THIS SECTION USES THE TERM "ARCHITECT". CHANGE THIS TERM AS NECESSARY TO MATCH THE ACTUAL TERM USED TO IDENTIFY THE DESIGN PROFESSIONAL WITH CONSTRUCTION PHASE AUTHORITY, OWNER, OR CONTRACT OFFICIAL AS DEFINED IN THE GENERAL AND SUPPLEMENTARY CONDITIONS OF THE CONTRACT.

PART 1 – GENERAL

1.01 SUMMARY

EDIT THE GOAL BELOW TO SUIT THE PROJECT. THERE MAY BE AREAS OF EXISTING PLASTER THAT WILL BE REMOVED BECAUSE OF AN INCOMPATIBILITY OF PLASTER COMPOSITION, POOR SUBSTRATE CONDITIONS, OR OTHER FACTORS. AREAS OF PLASTER TO BE REMOVED SHOULD BE SHOWN ON THE CONSTRUCTION DRAWINGS.

A. The goal of plaster repair for this project is retention in-place of existing plaster using water-based adhesive materials and procedures specified herein.

EDIT THE LIST BELOW AND/OR ADD PLASTER REPAIR ADHESIVE WORK TO SUIT THE PROJECT.

- B. This section consists of the provision to execute plaster repair adhesive work for the following:
 - 1. Detached lime-sand, lime-clay, lime-earth, lime-gypsum, and/or gypsum plaster to sound wood lath.
 - 2. Detached lime-sand, lime-clay, lime-earth, lime-gypsum, and/or gypsum plaster to sound masonry.
 - 3. Detached lime-sand, lime-clay, lime-earth, lime-gypsum, and/or gypsum plaster to sound metal lath.
 - 4. Delaminated finish layer(s) of lime-sand, lime-clay, lime-earth, lime-gypsum, and/or gypsum plaster to sound base plasters.

TO SUIT THE PROJECT EDIT THE LIST BELOW AND ADD SPECIFICATION SECTIONS THAT HAVE WORK RELATED TO PLASTER REPAIR.

- C. Related Sections:
 - 1. Furring and Lath Section 09205
 - 2. Plaster Repair Section 09210

Specifications

Section 09209 Plaster Repair Adhesive System

3. Painting – Section 09900

1.02 SUBMITTALS

A. Provide submittals and receive approval before proceeding with final purchase of the plaster repair adhesive system and work of this section.

EDIT THE QUALIFICATION DATA BELOW TO COMPLY WITH THE CONTRACT REGULATIONS OF THE ORGANIZATION, GOVERNMENT ENITY, OR OWNER FOR WHICH THE WORK IS BEING DONE.

- B. Qualification Data: Provide with the bid/cost proposal package.
 - 1. A list of at least four (4) similar projects of the same or larger size successfully completed within the last five (5) years and the scope of the contractor's involvement in those projects.
 - 2. For each project list the project name, address, owner, and contact telephone number. Provide the name and contact information for the architect and/or conservator. If applicable, provide the name and contact information for the contract official or supervising organization.
 - 3. For each individual proposed to do plaster repair: List the scope of work undertaken by the individual on projects listed above. Or if the individual was involved with projects others that those listed, then provide four (4) similar projects upon which the person worked, projects' contact information, and the scope of work undertaken by that person on those jobs.

C. Product Literature:

- 1. Provide manufacturer's published technical data for each product to be used for the plaster repair adhesive and drill hole filler. Include instructions for application and use. Include Safety Data Sheets (SDS).
- 2. If alternate methods and materials are proposed to the specified plaster readhesion system, provide written description of the processes, materials, and SDS.
- D. Plaster Repair Adhesive System: Provide the following.
 - 1. A description of proposed materials and methods to be used for the plaster repair adhesive work.

2. A description of the proposed methods and procedures for protecting personnel, the public, and existing building materials and finishes during the plaster repair adhesive work.

Specifications

1.03 QUALITY ASSURANCE

DELETE THE MOCK-UP PROVISION BELOW UNLESS THE EXPENDITURE IS JUSTIFIED BY AN EXTENSIVE, UNUSUAL, OR CRUCIAL PLASTER REPAIR ADHESIVE APPLICATION. IF A MOCK-UP(S) IS SPECIFIED, ASSURE AREAS OF MOCK-UPS ARE INDICATED ON THE DRAWINGS.

