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# Rehabilitation Specifications

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Iowa Northland Regional Council of Governments  
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## **DIVISION 01000 – GENERAL CONDITIONS**

### ***01340 SPECIFICATION PREFACE***

- A. This Rehabilitation Specification Manual describes the materials and methods required to accomplish the work called for in the Project Specifications.
- B. Reference to the Rehabilitation Specification Manual provided in the Project Specifications are to be interpreted as a starting point only, and are not to be construed as limiting the responsibility of the general contractor or any subcontractor to adhere to other applicable sections of the Rehabilitation Specification Manual.
- C. Parties performing the work specified in the Rehabilitation Specification Manual are subject to the conditions and terms set forth in the Invitation to Bid, the Instructions to Bidders, the Project Specifications, the Drawings (if applicable), and the Rehabilitation Contract.

### ***01350 WORKMANSHIP***

- A. All work shall be performed by persons skilled in their respective trades and shall be accomplished in a workmanlike manner, in accordance with governing codes and safety regulations.
- B. The general contractor and any subcontractors shall furnish all tools and equipment necessary in carrying out the work, and shall adequately protect all surfaces and construction while performing the work. Such protection shall be maintained as long as required.
- C. The general contractor and any subcontractor shall schedule and perform all work in full cooperation; any consideration for work performed rests with the general contractor.
- D. The general contractor shall be responsible for the removal of all stains, soil, debris, labels and tags resulting from the performance of the work. At the completion of the work, the general contractor shall clean all appropriate surfaces as required to leave the premises in a sanitary condition.

### ***01360 MATERIALS***

- A. A. Materials specified in the Rehabilitation Specification Manual or the Project Specifications shall be used in the performance of the work. All materials referred to by proprietary name in either document implies that the words "or written approved substitution" are included thereafter.

### ***01370 SPECIAL CONDITIONS***

- A. All work shall be carried out in accordance with the Rehabilitation Specification Manual and Project Specifications, and in compliance with all local codes. Where no local codes exist and the Rehabilitation Specification Manual are silent, local building practices will govern, subject to the approval of INRCOG.
- B. All required permits shall be secured by the general contractor and included in the total bid price. Where applicable, it shall be the responsibility of the general contractor to ensure that all rough-in, in-progress and final inspections required by local codes are requested in a timely fashion. The general contractor shall further ensure that, where applicable, all subcontractors are licensed as required by local codes or ordinances.

- C. Submittals, drawings, and tests called for in the Rehabilitation Specification Manual shall not be required except when requested on a case-by-case basis by INRCOG.
- D. In the event that hidden expense is uncovered during the course of the work, the contract price shall be amended accordingly. All reasonable requests shall be honored, at the discretion of INRCOG staff. Change Orders shall be prepared and their approval secured before any additional work shall be undertaken.
- E. Special treatment shall be required for all surfaces confirmed or suspected to be covered with lead-based paint. The general contractor shall be responsible for promptly notifying INRCOG of suspected lead-based paint hazards. The contract price shall be amended to correct such hazards.
- F. Early warning fire protection devices shall be installed in each residence being rehabilitated. Smoke detectors shall be installed adjacent to sleeping areas, and where bedrooms are located on more than one floor, smoke detectors shall be installed on all floors containing bedrooms.
- G. One carbon-monoxide detector shall be installed in each residence being rehabilitated. Carbon monoxide detectors shall be installed on the first floor of each home. Combination smoke detectors/carbon monoxide detectors are acceptable.
- H. All residences being rehabilitated shall, at the completion of the work, comply with the appropriate sections of the STATE & NATIONAL ELECTRICAL CODE regarding the minimum number and type of convenience outlets, switched overhead lighting fixtures, the exterior lighting of entries, and related items. Division 14000 of this Rehabilitation Specification Manual prescribes minimum installation requirements.

## **DIVISION 02000 – SITE WORK**

### ***02010 DEMOLITION***

- A. Demolition shall be done according to City Ordinance. If no City Ordinance exists, contact INRCOG for General Demolition specifications.
- B. A Demolition Permit may be required for demolition. Contractors should check with the City Clerk to determine if a permit is required.
- C. Any damage done to structures and/or premises shall be corrected by the contractors.
- D. Contractors are responsible for properly disposing of all demolished material.***
- E. Disconnect all utilities before demolition.***
- F. Safety Fencing: The Contractor shall furnish and place a safety fence around the site of the work adequate to secure the demolition site, including any resulting debris or excavation, and to prevent pedestrian access. The fencing, including all materials, shall be considered incidental to the demolition. The safety fence shall remain in place until the demolished materials are removed from the site and all holes or excavated areas are backfilled. The fencing material shall remain***



*the property of the Contractor.*

**02020 EXCAVATION**

- A. Excavate as required by Building Code. Allow for working space. If suitable bearing is not found, notify INRCOG before proceeding.
- B. In the event of over excavation, use compacted backfill or a continuous pour of concrete to the required grade.

**02030 BACKFILL**

- A. Use only materials free of roots, stumps, wood, cinders, trash and stones no larger than four (4) inches in diameter.
- B. Fills shall be placed in successive layers not exceeding eight (8) inches loose measure. Each layer shall be adequately and uniformly compacted.
- C. All fill shall be compacted to a density which will avoid damaging settlement to walks, driveways, lawns and other site improvements.
- D. Backfill shall not be placed upon muddy or frozen surfaces which contain frost or ice.
- E. Settlement or washing that occurs in backfilled areas prior to the acceptance of the work, shall be repaired and upgrade reestablished to the required elevation.
- F. Rough grades shall be established at four (4) inches below the finish grade.
- G. Do NOT backfill before 7 days prior to initial pour of concrete.**

**02040 TOPSOIL**

- A. Topsoil shall be used to establish the finish grade. Height of finished grade is to be maintained for one year. If settling occurs during this time, regrading shall be the contractor's responsibility. ***Top soil to be free of organic matter, rock and all other debris***
- B. The topsoil shall be uniformly distributed on the designated areas and evenly spread to a minimum of four (4) inches for lawn areas to be seeded. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions where water will stand.

**02050 SAND FILL**

- A. 1. Use acceptable local materials, compacted to a depth as specified. Sand shall be free of clay, rock or gravel larger than two (2) inches in any dimension. It shall also be free of debris, waste, frozen materials, vegetable and other deleterious material.

#### ***02060 TILLING & SEEDING***

- A. ***All ground shall be adequately tilled prior to seeding.*** The seed shall be uniformly distributed over the areas to be seeded at the rate of four (4) pounds per 1,000 square feet. The seed shall be lightly covered by raking.
- B. All seed shall be new seed labeled in accordance with U.S.D.A. Regulations. The germination rate shall be at least 85%.
- C. When an area has been completed, the area shall be thoroughly cleaned. Debris, rubbish, subsoil and waste materials shall be cleaned up and removed from the property.
- D. The newly planted areas shall be watered to promote seed germination. Watering shall extend through the contract period to the final inspection. At the time of final inspection, the homeowner will be responsible for continuing the watering.

#### ***02070 FILL AND SEAL CISTERN***

- A. Break concrete bottom, remove or cut and seal tap lines leading from the cistern.
- B. Fill cistern to within four (4) feet of the surface using appropriate backfill material and methods.
- C. Break out top walls and remove same from property. Continue to back fill to a rough grade, four (4) inches below the surface. Fill with topsoil to a finish grade, seed, fertilize and water as provided by those sections of this document. ***Top soil to be free of all organic matter, rock, and other debris.***

#### ***02080 TERMITE TREATMENT***

- A. Treat entire structure in strict compliance and in accordance with accepted termite control practices, including, as necessary: structural modifications; soil poisoning; drilling; and flooding of masonry voids.
- B. Obtain termite warranty from the qualified applicator and present to INRCOG, with lien waivers, at the time of final payment.

#### ***02090 TREE TRIMMING***

- A. Tree branches that are scraping or touching either the side or roof of a house shall be trimmed back a minimum of 1 foot.
- B. Trees inhibiting construction processes may be trimmed within reason to complete the relevant job.
- C. Clean the immediate and surrounding areas. Properly dispose of all tree trimmings.

## DIVISION 03000 – CONCRETE

### 03010 MATERIALS AND METHODS

- A. Concrete for footings and interior slabs shall be 2,500# ready-mixed air entrained. Concrete for sidewalks, patios and parking slabs shall be 4,000# ready-mixed air entrained.
- B. Concrete shall not be placed on frozen ground or when the temperature is below 40 degrees Fahrenheit unless special measures are taken.
- C. Concrete shall not be poured when temperature is above 80 degrees Fahrenheit unless special measures are taken.

### 03020 FOOTINGS

- A. Footings shall set on undisturbed soil or approved compacted backfill, which is free of organic material. Poor bearing soil shall be removed to extent required for footing loads and replaced with a minimum of eight (8) inches of compacted backfill material.
- B. Unless otherwise shown, footings shall be sized as per Code requirements, centered directly under the wall and reinforced with two (2) #4 bars, three (3) inches up from bottom of excavation and three (3) inches away from side excavation. Bars shall be lapped 18 inches at splices and shall run continuously around corners.

### 03030 WALKS

- A. City sidewalk to be as required by City Code. If no specifications exist per the City Code, use the General Portland Cement Sidewalks, Driveways, and Handicapped Ramps Specifications.
- B. Unless otherwise specified, all exterior concrete walks and slabs on grade shall be a minimum of 4 inches thick. Sidewalk should be of the width as removed, unless called out otherwise in project Specifications. Sidewalks across driveway areas should be a minimum of 6 inches thick.
- C. *New sidewalks shall not be less than 36" wide to accommodate wheelchair bound persons.*
- D. During hot weather, cure concrete by methods approved as per the City Specifications or the General Portland Cement Sidewalks, Driveways, and Handicapped Ramps Specifications.
- E. *Expansion cuts must be made through approximately 1/3 of walk, in length intervals equal to the walks width. Make cuts after form removal (see #10)*
- F. *Insert expansion joints between new and existing sidewalks before the walk is poured.*
- G. *Screed, pole float and broom across traffic to achieve finished product.*
- H. *Spray entire surface of the walk with a white pigmented, membrane curing compound. To be applied after form removal (See #10).*

- I. During wet weather, cover with plastic sheet or waterproof paper.
- J. Protect with barricades, fences or other means until concrete is set. Remove forms after 24 hours and restore grade, allowing for grass turf to finish flush with top of walk
- K. Protect from freezing for at least two (2) days after placement.

#### **03040 INTERIOR SLABS**

- A. When required by the Project Specifications or Code, place four (4) inches of sand on undisturbed or compacted fill. Rake and level to a uniform thickness. Place four (4) inch base course of clean graded gravel, no larger than two (2) inches and not smaller than 1/4 inch.
- B. Install a continuous 6-mil membrane on top of gravel. Precaution shall be taken so as not to tear the membrane during concrete placement.
- C. Concrete slab to be constructed with 3,000# concrete with a 3 inch minimum thickness. Finish with a steel trowel and slope entire slab to floor drain or a catch basin of a sump pump with a minimum slope of 1/8 inch per foot.
- D. Expansion cuts to be made in approximately 12' x 12' grids, 1/3 depth of the slab.**

#### **03050 EXTERIOR SLABS**

- A. When required by the Project Specifications or Code, fill area with four (4) inches pit run sand or a mixture of sand and gravel uniformly compacted.
- B. Place a four (4) inch slab over fill. If applicable, see drawings for slab detail. Control joints and expansion joints shall be used to divide slabs into approximate "squares" not exceeding 25 feet by 25 feet.
- C. Expansion cuts to be made in approximately 12' x 12' grids, 1/3 way through the concrete.**

#### **03060 SPLASH BLOCK**

- A. Size shall be 12" x 30" minimum and may be either job site formed or precast. When job formed, make at least four (4) inches thick with concrete depression sloped away from with concrete depression sloped away from building. Reinforce with wire mesh.
- B. Existing splash blocks that have settled shall be reset to drain away from the building.

#### **03070 STEPS (PRECAST OR SITE BUILT)**

- A. Exterior steps may be precast or site poured. If precast steps are used they must be set on a concrete slab or pier footings, which are to be included with installation if neither exists or existing are in poor condition. Form to accurate profile with riser height not to exceed 7 3/4 inches and tread to be a minimum of 11 inches. Round all nosings and provide fillet on internal corners. Broom across direction of traffic. If applicable, see drawings for details of reinforcing.
- B. Use 3,000# air entrained concrete.

