PART 1 GENERAL

1.01 WORK SPECIFIED HEREIN
A. This Specification shall cover the furnishing of all labor, equipment, materials, accessories and services necessary to remove defective roofing, insulation, flashings and associated components and to repair defective deck as indicated and specified.
B. Provision of temporary roof membrane seals as required to maintain watertight conditions and protect roofing system during removal and repairs.

1.02 REFERENCE STANDARDS
A. Reference to standards and/or specifications herein shall be interpreted to mean the latest revision unless noted otherwise. The following abbreviations appear in the specification:
   ACI American Concrete Institute
   APA American Plywood Association
   AWPI American Wood Preservers Institute
   FS Federal Specification
   OSHA Occupational Safety and Health Administration
   SDI Steel Deck Institute
B. The following standards shall be made a part of this Specification:
   ACI 304 Batching, Mixing and Job Control of Lightweight Concrete
   ACI 523 Guide for Cast-In-Place Low-Density Concrete
   ASTM C317 Standard Specification for Gypsum Concrete
   ASTM C472 Standard Methods for Physical Testing of Gypsum Plasters and Gypsum Concrete
   ASTM C495 Standard Test Method for Compressive Strength of Lightweight Insulating Concrete
   AWPI LP-2 Wood Preservative
   SDI Manual Steel Deck Institute Design Manual
C. Permission for deviation from these standards and/or specifications must be approved, in writing, by the Roofing Program Coordinator in advance of Bid Proposal submittal.

1.03 QUALITY ASSURANCE
A. Contractor doing removal and repair work shall be same Contractor who will install new roofing system.
B. Upon request by the Engineer, the Contractor shall provide the names of at least ten jobs from the greater Phoenix area, available for inspection by the Roofing Program Coordinator, that are similar or identical to the Work specified in this Specification.
C. Contractor's designated foreman shall have a minimum of five years experience in the removal and repair of roofing systems similar to the system specified in this Specification.

1.04 GUARANTEE
A. Contractor shall provide a two-year guarantee covering repair/replacement of any materials and workmanship comprising the Contract Work resulting in defects or other deterioration of the system. Any defects or deterioration shall be repaired at no cost to Purchaser.
B. Unless otherwise expressly noted within this Specification, Contractor shall comply with the applicable roofing material manufacturer's written recommendations.

1.05 DELIVERY, STORAGE AND HANDLING
A. Materials shall be stored on pallets or equivalent wood blocking.
B. All materials shall be covered with waterproof covering top to bottom. Covering shall be secured with twine or rope.
C. Materials shall be handled so as to avoid bending, tearing or other damage during transportation and installation.
D. Materials shall be stored in a place protected from water and extreme temperatures.
E. Material handling equipment shall conform to, and be operated in conformance with, OSHA and local building code requirements.
F. Material handling equipment shall be selected and operated so as not to damage newly applied roofing, the existing roof system or the building. Do not load materials or operate equipment on any roof area in a manner that could endanger or disturb occupants of the building; the Engineer will determine locations available to the Contractor at the pre-bid conference.

1.06 SITE CONDITIONS
A. Access to roof shall be from the exterior. Coordinate access and work with the Engineer.
B. Roof removal and deck repair work shall not be performed during rainy or inclement weather. Maintain building weathertight during inclement weather. Engineer may stop project if, in his/her opinion, the work should not be continued due to adverse weather conditions.
C. Contractor shall assume that the building space directly under the roof areas included by this specification will be occupied and utilized for ongoing operations. Contractor shall not interrupt Purchaser's operations unless written approval is received from the Engineer.

1.07 SUBMITTALS
Submit manufacturer's literature indicating repair materials to be provided. Repair materials shall be approved in writing by manufacturer of roofing system for use with roofing system to be applied.

PART 2 PRODUCT
2.01 CONCRETE DECK FILL MIX
Concrete deck fill mix shall be manufacturer's approved poured mix, equal to Elastizell lightweight concrete, or similar as approved by Roofing Program Coordinator, conforming to ASTM C317, ASTM C472 and ACI 523.

2.02 LUMBER
Lumber shall be Ponderosa Pine, Idaho White Pine, Sugar Pine, Douglas Fir, or White Pine; construction grade, light framing sizes. Pressure treat with water borne preservatives for above grade use complying with AWPI LP-2; sizes as required.

2.03 PLYWOOD
Plywood shall be graded and stamped in accordance with APA grade rules. Pressure treat with water borne preservatives for above grade use complying with AWPI LP-2, 1/2 inch thick minimum.

2.04 FASTENERS
Fasteners shall be zinc-coated anchors or fasteners as required to suit conditions and meet roofing manufacturer's structural requirements.

2.05 METAL ROOF DECK
Metal roof deck shall be 18-gauge galvanized sheet metal, with rib depth and profile matching existing roof deck rib configuration.

PART 3 EXECUTION
3.01 INSPECTION
A. New roofing system shall not be installed until all unsatisfactory conditions affecting installation and durability of roofing are corrected. Beginning work constitutes acceptance of conditions by Contractor.