A. Mock-up: Before proceeding with final purchase of the plaster repair adhesive system and work of this section, prepare mock-up(s). Incorporate materials and methods of attachment identical with project requirements. Provide mock-up(s) of sufficient size and scope to demonstrate the plaster repair adhesive system and technique. Install mock-up(s) in area(s) indicated on the drawings and within those areas at locations directed by the Architect. Retain accepted mock-up as quality standard for acceptance of plaster repair adhesive work. If accepted, mock-up(s) may be incorporated in the final plaster repair adhesive work.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle plaster repair adhesive products to prevent damage, deterioration, degradation and intrusion of foreign materials.
- B. Discard and remove from the project site contaminated or deteriorated products that have exceeded the date of purchase by one year. Do not use plaster repair adhesive products for this project that are past the date of purchase by one year. Store plaster repair adhesive products in dry conditions above freezing temperatures.

1.05 PROJECT CONDITIONS

- A. Use plaster repair adhesive system products only when air, materials, and substrate temperatures are between fifty (50) and ninety (90) degrees Fahrenheit (F) for a minimum of 24 hours before, during, and after application.
- B. Ventilation: Provide fresh air ventilation during plaster repair adhesive work to ensure optimum adhesive curing conditions and personnel safety.

DELETE THE FOLLOWING PROVISIONS FOR PROJECT CONDITIONS, IF THESE ARE COVERED IN GENERAL CONDITION SECTIONS OF THE CONTRACT. (SAFETY, FIRE PREVENTION, PROJECT ACCESS, AND PROTECTION OF BUILDING MAY BE COVERED IN "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION" OR "DIVISION 1, GENERAL REQIRMENTS" FOR A CONTRACT BASED ON AIA MASTERFORMAT OR "GENERAL PROVISIONS", "SPECIAL PROVISIONS", "SUPPLEMENTAL PROVISIONS" OR" DIVISION 1, GENERAL REQUIREMENTS" IF A FEDERAL GOVERNMENT PROJECT IS BEING SPECIFIED.)

- C. Safety: Take all necessary precautions to protect all persons from harm caused by the work on this section. Avoid skin and eye contact and inhalation of product vapors when handling and using plaster repair adhesive materials.
- C. Fire Prevention: Take all necessary precautions to prevent fire or the spread of fire.
- D. Access for Inspection and Approvals: Provide Architect safe access to all plaster repair adhesive locations for inspections during the work and until the work is approved.
 - 1. Protection of Building and Adjacent Areas: Using all means necessary, protect existing and newly installed building materials, finishes, and architectural features from damage or deterioration caused by the work of this section. Repair damage to materials, finishes, or features to the satisfaction of the Architect at no additional contract cost.
- 1.06 <u>SEQUENCING:</u> Coordinate plaster repair adhesive work with adjacent and related work. Sequence the work of this section so that neither plaster work nor paint work will be adversely affected by the plaster repair adhesive.

IF PLASTER REPAIR ADHESIVE WORK IS A CRITICAL ASPECT OF THE PROJECT, ADD THE FOLLOWING REQUIREMENT.

1.07 <u>WARRANTY</u>: Provide a manufacturer's field representative to observe the work in progress and certify the plaster repair adhesive products and processes are used according to the manufacturer's recommendations.

PART 2 – PRODUCTS

2.01 GENERAL MATERIALS

- A. Plaster Repair Adhesive System Products: The approved products shall be in the manufacturer's containers. Containers shall have plaster repair adhesive manufacturer's original labels indicating ready-mixed product. No dilution of ready-mix products is allowed.
- B. Manufacturer's Instructions: Comply with product manufacturer's instructions for preparation, application, curing and finishing.

DELETE THE FOLLOWING "MANUFACTURER" PROVISION IF OWNER-IMPOSED OR OTHER PROJECT REQUIREMENTS PROHIBIT MENTION OF A MANUFACTURER'S NAME. IF THE PROJECT HAS NON-PROPRIETARY CONTRACT REQUIREMENTS, DELETE "2.02 MANUFACTURER" AND RE-NUMBER "2.03 MATERIALS" TO "2.02 MATERIALS."