- C. Provide protection as required for sidewalks.

#### ***03080 COLUMN FOOTINGS***

- A. Column footings shall be 24" x 24". Footing depth should be 42-48 inches. When concrete floor exists, cut opening as large or larger than column plate, then at a 45-degree angle, dig footing to required base width. Fill opening with 3,000# concrete. Anchor column to footing with a minimum of two (2) bolts. Add steel reinforcing bars as required.

#### ***03090 PORCH PIER FOOTINGS***

- A. Use post hole size width x 42- 48 inches deep. At the bearing level, flare out top at a 45 degree angle to the width and length of masonry pier being replaced.

#### ***03100 CONCRETE PORCH***

- A. Furnish and install concrete porch and step(s).
- B. Slab to be a minimum four (4) inch, 3,000# concrete placed on properly compacted earth and fill. Slab to be laid true and level. Install re-bars as required.
- C. *Screed, pole float and broom concrete across traffic to achieve the finished product.*

#### ***03110 REPAIR CONCRETE STEPS***

- A. Cut out or otherwise remove all deteriorated concrete.
- B. Thoroughly clean area, removing all loose particles. Dampen surface and apply heavy brush or slush coat of Thorite as manufactured by Standard Dry Wall Products, Inc., or equally prepared concrete patch mix, making certain all pores and voids are filled.
- C. Screed off and steel trowel patch so that it is level with surface.

#### ***03120 POURED CONCRETE FOUNDATION***

- A. Remove and replace complete foundation, as needed.
- B. Replace to 8" x 16" with 2 re-bars. Waterproof to meet all applicable codes.
- C. Install windows with wells to match location of previously existing windows unless otherwise noted. Provide for proper drainage from window wells.
- D. Replace any and all broken or damaged plumbing caused by the replacement of the foundation. Disconnect all sewer, water and gas lines as required. Provide for reinstallation of above services as necessary so that general contractor can hook up services where they enter the structure. If necessary, cap off any existing plumbing lines for facilities, unless new plumbing is required to be stubbed in.
- E. Check to make sure that opening is left in walls to allow for replacement (if necessary) of service lines.

- F. Backfill and tamp. Reset house. If required, reset porches to meet proper slope. Porches are to be adequately supported. Reset any and all steps to be properly functional.
- G. Tamp and slope ground adjacent to foundation to proper grade.
- H. Replace and/or patch all broken and/or damaged walks, service walks, patios, driveways, steps, unless otherwise specified in general contract.
- I. Regrade and seed as required.
- J. Repair and/or replace all broken and/or damaged materials on structure and/or outbuildings.

## **DIVISION 04000 – MASONRY**

### ***04010 CONCRETE BLOCK (PORCH SUPPORTS)***

- A. Use standard weight 8" x 16" face size, with wall thickness as required by code. Use concave ends for all block within the length of the wall and either square ends or corner block for all corners. Lay in running bond in full joints off mortar. Strike all joints and rod slightly concave on exterior to form a tight seal of mortar to block.
- B. Reinforcing shall be as required by the Uniform Building Code.
- C. Provide for proper ventilation.

### ***04020 MORTAR***

- A. One part masonry cement, three parts clean damp masons sand. (Vary as required by Code.)
- B. Tint mortar to match existing if required.

### ***04030 TUCK-POINTING***

- A. Remove and replace all deteriorated masonry or stone units that are no longer securely held with mortar.
- B. Remove all surface deteriorated mortar from units that are secure, back to a depth of at least 3/4 inch. Brush out joints free from dust and moisten slightly. Force mortar into joint, strike or rake and tool to match existing conditions. Tint mortar, if required, to match existing. Parge, if required.
- C. Do not apply to frozen or frost filled masonry or when temperatures are below 40 degrees Fahrenheit.

### ***04040 TEMPERATURE***

- A. When the air temperature is expected to be below 40 degrees Fahrenheit during the placing of concrete, or within 24 hours thereafter, the temperature of the concrete as placed, shall be not lower than 50 degrees Fahrenheit, and protected after placement during freezing or near freezing weather.
- B. Do not work below 40 degrees Fahrenheit unless special precautions are provided.

- C. Use of antifreeze agents or calcium chloride in mortar and concrete is prohibited.

**04060 PARGE COAT FOUNDATION - INTERIOR - EXTERIOR**

- A. Clean surface of existing masonry walls and all cracks in existing shelf wall. Remove efflorescence, mineral salts, grease, oils, etc. Repair all cracks or breaks. Lay prepared cement plaster on dampened brick walls with Tampico fibre brush or trowel and level out. If wall becomes dry or coating starts to pull during application, dampen the wall again. Do not apply in temperatures below 40 degrees Fahrenheit, or when temperature of work area is expected to fall below 40 degrees Fahrenheit within 24 hours. All work shall be in accordance with Code.

**04070 STUCCO**

- A. Stucco mixes shall be as follows:
  - 1. Scratch Coat: 1 part of Portland Cement; 3 parts sand; 10% lime putty
  - 2. Finish Coat: 1 part white Portland Cement; 3 parts sand; 10% lime putty
- B. Expanded metal lath shall weigh not less than 1.8 pounds per square yard.

**04080 REMOVE CHIMNEY - REPAIR CHIMNEY**

- A. Remove chimney:
  - 1. Remove brick to 18 inches below the roof. Cap with a tight fitting 26 gauge galvanized cover. Use caulking to seal tight.
  - 2. Fit support framing in so as to provide a solid support for 5/8-inch exterior sheathing. Use #15 asphalt-saturated felt. Piece in new roofing material to match as close as possible.
  - 3. Shingles used for the repair shall match as closely as possible, the color, style and quality of the existing roof.
  - 4. The contractor shall be responsible for any repair due to damage resulting from the removal of materials and labor involved in the removal and/or restoration of the chimney.
- B. Repair Chimney:
  - 1. Tear down and remove deteriorated masonry units to solid and sound material.
  - 2. Rebuild chimney using all new materials and new chimney shall match, as closely as possible, the color, size and style of previous chimney.
  - 3. Flash chimney adequately on roof to prevent future leakage.

#### **04090 CHIMNEY CAP**

- A. Remove old cap and check all masonry units for tightness. If loose, restore to a sound condition.
- B. Lay mortar wash of Portland cement from outer edge of brick to within 2" of the flue liner top.
- C. Use of a steel trowel at a 45-degree angle to assure fast runoff. Make sure there is a watertight seal between the flue liner and the mortar.

#### **04100 REBUILD WALLS - FOUNDATION**

- A. Tear down defective masonry units to sound surface. Rebuild using all new materials, matching existing in regard to color, size, style, joint, etc., as closely as possible.
- B. If replacement is of a complete wall, and footings are inadequate, new footings are required.
- C. Structure shall be adequately supported during entire operation.
- D. All work shall conform to Code.
- E. Do not backfill before 7 days prior to initialpour.**

#### **04110 MASONRY PIERS**

- A. Construct new porch piers for porch. If footings do not extend below frost line, excavate and pour new footings at required depth. All work shall conform to Code.

### **DIVISION 05000 – METALS**

#### **05010 RAILING - HANDRAILS**

- A. Railings and component parts shall be fabricated from mild steel or assembled and installed as per manufacturer's directions. All joints must be welded and ground smooth.
- B. Wrought iron handrails and railings shall be of 1/2" square balusters at 4 inches on center, and 3/4" new ells on 1" x 3/8" channel. Heights shall be according to Uniform Building Code for rails at steps and for rails at platform. *Wrought iron handrails are to be a welded product, not bolted together.***
- C. As per Code for height and openings. *If no city code, railing height must be a minimum of 34" not to exceed 38". Railing spindles to be a maximum of 4 inches inside to inside.***

#### **05020 FOUNDATION VENTING**

- A. Allow 150 square inches of vent area for each 100 linear feet of building perimeter, plus 1 square inch of vents area for each 2 feet of enclosed ground area. All vents to be aluminum, installed with caulking and aluminum nails into prepared opening cut with close tolerance.



### **05030 SIDING**

- A. Siding shall be steel (as manufactured by U.S. Steel or equal) or aluminum (as manufactured by Alcoa or equal) or vinyl (as manufactured by Georgia Pacific or equal).
  - B. Metal Siding:
    - 1. Use lapped siding with box corners.
    - 2. Color to be chosen by owner.
  - C. Vinyl Siding
    - 1. See also section 10010 for further instructions.
  - D. Air Infiltration Barrier
    - 1. None required unless specified by Bid Documents.
    - 2. Must have a minimum of 64 perforations per square inch.
  - E. Nailing
    - 1. All existing loose nails must be driven in and all deteriorated existing boards must be replaced so as to present a solid nailing surface for the new siding.
    - 2. All nailing is to be done in slots provided and drawn up snug but not tight, *approximately 1/8 inch* to provide for expansion and contraction.
    - 3. ***Nailing to be driven into wall studding.***
- NOTE: DO NOT USE STAPLES, unless recommended by manufacturer.
- F. Accessories
    - 1. Any style metal accessory, including nails, provided for installation, must be in matching metal.

### **05040 TRIM WRAP**

- A. Install aluminum wrap to exterior trim surfaces, as bid.
- B. Windowsill wrap to be installed to butt against exterior edge of interior sill; caulking at all edges.
- C. Installation of all wrap to be in workmanlike manner, with no gaps or exposed under-coverings and with no ripples.
- D. ***All seams and holes in house wrap to be taped and sealed to prevent water seepage. Tape to be determined by house wrap manufacturer.***
- E. Door and window trim must be completely wrapped with aluminum. Aluminum is to be folded back

against the house before applying new siding. Sills are to be completely wrapped with aluminum. *Metal is to wrap around window/door molding and bent to lap onto exterior wall sheathing by 1 ½ inches all the way around, except under door sill. This is to be done before installing fanfold, J-Channel and house wrap. This method will help prevent future water seepage. The joints must fit tightly with a minimum amount of caulk used. Caulk is to be 100% silicone or urethane based. The J-channel must lay flat and form smooth tight fit corners.*

#### **05050 FLUE LINERS**

- A. Furnish and install prefabricated metal liners as approved by the Uniform Mechanical Code.
- B. Liners shall be installed according to manufacturer's specifications to within 6 inches above top of exterior brickwork. All work shall comply with all applicable codes.

#### **05060 SOFFIT AND FASCIA COVER**

- A. Install aluminum soffit and fascia cover on areas of house as per Bid Documents.
- B. Aluminum soffit system to be Rollex, Alcoa or approved equal system. Install complete with all moldings required as per manufacturer's instructions.
- C. Job-formed fascia cover will be allowed when circumstances prevent usage of factory-formed fascia cover. Job-formed shall match in color, etc. Minimum thickness to be .019" aluminum.
- D. Installation of all aluminum soffit and fascia cover to be in workmanlike manner, with no gaps or exposed under-coverings.
- E. Soffit to be secured to exterior wall of house with aluminum F-channel and fascia on the opposing side.*
- F. Soffit to be solid in gable ends and under covered porch areas. To be vented otherwise.*
- G. Color and style as per Bid Documents.

#### **05070 DRYER AND EXHAUST VENTS**

- A. All dryer vents and exhaust fans must be installed using solid galvanized or aluminum 4" metal duct. No flexible plastic or metal vent will be allowed.

#### **05080 METAL WORK AND GUTTERING**

- A. Materials: Unless otherwise specified, all sheet metal work on exterior of building shall be *seamless*, galvanized metal and shall be at least 26 gauge or .32 aluminum. Screws, bolts and other accessories shall also be galvanized or aluminum *and must include rubberwashers*.
- B. Finish: Treat all chimney galvanized metals with rust preventative primer, (Rustoleum or approved substitution) according to manufacturer's directions. Follow with one coat of first quality paint as specified in Section 09080.2.a. Aluminum metals, where approved, shall be treated with zinc chromate primer.

- C. Gutters shall be installed having a 5" minimum width at the top and shall be supported with 1" x 3/16" hanger or spikes at a minimum of 1/2" below slope line in roof. Slope to downspouts at a rate of 1/16" per foot.

Do not allow contact between galvanized and copper or aluminum, this includes dissimilar nails. Partial replacement or repair shall match existing as closely as possible as to materials, finish, size, and shape.

