely. Do not add anti-freeze or water repellents to the mix. The following mortar composition is suggested as a starting point for the new mortar. Mason shall alter as needed to match existing mortar.**
 - 1) **Composition:**
 - 2) **19th Century Mortars**
 - a) **Type O Mix: One part type I Portland cement**
 - b) **Two part type S lime**
 - c) **Nine part well graded sharp mason sand**
 - d) **Add pigment as necessary**
 - e) **(Use white Portland to match mortars with high/full lime content)**
 - 3) **20th Century Mortars**
 - a) **Type N Mix: One part type S lime**
 - b) **One part type I Portland cement**
 - c) **Six part well graded sharp mason sand**
 - d) **Add pigment as necessary**
- (iii) **Flue Liners: Not required unless the chimney below is to be re-lined.**
- (iv) **Counter Flashing: 2-1/2 lb, 16 oz. copper, or anodized aluminum to match new existing roof (if roof is to remain).**

(b) WORKMANSHIP

- (i) Temperature:** In general, a chimney shall not be rebuilt when temperatures are below 45-deg. F. or when such temperatures can reasonably be expected within three days following completion of the work. Obtain approval from the CRS Construction Manager before starting if work is to be done under above conditions.
- (ii) Overall Design:** Match height, corbelling, color of mortar, profile and tooling of joints, and other details of chimney exactly.
- (iii) Mortar:** Mortar shall be thoroughly mixed, and only in such quantity as needed for immediate use. Over wetting of mortar shall be avoided. Water shall be clean and free from injurious amounts of acids, alkalis, or organic materials. For hand mixing, the sand, lime, and cement shall be thoroughly mixed before water is added. Add approx. 3/4 of the water required and mix until materials is uniformly damp. Continue to add water in small amounts until mortar mix achieves workable consistency.
- (iv) Rebuilding:** Document existing masonry patterns and configuration before dismantling. Carefully take down masonry units where noted. If reusing old units, clean and lightly dampen them before relaying. All new courses shall be plumb, level and true to line immediately when first set. Face coursing shall be laid out before setting. All head joints for the face brick and back-up work shall be completely full of mortar. Slushing is not permitted. All new mortar joints shall match the old joints in width, profile, size, tooling, and color exactly, and match the composition as closely as possible. Remove all mortar stains on completion. Remove all mortar stains from faces on completion.
- (v) Counter Flashing:** Set flashings shall extend into the fresh mortar at least two inches as chimney is erected. Counter flashing shall be braked to make a spring loaded joint to be tucked into the open mortar joint. Where chimneys are not being taken down below the roofline, cut out the joints and the old flashings and insert new flashings, wedge with lead and point joints with matching mortar. Neatly cut, fold and hammer together the flashings, lapping them in the proper direction to shed water, leaving no loose pieces or gaps.
- (vi) Flues:** Neatly smooth the mortar on the inside of the flues as the chimney is built
- (vii) Cap:** (Chimneys without Capstones) Neatly finish off the top of the chimney with a layer of mortar pitched to shed water away from the chimney.
- (viii) Cleaning:** Upon completion, remove all traces of mortar from brick faces.

Section 4.05 MASONRY CAULKING

(a) MATERIALS

- (i) Backer Rod: Closed-cell polyurethane rope, (“Ethafoam Rod”).**
- (ii) Caulking: Polysulfide, (“Vulkem” or approved equal), color to match that of the masonry being caulked.**

(b) WORKMANSHIP

- (i) Cleaning: Remove all loose mortar and dirt from joint surfaces.**
- (ii) Backer Rod: Place backer rod in joints 1/4” wide or wider so that the thickness of the caulking bead will be no greater than 1/2 the joint width at its thinnest point.**
- (iii) Caulking: Fill joints with a neat, smooth bead of caulking. Remove excess caulk from masonry faces.**

Section 4.06 STUCCO REPAIR

(a) MATERIALS

- (i) New Stucco Mix: Match color, texture, and hardness of existing.**
- (ii) Lath (where called for): Galvanized, diamond-mesh wire lath.**
- (iii) Bonding Agent: Weld-o-bond, or approved equal.**

(b) WORKMANSHIP

- (i) Temperature: In general stucco shall not be applied when temperatures are below 45-deg. F. or when such temperatures can reasonably be expected within three days following completion of the work. Obtain approval from CRS Construction Manager before starting if work is to be done under above conditions.**
- (ii) Preparation: Where indicated, cut existing stucco on a neat, straight line and remove. Remove all dirt, mildew and other contaminants from substrate. Where substrate was painted, remove enough paint, by chipping or other approved method, to secure a good bond unless lath is to be installed. Repoint and open substrate joints.**
- (iii) Lathing: Where indicated, apply lath over a water resistant substrate and use approved galvanized fasteners with spacers.**
- (iv) Application: Match thickness and texture of existing stucco. Meet existing stucco on a neat clean line.**

Section 4.07 FOUNDATION WATERPROOFING

(a) MATERIALS

- (i) Stone- washed and clean #57 river rock**
- (ii) Crack Filler- hydraulic cement**
- (iii) Parging- Portland cement/ironite mix**
- (iv) Foundation Coating- heated or equivalent**
- (v) Drain Tile- SDR35 or equivalent**
- (vi) Fabric- soil/stone separation**

(b) WORKMANSHIP

- (i) Excavation: To be performed in a workmanlike manner. Protect areas of property; grass, walkways, driveway, and other areas that are needed as access. Contractor is not responsible for the life of plants or shrubs that are being moved. Top soil can be reused. Haul away all excess soil.**
- (ii) Wall Preparation: Walls and footers should be scraped clean of dirt and loose material. All holes and cracks filled with hydraulic cement. Parge walls and footer with Portland/ironite mix.**
- (iii) Drainage: Drain tile shall be set on 2" of gravel and covered with gravel within 12" of grade. Stone to be separated from 12" of top soil with fabric. Drain tile should have 1.5% to 1.0% slope for water flow. Clean outs shall be installed to I.R.C. and city plumbing codes.**
- (iv) Backfill: #57 river rock with 12" of top soil with a 4% slope away from building. Where concrete is to be replaced, backfill to grade with gravel compatible for concrete.**
- (v) Warranty: Contractor shall provide Homeowner with a minimum ten year warranty against leakage before final payment.**

Section 4.08 MASONRY STEPS

(a) MATERIALS

- (i) Must be re-built with original materials when possible or like material to match original.**
- (ii) No pre-cast steps may be used.**

(b) WORKMANSHIP

- (i) Footers must be 42 inches below grade.**

(c) SCOPE OF WORK

- (i) Permit Required.**

Article V. THERMAL & MOISTURE PROTECTION

Section 5.01 REPAIR OF EXISTING ROOF (SLATE OR TILE)

(a) MATERIALS

- (i) Chimney Base & Counter Flashing: 2-1/2# lead, 16 oz. copper, or anodized aluminum to match the roof as close as possible.**
- (ii) Stack pipe Flashing: Neoprene, of the correct size to suite each stack pipe.**
- (iii) Step, Wall, and Misc. Flashing: .032" aluminum "coil stock" with baked-enamel finish to match shingle color as close as possible.**
- (iv) Valleys: .032" aluminum "coil stock" with baked-enamel finish to match shingle color as close as possible. Minimum of 18" wide stock. Woven shingle valley with CRS approval.**
- (v) Nails: Minimum 1-1/2"- 14 gage copper slating nails, or appropriate fasteners for type and size of tile.**
- (vi) New Sheathing Boards: 1X12 pine #3 sheathing or 3/4" CDX plywood. On small patches, match thickness of existing boards. Joints to end on rafters or solid backing.**
- (vii) Underlayment: 30# felt. Ice and water shield 40 mils thick 6' from gutter line.**
- (viii) Roofing Cement: "Flintkote" or approved equal.**
- (ix) Shingles: Slate/tile shingles to match the existing as closely as possible in shape, profile, and color. Submit samples for review and approval by the CRS Historic Preservation Specialist and Homeowner.**

(b) WORKMANSHIP

- (i) Roof Board Repair: Where roof is leaking, remove and dispose of all cracked, rotted, or damaged roof sheathing boards or sections of roof sheathing. Re-nail all sound boards that have come loose.**
- (ii) Flashing: Reseal or replace all flashing to make roof weathertight. Step-flash all roof/wall junctures. (Note: Wall and step flashing must go behind exterior siding, even if this constitutes replacement of siding.) Chimney shall have separate base and cap flashings. Where chimneys are not being taken down below the roofline, cut out joints and the old flashings and insert new flashings, wedge with lead and point joint with matching mortar. Neatly cut, fold and hammer together the flashings, lapping them in the proper direction to shed water, leaving no loose pieces or gaps.**
- (iii) Valleys: Edges shall be installed under existing and/ or new roofing with a minimum exposed total width of 6". Roofing edges shall be fully cemented to the flashing. Install trim and seal per the manufacturer's specifications.**

- (iv) **Roofing Cement:** Where needed, seal the shingles to the flashing with roofing cement. No roofing cement shall be visible on the finished job.
- (v) **Shingles:** Replace all broken or missing slates/tiles on the roof. Secure any loose slate/tiles. Repair ridge cap as needed.