2.02 MANUFACTURER

A. Plaster repair adhesive system materials shall be manufactured by BWA, Inc., Brattleboro, Vermont 05301. Contact information is 802-254-1330 and www.plastermagic.com.

2.03 MATERIALS

BELOW, USE THE MANUFACTURER'S PRODUCT NAMES, IF THE PROJECT ALLOWS. DELETE PRODUCT NAMES AND USE ONLY THE PRODUCT DESCRIPTIONS IF OWNER-IMPOSED OR OTHER PROJECT REQUIREMENTS PROHIBIT PROPRIETARY SPECIFICATIONS.

- A. Conditioner: Liquid consolidant as manufactured by BWA, Inc.
- B. Adhesive: Water-based emulsion material as manufactured by BWA, Inc.
- C. Clamps: Plastic washer assembly with screws as provided by BWA, Inc. Screws with longer length shafts than supplied by BWA, Inc. can be used, where necessary, with the BW's plastic washer to ensure firm attachment into the substrate for realigning loose plaster. OR Steel, drywall screws with bugle head for use with #2 Phillips or square drive bit, one and five-eighth (1 5/8) inch minimum length with one-eighth (1/8) inch diameter shank, coarse thread, with one and three-quarter (1 3/4) inch diameter plastic washers. Use longer length screws, where necessary, to ensure screws go through plastic washer and plaster into substrate for realigning loose plaster. Use of metal washers is prohibited due to bonding of metal to the adhesives.

EDIT THE PROVISION BELOW TO SUIT THE PROJECT. THE FILLER FOR DRILL HOLES IS DEPENDENT ON THE MATERIAL CHARACTERISTICS, HISTORIC SIGNIFICANCE AND FINAL FINISH OF THE PLASTER AND OTHER FACTORS. THE FILLERS BELOW ARE SUGGESTIONS. SPECIFY THE FILLER SUITABLE FOR THE PROJECT.

- D. Drill Hole Filler: Plaster compatible with existing plaster. OR Redi-mix joint compound. OR 5:1 lime putty/gauging mixture. (Apply as many layers as needed to fill flush with existing surface.)
- E. Potable Water: To remove excess, uncured, adhesive from plaster surface after filling holes and for tool clean-up.

2.04 EQUIPMENT AND TOOLS

A. Drill and Bits for Holes to Attach Plaster to Substrate: Rotary drill with a chuck capacity of three-sixteenth (3/16) inch or less. Carbide-tipped masonry bits, three-sixteenth (3/16) inch in diameter. Use of percussive action drills is prohibited.

RETAIN "ELECTRIC DRILL AND BITS FOR ATTACHING DELAMININATED PLASTER LAYER TO SOUND BASE PLASTERS" IF THIS TYPE OF WORK IS PART OF THE PROJECT OTHERWISE DELETE.

- B. Electric Drill and Bits for Drilling Holes to Attach Delaminated Plaster Finish Layer to Sound Base Plasters: Lightweight rotary tool with sharp, small-diameter bits that create minimal vibration. One manufacturer is Dremel, 4915 Twenty-first Street, Racine, Wisconsin, 53406. Contact telephone number is (800) 437-3635.
- C. Sprayer: Thirty-two ounce spray bottle or hand-operated pump-style garden sprayer with adjustable nozzle tip for injecting conditioner into holes. Clean and free of chemical residue.
- D Caulk Gun: Hand-operated to ensure plaster adhesive is delivered under pressure into cavity.
- E. Window Scraper or Putty Knife.
- F. Sponges or Soft Cloth Rags.
- G. Safety Glasses.

PART 3 – EXECUTION

EDIT "ACCEPTABLE APPLICATORS" REQUIREMENTS BELOW TO COMPLY WITH THE CONTRACT REGULATIONS OF THE ORGANIZATION, GOVERNMENT ENITY, OR OWNER FOR WHICH THE WORK IS BEING DONE. REFER TO HELPFUL HINTS SECTION AT WWW.BIGWALLYS.US FOR THE MANUFACTURER'S LIST OF ORGANIZATION(S) THAT PROVIDE TRAINING IN THE USE OF PLASTER REPAIR ADHESIVES. NAMES OF TRAINING ORGANIZATION(S) MAY BE ADDED TO THE SPECIFICATIONS.