- D. *All new gutter to be of the seamless type.*
- E. *Gutter guards- all gutter installations are to include gutter guards of the continuous metal mesh type or the sections of the vinyl type. Both types must fit under the shingle and extend to the front of the gutter. All installations must fit securely and be able to keep leaves and twigs from filling the gutter and downspouts.*
- F. Downspouts shall be a minimum of 2" x 3" aluminum or galvanized, secured to building with aluminum metal straps at a maximum of 6'0" spacing. Fit with elbows to divert water into concrete splash blocks or fold-up extensions.
- G. Unless otherwise specified, pre-painted, aluminum or galvanized gutter, downspout and accessory will be provided.

## **DIVISION 06000 – CARPENTRY AND MILLWORK**

### **06010 FRAMING**

- A. Framing lumber shall be kiln dried, Douglas Fir, White Wood, construction grade or equal.
- B. *Framing residing on concrete shall be green, treated lumber.*
- C. Framing work shall be accomplished in a level, *square*, plumb and true manner. Notching and cutting of framing members SHALL NOT be done without approval of INRCOG.
- D. Galvanized nails shall be used on exposed exterior work.
- E. *Any plumbing passing through rough framing shall be protected with an 1/8 inch, protective, steel plate. Plate is to be installed on the exterior of framing where the plumbing exists. Purpose is to prevent future nailing from being driven into plumbing.*
- F. *Wall sheathing to be a minimum of 7/16" not to exceed 1/2" plywood or Oriented Strand Board (OSB). To be installed in a square manner with no gaps.*
- G. *Attic access passage ways, scuttle holes shall be no less than 22" by 30" or the size of the original construction.*

### **06020 FLOORING**

- A. Sub-flooring shall be 3/4" tongue and groove plywood *or OSB* unless otherwise specified.

- B. Plywood shall be Douglas fir. Glue and nail all plywood.
- C. Nail plywood sub-floor to joist at each bearing point with 8d or 6d ring-shank nails spaced 6" on center at edges and 8" on center along intermediate bearing points.
- D. Common boards used as sub-flooring, when allowed, shall not be over 8" wide or less than 3/4" thick when laid on joists spaced at 16" oncenter.
- E. Nail boards with 8d or 6d ring-shank nails. Provide two nails in 4" to 6" boards and three nails in 8" boards.

**06030 ROOF SHEATHING**

- A. Roof sheathing shall be exterior grade plywood or exterior grade OSB flake board with a minimum thickness as provided by Code but not less than 1/2", unless applied over existing sheathing, in which case, thickness may be 3/8". No mill certified material will be accepted. ***Appropriate sized Panel Clips (H-Clips) to be used on each sheet between every rafter/truss.***

**06040 UNDERLAYMENT**

- A. Underlayment may be required whenever vinyl sheet goods or vinyl tile is installed.
- B. Underlayment shall be 1/4" or 3/8" thick exterior solid core plywood or 1/4" thick Armstrong "Temboard" or equal. Nail with coated or ring-shank nails spaced (2" apart on all edges and 4" apart over the entire face of each sheet. Glue as necessary). Finish work shall be free from protrusions of any kind and shall be feathered with rock putty to provide a smooth surface for finish flooring. Particle board shall not be used.

**06060 FINISH LUMBER**

- A. Finish lumber shall be of a species suitable for its intended use, free from tool marks and other objectionable defects.
- B. Interior Trim: Shall match, as closely as possible, existing adjacent work in design and dimension. If matching trim is not available, written approval from INRCOG is needed to substitute materials. ***Trim corners to be tight fit and mitered at 45 degrees. Other means such as coping are preferred on inside corners of baseboard/quarter round.***

**06070 CABINET WORK**

- A. Requirements for all cabinets: Provisioned hardwood veneer face, solid hardwood frame and drawers, aluminum rails, self-closing hinges, brass hardware, nylon drawer guides, adjustable shelf heights, assembled.
- B. All cabinetry to be secured to interior wall studding with appropriate fasteners.***
- C. All cabinets to meet NKCA Cabinet Certification Standards.
- D. Counter tops and backsplash (minimum 4" high) shall be 3/4" thick particleboard, 1-1/2" front edge, 25"

wide. Cover all exposed surfaces and edges with laminated plastic (Formica or equal). Butt internal and external corners. Fabricate all elements of cabinets that abut walls to permit a scribe fit.

- E. Cabinet fabricator shall cut opening for sink from template obtained from plumbing contractor.
- F. Pre-finished cabinet finishes or cabinets finished on site shall match existing woodwork or shall be oak where existing woodwork is painted, unless otherwise noted. Homeowner to select color and finish.
- G. Cabinet finishing shall be responsibility of contractor performing interior construction.
- H. When counters and/or cabinets are specified, the removal and reinstallation of any built-in fixtures shall be included.
- I. Any interfaces with pre-existing surfaces shall be treated so as to leave a finished appearance when the new cabinets have been installed, i.e., paint shall match, brick veneer or tile shall fit, voids filled up or covered or with soffit work in case ceiling height cabinets pre-existed.

#### **06080 EXTERIOR SURFACES**

- A. Exterior surfaces, such as cornices, walls, soffits, rake board and molding, shall be repaired, removed and/or replaced to match existing.
- B. Surfaces to be repaired shall have all decayed or deteriorated parts removed and replaced with new parts matching original work. Back-up framing shall be repaired to permit this work.
- C. Where cornices, roofs, porches or other building parts are to be removed, treatment of the wall exposed by such removal shall restore its appearance to original.
- D. New fascia or frieze shall be #2 white pine, spruce or redwood or pressure-treated. Nail with rust proof nails. Renail all remaining loose fascia and/or frieze where required. ***Paint, stain or cap fascia with aluminum for future preservation.***

#### **06090 REPAIR INTERIOR STAIRS**

- A. Renail all loose, springy or squeaking treads, risers and stringers. Restore to tight, sound and safe condition. When replacement is required, use same species and size as original.

#### **06100 EXTERIOR WOOD STAIRS**

- A. Treads to be 2" x 10" pressure-treated; stringers to be 2" x 12" pressure-treated, resting on sound concrete footings. All work shall conform to Uniform Building Code. ***If no city code, steps rise must not exceed 7 3/4 inches.***

#### **06110 REPLACE CELLAR STEPS**

- A. Remove existing cellar steps, install new wooden open riser steps at required width and height. Treads to be 2" x 10" fir or pressure-treated, resting on sound concrete footing. All work shall conform to all applicable Codes.

#### **06120 ATTIC STAIRWAY**

- A. Construction to be housed out pine stringers, 1-1/8" pine treads, 3/4" pine risers. Provide solid bearing at top and bottom. A center stringer shall be installed when the distance between stringers is greater than 2' 6".
- B. Factory built stairs having wedged and glued treads and risers may be supported by two (2) stringers, provided width of stairs does not exceed 3' 6". Furnish and install all stock fir handrail and hanger brackets. Installation shall be in conformance to all applicable Codes. ***If no city code hand rail shall be 34-38" where the nose of the stair treads plane, spindles shall not exceed 4 inches inside to inside.***

#### **06130 MAIN INTERIOR STAIRS**

- A. Furnish and install shop made or site built interior stair system. Construction to be oak or fir treads and risers, stringers to be housed out pine. Provide solid bearing at top and bottom. A center stringer shall be installed when the distance between stringers is greater than 2'6". Factory built stairs having wedged and glued treads and risers may be supported by two (2) stringers, provided that the width of stairs does not exceed 3'6".

#### **06140 2" X 4" WOOD HANDRAIL AND RAILING (EXTERIOR/BASEMENT)**

- A. New handrail and railing shall be constructed of 2" x 4" redwood or pressure-treated lumber with intermediate rails. Heights shall be according to Uniform Building Code for rails at steps and for rails at porch. Where posts are required, use 4" x 4" redwood or treated lumber. All work shall conform to Uniform Building Code. ***If no city code, hand rail shall be 34-38" where the nose of the stair treads plane, spindles shall not exceed 4 inches inside to inside.***

#### **06150 ROUND WOOD HANDRAIL**

- A. Stock fir handrail on existing stairway. Installation shall be complete with brass plated handing hardware spaced not more than 5'0" apart. Stock to be dressed free of tool marks and other objectionable defects. Finish stock with two (2) coats of quality varnish or paint applied according to manufacturer's directions. All work shall conform to all applicable codes.
- B. Basement, 2nd floor, and attic handrails are to have a section of the handrail, on the top end, return to the wall at a mitered 45-degree angle.

#### **06160 CUSTOM MADE HANDRAIL**

- A. Handrail shall be custom-made rail system including starting newel, birch handrail, newel cap and pine balusters, and placed 5" on center. Installation shall conform to all applicable codes. ***Basement, 2nd floor and attic handrails are to return to the wall at a mitered 45-degree angle on the top and bottom.***

#### **06170 WOOD PARTITIONS**

- A. Partitions shall be 2" x 4" studs at 16" on center with base plate, single top plate for nonbearing, double plate for bearing and 1/2" drywall on each side. Tape, sand, texture and finish ready to accept paint unless otherwise specified. In locations where required by Code, use 5/8 Type "x" gypsum board.

**06180 NEW ADDITION**

- A. This specification is meant to include a complete enclosed watertight structure, ready except for mechanical or electrical equipment, for habitation. Cost shall include, but not be limited to:
1. 2"x 4" stud walls, 16" on center.
  2. 1/2" drywall, interior, taped, sanded and finished; ready to accept paint or other finishing materials.
  3. 1/2" plywood or fiber board (with proper bracing) sheathing exterior.
  4. Building paper.
  5. Fascia, soffit, downspouts, gutters and gutter apron.
  6. Siding as noted.
  7. Ceiling joists with 5/8" drywall, taped, sanded, textured and finished, ready to accept paint or other finishing materials.
  8. Roof rafters with 1/2" plywood sheathing and panel clips. Approved truss roof may be used.
  9. Shingles as noted.
  10. Attic vents.
  11. R-38 insulation (minimum) in ceiling with vapor barrier.
  12. 3-1/2" batt insulation in wall with vapor barrier. R-13 minimum.
  13. Floor joists, plates and sub-flooring.
  14. Underlayment and floor covering as noted.
  15. Base and all trim.
  16. Windows as noted. (To include screens.)
  17. Doors, combination doors and frame as noted. (To include screens.)
  - 18. Door and window header material.**
  - 19. Hangers and bracing.**
- B. 8" concrete block foundation, 8" x 16" footings with 1 #4 rebar, 10" lap at joints and set 42" below grade (or as noted).
- C. Reinforced concrete foundation walls for brick veneer or wood frame dwellings of 1/2 stories or less shall

be a minimum of 8" wide, and must be designed with sufficient rebars to give wall adequate strength to resist lateral pressure from adjacent earth and vertical loads.

- D. Foundation walls shall be set on a concrete 8" x 16" footing, or greater as may be required.
- E. All flashing as required.

#### **06190 INSULATION**

- A. As per Energy Conservation Standards (refer to section 16030 in this Manual).

#### **06200 BOX IN FLUE**

- A. Box around flue pipe using 2" x 4" studs, 16" on center maximum. Allow air space around pipe to meet code requirements. Cover with 1/2" drywall, taped, sanded and finished ready to accept paint or other finishing materials. Patch any scarring or holes resulting from removal of chimney.

#### **06210 CLOSET CONSTRUCTION**

- A. Closet construction shall extend from floor to ceiling unless otherwise noted in bid documents and shall include shelf and closet rod.
- B. Provide necessary wood framing required for a closet. Closet walls shall match existing walls in material and finish unless otherwise noted in bid documents, complete with moldings, trim, etc., to leave closet in a complete and finished state.
- C. Door construction shall be sliding bypass or bi-fold as noted in Bid Documents. ***Swinging doors will be permitted in openings not to exceed 36 inches.*** Install per hardware instructions.

#### **06220 CLOSET SHELF AND ROD**

- A. Shelf shall be 1" x 12" with metal or wood rod with required holders. Minimum clearance above shelf should be 8".
- B. All unfinished wood to receive one coat of stain and two coats of urethane.