Section 5.02 ROOF TEAR OFF AND REPAIR

(a) MATERIALS

- (i) **New Sheathing Boards:** 1x12 pine, #3 sheathing or 3/4" CDX plywood. On small patches, match thickness of existing boards.
- (ii) **New Rafters and Other Framing:** See Section 6.01
- (iii) **Roofing Vents:** Static roof vents or continuous ridge vent to match shingle color as close as possible.
- (iv) **Tarpaper:** 30 lb. roofing felt. Ice and water shield 40 mils thick and minimum 6' from gutter line.

(b) WORKMANSHIP

- (i) **Scope:** This section covers preparation only- rafter repair, flashings, and roofing are covered in other sections.
- (ii) **Stripping and Preparation:** Includes removal of all layers of roof covering and the restoration of sheathing to a solid condition ready for the application of a new roof. Properly dispose of all roofing materials. Remove or drive in all projecting nails.
- (iii) **Sheathing Board Repair:** Remove and dispose of all cracked, rotted, or damaged roofing boards or sections of roofing boards. Joints to end on rafters or solid backing. Re-nail all sound old boards that have come loose.
- (iv) **Roof Vents:** Provide proper ventilation by the use of static roof vents or a continuous ridge vent. Allow 1 S.F. of free ventilation for every 300 S.F. of attic floor space. Cut opening of the required size in the locations necessary to properly ventilate. Leave the vents loose until the roofing is installed; lap roofing under flange at base and over the flange at side and top to insure a watertight seal.
- (v) **Sweeping and Underlayment:** Sweep off and properly dispose of all dirt and debris from roof deck. Clean gutters of any roofing debris. Check for any projecting nails and drive in. Install a layer of 30# felt over the deck; lap all seams at least two inches. Install Ice and Water shield to all eaves and valleys. Ice guard should extend up from gutter board 6ft.

Section 5.03 ARCHITECTURAL SHINGLES

(a) MATERIALS

- (i) Chimney Base & Counter Flashing: 2-1/2# lead, 16 oz. copper or .032 aluminum with baked-enamel finish to match shingle color as close as possible.**
- (ii) Stack pipe Flashings: Neoprene, or the correct size to suit each stack pipe.**
- (iii) Step, Wall, and Misc. Flashings: 2-1/2# lead, 16 oz. copper, or .032 aluminum with baked-enamel finish to match existing shingle color as close as possible. Note: Wall and step flashings must go behind exterior siding, even if this constitutes replacement of siding.**
- (iv) Valleys: 2-1/2# lead, 16 oz. copper, or .032 aluminum with baked-enamel finish to match shingle color as close as possible. Minimum of 18" wide stock. Woven shingles may be used with CRS approval.**
- (v) Drip Edge: 1x3-1/4" aluminum, with baked-enamel finish to match shingle color as closely as possible**
- (vi) Tarpaper: 30 lb. roofing felt or approved equal.**
- (vii) Bituthene: "Ice and Water Shield" or equivalent. Approx. 40mls thick and a minimum of 6' from the gutter line.**
- (viii) Nails: Hot-dipped galvanized roofing nails, 3/8" head, large enough to penetrate sheathing at least 3/4". No staples are to be used.**
- (ix) Roofing Cement: "Flintkote" or approved equal.**
- (x) Shingles: Shall be architectural with a minimum of 30 years warranty. Color shall be selected by the CRS Historic Preservation Specialist and Owner for approval.**

(b) WORKMANSHIP

- (i) Flashing: Step-flashing all roof/wall junctures. Chimneys shall have separate base and cap flashings. Counter flashing shall be braked to make a spring loaded joint to be tucked into an open mortar joint.**
- (ii) Tar Paper: Install 30# felt paper to entire deck, lap all seams at least 2 inches. Properly secure to deck. Install flat on deck without bulges or ripples. Install ice and water shield to all eaves and valleys.**
- (iii) Bituthene: Install "Ice & Water Shield" on clean wood decking to all eaves and valleys as per manufacturer's specifications and a minimum of 6' from the gutter line.**
- (iv) Drip Edge: Install the drip edge around the entire perimeter of the roof, including rakes. Overhang shingles a minimum of 1/4" from drip edge.**

- (v) **Starter Strip:** Apply a 7” starter strip to the bottom edge of the roof.
- (vi) **Valley:** Edge shall be installed under existing or new roofing with a minimum exposed total width of 6”. Install, trim and seal following the manufacturer’s specifications.
- (vii) **Ridges and Hips:** Install “Boston” caps at all hips and ridges.
- (viii) **Nailing:** Use at least 4 nails per strip, located above the “fingers” according to the manufacturer’s recommendations. At mansard roof, us 6 nails per strip.
- (ix) **Roofing Cement:** Where needed, seal the shingles to the flashings with roofing cement. No roofing cement shall be visible on the finished job.
- (x) **References:** Comply with recommendations of “Residential Asphalt Roofing Manual” of Asphalt Roofing Manufacturer’s Association, and S.M.A.C.N.A. Architectural Sheet Metal Manual.

Note: Contractors will supply the homeowner with a manufacturers and workmanship warranty upon completion of job, minimum 5 years labor warranty. .

Section 5.04 MEMBRANE ROOFING

(a) MATERIALS

- (i) **Membrane:** SBS modified bitumen roof with granules, cold applied process, manufactured by GAF Ruberoid or equal.
- (ii) **Adhesive Seam Caulk and Splice Cement:** Manufactured by the maker of the membrane chosen or specifically approved by that manufacturer for use with their membranes.
- (iii) **Cap Strip:** Aluminum with baked-enamel finish, min. 0.032”. Cap strips shall be custom-fabricated to extend vertically down the face of the crown moulding approximately 1”, and cover the top edge of the crown.
- (iv) **Screws for Cap Strip:** #8 round-head aluminum at least one inch long.
- (v) **Caulking for Screw Heads:** GE Silicone- Color to closely match cap strip.
- (vi) **Mechanical Fasteners:** Disc anchors, bar anchors, metal screw, toggle connectors as appropriate to substrate, as recommended by the manufacturer.

(b) WORKMANSHIP

- (i) **Substrate:** Install roofing material and base coat on a cleaned and smooth decking per manufacturer’s specifications.
- (ii) **Membrane Installation:** Fully adhere membrane according to manufacturer’s specifications and when the temperature is 40 degrees or better.
- (iii) **Layout:** Individual pieces of membrane shall be as long as possible to avoid the need for unnecessary seams and keeping material flat on decking.

- (iv) **Bonding:** Follow all adhesive manufacturer's instructions to provide a complete bond to the substrate. Repair all blisters, voids, and other defects to the satisfaction of the Homeowner and CRS Construction Manager (Dean Pavlik)
- (v) **Seams:** Follow all manufacturer's instructions to provide fully bonded seams.
- (vi) **Cap Strips:** Install cap strip along exposed edges of membrane. Lap the joints between lengths of cap strip at least two inches. Fasten the strips into place using screws spaced no more than 18 inches apart. Cover all joints and screw heads with caulk.
- (vii) **Warranty:** Contractor will supply homeowner with a manufacturer and a workmanship warranty upon completion of the job, minimum 5 years labor warranty.

Section 5.05 METAL ROOFING

(a) MATERIALS

- (i) **Metal Patches:** 26 ga. Galvanized sheet metal, for steel roofing and 16 oz. copper for copper roofing.
- (ii) **Nails for Metal Patches:** Galvanized for steel roofing and copper for copper roofing.
- (iii) **Caulking:** "GE" Paintable Silicone or other paintable silicone caulking approved by the CRS Construction Manager (Dean Pavlik) before use.
- (iv) **Primer:** Rustoleum: Rust Metal Primer #7769 or approved equal.
- (v) **Finish Coat:** Rustoleum: enamel or approved equal.

(b) WORKMANSHIP

- (i) **Preparation:** Remove roofing cement, scaling paint, and rust from metal surfaces.
- (ii) **Metal Patches:** Install metal patches wherever old metal is rusted-through. Extend patch beyond rusted area at least 1" on all sides. Cover back of patch with caulking, press into place, and tack down with enough nails around its edges to hold it securely. Cover nail heads with caulking and allow to cure.
- (iii) **Caulking of Split Seams:** Scrape off the area 1/2" wide around all split seams to bright, shiny metal. Apply a bead of caulking to the bare metal and neatly smooth it out.
- (iv) **Painting:** Apply a full coat of primer and a full coat of finish paint to all metal surfaces. Apply coat neatly with no drips on adjoining surfaces.

Section 5.06 MEMBRANE TROUGH LININGS

(a) MATERIALS

- (i) Membrane: Single-ply uncured E.P.D.M. “flashing strip” similar to that manufactured by Manville, Genflex, or equal.**
- (ii) Adhesive, Seam Caulk: Manufactured by the maker of the membrane chosen or specifically approved by that manufacturer for use with their membranes.**
- (iii) Downspout Leads: Lead-coated copper, 2-1/2” diameter, 20 oz. or heavier.**
- (iv) Sheet Metal Repairs: Galvanized metal, 26 gal. or heavier.**
- (v) Nails for Sheet Metal Repairs: Galvanized roofing nails**
- (vi) Cap Strip: Aluminum with baked-enamel finish, min. 0.032”. Cap strips shall be custom-fabricated to extend vertically down the face of the crown moulding approximately 1”, and cover the top edge of the crown.**
- (vii) Screws for Cap Strip: #8 round-head aluminum at least 1” long.**
- (viii) Caulking for Screw Heads: GE Silicone, color to closely match cap strip.**

(b) WORKMANSHIP

- (i) Scheduling: Install membrane after all carpentry, flashing repair, and stripping of adjacent roofing is done and before the installation of any adjacent roofing, and after all carpentry repairs to the trough and cornice are completed.**
- (ii) Downspout Leads: Fasten new leads into place using copper, stainless, or aluminum nails driven through the outer edge of the flange.**
- (iii) Pitch: All troughs shall be pitched to drain readily toward the downspouts and have no low places.**
- (iv) Metal Preparation (where applicable): Scrape, wire brush, and clean all old surfaces to be covered. Repair rusted out areas and holes with galvanized sheet metal.**
- (v) Membrane Installation: Install membrane according to manufacturer’s specifications.**
- (vi) Layout: Individual pieces of membrane shall be as long as possible.**
- (vii) Bonding: Follow all adhesive manufacturer’s instructions to provide a complete bond to the substrate. Repair all blisters, voids, and other defects to the satisfaction of the Homeowner and CRS Construction Manager.**
- (viii) Seams: Follow all manufacturer’s instruction to provide fully bonded seams.**
- (ix) Cap Strips: Install cap strip along exposed edges of membrane. Lap the joints between lengths of cap strip at least two inches. Fasten the**

strip into place using screws spaced no more than 18” apart. Cover all joints and screw heads with caulk.