B. Verify that any remaining work of other trades requiring men and/or equipment to traverse roof deck has been approved by the Engineer and material manufacturer's representative.

C. Check projections, curbs, walls and deck for inadequate anchorage, foreign material, moisture or unevenness preventing execution or adversely affecting quality of new roofing system. Correct any deficiencies.

3.02 PROTECTION
A. Contractor shall be responsible for protection of property, including all areas around buildings, during course of work. All damage caused by this Contractor shall be repaired by this Contractor, at his expense, to its original condition to the complete satisfaction of the Engineer.

B. All areas where existing roofing is removed, and/or lightweight concrete or metal deck is repaired, shall be sealed in a watertight manner on the day of installation and before arrival of inclement weather. Night seals will be closely examined by job foreman after each working day to ensure watertightness. Prior to removal of temporary and daily waterstops/tie-ins, all ponded water shall be removed in such a manner as not to create any water penetration into the building. Contractor shall be responsible for any water damage to the building and/or contents.

3.03 CONSTRUCTION PREPARATION
A. Work sequence shall be scheduled to avoid use of newly constructed roofing for storage, walking surface, or equipment movement. Equipment and ground storage areas shall be moved to designated locations as work progresses.

B. Drains shall be plugged with rags to prevent debris entry. Plugs shall be removed at end of each workday and before arrival of inclement weather. Close all air intakes to the building. Air intakes are to be reset to original condition as soon as practical, or at completion of roofing work.

C. Standing pipes and roof-mounted conduit shall be lifted, disconnected and saved for later reinstallation. If the Contractor is not qualified to plug plumbing or disconnect electrical connections, the Contractor will, at his expense, subcontract this work.

D. Contractor shall notify the Engineer at least two working days in advance of starting any phase of work that might cause fumes or gases. Contractor shall implement procedures to reduce fumes or gases, shall schedule work for times when building personnel are not present, or other as directed by the Engineer.

E. Prior to commencing removal of roofing and debris, Contractor shall provide a dumpster or truck located adjacent to the building within designated laydown areas as directed by the Engineer. An enclosed chute shall be used for conveyance of debris from the roof area to dumpster or truck. Building surfaces shall be protected with secured tarpaulins. Spilled or scattered debris shall be cleaned up immediately. Upon project completion, chute, tarpaulins, and dumpster or truck shall be removed from premises.

3.04 EXISTING ROOF REMOVAL
A. Remove defective roof system including sealant, flashings, walking boards, nailers and accessory items down to roof deck, or as directed by Engineer.

B. Thoroughly clean deck and remove all debris from Purchaser's property.

3.05 CONCRETE DECK REPAIR
A. Spud out deteriorated concrete until sound base is reached. If metal deck is deteriorated, repair in accordance with 3.6.

B. Install concrete per ACI 304. Fill all areas where deteriorated concrete was removed, pockets and low areas to provide acceptable surface to receive roofing system. Screen and finish filled areas uniformly smooth and even with adjacent existing concrete deck.

C. When temperature at time of placement is below 40°F, heated water in temperature range of 90°F to 110°F shall be used. Do not place concrete when temperature is forecast to be 32°F or lower within next 36 hours.
D. Concrete density shall be 52 +8 pounds per cubic foot at time and point of placement on deck.
E. 28-day compressive strength of concrete shall be 1200 PSI minimum in compliance with ASTM C472 and ASTM C495.

3.06 METAL DECK REPAIR
A. All metal roof deck patches and replacement pieces shall be installed to match existing metal deck in shape, size and profile.
B. All laps shall receive continuous bead of sealant, before pieces are joined, when concrete is to be placed over metal deck.
C. Install sheet steel deck reinforcement profiled to match existing decking configuration over all rusted openings of 16 square inches or less. If two or more rusted openings exist in same deck section, replace that section of deck.
D. Erect metal decking according to SDI Design Manual. If unable to lap, butt the adjacent deck. Minimum bearing on steel supports shall be two inches.

3.07 FIELD QUALITY CONTROL
A. Contractor’s superintendent shall provide weekly reports to the Engineer describing the amount of work completed, any job slowdowns and how they were solved, and other pertinent data.
B. Roofing material manufacturer’s representative, concurrently with the Roofing Program Coordinator, shall provide a final inspection of the completed work. Contractor’s job foreman shall attend final inspection and shall provide repair materials to repair areas of roof decking found unsatisfactory by the Roofing Program Coordinator and/or material manufacturer’s representative.

3.08 ADJUSTING AND CLEANING
A. Any deficiencies found during final inspection will be corrected within five working days and will be reinspected by the roofing material manufacturer’s representative and the Engineer.
B. Unplug drains and set drain screens or baskets in position.
C. Clean gutters and downspouts of all debris so they are free flowing.
D. Leave premises clean and ready for roofing system installation to the complete satisfaction of the Engineer.