#### **06230 WOODEN BEVELED, VERTICAL, & MINERAL FIBER SIDING**

- A. ***Furnish and install according to Bid Documents.***
- B. ***Installation shall follow manufacturer's specifications and codes regarding surface preparation, nailing, lap and joint staggering, etc.***
- C. ***Match to existing as closely as possible.***
- D. ***Caulk all gaps prior to applying paint.***
- E. ***If siding is to be painted, apply one coat of primer and one coat of exterior paint, as per Section 09080.***
- F. ***Allow for replacing and/or repair of sheathing and/or studs in areas where new sheathing and siding***



*will be installed as needed.*

#### **06260 RAMPS**

- A. Handicap ramps are to be a minimum of four feet wide with landings no less than 4' x 4'. Landings are required whenever the ramp changes direction and approximately every 12' to 16' of ramp. The ramps and landings may be specified as either being supported on posts 48" from the ground on concrete pads on grade. Handrails are to be on both sides and 34" to 36" high with a smooth, splinter free top rail. Spindles are not to exceed 4" inside to inside. The deck may be 2" x 4" or 1 1/4 inch deck boards. The ramp is to have one foot of run for every one inch or rise. All ramps and components are to be constructed of treated wood. All ramp hardware is to be galvanized.**

## **DIVISION 07000 – ROOFING**

#### **07010 ROOFING**

**A. Materials**

1. Roofs with slopes of 3/12 or greater: 240 pound, asphalt/fiberglass based laminate or three-tab self-sealing shingles with a **30-year warranty** (GAF or equal).
2. **Roofs with slopes of 2/12 may be shingled using a shingle with 8 inch exposure and if entire roof sheathing is covered in ice and water barrier. Only acceptable if city code adheres.**
3. Base sheet underlayment: 15# asphalt saturated felt. (Section 07010.2.B below)
4. Edge strip: roof edge must be style "D" with a drip edge; no gutter apron is to be used.
5. Rolled roofing may only be applied if the temperature is 45 degrees Fahrenheit or warmer, or if the roofing is warmed before unrolling. Apply in a "concealed nail" manner unless otherwise specified.
6. Flashing: All flashing must be replaced when reroofing. Flashing shall be 26 gauge galvanized, or .032- inch aluminum. On roof over 5/12 pitch, having open valleys, use the center raised preformed metal valley flashing. Counter flashing with siding or shingles required.
7. Nails: Galvanized roofing nails of proper length to penetrate into sheathing.
8. Plastic cement: Barrets "Elastigum" or equal. (For edge seal before nailing flashing).
9. **Galvanized material or aluminum to be used in all valleys. Galvanized metal to be a minimum of 26 gauge, aluminum 22 gauge.**
10. An ice and water barrier, GAF Winter Watch or equal must be used in valleys and along the bottom edge of all sloped roofs. **To be installed over the top of valley tin. Ice and water barrier to be 24 inches inside of interior walls on the bottom edge of a sloped roof.**
11. A starter strip is to be used under the first course of shingles with a tar strip **facing down** to seal the first course. A factory strip may be used or shingles with the tab cut off are to be used.

12. Rubber membrane or EPDM roofing is defined as .045" sheet rubber with sealed seams installed over approved sheathing or insulation board according to manufacturer's instructions.
13. Unless otherwise specified in the manual, all roofing materials must be new and fulfill the requirements of the Uniform Building Code.

B. Installation

1. Examine roof sheathing, cornice and eave edges, prior to starting work. Notify the Project Manager of any defects, and do not proceed until a change order is authorized. The term "RE-ROOF" shall include all porches, additions, and structures attached to the main structure (house). Vents shall be installed as stated in Section 05060.1.
2. Install metal drip edges.
3. One layer of 15" felt shall be installed over thoroughly dry deck, lapped 2-inch. Tack sufficiently to hold in place. Place starter strips and edge strips. At eaves, lay starter shingles projecting over roof sheathing.
4. Replace all lead or plastic pipe boots with new.
5. Nail each shingle with 5" exposure with four (4) galvanized large head roofing nails in accordance with manufacturer's directions for location of nails.

**07020 REPAIR ROOFING**

- A. Repair existing roof. All replacement materials shall match existing as closely as possible, and shall be installed according to manufacturer's directions and all applicable codes.
- B. Shingle lay over not to be permitted over more than one layer of existing asphalt shingles or wood shakes. No lay overs shall be permitted over slate or asbestos shingles. Otherwise adhere to city code.**
- C. This includes any broken, damaged, missing, or rotted sheathing, fascia, rake, cornice, soffit, as required.

**NOTE: LAY OVERS WILL ONLY BE PERMITTED UNDER SPECIAL CIRCUMSTANCES.**

**07030 TEAR OFF ROOF**

- A. Tear off existing roof, removing all shingles, *felt, nails and staples*.
- B. Make repairs to the existing roof rafters where required to provide adequate strength and a true level surface.
- C. Remove all warped and deteriorated sheathing and replace with like kind.
- D. Fill in all spaces between boards with securely nailed wood strips of the same thickness as the old deck, OR, if necessary, resheath over existing roof boards with CDX plywood or exterior grade OSB flake board, 3/8" minimum.

- E. Re-nail sheathing securely at all locations.

**07040 ROLLED ROOFING**

- A. Strip existing rolled roofing, removing all rolled roofing, shingles and felt areas.
- B. Make repairs to the existing roof framing as required to provide adequate strength and a true and level surface.
- C. Remove all warped and deteriorated sheathing and replace with like kind.
- D. Fill in all spaces between boards with securely nailed wood strips of the same thickness as the old deck, OR, if necessary, resheath over existing roof boards with CDX plywood or exterior grade OSB flake board, 3/8" minimum.
- E. Sink all protruding nails and re-nail sheathing securely at all locations.
- F. Furnish and install new asphalt saturated felt, as required, according to manufacturer's directions.
- G. Furnish and install metal edging and new 90# rolled roofing or shingle edge with a 19" lap according to manufacturer's directions.
- H. Where roof changes levels, flash with 26 gauge galvanized metal. All work shall conform with all applicable codes.

***NOTE: ROLLED ROOFING WILL ONLY BE PERMITTED UNDER SPECIAL CIRCUMSTANCES.***

**07050 ROOF VENTING**

- A. Roof and/or vents shall be aluminum or code approved equivalent, installed so that the net free ventilating area shall not be less than 1/150 of the area of the space ventilated, except that the area may be 1/300 provided at least 50% of the required ventilating area is provided by ventilators located in the upper portion of the space to be ventilated at least 3 feet above eave or cornice vents with the balance of required ventilation provided by eave or cornice vents.
- B. Ridge vent, plastic or sponge material is also acceptable. Install according to manufacturer specifications. Cover with ridge cap to match color of shingles.
- C. All vents to be installed with caulking and aluminum nails into prepared openings cut with close tolerance to insure watertight fit. All work shall comply with all applicable codes.
- D. Roof vents shall be reinstalled when new roofs are installed.

## DIVISION 08000 – DOORS, WINDOWS, GLASS

### 08010 WOOD DOORS/METAL CLAD DOORS

- A. All prehung steel doors are to be Mastercraft or equal. Steel doors must include magnetic weatherstripping, sill, and threshold with a thermal break.
- B. All locksets and deadbolts are to be keyed alike.
- C. All door and miscellaneous hardware items shall be Wiser, National Lock, Schlage, Russwin, Corgin, or equal.
- D. Doors shall be 1-3/4" minimum thickness for exterior main entrance doors. Exterior flush type doors shall be of mahogany finish (or equal) solid core construction or as noted in Bid Documents.
- E. All doors to fit existing openings. Exterior doors to be 36 inches in new additions and when making handicapped accommodations.**
- F. All other exterior panel doors shall be 1-1/4" minimum thickness, white pine or equal. This includes storm doors; these to be installed with closer.
- G. Interior doors shall be minimum 1-3/8" thick wood, hollow core or panel, stock sizes and design.
- H. Where 20 minute fire doors are called for, they shall be flush type, 1-3/4" thick solid core or equivalent, **no window and** equipped with self-closing device and all other necessary hardware.
- I. The term door unit shall mean the installation of jambs, casing (both sides) if needed, butt hinges, lock set and the door, including aluminum or wood threshold in exterior openings.
- J. The choice of door including glass requirements shall be as specified in Bid Documents. Remove all product labels from the glass and install plastic screw caps if required. Provide the owner any warranty or maintenance information.
- K. When pre-hung metal clad doors are to be installed, the price shall include all needed modification to opening, trims, moldings, repair to exterior and interior wall surface.
- L. All new door units shall be finished inside and out with 2 coats of paint or stain and varnish at owner's option, unless specified in the painting portion of the Project Specifications.

### 08020 METAL STORM DOORS (STEEL OR ALUMINUM)

- A. Doors, frames, trim, threshold, and hardware shall be extruded metal and shall conform to the following standards:
  - 1. Doors shall be equipped with glass and screen inserts and shall match existing opening. Extruded door frame construction shall be a minimum of 1" thick. Door frame construction shall be a minimum of 1/4" thick with a solid core frame. Door to be Larson Life-core/equal.
  - 2. Frames and trim shall be of rigid construction (extruded sections). Set perimeter in caulking.

3. Install with closer, latch and check/chain.

#### **08025 EXTERIOR BASEMENT DOORS**

- A. A metal hatch type door is to be used for exterior basement/cellar stairways unless otherwise specified, Bilco or equal. When installing the door always use treated lumber for plates for any necessary framing.

#### **08030 GARAGE DOORS**

- A. All overhead garage doors are to be uninsulated 24 gauge steel doors, Ideal-model M6EST or equal.

#### **08040 THRESHOLDS AND WEATHERSTRIPPING**

- A. Thresholds for wood doors shall be aluminum or pre-cut hardwood in full bed of caulking, shimmed level and secured with a minimum of four (4) countersunk brass flat head wood screws.
- B. Weatherstripping for wood doors shall be extruded bronze with neoprene insert, surface mounted on frame or stop. Spring bronze in door opening is acceptable.
- C. Thresholds for wood doors shall have a rubber or neoprene insert.
- D. Weatherstripping for metal doors shall be furnished by the door manufacturer.

#### **08050 REPLACEMENT WINDOWS - WOOD**

- A. The term "window unit" shall mean the installation of frame, sill, sash, trim, hardware, repair to interior and exterior wall surfaces.
- B. All window units shall be set plumb and level, finished and trimmed as required. *All chipped paint on interior window stops, sill and jambs shall be repaired and touched up after installation of new windows.***
- C. New window units shall be of acceptable quality, manufacturer at contractor's option, subject to approval of the Project Manager. All frames, sash, stops and exterior casings shall be of clear pine.
- D. Exterior side of all wood surfaces shall be painted with one (1) coat of primer sealer and shall be painted with one (1) coat finish coat of type paint to match structure and/or trim.
- E. Weatherstrip each unit as per manufacturer's directions.
- F. Units shall have minimum 1/2" insulated glass with screen. *All screens must be full screens.***

**Note:** Single layer of glass is acceptable if unit is furnished with combination windows.

#### **08060 REPLACEMENT WINDOWS - ALUMINUM, VINYL**

- A. Vinyl windows must be Wenco or equal. Double-hung, casement, or sliders will be accepted, do not use single-hung windows unless approved.

- B. Egress windows must have a minimum net clear openable area of 5.7 square feet. (See Division 18000). ***Must be at least one window meeting egress standards in each living space.***
- C. Units shall be set plumb and level, if possible. Caulk perimeter of each opening.
- D. Unless otherwise specified, all units shall be extruded sections.
- E. The term "window unit" shall mean the installation of frame, sill, sash, trim, hardware and repair to interior and exterior surfaces, manufacturer at contractor's option, subject to approval of INRCOG. ***All chipped paint on interior window stops, sill and jambs shall be repaired and touched up after installation of new windows.***
- F. Weatherstrip each unit as per manufacturer's directions.
- G. Units shall have minimum 1/2" insulated glass with screen. ***All screens must be full screens and shall be taut and securely fastened to frame.***
- H. Metal windows shall have a continuous thermal break.
- I. Remove all product labels from the glass. Provide the owner any warranty or maintenance information.

#### ***08070 GLASS AND GLAZING***

- A. Furnish and install window screens on all operable windows. ***All screens must be full screens and shall be taut and securely fastened to frame.*** Units to have mortise and tenon wooden frames securely fastened with waterproof glue.
- B. Glass shall be sized to set free in wood opening and should be secured with metal glazing points before glazing compound is applied.