Section 5.07 HYDROSTOP ROOFING SYSTEM

(a) MATERIALS

- (i) Hydrostop is latex-based roofing product with a fibrous membrane. This roofing system is approved for flat roofs. See manufacturer’s product information and installation guidelines.**

(b) WORKMANSHIP

- (i) Contractor must install product per manufacturer’s installation procedures and specifications. Contractor must provide labor and materials warranties in accordance with, or exceeding, manufacturer’s published procedures and guarantees.**

Section 5.08 GUTTERS AND DOWNSPOUTS

(a) MATERIALS

- (i) Gutters: 3X5” K-style aluminum .032” thick, seamless, with baked-enamel finish. Color to be approved by Homeowner and CRS Historic Preservation Specialist. Submit sample for approval.**
- (ii) Downspouts, Elbows, Shoes, and Straps: Aluminum .032” thick, seamless, with baked-enamel finish to compliment K-style gutters. Color to be approved by Homeowner and CRS Historic Preservation Specialist. Submit sample for approval.**
- (iii) Hangers: Bar hangers with clip-on fascia apron or other type hanger approved by Homeowner and CRS Construction Manager (Dean Pavlik).**
- (iv) Fasteners to Attach Hanger Straps to Fascia: Galvanized, aluminum or stainless steel nails/screws.**
- (v) Sealant: Manufactured by or approved by the gutter manufacturer.**
- (vi) Pop-Rivets: All aluminum, color to match gutter.**
- (vii) Splash Blocks: Pre-formed concrete.**
- (viii) Crocks: Clay to match original.**
- (ix) Gutter Boards: Cedar or equivalent. Primed and painted.**

(b) WORKMANSHIP

- (i) Pitch: Gutters shall be pitched slightly toward the downspouts.**
- (ii) Hangers: Space hanger no more than three feet apart and securely attach to the fascia and the rafter ends. Hangers shall not be nailed or screwed through the top of the roof shingles. Downspout straps to be spaced not more than 8 feet apart.**
- (iii) Diverter Elbows and Splash blocks: Provide a diverter elbow at the base of every downspout that is not connected to a crock and install**

splash block. Provide backfill as required to ensure that water is directed away from the structure but not onto a neighboring property.

- (iv) **Downspout Tubes and End Caps:** Seal tubes and ends to gutters before riveting together; use enough rivets to draw all parts tightly together.
- (v) **Crocks:** Seal downspouts into crocks with masonry cement, filling all voids around downspout. Downspout shall be inserted a minimum of 4” into top center of crock. Use caution to avoid having mortar fall into the crock. Damage or missing crocks shall be replaced in kind. Submit substitutions to CRS Construction Manager (Dean Pavlik).
- (vi) **Gutter Boards:** Spike gutter boards to rafter tails. All butt joints should end on rafters or solid blocking. Any deteriorated rafter tails should be sistered with matching size and materials.
- (vii) **Coordination:** Coordinate with carpentry and painting. Upon completion, gutters and downspouts may be painted to match color of the adjoining trim.

Section 5.09 INSULATION

(a) MATERIALS

- (i) **Batt Insulation:** Type II fiberglass with “Kraft facing,” 1.0 perm rating. Min R-11 in all sidewalls and R-19 in ceiling spaces. John Manville, Owens Corning, or approved equal.
- (ii) **Blown-in Insulation:** Class I cellulose, or approved equal.
- (iii) **Sound Attenuation Blanket:** US Gypsum, thermafiber fire blanket single layer insulation, 3” or approved equal.
- (iv) **Insulation should not be installed over knob and tube electrical, per Ohio code.**

(b) WORKMANSHIP

- (i) **General:** Comply with all manufacturer’s recommended installation instructions.
- (ii) **Batt Insulation:** Extended insulation full thickness over entire area to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation. Install fiberglass batt insulation where finish has been removed and framing is accessible. Insulation shall be stapled every 8” to the inside edge of the studs. Where ends of blankets or batts meet, the paper should overlap slightly. Insulation shall not be compressed or installed in more than one layer. Approximately 1” of space shall be left between insulation and sheathing.
- (iii) **Cellulose Insulation:** Install blown-in insulation where finishes are to remain. Such installation shall, wherever possible, be through

exterior walls and under siding (no plugs) before repair or replacement of siding. With approval, insulation may be installed using holes cut through interior finishes. In attic ceilings, remove all debris, soiled or water damaged existing insulation and install of increase existing blown-in insulation to R-20. Install sheet metal barriers to provide 3” barriers around all fixtures where insulation is to be blown in, and install baffles at the end of joist spaces to prevent insulation from blocking eaves and eave vents. Where sash cords are not to be retained, fill all spaces between window jambs and studding with fiberglass insulation.

- (iv) **Exterior Repairs:** Replace all removed damaged siding and match existing. Prime all new lumber.
- (v) **Coordination:** Insulation should be done before repair or replacement of siding and after the installation of any mechanicals in the exterior walls.
- (vi) **DO NOT FILL COLD AIR RETURNS**

Article VI. CARPENTRY

Section 6.01 ROUGH CARPENTRY

(a) MATERIALS

- (i) **New Sill Plates:** Pressure-treated southern yellow pine lumber of the stock size closely matching that of the old sills. (UC3-UC4 Category System). Cut down or add to lumber so that stock sizes will be exact size of old sill.
- (ii) **New Corner posts:** Solid or built-up lumber that closely matches the size of the old.
- (iii) **New Joists, Rafters, Studs & Other Framing:** Two-inch dimensional No. 1 grade hem-fir framing lumber. Closest width to match existing. Engineered joists-rafters and beams shall be designed to carry the live and dead loads.
- (iv) **Floors – ¾” T & G or ¾” T & G Plywood.** T &G is not required with blocking at seams.
- (v) **Walls – Minimum ½” OSB or ½” Plywood** **Roofs – Minimum ½” OSB or ½” Plywood on 16” OC Rafters / Trusses. Minimum 5/8” OSB or 5/8” Plywood on 24” OC Rafters / Trusses with H Clips.**
- (vi) **Underlayment:** Plywood A.P.A. underlayment, Group 1, exposure 1, 3/8” minimum sub-floor thickness. To receive resilient flooring.
- (vii) **Wood for Furring:** 1”X 3” construction grade “furring strip.”
- (viii) **Moisture Content:** Moisture content of all lumber and plywood, including pressure-treated lumber, shall be maximum 19%.

- (ix) **Fasteners, Anchors, & Hangers:** Size and type as recommended by applicable standards, or as recommended by the manufacturer. Where weather exposed or in ground contact, provide fasteners, anchors, and hangers with hot-dipped zinc coating. (Corrosion resistant.)
 - (x) **Wood Preservative:** Cuprinol Green #10 or equal.
 - (xi) **House Wrap:** Example- Tyvek.
- (b) WORKMANSHIP**
- (i) **General:** Set carpentry work to required levels and lines with members plumb and true and accurately cut and fitted. Securely attach all carpentry work to substrate. Install solid backing and furring needed to receive finishes and fixtures.
 - (ii) **Jacking and Shoring:** If a corner or more than 6 feet of sill are to be replaced, support the house from the ground before starting work. Base of jacking system should be dispersed over a large enough area as to not damage existing structure. Make as level as possible. New header-beams- or struts should be properly sized and resting on bearing walls. Contractor shall be responsible for repairing plaster damage and re-adjustment of doors caused by movement.
 - (iii) **Trim, Siding, & Sheathing Removal:** Where specified to be re-used, remove carefully-mark and save. Cut back damaged sheathing over the nearest stud. Install new sheathing of equal thickness. Re-nail all sheathing that is to remain.
 - (iv) **Damaged Sill, Corner post & Stud Removal:** Cut out. Wherever possible, cut off old sills to form a half-lap joint with the new sills. All cuts are to come over solid masonry, not over openings. Cut off corner posts and studs squarely to provide good bearing for new pieces.
 - (v) **New Sill Plates:** Cut half-lap joints at all ends and corners. Install “Liquid Nail Adhesive” or Cellotex between sill plate and masonry. Two-inch dimensional pressure-treated lumber may be laminated for sills, but shall still be half-lapped with the old sills. Bolted down by 1/2" anchor bolt 16" deep and approx. 6" O.C.
 - (vi) **New Corner posts & Studs:** Fit new pieces in tightly and add “scabs” alongside that extend as far up the old corner posts/studs as possible. Spike securely into place.
 - (vii) **Rafter Repair:** Match length and configuration of old rafters. Install “crown up” and where rafters are to be sistered, spike securely to the old rafters.
 - (viii) **Joist Repair:** Rip to exact width as original joists and space 16" o.c. Install “crown up” and where joists are to be “sistered” spike securely

into old joist and provide full bearing on nearest plates of structural walls.