3.01 <u>ACCEPTABLE APPLICATORS</u>

A. Plaster Repair Adhesive Foreman: Individual(s) experienced and skilled in lime or gypsum based plaster building repair work shall perform the work of this section. Those individual(s) shall have a minimum of five (5) years experience in performing work similar to the type specified in this section and demonstrate successful completion of previous repair work on comparable structures or have a manufacturer's certification in use of plaster repair adhesives.

B. Plaster Repair Adhesive Mechanic: Individual(s) experienced and skilled in lime or gypsum based plaster building repair work shall perform the work of this section. Those individual(s) shall have a minimum of two (2) years experience in performing work similar to the type specified in this section and demonstrate successful completion of previous repair work on comparable structures or have a manufacturer's certification in use of plaster repair adhesives.

3.02 GENERAL PLASTER REPAIR ADHESIVE WORK

- A. Minimize deposition of conditioner and adhesive onto finish surfaces because they can permanently change the color and light reflecting qualities of finishes. When runs or spills occur, immediately wipe conditioner and adhesive off finish surfaces without spreading the products to larger areas. Use methods that retain/protect the surfaces from damage.
- B. Adjustments: Obtain written approval from the Architect prior to adjusting the plaster repair adhesive procedures to address special conditions. These could include, but are not limited to, water-soluble paints on surfaces.

REFER TO HELPFUL HINTS SECTION AT <u>WWW.PLASTERMAGIC.COM</u> FOR INFORMATION THAT MAY BE USED TO CUSTOMIZE THE PROJECT SPECIFICATIONS FOR PLASTER REPAIR ADHESIVE WORK.

THE TERM "SUBSTRATE" IS USED IN THE FOLLOWING PROVISIONS AS A GENERAL TERM FOR WOOD LATH, METAL LATH, MASONRY, AND SOUND BASE PLASTER LAYERS.

3.03 EXAMINATION

- A. Physically inspect area(s) that are indicated on the drawings to determine the exact extent of plaster repair adhesive work within each area.
- B. Determine that the substrates to which the plaster will be re-adhered are sound and free of debris and/or defects affecting proper application of the plaster repair adhesive system products.

RETAIN PROVISION "C" BELOW IF THE PLASTER READHESION IS TO WOOD LATH. DELETE THE PROVISION IF THE SUBSTRATE IS METAL LATH, MASONRY OR IF THE PROJECT INVOLVES READHERING DELAMINATED PLASTER LAYERS TO SOUND PLASTER

C. Determine the spacing pattern of wood lath so that injection holes can be accurately located directly over lath to assure plaster repair adhesives will bond plaster to lath.

RETAIN PROVISION "D" BELOW IF THE PLASTER READHESION TO METAL LATH IS PART OF THE PROJECT WORK.

D. Determine the metal lath is free of corrosion affecting proper application and performance of plaster repair adhesive system products.

USE THE FOLLOWING PROVISIONS "3.04 <u>PREPARATION OF DETACHED PLASTER ON WOOD LATH OR MASONRY"</u> AND "3.05 <u>PREPARATION OF DETACHED PLASTER ON METAL LATH,"</u> AS APPROPRIATE TO THE PROJECT.

3.04 PREPARATION OF DETACHED PLASTER ON WOOD LATH OR MASONRY

- A. Injection Holes for Plaster: Drill holes through the surface plaster layer at lath locations and into the void between the plaster and substrate (lath or masonry) to create injection portholes for plaster repair adhesive products to bond the plaster to the substrate. (Holes go through the plaster, but not the substrate.)
 - 1. Hole Size: 3/16-inch diameter.
 - 2. Hole Spacing: Start with areas around cracks and work outward.
 - a. For Cracks: Drill along both sides of crack approximately one and one half (1 1/2) inch from the crack at approximately every three (3) to four (4) inches parallel to the crack line.
 - b. For Loose Plaster Areas: Drill holes through the plaster layer, six (6) to eight (8) inches apart, throughout area of loose plaster.
 - c. Adjust hole spacing if necessary and as required to ensure that voids can be saturated with plaster repair adhesive products.
 - 3. Clean Holes: Vacuum out holes to remove debris from drilling operation.
- B. Debris Removal: Take measures to limit debris from drilling operations from falling into voids between plaster and substrate. After drilling holes and before injecting plaster repair adhesive products, remove debris caught between the plaster and substrate. Debris caught between ceiling plaster and substrate must be removed to assure realignment and reattachment.