#### ***08080 WINDOW SCREENS***

- A. Mesh shall be 16 x 16 or 18 x 14 per inch, aluminum or fiberglass wire.
- B. All screens must be full screens and shall be taut and securely fastened to frame.***
- C. All wood to be protected with one (1) coat primer and one (1) finish coat of approved exterior paint.

#### ***08090 RESCREEN AND REPAIR***

1. Remove torn or rusted screening and wooden or neoprene beading strips.
2. Rescreen using 16 x 16 or 18 x 14 mesh.
3. Screening shall be taut and securely fastened to frame.
4. Replace split or broken wooden or neoprene strips and broken framing as required.

### **08100 CASEMENT WINDOWS**

- A. Furnish and install casement type windows in existing or new openings of structure, manufacturer at contractor's option, subject to approval of INRCOG.
- B. Windows to be factory glazed and secured properly to frame.
- C. Windows to be prime painted and finished with two (2) coats of exterior paint to match structure and/or trim. ***All chipped paint on interior window stops, sill and jambs shall be repaired and touched up after installation of new windows.***

### **08110 REMOVE WINDOW OR DOOR**

- A. Remove existing window(s), or door. Complete including frame, sill and trim.
- B. Close opening(s) with studding to match thickness of existing wall, 16" on center; plywood sheathing; finish interior and exterior to match existing surface.

### **08120 REPUTTY**

- A. Remove all dried, deteriorated, broken and cracked sections of putty from windows.
- B. Install glazing compound in strict adherence to manufacturer's instructions.

### **08130 REHANG DOOR**

- A. Rehang existing door(s).
- B. Restore to sound, free operating condition, cut, plane as necessary. Adjust jambs, head, threshold as required.
- C. ***Ensure door jamb reveal is a consistent 1/4 to 3/8 inch around top and handle side of the door. Shim to achieve proficient results.***
- D. If required, replace hardware or sections of jamb to assure a proper and secure fit. (See Section 16010 for hardware.)

### **08140 WEATHERSTRIP WINDOWS**

- A. Install weatherstripping as per manufacturer's instructions.

### **08150 BASEMENT WINDOWS - REPLACEMENT**

- A. Units shall be set plumb and level, if possible. Caulk perimeter of each opening.
- B. Vinyl windows are to be installed unless otherwise specified. Wood jambs to be replaced with treated wood on all installations unless approved by INRCOG inspector. All treated wood must be the newer AC2 type.
- C. The term "window unit" shall mean the installation of frame, sill, sash, trim, hardware,

weatherstripping and any needed modification to wall.

- D. Each unit shall be painted inside and out as per Section 09080.
- E. If egress unit is required, the unit must have a net glass area of 5.7 square feet with a clear opening of at least 20 inches wide and 24 inches high. ***Exterior window wells for basement egress windows shall not have a window well cover.*** (See ***Section 19000***).

#### **08160 STORM WINDOWS**

- A. Metal storm combination windows shall be extruded aluminum, double track type with self-storing inserts and shall include screens. Manufacturer at contractor's option, subject to approval of INRCOG.
- B. Set frames accurately in correct locations. Plumb, align and brace securely until permanent anchors are set. Build wall anchors into walls or secure to adjoining construction as required.
- C. The installation of the window units shall be according to the installation details furnished by manufacturer.
- D. All contact points between main frame of the window unit and the existing wood frame shall be made weather-tight by means of a recognized top quality caulking compound.
- E. Proper water drainage shall be provided for at the sill contact point on each window unit. Operating sash shall be weather-tight and operate smoothly in the frame, with adequate weatherstripping between operating sash and frame.

#### **08170 REPLACEMENT SASH AND JAMB LINER**

- A. Replacement kit shall include all materials, rail lock, weatherstripping, and insulation for a complete and finished installation. Replacement sash and jamb liner kits shall be Marvin, Crestline, Hurd, or equal, manufacturer at contractor's option, subject to approval of INRCOG.
- B. Units shall have minimum 1/2" insulated glass with screen or with regular glass per Bid Document.
- C. Installation shall be in strict accordance with manufacturer's instructions.
- D. Insulate existing weight boxes and window perimeter when trim is removed and areas exposed.

#### **08180 REPAIR WINDOW**

- A. Repair window unit to include replacement of all broken, damaged, missing or rotted material to make structure sound and whole.
- B. Adjust window unit so all components operate freely as designed.

#### **08190 WINDOW WELLS**

***Escape and rescue widow with a finished sill height below the adjacent ground elevation shall have a window well. Window wells or escape and rescue windows shall comply with the following:***



- A. The clear horizontal dimensions shall allow the window to be fully opened and provide a minimum accessible net clear opening of 9 square feet, with a minimum dimension of 36 inches.*
- B. Window wells must be galvanized or heavy duty PVC.*
- C. Window wells with a vertical depth of more than 44 inches shall be equipped with an approved permanently affixed ladder or stairs that are accessible with the window in the fully opened position. The ladder or stairs shall not encroach into the required dimensions of the window will by more than 6 inches. The exterior window well shall not be covered.*
- D. Window well shall be fastened securely to house with appropriate galvanized anchors.*
- E. Reestablish dirt at finish grade around well and reseed if necessary.*

## **DIVISION 09000 - FINISHES**

### **09010 GYPSUM BOARD (DRYWALL)**

- A. Gypsum board when applied to ceiling, wood framing or furring, shall be 1/2" thick; when applied to existing vertical surface, shall be 2/8" minimum thickness when applied as overlay only. 1/2" gypsum board shall be used on vertical surfaces when applied directly to studs. 5/8" type "X" shall be used when required by Code.*
- B. All gypsum board shall have tapered or beveled edges.*
- C. Nails shall be driven with their shanks perpendicular to face of board.*
- D. Screws to be 1 1/4 inch drywall screws in wall and 1 5/8 inch in ceiling.*
- E. Screws and nails shall be recessed into gypsum board to later be covered with drywall compound.*
- F. All joints and corners shall be taped. Sand and feather edges after each coat. Inside corners shall be reinforced with tape. Outside corners shall be protected by metal molding or metal corner reinforcement.*
- G. All tape and metal accessories shall be imbedded in thin layer of joint system cement.*
- H. Cement three (3) coats over all nails and tape. Sand and feather edges after each coat.*
- I. INSTALL WATER RESISTANT GYPSUM BOARD IN TUB OR SHOWER AREA ONLY. Seal edge at butt joint to tub.*
- J. Use gypsum board to replace damaged plaster, stucco or other material. Gypsum board shall be similar in width to the existing material and finished to match. Drywall compound should be used to achieve proficient results.*
- K. All finished gypsum board to be covered with texture, style to be chosen by the homeowner.*

***09020 ACOUSTICAL TILE***

- A. Tile pattern, design and color to be chosen by owner.
- B. All such tile shall be installed as recommended by manufacturer and in conformance to Code.

***09030 CERAMIC WALL TILE***

- A. Furnish and install standard grade 4-1/4" x 4-1/4" ceramic tile.
- B. Caps to be bullnose caps fitted with the stops and cornered angles and up and down angles complete.
- C. All tiles shall be laid true and even in plane, and plumb with all joints level. Furring strips shall be installed if and where required.
- D. Base shall be of the flush type, cover 4" x 6" base with bullnose external corners and coped internal corners. All surface preparation, setting and grouting shall conform to manufacturer's standards.
- E. Starting of tile work implies contractor's acceptance of condition of walls.

***09040 PLASTIC COVERED HARDBOARD***

- A. Hardboard shall be Abitibi or equal.
- B. Pattern, design and color to match existing, if applicable, or as per Bid Document.
- C. All hardboard shall be installed as recommended by manufacturer.
- D. Moldings, edges, fillers, fasteners, and adhesives shall be as recommended by manufacturer.
- E. Molding strips for use between panels shall be of same material, color and design as panel.
- F. Where wood molding strips are installed, they shall be either painted (color to be chosen by owner) or stained and/or varnished.

***09050 RESILIENT FLOOR COVERINGS***

- A. Sheet vinyl shall meet standards acceptable to INRCOG, in 6' or 12' wide sheets, as manufactured by Armstrong or equal manufacturer, the sheet vinyl shall be selected by the homeowner with an allowance of \$2.00 per square foot maximum, or as specified in the Project Scope of Work.
- B. Laminate flooring must be glueless with a 15-year warranty (Armstrong or equal) and installed according to manufacturer's recommendations. Vinyl tiles (12 x 12) are not acceptable unless approved by INRCOG staff.
- C. Adhesive shall be waterproof type as recommended by manufacturer.
- D. Vinyl base shall be 4" high, .085" gauge with curved top and covered base. Furnish with pre-formed inside and outside corners.

- E. Underlayment must meet manufacturer's recommendations. Luaun plywood NOT allowed unless contractor has approval from manufacturer.
- F. Fill minor voids with a patching compound recommended by manufacturer.
- G. Final job shall have smooth and even finished surfaces, tightly joined and accurately formed. All work shall be done in accordance with manufacturer's installation directions.
- H. Maintain a temperature of 65 degrees Fahrenheit during installation and for a minimum of 24 hours after installation.
- I. All surfaces must be clean and dry and free of excess adhesive. Clean with cleaner as recommended by floor covering manufacturer.
- J. Undercut doors as necessary.
- K. When necessary for proper installation, all existing floor covering and underlayment shall be removed before installation of new underlayment and floorcovering.
- L. Unless otherwise specified, install new quarter round, shoe molding or base when existing are removed to install floor covering or none previously exist. The same style shall be installed. Unless otherwise specified, paint or varnish all new quarter round on all floor installations.
- M. When replacing bathroom floor, the contractor shall include in the cost of the new floor the cost to pull and reinstall all plumbing fixtures necessary to install the new floor, except when the bid calls for replacement or pulling and resetting of plumbing fixtures as a separate lineitem.
- N. *Closets unless otherwise specified, that are part of the room being covered shall also receive the appropriate floor covering.*

#### **09060 CARPETING**

- A. Carpet pad shall meet standards acceptable to INRCOG, cut to fit room, with allowance for nailing strips. Pad shall have as few seams as possible.
- B. The contractor shall furnish a written certification from the supplier that the carpet and rubber cushion supplies each meet standards acceptable to INRCOG.
- C. The carpet selected by the homeowner shall allow a maximum of \$2.50 per square foot (with pad), or as specified in the Project Scope of Work.
- D. Color and pattern: as selected by the homeowner, more than one color and pattern may be required on each job.
- E. MANUFACTURER AND INSTALLER MUST BE APPROVED BY THE PROJECT MANAGER.
- F. The finished carpet shall be clean, evenly woven, true to required colors, and free of defects which might affect appearance and serviceability.

G. Floor carpet installation:

1. Work shall include furnishing and installing all necessary installation accessories, as necessary, to meet the installation conditions of each location so as to produce a first-class workmanlike secure installation.
2. Before installing carpeting, the carpet subcontractor shall remove from the surfaces supporting the carpeting all dust, dirt, debris, oil, grease, or other substances which may in any manner affect the satisfactory execution and serviceability of the carpeting.
3. Carpet shall be installed only after all other work in a given location has been completed. Carpets shall be laid with the seams running in the same direction. All seams shall be made so that pile of adjoining pieces has the same directional run so to be as non-visible as possible.

H. Closets that are part of the room being covered shall also receive the appropriate floor covering, unless otherwise specified.

*(NOTE: Carpet shall only be permitted under special circumstances.)*

**09070 PAINTING**

A. General Information:

1. Inspect all surfaces before starting work and report deficiencies to the Project Manager. Starting work implies acceptance of surfaces.
2. All new plaster surfaces must be thoroughly clean, dry and completely cured.
3. Paint material shall be applied in consistency adequate to give thorough and acceptable coverage.
4. PAINT MATERIAL SHALL BE COMPLETELY FREE OF ALL LEADBASES.
5. All paints, stains, varnishes, lacquers and other finishes shall be low or no VOC paint finishes and applied as required by the manufacturer.

B. Materials - Interior and Exterior:

1. All materials shall be best quality of Mautz, Glidden, DuPont, Diamond, Vogel, Pratt-Lamber, Benjamin Moore, Sherwin-Williams, Pittsburgh, or equal.
2. Deliver all materials in original containers bearing manufacturer's label.
3. Follow manufacturer's label instructions.