- (ix) **New Walls:** To be constructed of 2X4 lumber, 16” o.c., unless indicated otherwise. New studs shall be “padded out” with wood strips to receive finishes where they adjoin an existing wall. Include single bottom and double top plates- jack studs under headers- four studs in corners. Studs to align with floor joists or rafters. Exterior walls will include structural sheathing and or wind bracing properly secured to top and bottom plates.
- (x) **Wood Furring:** Install 16” o.c. and plumb and level with closure strips at ends and openings. Shim flush with existing work.
- (xi) **New Sheathing:** Install new sheathing wherever old was removed. The end cuts of new sheathing should rest on rafters or solid blocking. Shim new sheathing to flush with existing.
- (xii) **Support Blocking:** Prior to installing wall finishes, determine and obtain approval for the exact locations of each toilet accessory. Provide minimum 3/4" wood blocking at every fastener location. Include blocking for curtain rods- shower rods and doors- medicine cabinet.
- (xiii) **References:** Comply with Ohio Basic Building Codes including Fastening Schedule Table 2305.2 and with recommendations of “Manual For Wood Frame Construction” of National Forest Products Association for recommended sizes, spacing, framing of openings and fastening. Comply with recommendations of “A.P.A. Design/Construction Guide- Residential & Commercial” for types of plywood products and nailing schedule.

Section 6.02 SOFFIT AND EAVE REPAIR

(a) MATERIALS

- (i) **Finish Wood:** Kiln Dried Pine, D-Select or approved equal
- (ii) **Lookouts, Rafter Tails & Brackets:** Hem/fir, spruce or pine, to match existing in size, thickness and profile.
- (iii) **Fly Rafters:** Hem/fir, spruce or pine, to match existing size, thickness and profile.
- (iv) **Soffits & Fascias:** Hem/fir, spruce or pine, to match existing tongue and groove configuration.
- (v) **Mouldings:** Where specified, mouldings are to be custom-milled to match the original profile. Use pine, D-select grade or better, or approved equal softwood. Where no specification is given use the closest available moulding. Submit to CRS Historic Preservation Specialist for approval.

- (vi) **Nails: Corrosion resistant only.**
 - (vii) **Wood Preservative: Cuprinol Clear or equivalent.**
 - (viii) **Primer: Covered under “Painting”**
 - (ix) **Pigeon Control: Nixalite.**
- (b) WORKMANSHIP**
- (i) **Replacement: Replace pieces as noted in drawings or in specifications. Where additional pieces are deemed to be rotted or damaged, obtain and replace on a unit cost basis.**
 - (ii) **Lookouts, Rafter Tails, & Brackets: Replace all damaged, rotted or split wood with new pieces. Screw or nail all new lookouts, rafter tails and brackets to sound wood to secure solidly in place.**
 - (iii) **Fly Rafters: Replace all damaged, rotted or split fly rafters with new pine fly rafters. Cut the angles accurately and screw securely to lookouts.**
 - (iv) **Soffits & Fascias: Install new soffits and fascias to match existing where the old were removed. Where necessary, shim out the new pieces to be flush with the old. All joints shall be tight and properly secured to solid backing.**
 - (v) **Mouldings: Replace all missing or deteriorated mouldings to match original as close as possible. Cut and tightly fit new mouldings where old ones were disposed or missing. Where new mouldings do not match the old perfectly, blend area around the joint between the new and the old so that it is invisible once painted.**
 - (vi) **Old Pieces That Are Loose: Where old pieces are sound but coming apart at the joints, remove as much paint and caulking from the joint surfaces as possible and re-nail tightly together.**
 - (vii) **Nails: Set all visible nails.**
 - (viii) **Priming: Face prime all finish lumber before installation.**

Section 6.03 CLAPBOARD REPAIR

(a) MATERIALS

- (i) **Replacement Sheathing: 3/4” #3 sheathing board.**
- (ii) **Building Paper: Tyvek, or approved equal.**
- (iii) **Clapboards: 1/2”X6” Western Red Cedar Clear VG (vertical grain) bevel siding only.**
- (iv) **Drop Siding: T&G or ship lap. Eastern White Pine.**
- (v) **Epoxy Consolidant: Abatron, Inc.’s Liquid Wood and Wood Epox or approved equal.**

- (vi) **Nails: 5d galvanized ring-shank. (Corrosion resistant)**
- (vii) **Primer: Covered under "Painting."**
- (b) WORKMANSHIP**
 - (i) **General: In addition to areas called out in drawings, replace all clapboards that are missing, damaged, rotted, or have cracks more than 12" long.**
 - (ii) **Removal: Carefully remove all clapboards that are to be replaced. In addition, remove and dispose of any that are damaged during the work. Re-nail all loose sheathing.**
 - (iii) **Sheathing Repair: Cut back sheathing to the nearest stud or install solid backing. Install new sheathing of equal thickness. Re-nail all sheathing that is to remain.**
 - (iv) **Toothing-In: Where existing clapboards end on a vertical line (as where a door or window was removed), cut back every other existing clapboard at least 6 inches before installing new clapboards.**
 - (v) **Building Paper: Install house wrap over all exposed sheathing.**
 - (vi) **Joints: All joints between ends of clapboards shall be tight (less than 1/6") and those between clapboards and trim less than 1/8". Stagger joints in succeeding courses at least six inches. Outside corner joints to be scribed and staggered.**
 - (vii) **Length: Use the longest length possible. Pieces less than 12" are not to be used except as "shorts" between trim pieces (i.e. between a window casing and a cornerboard.)**
 - (viii) **Epoxy Consolidant: Per manufacturer's specifications.**
 - (ix) **Nailing: Place nails approximately 3/4" above butt at every stud, or every 18", whichever is closer. Penetration of framing at least 1". Re-nail all clapboards that are loose.**
 - (x) **Prep for Painting: Use 80 grit sand paper to lightly remove "mill glaze". Back prime with water repellent wood preservative. All edges including outside miters should be primed.**

Section 6.04 WOOD SHINGLE REPAIR

- (a) MATERIALS**
 - (i) **Replacement Sheathing: 3/4" #3 sheathing board.**
 - (ii) **Building Paper: Tyvek, or approved equal.**
 - (iii) **Flashings: Aluminum "coil stock" with baked-enamel finish.**
 - (iv) **Shingles: Western Red Cedar #1 Blue Label or R&R grade; length to match that of the old shingles.**

- (v) **Nails: Hot-dipped galvanized shingle nails. (Corrosion resistant)**
- (vi) **Primer: Covered under "Painting."**
- (b) WORKMANSHIP**
 - (i) **General: Re-nail all loose sheathing. Rip shingles to the same width as the old and, where the old shingles have round or other fancy-cut butts, cut the new butts to match the old shingles exactly. Spaces between shingles shall not exceed 1/4". Nails will penetrate sheathing a minimum of 1/2" and should not be overdriven.**
 - (ii) **Nailing: Nail as recommended by the manufacturer.**
 - (iii) **Flashings: Replace all rusted and damaged flashings.**
 - (iv) **Primer: Back prime using a water repellant wood preservative before installation.**

Section 6.05 EXTERIOR TRIM REPAIR

- (a) MATERIALS**
 - (i) **Finished Wood: Kiln Dried Pine, D-Select or approved equal.**
 - (ii) **Mouldings: Custom milled from clear stock to match original profile. Where no specification is given, use the closest available moulding. Submit for approval.**
 - (iii) **Mails: Hot-dipped galvanized or non-ferrous.**
 - (iv) **Wood Preservative: Cuprinol Clear**
 - (v) **Primer: Covered under "Painting."**
 - (vi) **Flashing: .032 aluminum roll stock with baked-enamel finish.**
- (b) WORKMANSHIP**
 - (i) **Replacement: Replace trim noted in drawings. Where additional pieces are found to be rotted, split, or damaged, obtain approval and replace on an additional-cost basis, as provided in contract.**
 - (ii) **Re-Nailing: Scrape out joints and re-nail all loose pieces.**
 - (iii) **New Flat Trim: Match dimensions of new pieces to old exactly. Shim out the new wood to be flush with the old; all joints shall be tight and blended to be invisible under paint, and all nails set.**
 - (iv) **Scarf Joints in Vertical Pieces: Cut horizontal joints in vertical pieces on a 45-degree angle to shed water. Joints in horizontal pieces may be buttoned or scarfed.**
 - (v) **Mouldings: Blend the joints between the new and old mouldings so that the joint will be invisible once painted. All joints shall be tight and all nails set.**
 - (vi) **Priming: Face prime all finish lumber before installation.**