CHANGE OR REMOVE THE FOLLOWING PROVISION "B.1" IF SITE CONDITIONS OR THE CONTRACT WILL NOT ALLOW ACCESS TO THE BACK OF THE PLASTER.



1. Debris removal may be done from the backside of walls and ceilings, if the area is exposed or accessible without causing damage to sound plaster, architectural materials and features; or structural or mechanical/electrical systems and their components.

3.05 PREPARATION OF DETACHED PLASTER ON METAL LATH

- A. Injection Holes for Plaster: Drill holes through the surface plaster layer into the void between the plaster and metal lath to create injection portholes for plaster repair adhesive products to bond the plaster to the substrate. (Holes go through the plaster, but not the substrate.)
 - 1. Hole Size: 3/16-inch diameter.
 - 2. Hole Spacing: Start with areas around cracks and work outward.
 - a. For Cracks: Open the crack(s) to create a space no wider than one quarter inch (1/4), and to the depth of the top of the lath.
 - b. For Loose Plaster Areas: Drill holes through the plaster layer, six (6) to eight (8) inches apart, throughout area of loose plaster.
 - c. Adjust hole spacing if necessary and as required to ensure that voids can be saturated with plaster repair adhesive products.
 - 3. Clean Holes: Vacuum out holes to remove debris from drilling operation.
- B. Debris Removal: Take measures to limit debris from drilling operations from falling into voids between plaster and substrate. After drilling holes and before injecting plaster repair adhesive products, remove debris caught between the plaster and substrate. Debris caught between ceiling plaster and substrate must be removed to assure realignment and reattachment.

3.06 PRE-TREATMENT

A. Spray Conditioner: Spray conditioner directly into drilled holes of plaster surfaces on wood lath, masonry and metal lath and along crack lines. Spray conditioner directly into drilled holes and along crack lines to ensure saturation of the rear surface of loose plaster, front surface of substrate, and into separated layers. Minimize overflow of conditioner onto front plaster surfaces and surrounding materials. Allow a minimum of ten (10) minutes and no more than sixty (60) minutes between pre-treatment with conditioner and application of adhesive to allow surfaces to absorb conditioner.

Specifications

Section 09209 Plaster Repair Adhesive System

IF THE SURFACE OF THE PLASTER WILL BE REFINISHED WITH PAINT, WALL PAPER, OR ANOTHER FINISH, THE FOLLOWING PROVISION "B" CAN BE USED.

B. Remove Excess Conditioner: Dab, do not rub, with a damp clean cloth or sponge exposed areas that have excess conditioner deposited on their surface. Alternately, rinse plaster surfaces with potable water and a damp sponge to remove excess conditioner. Remove excess conditioner within ten (10) minutes of application. Take care to minimize the water's or conditioner's effect on surfaces and their finishes.

IF THE EXISTING FINISH ON PLASTER WILL BE RETAINED THEN THE FOLLOWING PROVISION "B" SHOULD BE SUBSTITUTED FOR ONE ABOVE.

B. Remove Excess Conditioner: Dab, do not rub, with a damp clean cloth or sponge exposed areas that have excess conditioner deposited on their surface. Remove excess conditioner within ten (10) minutes of application. Take care to minimize smearing or damage to surfaces and their finishes.

USE THE FOLLOWING PROVISIONS "3.07 <u>APPLICATION OF ADHESIVE TO PLASTER ON WOOD LATH OR MASONRY"</u> AND "3.08 <u>APPLICATION OF ADHESIVE TO PLASTER ON METAL LATH,"</u> AS APPROPRIATE TO THE PROJECT.

3.07 APPLICATION OF ADHESIVE TO PLASTER ON WOOD LATH OR MASONRY

- A. Inject Adhesive: Inject adhesive into the drilled and pre-treated holes to ensure the void between plaster and substrate is filled and the adhesive adheres to both plaster and substrate. Avoid overfilling void or exerting pressure during adhesive injections that might move loose plaster away from substrate.
- B. Remove Excess Adhesive: Immediately remove excess adhesive from face of drilled holes after each hole is injected. Immediately remove adhesive from exposed areas that have excess adhesive, spillage, or overflow. Clean surfaces with a damp, clean cloth or sponge.