C. Interior Work:

1. Keep premises clean and orderly as possible, well ventilated; remove waste daily. Protect all adjoining surfaces by covering or moving. Remove all paint from surfaces where inadvertently applied.

2. Sand enamels and varnishes between coats.
3. Coat all knots, sap streaks or stains with one (1) coat of shellac or other approved sealer before painting.
4. Putty nail holes, cracks and blemishes before primer coat has been applied.
5. All coats are to be thoroughly dry before applying succeeding coats.
6. Where painting is required on concrete and masonry surfaces, it shall be done on a clean, dust and scale free surface (wire brushed) and in full compliance with specifications of manufacturer of finishing material.
7. Paintings shall include one coat primer and one finish coat, or two finish coats to achieve good cover and hide.
8. Unless otherwise specified, all woodwork shall be painted with semi-gloss.
9. Unless otherwise specified, all ceilings are to be painted a flat, "ceiling white" color.
10. All bathroom and kitchen surfaces shall be painted with semi-gloss.

***11. All closets are considered part of the entire room, therefore must be painted.***

D. Exterior Work:

1. Wash off heavy dirt accumulations.
2. Clean up and remove all debris daily and at completion of job.
3. Allow solvent-thinned paints to dry 24 hours or longer between coats.
4. Coat all knots, sap streaks or stains with one (1) coat of shellac or equal sealer before painting.
5. Putty nail holes, cracks, and blemishes before primer coat has been applied.
6. Where storm windows exist, the contractor shall remove the storm windows, prepare surface, putty as required, replace broken glass, paint window and trim and reinstall storm window. Re-caulk.
7. Remove scale or rust from metal surfaces by wire brushing, or scraping down to bright metal and prime as soon as possible with rust preventative paint. Remove oil and grease with mineral spirits.
8. Old painted surfaces on wood, where scaling, chipping, or peeling, shall be wire brushed, sandpapered, or scraped to remove loose paint. Hard, glossy and non-chalking surfaces should be dulled and surfaces washed and rinsed.
9. Exterior painting is not to be done during or immediately following foggy, rainy or frosty weather, or when temperature is likely to drop below 40 degrees Fahrenheit within 24 hours. Avoid painting

surface while they are exposed to the hot sun.

10. All coats are to be thoroughly dry before applying succeeding coats in accordance with manufacturer's recommendations.
11. Where painting is required on concrete and masonry surfaces, it shall be done on a clean, dust and scale free surface (wire brushed) and in full compliance with specifications of manufacturer of finishing material.
12. All painting shall include one (1) coat primer and one (1) finish coat or two (2) finish coats to achieve good cover and hide.

#### ***09080 NATURAL FINISHES***

- A. All new wood surfaces to be natural finished must be smooth sanded and cleaned.
- B. Apply one coat of good quality stain; spread evenly.
- C. Fine sand ***and thoroughly clean*** before applying urethane.
- D. Apply two (2) coats of good quality interior satin urethane; use fine steel wool between coats, and clean with tack rag.
- E. Nail holes shall be filled to match basic color of wood. Tint with oil base color as required.

#### ***09090 PAINT PORCH FLOOR***

- A. Scrape all loose paint from porch floor. Sand to feather edges. Sweep area free of dirt, dust and debris.
- B. Paint with two (2) coats of quality oil based exterior floor and deck enamel.
- C. First coat to be thinned according to manufacturer's directions. Second coat to be applied 24 hours later, or longer, from first application unless otherwise specified by paint manufacturer.

#### ***09100 WALLPAPER REMOVAL***

- A. Remove wallpaper from walls and/or ceilings using a commercial steamer, if necessary. Protect floors and other surfaces from water or dye damage. Room to be vacated of all furniture and movable objects. Surfaces are to be stripped to plaster. Wash walls with a solution of Trisodium phosphate in warm water to remove all paste residue. Remove all waste from area at the close of each work day and upon completion of job. Allow area to dry thoroughly and patch plaster using Bondex or equal prepared patching plaster according to manufacturer's directions. If surfaces are to be painted, allow patch to cure and seal with an approved sealer as manufactured by Sherwin-Williams, Dutch Boy or equal.

#### ***09110 REPAIR SUSPENDED CEILING/CEILING TILE***

- A. ***Repair/replace all damaged or malfunctioning components.***
- B. ***Replacement parts should conform to type recommended by manufacturer, and shall be repaired level and free of defects.***

- C. *Replaced ceiling panels/tiles in high moisture areas shall be scrubbable vinyl coated type. All work shall conform to code.*

#### **09120 BASEMENT FINISHING**

- A. *When a full bath is installed in the basement or if a basement is finished off an egress window or walkout a door is required. Each sleeping room in the basement requires an egress window. If there is not a sleeping room in the basement the location of this egress window is not critical.*

### **DIVISION 10000 - VINYL PRODUCTS**

#### **10010 VINYL SIDING**

- A. To be installed according to manufacturer's directions.
- B. To be composed of polyvinyl chloride compound, minimum thickness .042", extruded manufacture; Certainteed, Alcoa, Premium Ashland-Davis or equal.
- C. Recommended NOT to be installed with drop in insulation backer.
- D. To be installed over a minimum of ¼" fanfold insulation board with 1.2 "R" value. House wrap not to be used unless approved by INRCOG and owner.
- E. *All seams and holes in fanfold and house wrap to be taped and sealed to prevent water seepage. Tape to be determined by fanfold/house wrap manufacturer.*
- F. *Starter strip to be used. Level starter strip around entire area to be resided to achieve an attractive finished product. Level starter strip off of the soffit.*
- G. Contractor to provide owner with a standard color selection for owner to approve prior to ordering and installation.
- H. Contractor shall provide the homeowner with a minimum 5-year (non-prorated) material and labor warranty from the manufacturer. The contractor shall protect the homeowner against voidance of the manufacturer's warranty due to improper installation.
- I. Install, replace or reinstall house numbers as necessary. If installation of new house numbers is necessary, contractors must, at a minimum, use 6" high, plastic numbers.
- J. Meter boxes, light fixtures and faucets must be set on vinyl mounting plates when residing.
- K. *J-channel to be used around windows, doors, decks, etc. Uneven cuts, fits and corners are not acceptable. Manufactured corners are acceptable.*
- L. *Under sill to be used under windows and soffit to secure siding. Siding to be crimped with appropriate snap lock tool.*

### **10020 VINYL SOFFIT**

- A. To be installed according to manufacturer's directions.
- B. To be composed of PVC compounds, minimum thickness .035" extruded.
- C. *Soffit to be solid in gable ends and under covered porches. To be vented otherwise.*
- D. Color and pattern type to be chosen as per Bid Document.

### **10030 VINYL GUARDRAILS AND HANDRAILS**

- A. *Rails, post and spindles are to be high quality vinyl, Yard Smart or equivalent.*
- B. *Railings are to be installed according to manufacturer's requirements and tight and securely attached.*
- C. *Posts may be surface mounted with steel mounting brackets.*

## **DIVISION 11000 – MOISTURE PROTECTION**

### **11010 CAULKING**

- A. Material: Caulking compound shall consist of materials that will not harden, crack or flow under extreme weather conditions. It shall be free of oils or other ingredients that will stain. 100% silicone caulk must be used on all kitchen and bathroom applications. A good grade silicone/acrylic latex caulk is to be used for other applications except in freezing weather, when only 100% silicone caulk must be used.
- B. Preparation and application:
  - 1. Joints, spaces and surfaces to be caulked, shall be dry, clean and free from dust.
  - 2. Prime according to manufacturer's directions.
  - 3. Pack deep joints and cracks with backup filler within 1/2" of surface before caulking.
  - 4. Apply caulking with gun having proper size nozzle; fill joints and spaces solid, remove excess compound; leave surface smooth and clean.
  - 5. Apply caulking before final coat of paint.
  - 6. Set thresholds in full bed of caulking.
  - 7. Caulk 1/4" bead around all bath tubs with tub caulk.
  - 8. *Caulking shall be troweled to achieve a smooth finish.*



## ***11020 WATERPROOFING***

- A. All foundation walls shall be waterproofed to meet all applicable codes with approved materials installed per manufacturer's instructions.

## **DIVISION 12000 – PLUMBING**

### ***12010 PLUMBING***

#### **GENERAL: ALL WORK SHALL CONFORM TO ALL APPLICABLE CODES**

- A. All plumbing work performed under this contract SHALL BE INSPECTED, tested and approved as required by local or state plumbing codes.
- B. Cuttings, patching and cleaning shall be done as necessary by the contractor performing the work, however, special permission shall be obtained from INRCOG before cutting structural members or finished construction.
- C. The plumbing contractor shall clean away all debris caused by his/her work at the close of each work day and upon completion of the job. Labels must be removed from all fixtures only after inspection by INRCOG.
- D. All new plumbing fixtures shall be American Standard, Kohler, Crane, Gerber, Elger or equal manufacturer. All fixtures shall be white and have shut-off valves **and supply lines** unless otherwise noted in the bid. **All new replacement toilets shall include a toilet seat and lid. New toilets must have a flush valve that uses less than or equal to 1.6 gallons per flush. Toilet throat size will be no less than 2 inches and glazed smooth.**
- E. Upon removal of old fixtures, contractor shall inspect all cleats, supports and floor joists to assure a solid and secure installation. If unforeseen repair or replacement is needed, contractor shall notify INRCOG.
- F. ***Any plumbing passing through rough framing shall be protected with a 1/8 inch, protective, steel plate. Plate is to be installed on the exterior of framing where the plumbing exists. Purpose is to prevent future nailing from being driven into plumbing.***
- G. The contractor shall further determine if a change in the location of any plumbing fixture and/or pipes is necessary for proper functional replacement of the unit, and to meet Code.
- H. Pop-off valve and drain pipe for water heater: Provide with a resetting type temperature and pressure relief valve, constructed, listed and installed to within 6" of the floor in accordance with Uniform Mechanical Code.
- I. GAS WATER HEATER shall have a **minimum 40 gallon capacity**, and be installed in accordance with Uniform Mechanical Code. Warranty issued by manufacturer shall be given to the homeowner and cover a 5-year period. **All new water heaters shall have internal foam insulation that is a minimum of R-10. Gas water heaters shall have an EF rating of .62 or higher and a recovery efficiency of .75 or better and or meet Energy Star requirements at the time of installation.**

- J. REPLACEMENT WATER CONNECTIONS: All new gas or electric water heater installations are to have a shut-off valve on the supply line into the water heater. For all other water connections, furnish and install hot and cold supply with shut offs.
- K. RESET TOILET: Remove toilet and old seating gasket. Clean area and reset toilet. Make all connections and leave free of any leaks. Installation shall meet all local and state plumbing codes. **If lavatory faucet is not being replaced then a 1 GPM flow restricting faucet aerator must be installed.**
- L. REPLACE FLUSH MECHANISM: Remove deteriorated flushing unit and install a suitable adaptable unit. All new seals to be installed with new unit. After replacement, unit shall function properly with moderate pressure and completely shut off when optimum water level is reached.
- M. REPAIR FAUCET: Repair existing defective faucet(s). Restore to a watertight condition in accordance with Code. Any replacement handles or equipment shall conform to original style as closely as possible. Contractor shall take all necessary precautions to prevent tool scarring or damage to fixture or other accessories. **A 1 gallon per minute (GPM) flow restricting aerator shall be installed on all existing faucets.**
- N. KITCHEN FAUCET: Furnish and install new Delta or equal manufacture, as per Bid Document, kitchen faucet, complete with all accessories. New unit must cover all existing openings in the present sink. Unit shall be securely fastened and watertight. **New faucets must be equal to or less than 2.0 (GPM) water flow.**
- O. BATHROOM FAUCET: Furnish and install new Delta or equal manufacture, bathroom faucet, complete with all accessories. New unit must cover all existing openings in the present sink. Unit shall be securely fastened and watertight. **New faucets must be equal to or less than 2.0 (GPM) water flow.**
- P. BATHROOM ACCESSORIES: Furnish and install chrome plated bathroom accessories as follows: paper holder and stainless steel towel bars. Furnish proper anchorage in wall for all fixtures.
- Q. VENT TRAP: Furnish and install required trap and vent pipe. Installation shall meet all local and state plumbing codes. Stack shall extend through roof and be made waterproof. Repair all scarring.
- R. WATER CONNECTIONS: Furnish and install water and waste piping for an automatic washer. All piping, fittings and venting shall conform to Code.
- S. SILLCOCK: Furnish and install new frost proof sillcock. This includes copper cold water feeder lines if applicable.
- T. KITCHEN SINK: Furnish and install double well, stainless steel with sound dampening, as per Bid Document. Replace all waste piping to the wall, new single lever faucets.
- U. SUMP PUMP: The electric pump shall be a minimum of 1/2 HP (pedestal or submersible) and placed in a polyvinyl sump jar. All water shall be brought to the sump jar by the use of either drain tile or water channel system. The pump shall be piped to discharge water away from the house as per city code.
- V. BATHTUB, TUB SURROUNDS, and SHOWER STALLS: Bathtubs, tub surrounds, and shower stalls

are to be constructed of heavy duty fiberglass. *Units shall be caulked at seams and other locations, where needed.* Sterling, Eljer or equivalent. *Shower doors and curtains shall be furnished on an arbitrary basis.*