Section 6.06 PORCHES

(a) MATERIALS

- (i) See Section 6.01 Rough Carpentry for additional general requirements.**
- (ii) Footers and Step Slabs: Any footer or footing that supports a structure that is attached to a dwelling should be a minimum of 42" below grade.**
- (iii) Piers; Install piers noted below.**
- (iv) Framing: All floor framing shall be pressure-treated southern yellow pine lumber of the stock size closely matching that of the existing framing. (UC3-UC4 Use Category System) Cut down or add to lumber so that stock size will be exact size of existing. Joist hangers shall be used whenever appropriate.**
- (v) Fascia: Kiln Dried Pine, D-Select or approved equal.**
- (vi) Columns, Railings, Balustrades, & Balusters: Style, size and profile to match original and use Cypress, Redwood, or Cedar. Composite base may be used with CRS approval. Treated lumber may be used in certain areas, with CRS approval on a case-by-case basis.**
- (vii) Stringers: Pressure treated southern yellow pine.**
- (viii) Decking & Ceiling: All decking and ceilings shall match original. Total replacement shall be minimum 3/4" Tongue and Groove lumber. Blind nail into floor joists. Alternative Tongue and Groove materials must come under review by CRS before being used. Treated lumber may be used in certain areas, with CRS approval on a case-by-case basis.**
- (ix) Lattice: 3/4" frame of treated lumber with 1/4"x2" lattice screwed to frame with rust resistant utility screws. Other skirting materials may be used per approval by CRS, approved on a case-by-case basis.**
- (x) Nails: Hot-dipped galvanized or non-ferrous. Flooring nails for Tongue and Groove decking.**
- (xi) Moisture Content: Moisture content of all lumber and plywood, including pressure-treated lumber, shall be maximum 19%.**
- (xii) Fasteners, Anchors, & Hangers: Size and type as recommended by applicable standards, or as recommended by the manufacturer. Where weather exposed or in ground contact, provide fasteners, anchors and hangers with hot-dipped zinc coating. (Corrosion resistant)**

- (xiii) **Wood Preservative: Cuprinol Green #10 or equivalent**
- (xiv) **Priming: Covered under "Painting."**
- (b) **WORKMANSHIP**
 - (i) **See Section 6.01 Rough Carpentry for additional general requirements.**
 - (ii) **General: Set carpentry work to required levels and lines with members plumb and true and accurately cut and fitted. Securely attach all carpentry work to substrate. Provide blocking and furring as required to receive finishes and fixtures.**
 - (iii) **Footers: Install jack or shoring to support the porch from the ground before starting work. Installation shall include digging, pouring, and backfill. Excavate to below frost line at pier locations. Install cement slab 24"x24"x12".**
 - (iv) **Step Slabs: Excavate and install 3" of drainage gravel. Pour concrete slab 4" thick as base for new steps.**
 - (v) **Piers: Re-set piers on slab, using mortar to make plumb and level. Shim as required to loan bearing beam. For new porches, use 4"x4" or 6"x 6" pressure treated posts with appropriate footings as notes.**
 - (vi) **Joist Repair: Rip to exact width as original joists and space 16"o.c. Install "crown up" and where joists are to be "sistered" spike securely into old joist and provide full bearing on nearest plates of structural walls. Header joists to be doubled.**
 - (vii) **Sistering: All sister nailing to be done in triangulated pattern.**
 - (viii) **Columns, Railings, Balustrades & Balusters: All shall be free of cracks, warping and checking. All to be replicated or performed from a lumber supplier to match existing. Submit samples for approval. If balusters are to be replaced, they should be at least 1-3/4" square and spaced no more than 3-1/2" apart when measured from center to center. Larger spindles (2-1/2" diameter) may be spaced further apart. Submit detail to CRS Historic Preservation Specialist prior to construction. Newel posts to be lagged to floor joist. Balustrades securely anchored.**
 - (ix) **Steps: Rise not to exceed 8". Stringers shall be 16" o.c. Treads and risers to be Fir or CRS approved. All stairs shall be built with a slight pitch to prevent standing water from accumulating on the treads. Stairs having more than two steps will have at least one matching balustrade with newel attached to stringer or in concrete footer.**

- (x) **Lattice: Properly hang and fasten into opening.**
- (xi) **Priming: Face prime all finish lumber before installation.**

Section 6.07 FINISH CARPENTRY

(a) MATERIALS

- (i) **Flat Stock: D-Select pine or poplar ripped to same width as original unless noted otherwise. Match wood grain as close as possible.**
- (ii) **Mouldings: Match existing or closest moulding available. Submit for approval. Use finger jointed mouldings only when painting.**
- (iii) **Fasteners: Finish nails, screws and other anchoring devices of the proper size, material and finish for application, concealed where possible.**

(b) WORKMANSHIP

- (i) **General: Condition wood products to average prevailing humidity conditions prior to installing.**
- (ii) **Patching: Patch baseboards, trim and other woodwork to match wherever partitions are removed. On all new partitions and door infills match height of existing flat baseboard stock, and where possible, install salvaged matching cap moulding. Otherwise, use closest match stock cap moulding.**
- (iii) **Installation: Install all work plumb, level, true, and straight with no distortions. Shim as required using concealed shims.**
- (iv) **Nailing: "Blind nail" finish work whenever possible. Where this is not possible, set surface nails and fill holes. Nailing should penetrate studs, plates or solid backing.**
- (v) **Mouldings: Cope inside corners and miter outside corners. All joints shall be tight. Toenail, glue, and sand all joints to make ready for stain or painting.**

Article VII. DOORS & WINDOWS

Section 7.01 WINDOW FRAME, TRIM, & SASH REPAIRS (No New Jamb Liners)

(a) MATERIALS

- (i) **Wood to Replace or Repair Damaged Exterior Sill (Where Designated): Fir or Cedar. Match all the dimensions of the old (thickness, width, angles, length) exactly.**
- (ii) **Fasteners for New Wood Sills: Stainless screws**
- (iii) **Wood to Replace Damaged Jambs: Arkansas or "Hard" pine, 3/4" thick, to match existing width. If jamb liners are not to be used, match grooves for parting beads and window stops.**
- (iv) **Wood to Replace Missing/Damaged Exterior Trim: Pine, D-Select or better. Match thickness and width of existing.**

- (v) **Mouldings: Match existing or pattern indicated. Where no pattern is indicated, obtain approval from the CRS Preservation Specialist for the use of the closes available stock or sound salvaged moulding.**
- (vi) **Wood Preservative: Cuprinol Clear.**
- (vii) **Sash Corner Irons: L-shaped galvanized.**
- (viii) **Parting Stop (if required): Arkansas or “Hard” pine, ripped to the proper size.**
- (ix) **Sash Lock (where missing/damaged): “Amerock” or approved equal.**
- (x) **Glass: Single-strength, B or better grade.**
- (xi) **Putty: Sterling oil-based glazing compound, or approved equal.**
- (xii) **Caulking: DAP acrylic-latex.**
- (xiii) **Primer and Finish Paint: See Section 8.01 Painting.**
- (xiv) **Stain (for jambs): Cabots OVT, color 0120 Tile Red, or 0185 Barn Red, or approved equal.**
- (b) **WORKMANSHIP**
 - (i) **Frame Repairs**
 - (ii) **Window Sill Replacement: Cut out and carefully remove the designated sill. Cut the new sill to the exact same size, fasten angled blocks to the studs below for support if existing support is insufficient, saturate new sill with wood preservative, slide into place, and securely fasten into place.**
 - (iii) **Jamb Repair: Do all of the following required for each jamb:**

- 1) **Refasten Loose Pocket Covers:** Where pocket covers are loose, re-secure with larger flat-head screws.
 - 2) **Replace Missing or Broken Pocket Covers:** Make new pocket covers that fit snugly. Match original grooves and fasten with screws.
 - 3) **Reinforce Cracked Jambs:** Where jambs are cracked or split, glue and draw together with long screws driven in from inside or outside; or approved equal.
 - 4) **Replace Rotted or Missing Portion:** Cut out rotted portions, trim edges of missing portions, and replace with new patch, glued and screwed into place.
 - 5) **Install New Parting Stop:** Replace missing, broken, or wrong-sized parting stop with new or sound salvaged pieces.
 - 6) **Re-fasten Loose Pulleys:** Where pulleys are loose, re-fasten with larger screws set where necessary, into new plugs inserted into enlarged or split out holes.
 - 7) **Replace Sash Cord:** Replace missing, broken, or frayed sash cord with new. Where weight is missing, and extra will be allowed for providing a salvaged weight of the proper size.
- (iv) **Jamb Replacement:** Carefully remove and save interior trim. Remove indicated jambs without damage to other pieces. Install new jambs using blocking and screws. If new balances are not being used, avoid installing blocking or fasteners where they will interfere with weights or cords. Re-install interior trim. Re-install parting stops, window stops, pulleys, cords and weights.