3.08 <u>APPLICATION OF ADHESIVE TO PLASTER ON METAL LATH</u>

- A. Apply Adhesive: Apply adhesive in the space along the crack to "weld" the plaster on both sides of the crack together. Where possible inject the adhesive through the metal lath for additional bonding.
- B. Remove Excess Adhesive: Immediately remove adhesive from exposed areas that have excess adhesive, spillage, or overflow. Clean surfaces with a damp, clean cloth or sponge.

USE THE FOLLOWING PROVISIONS "3.09 <u>REALIGN PLASTER ON WOOD LATH"</u>, "3.10 <u>REALIGN PLASTER ON MASONRY OR DELAMINATED PLASTER LAYERS"</u>, AND "3.11 <u>REALIGN PLASTER ON METAL LATH"</u> AS APPROPRIATE TO THE PROJECT.



3.09 REALIGN PLASTER ON WOOD LATH

- A. Install clamps within thirty (30) minutes of injecting the adhesive to secure the plaster inplace during set-up of adhesive. Assure the clamp's screw shank penetrates through the plaster into the wood lath at each alignment point. Gently bring loose plaster back into alignment with its original plane.
- B. Clamp Spacing: Place eight (8) to twelve (12) inches apart. Clamps can be closer if deemed necessary by contractor. Use existing drilled holes. Clamps can be placed in the crack to facilitate the return of the plaster surface to its original plane.
- C. Remove Clamps: Remove the clamps after the adhesive has set. Typical set-time, depending on humidity levels, twenty-four (24) to seventy-two (72) hours after application.

3.10 <u>REALIGN PLASTER ON MASONRY, METAL, OR DELAMINATED PLASTER</u> LAYERS

- A. Install approved bracing system, (typically 2 x 4's and plywood) within thirty (30) minutes of injecting the adhesive to secure the plaster in-place during set-up of adhesive. Gently bring loose plaster back into alignment with its original plane.
- B. Remove Bracing: Remove bracing after the adhesive has set. Typical set-time, depending on humidity levels, twenty-four (24) to seventy-two (72) hours after application.

ADD AND MODIFY THE PROVISIONS OF THE ARTICLE BELOW TO MEET SPECIFIC PROJECT CONTROLS. PERCENTAGES GIVEN BELOW ARE SUGGESTED GOALS TO DETERMINE SUCCESSFUL PLASTER REPAIR ADHESIVE WORK. DESIGNATE PERCENTAGES TO MEET PROJECT GOALS.

3.11 FIELD QUALITY CONTROL

- A. Evaluation of Each Area of Plaster Repair Adhesive Work to Sound Substrate: The work will be considered successful when at least eighty percent (80%) of each treated area exhibits no hollow sounds when the surface is tapped, and ninety percent (90%) of each treated area has limited movement and is stable when surfaces are lightly pressed. Areas less than one square foot in size that have residual hollowness will be acceptable.
- B. Evaluation of Each Area of Loose Finish-Coat Plaster Repair Adhesive Work to Sound Base Plaster: The work will be considered successful when over ninety-five percent (95%) of each area treated for this condition exhibits no hollow sound when the surface is tapped.
- C. Retreatment: Retreat areas that fail to meet the evaluation criteria for successful plaster repair adhesive work until the criteria are met.

3.12 FINISHING DRILL HOLES

- A. Fill Drill Holes: Fill drill holes created for the work of this section. Use approved filler. Neatly apply filler into holes. Fill holes level with surrounding surface and to match surrounding plaster texture.
- B. Plaster Loss Within Plaster Repair Adhesive Work Areas: Reference related plastering sections for replastering areas with missing plaster.
- C. Major Cracks Within Plaster Repair Adhesive Work Areas: Reference related plastering sections for filling cracks larger in width than one-quarter (1/4) inch.

3.13 ADJUSTMENTS

A. Inspections and Corrections: Inspect plaster surfaces and correct all plaster repair adhesive work that does not meet the requirement of this section.

END OF SECTION