- W. Handicapped accommodations such as grab bars are to be chrome plated and securely fastened. Location of grab bars to be determined by INRCOG representative and homeowners.*

## **DIVISION 13000 – HEATING – MECHANICAL**

### **13010 HEATING-MECHANICAL**

#### **GENERAL: ALL WORK SHALL CONFORM TO ALL APPLICABLE CODES.**

- A.** Gas fired force air furnaces, when replaced, shall be minimum **92% AFUE rating**, electronic ignition, and installed in conformance with Uniform Mechanical Code, as per Bid Documents. **All new furnaces will have sealed combustion with combustion air brought in from the exterior of the house. Furnace brand to be Carrier, Kenmore, Lennox or equal. All furnaces will be inspected and certified upon completion.**
- B.** If unit is in basement and no pad exists for new heating unit to be set on, pour concrete pad so that unit sets three inches above floor.
- C.** Wherever heat ducts must be installed inside a room, the location of those ducts or runs shall be approved by the homeowner, and the ducts shall be boxed in and finished to match the existing room decor, at no extra cost.
- D. Duct work to be secured with appropriate hangers at five foot intervals or as specified by city code.**
- E. All joints in duct work to be taped with manufacturer recommended foil back tape.**
- F.** Existing duct work may be used with approval of the Project Manager, provided all of the following are met:
1. All duct work is in operable condition.
  2. Return air from any living unit shall not be recirculated and delivered to any other living unit, except as allowed by City Mechanical Code.
  3. New supply ducts shall be on exterior walls where possible.
  4. Insulate supply ducts in unheated attic spaces, unheated crawl spaces, and other exposed locations to prevent excessive heat loss.
  5. **No flexible duct work will be allowed unless otherwise approved by an INRCOG representative.**
- G.** All piping and electrical hook-ups shall be included in the price quote.
- H.** All furnaces shall be equipped with a **digital, programmable thermostat** located on any inside wall,

responsive to changes in outside temperatures and properly sealed behind to prohibit drafts through interior wall.

- I. Gas piping shall be steel or black iron piping with malleable screw type fittings. It shall conform to all local codes and ordinances and utility requirements and restrictions. Gas line shall be properly supported with approved hangers and be of sufficient size to feed supply lines.
- J. For gas fired units, if a shut-off valve is not presently in place on the gas line to the heating unit, one shall be installed.
- K. Provide for outside combustion air if location of heating unit does not comply with air supply requirements of Chapter 6 of the Uniform Mechanical Code.
- L. When installing a new gas furnace, inspection of the chimney shall be required to ensure chimney liner is in good repair and the type to be in compliance with applicable codes for use with gas-fired furnaces. Remove existing liner if deemed essential by the Project Manager and verified by inspection. Install new Class B liner for entire length of flue, sized according to which gas appliances will be attached to it. Connect liner at bottom with gas appliances. Installation shall comply with Chapter 9 of the Uniform Mechanical Code and Section 05050 of the Rehabilitation Specification Manual.
- M. When 90% efficient furnaces or air conditioning coils are installed, and there is no floor drain, a condensation pump with hose to the exterior or a drain must be installed.
- N. NEW FLUE PIPE:
  - 1. Furnish and install new 30 gauge galvanized smoke pipe servicing appliances.
  - 2. Installation shall comply with the requirements of all applicable codes and have all joints where sections meet, fastened with sheet metal screws.
- O. FURNACE MOTOR:
  - 1. Replace existing electrical motor of furnace with new 110-120 V, AC motor, having an automatic reset overload protector.
  - 2. Installation shall be in accord with manufacturer's directions and shall be complete with all electrical connections as required by Code.
- P. ELECTRICAL WALL HEATER:
  - 1. Furnish and install wall heater, installed in conformance with National Electrical Code.
  - 2. Thermostatic control shall be provided in each heated room or built into unit.
- Q. BOILER
  - 1. All replaced boilers will have an "A" rating and be no less than 87% AFUE rating. All combustion air will be from the exterior of the house. The addition of zone valves may be useful to reduce energy cost. Accessible heat lines shall be insulated with approved materials. Programmable thermostats are required.

## R. CENTRAL AIR CONDITIONING

1. Non-working or improperly functioning central air-conditioning systems may be replaced as part of the rehabilitation work.
2. AC units shall not be less than 14 SEER or the lowest SEER rating that is available, but not less than 14 SEER. All units shall be installed, when possible, on either the North or East side of the house or in an area that will provide shade for the unit.

### ***13020 FURNACE - CLEAN AND TUNE***

- A. Clean and tune furnace. All furnace work shall be performed by a qualified furnace technician. Furnace clean and tune shall be performed in accordance with ANZI Z223.1 APPENDIX H and include the following as a minimum:
1. Lubricate all moving parts.
  2. Calibrate and adjust the thermostat and seal the thermostat wire penetration.
  3. Replace or clean the furnace filter.
  4. Furnaces without a filter shall be fitted with a filter, if possible.
  5. Check and adjust the conditioned air flow.
  6. Check and adjust the high limit control.
  7. Check and adjust the fan control.
  8. Inspect the venting system for the proper size, horizontal pitch, and evidence of flue restrictions.
  9. Remove, inspect, and clean the burners.
  10. Clean and vacuum the blower, return cabinet and filter rack so that they are free of dirt, grease, and any foreign matter.
  11. Inspect the pilot and safety switch.
  12. Clean and adjust the pilot light.
  13. Inspect and test the heat exchanger for cracks, openings, or excessive corrosion.
  14. Clean the furnace cabinet.
  15. Check and adjust the temperature rise.
  16. Check belt condition and replace if necessary.
  17. Inspect and adjust the belt tension.

18. Inspect and adjust the burner flame.
19. Inspect all electrical connections.
20. Check and repair gas leaks in furnace and immediate supply lines.

## **DIVISION 14000 – ELECTRICAL**

### ***14010 GENERAL***

- A. All products supplied and work performed shall conform to the requirements of [the State Electrical Code](#).
- B. Minimum service size for a single-family dwelling with panel board receptacle:
  1. 100 amperes for a three-wire service to a dwelling. The minimum conductor size shall be no. 3 AWG copper and the panel shall have a minimum of 20 spaces for branch circuits, and one main disconnecting means.

#### **OR IF REQUIRED**

2. 200 amperes for a three-wire service to a dwelling. The minimum conductor size shall be no. 3/0 AWG copper or no. 4/0 aluminum, and the panel shall have a minimum of 30 spaces for branch circuits, and one main disconnecting means.
- C. At least one (1) 20 ampere circuit shall be added to each kitchen and utility area, if not existing.
- D. The following list designates the number of receptacles and lighting outlets required per room upon completion of wiring upgrade:

#### **Kitchen:**

- Three (3) receptacles equally spaced; at least one to be grounded.
- One (1) ceiling light with wall switch.
- Added receptacles within six (6) feet of kitchen sink shall be grounded and GFCI protected. (Refrigerators and freezers are GFCI exempt.)

#### **Bathroom:**

- One (1) GFCI receptacle to be not within six feet of reach of tub or shower.
- One (1) ceiling or wall bracket (wall switch).
- (All items to be grounded.)

#### **Each bedroom:**

- One (1) receptacle for each 40 square feet of floor area, equally spaced.
- Ceiling light or a grounded receptacle, with a wall switch.

#### **Dining room or eating area:**

- Two (2) receptacles, equally spaced.
- Ceiling light or a grounded receptacle, with a wall switch.

Living room:

- Four (4) receptacles, equally spaced.
- Ceiling light or a grounded receptacle, with a wall switch.

Recreation room:

- Two (2) receptacles, equally spaced.
- Ceiling light or a grounded receptacle, with a wall switch.

Library or study:

- Two (2) receptacles, equally spaced.
- Ceiling light or a grounded receptacle, with a wall switch.

Closets

- All closet lights, except those in walk in closets, shall be removed.

All inside stairways:

- One (1) light at top and (1) at bottom, with a three-way switching. (If questionable, the authority having jurisdiction shall make the final decision.)

Entrances or exits:

- One (1) exterior light at each and wall switch.

Basements or cellars:

- One (1) light for each 200 square feet, using outside measurements for gross area.
- Fixture may be pull-chain type.
- At least one GFCI protected receptacle shall be located within 20 feet of the furnace.
- **Bottom of outlets to be fifteen inches off floor, otherwise adhere to city code.**

Garages and outside:

- One (1) GFCI receptacle on outside, location to be determined by owner.
- GFCI required on existing receptacles outdoors and in garages.
- All exterior receptacles shall be covered by a receptacle cover.
- Each receptacle or switch on an exterior wall shall have a foam seal placed under the cover.

- E. Separate circuits shall be installed, as necessary, for washers, dryers, electric stoves, air conditioners, **microwaves, dishwashers, refrigerators, freezers** and other such high-amperage appliances.
- F. Furnace to be on a separate circuit.
- G. Hard wired, UL-approved, smoke alarms with battery backup to be installed on all levels of dwelling and are required within each sleeping room of a dwelling unit.

NOTE: All detectors to be connected so if one detector is activated it will trigger all other alarms to sound.

- H. Hard wired UL-approved carbon monoxide detector with battery back-up. To be installed on the main level of the dwelling. A combination carbon monoxide/smoke detector is acceptable.
- I. The electrical contractor shall be responsible for all permits and inspections required for his/her work.

- J. Electrical contractor is responsible for repairing and patching holes in walls and ceilings created by rewiring. Rough work will be rejected.

#### ***14020 EXISTING EQUIPMENT***

- A. Existing electrical equipment throughout the building which is not required and becomes superfluous shall be disconnected and removed.
- B. Existing materials found to be in good condition and complying with the National Electrical Code may be left in service. ***However, all assessable knob and tube wiring shall be removed and replaced. All broken, damaged or nonfunctioning switches or outlets shall be replaced and all fixtures and wiring shall be adequately installed to ensure safety from fire. IN addition, all missing or broken switch and outlet plate covers (including junction boxes) shall be replaced.***

#### ***14030 WIRING***

- A. All wiring shall be installed according to methods approved by the National Electrical Code. Service shall be a minimum 100 ampere when service is changed.
- B. Minimum wire size shall be No. 14 AWG copper.
- C. Minimum wire size shall be No. 10 AWG copper for feeders to panels.
- D. Wire size shall be of the type and size as required by the National Electric Code. No wire smaller than #14 AWG for 15 ampere and #12 for 20 ampere shall be accepted.
- E. Receptacle requirements shall be in accordance with the National Electrical Code.

#### ***14040 WIRING DEVICES***

- A. Where new receptacles and switches are required, provide any brand which is UL approved.
- B. Plates for all switches and receptacles shall be of standard material.

#### ***14050 SERVICE, FEEDER AND SAFETY SWITCHES***

- A. Service feeder and safety switches shall be UL approved.
- B. Provide type "S" fuses as required in all disconnect switches.

#### ***14060 PANEL BOXES***

- A. Panel boxes shall be enclosed code required gauge sheet steel cabinets with doors and catches.
- B. Panel circuits shall be protected by automatic circuit breakers.
- C. It is the electrician's responsibility to label the panel box with a circuit plan.