- (v) **Trim Repairs:**
 - 1) **Exterior Trim:** Replace missing/indicated window trim and mouldings with new pieces. Secure edge of trim at window jamb with screws. Where top trim is to be replaced, replace top flashing as well.
 - 2) **Interior Trim:** Remove all nails, tacks, staples, curtain and shade hardware, and other such items from window trim. Fill all holes and other damaged areas.
- (vi) **Sash Replacement:**
 - 1) **New Sash:** Where indicated, replace missing or damaged sash with new custom-made sash. Sash shall match original thickness, be made of preservative-treated pine (or approved equal) with the same glass size, number of lights, and profile as the original; plows to accept cords (where they exist) or bored to receive a spring-loaded side-mounted catch. If a stock sash is available that meets the above requirements it may be substituted for the custom-made sash, with prior approval of the Homeowner and CRS Historic Preservation Specialist. Contractor must submit complete manufacturer's specs with bid.
 - 2) **Sash Fitting:** New sash shall be fitted with a maximum 1/16" space at the sides, top and bottom and so that they align with a maximum 1/8" difference at the meeting rail. Install and adjust the sash lock and where present originally, the side-mounted catch.
 - 3) **Painting:** See Section 8.01 for exterior painting.
- (vii) **Sash Repair, Preparation, and Painting:**
 - 1) **Sash Preparation:** Remove all deteriorated putty and broken glass. Remove all paint from flat surfaces and sand.
 - 2) **Loose Corners on Sash:** Reinforce loose corners with corner irons, or approved equal.
 - 3) **Re-glazing:** Prime sash including rabbets before re-glazing. Apply bed of glazing compound to rabbets and press glass into place. Secure with glazing points. Putty rabbets with an even angle. Putty shall not be visible from the inside of sash.
 - 4) **Cracks in Sash:** Fill with acrylic caulking after priming.
 - 5) **Priming and Painting:** Prime all sash with one coat of tinted primer. Prime corner irons with metal primer. Paint all sash with one coat finish paint. See Section 8.01 "Painting".
 - 6) **Cleaning:** Remove all paint drips and putty residue from glass.
- (viii) **Jamb Preparation and Staining:**
 - 1) **Jamb Preparation:** Scrape and sand off all loose paint from jambs.
 - 2) **Staining:** Apply at least one coat of stain to all jambs and parting stops.

Section 7.02 NEW WINDOW UNITS

(a) MATERIALS

- (i) No vinyl is acceptable. Wooden windows single pane double pane triple pane may be wrapped in aluminum on exterior interior may be primed painted or stained. Fiber glass windows may be used and will be reviewed on a case by case basis.**
- (ii) Window Units: Stock or custom set-up units with custom modifications as listed in window schedule or specifications.**
- (iii) Building Paper: 15lbs roofing felt or house wrap.**
- (iv) Nails: Hot-dipped galvanized.**
- (v) Flashing: Coated aluminum, minimum .032”**

(b) WORKMANSHIP

- (i) Tarpaper: Apply strips of tarpaper, at least 8” wide, over the sheathing on the sides and top of the opening to protect the area at the joint between trim and siding.**
- (ii) Installation of the Units: Place window unit in opening: position so that sides are plumb and sills are level and frame is square, keep interior flush to receive casing, then securely nail into place around the exterior trim. Extend exterior jamb, if needed, to receive casing. Where indicated in the schedules, provide new interior trim. Otherwise, re-install existing trim.**
- (iii) Flashing: Fabricate and install head flashing over top of trim. Flashing shall extend up behind siding at least 3” and down over face of trim at least 1/4”.**

Section 7.03 GLASS BLOCK WINDOWS

(a) MATERIALS

- (i) Glass Block: “Decora” style hollow units constructed of insulated, obscured glass for exterior use that has been permanently sealed with a heat fused joint. Individual units shall be pre-assembled in a factory to fit existing openings and transported to the site ready for installation.**
- (ii) Vents: Combustion air inlets (hopper vents) manufactured exclusively for glass block window installations. Color to match mortar color. Each window unit shall have a combustion vent, with the exception of one that may hold a dryer vent.**
- (iii) Mortar: Cementitious mortar that shall be tinted beige or off-white. Use of white mortar is prohibited.**

- (iv) **Caulk:** Vulkem, or an approved polysulfide equal of exterior grade, shall be used for sealing joints. 100% silicone for the top. Color of both shall match mortar.

(b) **WORKMANSHIP**

- (i) **General:** It is the Contractor's responsibility to ensure that all materials are delivered, stored, protected and handled carefully at all times. Inspect window units for damage prior to installation. All measurements included in this specification shall be verified by the Contractor in the field. A manufacturer's warranty shall be presented to the Owner upon completion of the job for at least ten (10) years for window unit assembly and at least five (5) years for glass block units, against defective materials or workmanship.
- (ii) **Demolition:** Remove existing windows and any supports or framing. Ensure that masonry in opening is well pointed and solid.
- (iii) **Installation:** Begin installation by ensuring that glass block windows will fit in existing openings. Proceed as following:
 - 1) Place two (2) ½" wooden shims approximately three (3) inches from the bottom corners on the bottom ledge. Apply enough mortar to sill that will create a ½" gap around the window without covering top of shim.
 - 2) Insert window unit into opening and ensure that it is plumb. Tightly fit two (2) shims between the top of the window and the opening. Check to make sure the window is plumb and parallel with the inside and outside walls, and that the reveal is uniform all the way around before installing mortar around right and left sides.
 - 3) Allow mortar to harden for (2) hours before removing shims. Fill all holes with mortar. Blend to match texture and tooling of surrounding joint.
- (iv) **Caulking:** Fill side and bottom joints with a neat, smooth bead of caulk. Allow twenty-four (24) hours before filling top of window. Insert foam caulking backer rod with ½" of where the caulk joint will finish out. Fill remaining space with caulk completely. Remove any excess from faces of glass block units with lacquer thinner.

(c) **SCOPE OF WORK**

- (i) **NOTE:** Installation of glass block is permitted for basement windows only. Work shall be carried out according to the materials and workmanship specifications listed above.

Section 7.04 LEADED GLASS REPAIR

(a) MATERIALS

- (i) Glass:** The Original glass should always be retained, but when replacement is needed, match existing glass panels in texture, pattern and color. Notify Owner and CRS if any changes in glass will be made prior to work starting.
- (ii) Comes:** Match existing materials.
- (iii) Sealant:** High quality “neutral cure” silicone.

(b) WORKMANSHIP

- (i) Sash Repair and Preparation**
- (ii) Sash Preparation:** Remove sash and board up opening. Remove all deteriorated sealants and loose paint. Sand and prime.
- (iii) Glass and Comes:** Remove all bulges; replace perimeter lead came and all deteriorated comes; re-solder all broken solder joints and reinforce as needed; repair/replace all broken glass to match existing (see “Material” above).
- (iv) Glass panel:** Install leaded glass into bed of sealant. Properly clean all glass and excess sealant.

Section 7.05 NEW DOORS AND FRAMES

(a) MATERIALS

- (i) Doors** (any and all exterior doors will be CRS approved)
- (ii) Wood, Fire-Rated:** Birch face, incombustible mineral core, prepped for hardware, bearing appropriate label. Minimum 3 hinges per door.
- (iii) Wood, Flush, Non-Fire Rated:** Birch face, solid stave wood core, thickness as indicated. Minimum 3 hinges per door.
- (iv) Wood, Hollow Core:** Birch face. Minimum 3 hinges per door.
- (v) Steel, Exterior, 6-Panel Design:** Min. 24 gauge, baked-on primer, full insulation, and thermal break required, prepped for specified hardware: submit for approval.
- (vi) Steel, Exterior, Flush Design:** Min 18 gauge, galvanized, full insulation and thermal break required, prepped for specified hardware.

- 1) **Windows: Insulated glass in steel doors only. Single pane or insulated glass in wood doors. All windows set in caulk. Follow OBBC Glazing guidelines for type, size and safety.**
- (vii) **Frames**
 - 1) **Steel, Exterior Door Frame: Min. 16 gauge steel, galvanized, knock-down or pre-hung, at least 3 anchors per side, adjustable aluminum threshold, fully weather-stripped, shop primed.**
 - 2) **Wood Door Frame: Pine, 3/4", width as required, with 3/8"x1-5/6" stop or approved equal. Split jambs are not acceptable. Finger jointed jambs for painting only. New door units may be pre-hung.**
 - 3) **Attic Access Door: Hinged steel panel, with screwdriver-operated cam locks, to be covered with plasterboard or gypsum board: J.L. Industries (Bloomington, MN) Model CT or approved equal.**
 - 4) **Roof Scuttle: Site fabricated of 3/4" CDX plywood and 2x4s, covered with roofing, with matching curb at least 8" high. Min 2'-0"x3'-0" overall.**

(b) WORKMANSHIP

- (i) **General: Condition doors to average prevailing humidity in installation area prior to hanging.**
- (ii) **Installation: Install doors to comply with manufacturer's instructions and A.W.I. standards. Align and fit pre-hung units to walls with uniform clearances of 1/8" at jambs and heads, 1/16" per leaf at meeting stiles for pairs of doors, and 1/4" from bottom of doors to top of finish floor. Where threshold is shown or scheduled, provide 1/4" clearance from bottom of door to top of threshold. Bevel doors 1/8" in 2" on both sides and machine doors for hardware if required. Hinges mortised into jamb and door. Install shims and securely nail jamb by the striker plate and hinges.**
- (iii) **Operation: Contractor shall refit/rehang doors which do not swing or latch smoothly or are hinge bound. Replace any doors that are damaged during installation.**
- (iv) **Hardware, Jamb, and Trim Repair, and Weather-stripping: Refer to appropriate sections of this specification. Dean bolt striker screws shall be long enough to penetrate through jamb and into rough framing.**
- (v) **Painting: Wood door face and edges should be sanded and ready for stain or paint.**

Section 7.06 EXISTING WOOD DOOR, FRAME AND TRIM REPAIR

(a) MATERIALS

- (i) **Stock for Replacing Damaged Jambs: Pine, fir, or other approved softwood, thickness to match that of the jamb.**