**14070 LIGHTING FIXTURES**

- A. The contractor shall provide all lighting fixtures complete with amps, glassware, mounting hardware, frames and trim, stems, ballasts and sockets, to provide a complete operating fixture at each location.
- B. If installation of lighting fixtures is required, it will be stated in the bid document. If so stated, the maximum allowed amount per fixture will be:

|                    |         |
|--------------------|---------|
| Living/Dining Room | \$40.00 |
| Kitchen            | \$35.00 |
| Bedroom/Bathroom   | \$25.00 |
| Hallway/Foyer      | \$20.00 |
| Exterior           | \$20.00 |

Fixtures shall be approved by the property owner prior to installation. If the property owner desires a fixture costing over the allocated amount, she/he shall bear the excess cost.

**(NOTE: Energy Efficient fixtures that meet energy star ratings or compact florescent bulbs shall be installed in all new fixture installations).**

**DIVISION 15000 – ENERGY CONSERVATION**

**15010 MATERIALS**

- A. **LOOSE FILL INSULATION:** Loose fill insulation blown into attics and sidewalls shall meet applicable Federal specifications. Each bag or other container of insulation must carry a label stating the insulation material meets minimum Federal flammability standards.

All manufacturers and private labelers of insulation are required to furnish a certificate of compliance with Federal standards to each distributor or retailer to whom the product is delivered. Prior to the approval of any insulation for use in a rehabilitation project, the contractor shall verify to the Project Manager that the material meets standards.

- B. **BATT INSULATION:** Batt insulation shall be used wherever possible and shall meet applicable Federal specifications.
- C. **SEALANTS:** Glazing compound shall meet applicable Federal specifications. Caulk shall be silicone type and shall meet applicable Federal specifications.
- D. **STORM WINDOWS:** All storm windows shall meet applicable Federal standards. They shall have an air filtration test rating of .55 cfm or less and shall be marine glazed.
- E. **STORM DOORS:** Aluminum storm doors shall be as stated in Section 08020.
- F. **LOOSE FILL:**

- 1. All holes drilled by insulating contractor shall be plugged with like material, finished to match existing surface. If surface is to be resided, #15 felt paper may be applied over holes.

2. Any siding, floor boards, trim or molding removed for purposes of insulating shall be reinstalled free from any marks, nick, or damage caused by removal, and finished to match existing. Except attic floor boards which shall be renailed free of major cracks and defects caused by removal and installation.
- G. FOUNDATION INSULATION: When insulating the exterior, a spray on foam with a vinyl top coat and granules is required. It is to extend at least 12” below grade.

## ***15020 VENTILATION***

### **A. ATTIC VENTILATION**

1. When using roof vents without eave vents and no ceiling vapor barriers, sufficient vents shall be used to provide 1 square foot of free vent area for each 150 square feet of ceiling area.
2. When using roof vents without eave vents and a ceiling vapor barrier, sufficient vents shall be used to provide 1 square feet of free vent area for each 300 square feet of ceiling area.
3. When using a combination of roof and eave vents, and no ceiling vapor barrier, there shall be square foot of free vent area for each 300 square feet of ceiling area. Vents shall be installed with 50% of the total area in the roof near the peak.
4. Install air chutes between roof rafters at the end of the ceiling joists and allow at least a 1" opening next to roof for ventilation from soffit area. Air chutes shall be at least 2" higher than the finished depth of insulation. The number of air chutes shall be determined by the amount of square footage of insulation being installed. All unvented soffit openings shall be blocked.

### **B. CRAWL SPACE VENTILATION**

1. There shall be 1 square foot of free area for each 300 square feet of floor area.
2. Floors and box sills within such an area shall be insulated to R-19 and dirt floors shall be covered with 6 mil vapor barrier.

### **C. BATHROOM VENTILATION**

1. Vents shall be able to change the air supply in the room at a rate of no less than 5 air changes per hour.
2. Installation shall be according to the manufacturer specifications.
3. Venting must be solid aluminum vent pipe. Venting shall be by the shortest possible route *to the exterior*.
4. Any combination may be used, such as vent, vent-light, vent-light-heater, and will be purchased at a rate defined in the building specifications.

#### D. KITCHEN VENTILATION

1. Ventilation range hoods with lights or exhaust fan shall be installed above existing stoves. These vents are required to vent to the exterior of the house. Energy Star products are recommended.
2. Ventilation ducts to be 4" aluminum and vented to the exterior.
3. Range hood power to be of the appropriate CFM, as recommended by stove manufacturer.

#### ***15030 VAPOR BARRIER***

- A. When side walls are opened or covered over, a vapor barrier rated at less than 1 perm shall be installed.
- B. Ceiling need not have a vapor barrier if proper ventilation is provided.

#### ***15040 GENERAL ENERGY CONSERVATION***

- A. Refer to *15040 – Energy Conservation Standards* in this Manual for additional clarification.

### **DIVISION 16000 – SPECIALITIES**

#### ***16010 HARDWARE***

- A. Where noted in Bid Documents, all existing hardware must be removed. Voids or blemishes caused by the removal of hardware, which are not covered by new hardware, shall be patched and finished to match adjacent surfaces.
- B. Kitchen cabinet hardware shall be Washington, Amerock or Colonial or equal.

#### ***16020 MEDICINE CABINETS***

- A. Recessed cabinets shall be a minimum of 14" wide, 3" deep and 18" in height.
- B. Surface mounted will not be larger than 30" x 36" or as described in the building specifications.
- C. Mirrors shall be break resistant.
- D. No surface mounted outlet will be allowed on the cabinet, but may include a light. NEL code applies to all electric installations.
- E. A maximum cost limit will be defined in the Bid Documents.

#### ***16030 ENERGY CONSERVATION STANDARDS***

- A. INSULATION: Shall be made primarily from recycled glass or newspaper when available.

ATTIC: To achieve R-38.

**Note:** In floored attics, blow in beneath floor boards, to capacity.

BOX SILL: To capacity (3-6" if possible).

CRAWL SPACES: Either 6" batts between floor joists, secured by wire grid; or batts secured to interior of crawl space walls, hung vertically and extending over interior ground surface 24". In either application, install 4-6 mil Visqueen over all ground area.

WALL: Optional.

However, in vertical walls adjacent to heated rooms, and where wall stud cavities are open, 3" batts are to be installed.

SCUTTLE/ACCESS DOORS: Weather stripping shall be installed at the top of this 14 inch scuttle hole extension and shall be covered with a piece of ¾ inch plywood covered by 2 inch, R-10 foam. The gypsum opening on the ceiling will also be weather stripped and covered with 4 inches of foam. Both doors will be made to sit tight against the weather stripping.

HOT WATER HEATERS: Install insulation blanket (except "High efficiency" units).

HEAT DUCTS/HOT WATER HEATING PIPES: Insulate/wrap in unheated spaces only.

- B. WINDOWS: All openings to have 2 layers glazing (either prime window plus storm/combo window; or thermally glazed prime windows). Glazing compound to be intact.
- C. DOORS: Doorway openings to living areas to have storm/combo doors: core-type aluminum or wood.
- D. VENTING: As required by code for attics and crawl spaces.
- E. CAULKING AND WEATHER STRIPPING: At all doors and windows, as needed. Use metal and vinyl bulb-type weatherstrip at doors, with sweeps at interior and storm/combo doors. Use thin spring metal in window jamb channel. Caulk perimeter of all door and window openings to make weather-tight.

Door jambs will be sealed with foam and thresholds will be caulked with a silicon type sealant. All openable sash to have meeting rail locks.

- F. HEATING SYSTEMS: All furnaces when replaced to be minimum 80% AFUE, electronic ignition.

## **DIVISION 17000 – LEAD SAFE WORK PRACTICES**

### ***17010 TRAINING***

- A. Any contractor or employee completing lead hazard reduction work items noted on project specifications must have taken and passed the 8-hour Contractor Lead Safe Work Practices training course. (Note: the 24-hour Lead Hazard Abatement contractor training course can be substituted for the 8-hour course).
- B. The general contractor must be able to provide proof of certification on demand for him or herself and/or any employees working on lead hazard reduction work items.

### ***17020 LEAD SAFE WORK PRACTICES***

- C. Items on the project specifications that require lead safe work practices will be noted as such.
- D. All lead hazard reduction work shall be performed according to guidelines set out by the Iowa Department of Public Health (IDPH) and as explained in the contractor training courses.
- E. Proper preparation of worksite shall occur to reduce the amount of lead based paint dust and paint chips released into the environment.
- F. Work shall be performed in a safe, efficient way that will not unnecessarily delay completion and clearance testing if required.
- G. All paint chips, dust and residue shall be controlled by laying down tarps and/or completely sealing off affected rooms.
- H. Approved treatment methods, including wet scraping and sanding, must be strictly followed.
- I. Worksites shall be thoroughly cleaned by removing all paint chips, dust and residue in order to meet clearance testing standards if required
- J. Lead paint chips, dust and residue, shall be disposed of as required by the landfill used.

### ***17030 CLEARANCE TESTING***

- A. Clearance testing, if necessary, shall be performed by INRCOG.
- B. The general contractor is responsible for cleaning of the site necessary to pass the clearance test.
- C. The first test shall be paid for by INRCOG. The contractor is responsible for paying for any subsequent tests needed.

### ***17040 TEMPORARY RELOCATION***

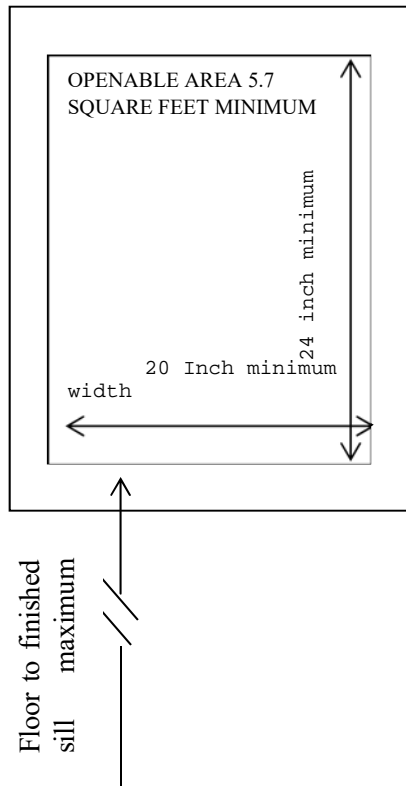
- A. If temporary relocation is necessary, the contractor shall give the homeowner a minimum of one (1) week notice prior to the homeowner being relocated.
- B. During relocation, homeowners are not to be allowed back into the house until the house passes its clearance test.

## **DIVISION 18000 – EGRESS WINDOWS**

***Basements in dwelling units and every sleeping room below the fourth story shall have at least one operable window or door approved for emergency escape or rescue. The emergency door or window shall be operable from the inside to provide a full, clear opening without the use of special tools.***

*Escape or rescue windows have four dimension requirements that must be met:*

- 1. Egress windows shall have a minimum net clear openable area of 5.7 square feet. To visualize that area imagine an opening 2 feet wide by 3 feet high. (2 feet x 3 feet = 6 square feet) The area would be 6 square feet, which is slightly larger than required.*
- 2. The minimum net clear opening height dimension shall be 24 inches.*
- 3. The minimum net clear opening width dimension shall be 20 inches.*
- 4. The finished sill height shall not be more than 44 inches from the floor.*



Note: The minimum width times the minimum height does NOT meet the required square foot area. 5.7 square feet = 821 square inches.

**Footnote:** Keep in mind these dimensions are related to net clear opening. It is not glass size. It is not rough opening size. It is the net clear area available to exit through when the window is open. It may be used for emergency exit or to allow access for the fireman to enter to rescue occupants. These dimensions are the minimum acceptable dimensions rather than being guidelines. And as this is a life safety provision the dimension requirements are enforced to the letter of the code without allowances.

### **WINDOW WELLS**

*Escape and rescue windows with a finished sill height below the adjacent ground elevation shall have a window well. Window wells at escape or rescue windows shall comply with the following:*

- 1. The clear horizontal dimensions shall allow the window to be fully opened and provide a minimum accessible net clear opening of 9 square feet, with a minimum dimension of 36 inches.*

2. *Window wells with a vertical depth of more than 44 inches shall be equipped with an approved permanently affixed ladder or stairs that are accessible with the window in the fully opened position. The ladder or stairs shall not encroach into the required dimensions of the window well by more than 6 inches.*

### ***BASEMENT FINISHING***

*When a full bath is installed in the basement or if a basement is finished off an egress window or walkout door is required. Each sleeping room in the basement requires an egress window. If there is not a sleeping room in the basement the location of this egress window is not critical.*