- (ii) **Wood for Door Repairs: Wood of the same species and thickness as the door.**
 - (iii) **Glue for Interior Jamb and Door Repairs: Elmer's Carpenter's Glue, "Titebond," or approved equal.**
 - (iv) **New Sills for Exterior Doors: Oak, width to match existing.**
 - (v) **New Door Trim: Kiln dried pine, D-Select or approved equal. Match existing width.**
 - (vi) **Hinges: Refer to "Builders Hardware."**
 - (vii) **Weather-Stripping for Exterior Doors: Sides and top: 7/8" aluminum with vinyl bulb seal, "Pemko" 160 or approved equal, screw in place. On door bottom, use adjustable rubber or felt door sweep.**
 - (viii) **Wood Preservative: Cuprinol Clear.**
 - (ix) **Impact-Resistant Filler: "Bondo" or similar 2-part polyester or epoxy filler.**
- (b) WORKMANSHIP**
- (i) **Unused Hardware: Remove all hardware that is not to remain in use. Fill all empty holes and mortises.**
 - (ii) **Door & Jamb Repair: Where damage is extensive, replace damaged jamb with new jamb to match. Repair all door mouldings.**
 - (iii) **Old Hinge & Striker Plate Mortises: Holes from Old Locks & Locksets in Jamb & Doors: Clean out holes and mortises, fill with impact resistant filler.**
 - (iv) **Sill Replacement: Remove existing sill. Provide solid support beneath new sill. Caulk or glue to prevent air infiltration. Fasten with screws, set in and filled.**
 - (v) **Exterior Trim Replacement: Shim 3/4" stock to match existing 7/8". Replace top flashing where top trim is being replaced. Repair all loose or damaged trim moulding, replace missing or unrepairable mouldings with closest stock. Submit for approval.**
 - (vi) **Hinge Replacement: Replace broken or damaged hinges with new.**
 - (vii) **Door Re-hanging: If door is not operating smoothly, closing tightly, or has large gaps at top or bottom; adjust hinge(s), add strip(s) at top or bottom, plane edge(s) of door, and adjust passage set (or lockset) and strike so that the door works easily with a uniform space of about 1/16" at the hinge side and 1/8" on the other three sides.**
 - (viii) **New Lockset and/or Deadbolt: Install new lockset and deadbolt, as listed in specifications, following all manufacturer's directions. On completion, they shall work easily and latch snugly. Coordinate with "Builders Hardware."**

- (ix) **New Doorknobs:** Where knobs are missing or damaged, install new brass-plated spun steel knobs with threaded spindles and matching roses.
- (x) **Old Hardware:** Clean and repair existing hardware that is to remain, as listed in specifications.
- (xi) **Badly Weathered Areas on Door and Jamb (if required):** Sand smooth and treat with preservative.
- (xii) **Weather-stripping for Wood Exterior Doors:** Install the weather-stripping around all four edges of the door. Adjust so that the door seals tightly yet operates easily. Securely screw door sweep in place on inside face.
- (xiii) **Painting:** See Section 8.01 for exterior painting. Sand and seal all edges of door. Make ready for stain or paint.

Section 7.07 ALUMINUM STORM WINDOWS AND DOORS

(a) MATERIALS (with CRS approval)

- (i) **Samples:** Submit manufacturer's product literature for style and color samples subject to approval by the Homeowner and CRS Program Associate.
- (ii) **Storm Windows:** Factory fabricated vertical operating triple-track aluminum storm windows made from solid extrusion with a minimum wall thickness of .045 min. Include an adjustable bottom expander, center mullion bar, and a fabric screen. "Seaway" or equivalent.
- (iii) **Storm Doors:** Aluminum combination, with aluminum bottom panel and glass/screen upper panel, with baked-enamel finish. Include basic latch, hydraulic pump, crash chain, fabric screen, and an adjustable door sweep for bottom of door. "Seaway" or equivalent.
- (iv) **Caulking:** Acrylic latex or approved equal. Color to match windows and doors.

(b) WORKMANSHIP

- (i) **Field Measurement:** Manufacturer's representative shall take field measurement prior to fabrication of window and door units.
- (ii) **Window Installation:** Comply with manufacturer's instruction for installation. Set storm window and door units plumb, level and without distortion securely fastened to blind stop. Align storm window meeting rails with wood sash meeting rails. Caulk sides and top of storm window before installation. Caulk sill after installing, with at least two drainage slots left clear for drainage. Adjust inserts, screws and hardware to provide a tight fit at contact points. Upon completion all storm sashes and screens shall slide freely and latch snugly for a good, draft-resistant seal and shall be removable from inside.

- (iii) **Door Installation:** Comply with manufacturer’s instruction for installation. Set door units plumb, level, and without distortion. Securely fastened to brick mold. Caulk edges of door. Securely attach hydraulic pump to a solid jamb or blocking. Adjust frame, pump, and latch for a proper closing and fit.
- (iv) **Cleaning:** Upon completion all storm window glass and wood window glass shall be cleaned completely of caulking, paint, and dirt.

Section 7.08 WOOD STORM DOORS

(a) MATERIALS

- (i) **New Doors:** Match existing or specified new design. Submit for approval.
- (ii) **Stock for Replacing Damaged Jambs:** Pine, fir, or other approved softwood, thickness to match that of the jamb.
- (iii) **Wood for Door Repairs:** Wood of the same species and thickness as the door.
- (iv) **Glue for Exterior Jamb and Door Repairs:** Waterproof glue, epoxy or resorcinol (Elmer’s waterproof glue)
- (v) **New Sills for Exterior Doors:** Oak, width to match existing.
- (vi) **New Door Trim:** Kiln dried pine, D-Select or approved equal. Match existing width.
- (vii) **Hinges:** Refer to “Builders Hardware.”
- (viii) **Weather-stripping for Exterior Doors:** Sides and top: 7/8” aluminum with vinyl bulb seal, “Pemko” 160 or approved equal, screwed into place. On door bottom, use adjustable rubber or felt door sweep.
- (ix) **Wood Preservative:** Cuprinol Clear
- (x) **Impact-Resistant Filler:** “Bondo” or similar 2-part polyester or epoxy filler.

(b) WORKSMANSHIP

- (i) **Unused Hardware:** Remove all hardware that is not to remain in use. Fill all empty holes and mortises.
- (ii) **Door & Jamb Repair:** Where damage is extensive, replace damaged jamb with new jamb to match. Repair all door mouldings.
- (iii) **Old Hinge & Striker Plate Mortises:** Holes from Old Locks & Locksets in Jambs & Doors: Clean out holes and mortises, fill with impact resistant filler.
- (iv) **Sill Replacement:** Remove existing sill. Provide solid support beneath new sill. Fasten with screws, set in and filled.
- (v) **Exterior Trim Replacement:** Shim 3/4” stock to match existing 7/8”. Replace top flashing where top trim is being replaced. Repair all loose or damaged trim moulding, replace missing or unrepairable mouldings with closest stock. Submit for approval.

- (vi) **Hinge Replacement:** Replace broken or damaged hinges with new.
- (vii) **Door Re-hanging:** If door in not operating smoothly, closing tightly, or has large gaps at top or bottom; adjust hinge(s), add strip(s) at top or bottom, plane edge(s) of door, and adjust passage set (or lockset) and strike so that the door works easily, with a uniform space of about 1/16” at the hinge side and 1/8” on the other three sides.
- (viii) **New Lockset and/or Deadbolt:** Install new lockset as listed in specifications following all manufacturer’s directions. On completion, they shall work easily and latch snugly. Coordinate with “Builders Hardware.”
- (ix) **New Doorknobs:** Where knobs are missing or damaged, install new brass-plated spun steel knobs with threaded spindles and matching roses.
- (x) **Old Hardware:** Clean and repair existing hardware that is to remain, as listed in specifications.
- (xi) **Badly Weathered Areas on Door & Jamb (if required):** Sand smooth and treat with preservative.
- (xii) **Weather-stripping for Wood Exterior Doors:** Install the weather-stripping around all four edges of the door. Adjust so that the door seals tightly, yet operates easily. Securely screw door sweep in place on inside face.

Section 7.09 BUILDERS HARDWARE

(a) MATERIALS

- (i) **Samples:** Submit samples of all hardware prior to installation for approval by the Homeowner and HHP Associate.
- (ii) **Exterior Doors:**
 - 1) **Lockset:** Schlage FB150V PLY605, polished brass.
 - 2) **Door Frame Reinforcer:** MAG P/N 2261 (or equivalent) PBV 2-3/4”
 - 3) **Hinges:** 3 pair Stanley 4”x4” butts, brass-plated.
- (iii) **Strikes:** Provide manufacturer’s standard wrought box strike for each keyset or lockbolt, finish to match hardware. Latchbolt strikes shall have a curved lip extended to protect frame. Provide frame reinforce.
- (iv) **Finish:** All units to have bright brass finish, unless noted otherwise. Provide matching finishes for hardware units at each door opening to the greatest extend possible.

- (v) **Keying:** Key per Homeowner's specifications.
- (b) **WORKMANSHIP**
 - (i) **General:** Exterior doors and entrance doors to apartments to receive new keysets and deadbolts as indicated above.
 - (ii) **Installation:** Install each hardware item in compliance with manufacturer's written instructions. Do not install surface mounted items until finishes have been completed on substrate.
 - (iii) **Adjusting:** Adjust and check each item of hardware and each door to ensure proper operation. Replace units which cannot be adjusted for intended operation.
 - (iv) **Protection:** Protect all hardware from damage by wrapping with paper or other approved means, until final acceptance by homeowner.

Article VIII. FINISHES

Section 8.01 *EXTERIOR PAINTING*

- (a) **MATERIALS**
 - (i) **Paint Brand:** Quality paint to be used. Brands include Benjamin Moore, Sherwin Williams or equivalent
 - (ii) **Paint Color:** To be selected by the Homeowner. CRS Historic Preservation Specialist color consult is suggested.
 - (iii) **Knot Sealer:** BIN or oil-based primer
 - (iv) **Bare or exposed wood** should be primed with an oil-based primer.
 - (v) **Brick** should be painted with a mineral-based paint or silicate paint as designed to be reasonable and recommended for brick. Example brand: Keim
 - (vi) **Basement cinderblock walls** should not be painted; however, if the walls are currently painted effervescence and loose flaking paint should be scraped, wire brushed, and cleaned. Cleaner is recommended as TSP mixed with warm water, applied with household scrub brush. Rinse with clear water. A period of one week is recommended to let the wall dry before recoding with dry lock.
 - (vii) **Metal paint:** Rustoleum primer or zinc chromate primer. Alkyd, enamel, or latex finish coat.
 - (viii) **Wooden porch deck and steps:** two coats of deck enamel.
- (b) **WORKMANSHIP**

- (i) **Preparation of Exterior Wood Surfaces for Painting:** Use an adequate number of drop cloths to protect ground and surrounding surfaces from paint chips. NOTE: All paint chips must be swept or vacuumed up from all surfaces at the end of each work day. Remove all loose or damaged paint to sound substrate using sharp drag scrapers and heat guns. Power washing is acceptable if right chip and pressure are used. NOTE: Power washed wood must dry for a minimum of seven days before primer or paint is applied. All exposed wooden surfaces should be primed with an oil-based primer. Whenever mildew is present, appropriate cleaner should be applied before following with a clean water rinse. Allow affected area to dry before proceeding.
- (ii) **Lead:** All paint preparation shall comply with local, state, and federal regulations for handling and disposal.
- (iii) **Preparation of Metal Surfaces for Painting:** Remove all dust and debris from surfaces and prime with metal primer immediately.
- (iv) **Preparation of Masonry for Painting:** Remove all loose and scaling paint from brick surfaces using hand scrapers and hand wire brushes. **The use of disc sanders or other power tools is not allowed.** Use water and detergent, or approved masonry cleaner, to remove all dirt and mod from bricks. Allow to thoroughly dry before painting.
- (v) **Preparation of Fire-Damaged Areas for Painting:** Remove all charred wood by scraping. Remove dust and debris from site. Apply two coats of sealer. After wood is sealed, one coat of primer should be applied to all surfaces to be painted. Then one coat of finish paint may be applied.
- (vi) **Weather Conditions:** Do not paint when the temperature is or will be below 50 degrees F., when rain or cooler weather appears likely, or on surfaces that are not completely dry.
- (vii) **Protection & Clean-up:** Protect all adjacent surfaces. Remove all drips, spatters and excess paint from all window glass, roofs, pavement, floors, and other surfaces.
- (viii) **Manufacturer's Directions:** All painting work shall be carried out in strict accordance with manufacturer's directions and recommendations as to preparation, cleaning, mixing, and preparing painting materials and application.

Article IX. GARAGES

Section 9.01 NEW GARAGE REQUIREMENTS

(a) FOUNDATIONS:

- (i) **Floating Slabs for Garage Under 500 Sq. Ft.**

- 1) 4" concrete slab
 - 2) 6 x 6 x 6 welded wire fabric
 - 3) 6" wide curbs
 - 4) 12" deep rat wall
 - 5) 4" crushed stone base
 - 6) ½" x 7" anchor bolts spaced 6' on center
- (ii) For Garages Over 500 Sq. Ft.

- 1) 12" wide by 36" deep concrete footer
- 2) 4" concrete slab
- 3) 8" wide foundation block wall
- 4) 6 x 6 x 6 welded wire fabric
- 5) 4" crushed stone base
- 6) ½" x 7" anchor bolts spaced 6' on center

NOTE: All garage floors shall slope to the front overhead garage door for drainage. For driveways that obstruct the outward flow of water, or driveways that slope to the garage, a 12" minimum catch basin will be required in the garage.

(b) WALLS:

(i) Wood Frame

- 1) 2 x 4 stud wall, spaced 16" on center
- 2) single, wolmanize-treated bottom plate
- 3) double top plate
- 4) ½" plywood or OSB sidewall sheathing
- 5) exterior cladding as approved by the CRS, local city ABR and building code

(ii) Masonry

- 1) All masonry detached garages shall have the same foundation and wall requirements as set forth for a one-story dwelling

NOTE: At least one (1) window and a man door are required.

(c) ROOF:

- (i) 30 year shingles or better**
- (ii) 15# felt**
- (iii) 2 x 6 or larger framing members, 16" on center or 2 x 4 engineered trusses 24" on center**
- (iv) hurricane clips are required on rafters or trusses**
- (v) ½" plywood sheathing for rafters spaced 16" o.c., 5/8" plywood for rafters 24" o.c.**
- (vi) 2 x 6 minimum collar ties, 48" on center**

NOTE: Garages, or any building, greater than 100 sq. ft., must be equipped with gutters and downspouts. Garage roofs that are less than 500 sq. ft., and are situated within required setbacks where drainage will not cause a problem on private or public property may use a "French drain". Roofs that exceed 500 sq. ft. in area must have gutters and downspouts that are connected to the house storm sewer system.

(d) DOOR HEADERS:

- (i) Standard Gable Roof**
 - 1) Non-loading: Two (2) 2 x 12 for a 16' overhead door opening**
- (ii) Reverse Gable**
 - 1) Roof loading: 16' overhead door opening and depth of garage:**
 - a) 20' or 22' = 3/8" steel flitch plate or (2) 1¾" x 12 microlam**
 - b) 24' = 3/8" steel flitch plate or (2) 1¾" x 14 microlam**
 - c) 26' = ½" (2) 2 x ½" W steel flitch plate or (2) 1¾" x 14 microlam**
- (iii) Garages over 30' in depth must have a structural engineer size beam**

NOTE (1): Garages shall not exceed fifteen feet (15') in height. The height of a gable or hip roofed structure is the midpoint between the peak and eave line.

NOTE (2): Garages must be built with the following minimum electrical requirements

- a) Snap switch in garage to disconnect circuit
- b) One (1) GFCI protected duplex outlet and one (1) single pole outlet for a garage door opener
- c) One (1) light fixture over each car space
- d) One (1) light fixture at man door
- e) #12 underground feeder wire with ground, or #10 overhead conductors with ground

Section 9.02 GARAGE REPAIRS

(a) GARAGE FLOOR:

- (i) Garage floors under 500 sq. ft. may be replaced as a floating slab (see attached drawing for detail).
- (ii) Floors greater than 500 sq. ft. require a footer (see drawing). Structure must be safely jacked and old floor removed completely. A four inch (4") curb is required around the perimeter along with ½" anchor bolts spaced six inches (6") o.c.

(b) SILL PLATES & STUDS:

- (i) Sill plates and studs must be replaced with pressure-treated wood.
- (ii) Sections of rotten wall stud must be cut and removed from any sound adjacent substrate. Replacement studs must be at least two feet (2' – 0") longer than the piece being removed, and "sistered" into the original stud.

(c) LEANING WALLS:

- (i) Cross bracing shall be installed once walls are plumb to prevent future movement.

(d) ROOF:

- (i) Closely examine rafters and sheathing of both gable and shed roofs to determine if water damage is present. Rafters may be sistered, as described in "Sill Plates & Studs" above, however, rotten sheathing must be replaced which involves a tear-off of the exterior covering to replace boards as necessary.
- (ii) Check for low or uneven areas on shed roofs. Roofing material must run up the sides of the parapet and coping must be repaired or installed. Gutters must be present, well attached and functioning on gable roofs. Downspouts must be attached to a storm sewer system or an operable "French drain" must be present in the yard. Damaged or missing areas of roof covering must be replaced in kind.

(e) WOOD SIDING, SHINGLES & TRIM:

- (i) All clapboards, shingles, and trim that are missing, damaged, rotten or have cracks more than twelve inches (12") long must be replaced.**
- (ii) Regardless of the amount of replacement that may need to be done, wooden siding and shingles shall be replaced in kind, with all dimensions, surface texture, taper, and color matching the original exactly.**
- (iii) Peeling, chipping or damaged paint must be carefully removed. All bare wood must be primed and painted.**

(f) GARAGE DOORS:

- (i) Both overhead and man doors shall be plumb and level, operate with ease, and close completely.**
- (ii) Overhead doors shall not have a lifting weight of more than forty pounds (40#).**
- (iii) Installation of a safety feature to stop automatic doors, should anything pass by it while the door is in operation, is recommended.**

(g) MOISTURE:

- (i) Ensure that soil around the perimeter of the garage is at least eight inches (8") below any type of wood siding to reduce the possibility of moisture retention. If this is not possible, consider replacing the bottom piece or course with pressure-treated wood that has been primed and painted prior to installation.**
- (ii) If the structure is not currently ventilated, allow heat to escape by installing a ridge vent in a gable roof, or louvered side-wall vents into a shed roofed garage. Soffit vents can also be an installation option for either type.**

(h) ELECTRICAL SERVICE:

- (i) Consider installing a new grounded line from the fuse/circuit breaker box in the house, as well as a new receptacle box inside the garage with a Ground Fault Interrupter.**
- (ii) A motion-detecting security light is another useful and practical update to undertake when having your garage repaired.**