

**BMRA Model Guide Specification:
Section 02 42 13.13 Deconstruction of Buildings**

Background.

The Building Material Reuse Association (BMRA) is a non-profit educational organization whose mission is to advance the recovery, reuse, and recycling of building materials in such a way to reduce the consumption of new resources, reduce landfill waste, create a value-added market and increase cost-effectiveness, expand job opportunities and workforce development skills, and promote the sustainability of communities and the environment through resource preservation. As part of its mission, the BMRA is developing a library of technical documents to assist deconstruction - related practitioners and the building industry as a whole.

Deconstructing buildings can provide several advantages over mechanical demolition, or wrecking. Waste reduction is most frequently cited as the main justification to deconstruct and reuse materials. Additional environmental benefits are also present through the reduction of adverse impacts associated with resource extraction, manufacturing, and transporting new materials. Benefits to the community are also present by making lower-cost building materials available for home improvement. Use of recovered materials is becoming more common with architects, engineers, and construction contractors, as the market demand for “vintage” aesthetics and green buildings increases.

Deconstruction and demolition are not diametrically opposed concepts. Deconstruction is one method of removing buildings and structures; demolition is another. In contrast to mechanical demolition, or wrecking, the primary objectives of deconstruction are to preserve the value and utility of the building materials in place, and to reduce waste. Any building removal project is likely to employ deconstruction (or recovery of materials for reuse), recycling, wrecking, and landfill disposal to varying degrees.

There are many deconstruction specifications and other guidance available to the building industry. However, deconstruction practice has not achieved the level of uniformity and industry wide acceptance common with other building industry disciplines. Therefore, there is a great diversity among existing examples with regard to content, tone, applicability to project requirements, enforceability, and other practical issues. Many examples provide good information. However, many contain shortcomings that could possibly have undesired consequences to both the property Owner and the deconstruction Contractor in a project scenario. BMRA endeavors to consolidate the industry’s best knowledge and input to create competent, dependable, technical resources.

Purpose.

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The purpose of this Model Guide Specification is to provide the building industry with a consistent set of technical requirements for deconstructing buildings as the Owner's directed method of building removal, based on the best knowledge and practices available within the industry.

Applicability.

This Model Guide Specification is applicable to building removal projects, similar in scope to a conventional demolition or wrecking specification, but with deconstruction as the directed method of building removal. The objectives are to recover building materials in such a way to preserve their value and utility for reuse, recycle materials that are not reusable or cannot be recovered for reuse, and landfill only those materials that have no other potential for beneficial use.

This specification is applicable to residential, commercial, and institutional buildings where their contents and construction types lend themselves to salvage, disassembly, and reuse. It is applicable to projects consisting only of building deconstruction, as well as projects where deconstruction is one task within a broader scope such as clearing a site for new construction.

The scope of this specification is limited to the deconstruction tasks. It must be incorporated into a procurement document to solicit and select deconstruction services, then execute the deconstruction project. It is assumed a property Owner engages an architectural, engineering and/or construction management professional as their agent for the project. As such, this specification describes the Owner's requirements for deconstruction, provides the basis for prospective contractors to develop bids or price proposals, and describes the Work to be performed by the selected Contractor. Related contract provisions and technical specifications are referenced, but are not included in this Model Guide Specification.

This Model Guide Specification must be edited by a qualified architect, engineer, specifier, or criteria development professional to represent project-specific conditions and Owner requirements. Specifier notes provide background, rationale, typical requirements or criteria, and similar information as guide to the project specifier.

Format.

This Model Guide Specification is developed to be consistent with Construction Specifications Institute MasterFormat© and Three-Part Format©. Paragraph numbering has been omitted, as a project specification will include, add, or omit paragraphs. The bullets and indentures are intended to define the paragraph and sub-paragraph hierarchy, to which the project specifier can apply the CSI paragraph numbering convention.

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BMRA Model Guide Specification

SECTION 02 42 13.13 DECONSTRUCTION OF BUILDINGS

TABLE OF CONTENTS

PART 1. GENERAL

- SUMMARY
 - Section Includes
 - Project Objectives
- RELATED SECTIONS
- REFERENCES
- DEFINITIONS
- PROJECT DESCRIPTION
 - Deconstruction scope
 - Waste diversion performance requirements
 - Owner retained materials
 - Title to materials
- SUBMITTALS
 - Work Plan / Deconstruction Plan
 - Health and Safety Plan
 - Quality Management Plan
 - Deconstruction Waste Management
 - Progress Reports
 - Closeout Submittals
- QUALITY ASSURANCE
 - Contractor Qualifications
 - Regulatory Requirements
- PROJECT / SITE CONDITIONS
 - Environmental Requirements
 - Existing Conditions
- SEQUENCING
- SCHEDULING

PART 2. PRODUCTS

PART 3. EXECUTION

Any use of this specification language, either in part or in whole, must be consistent with the terms of use identified at <http://bmra.org/terms-of-use/>.

- EXAMINATION

- PREPARATION
 - Site Perimeter
 - Adjacent Properties
 - Trees And Shrubs
 - Water Resources
 - Air
 - Erosion Control
 - Utility Lines

- DECONSTRUCTION
 - Personnel protection
 - Temporary Facilities
 - Hazardous Materials
 - Building Materials Handling
 - Temporary Electrical Service
 - Utility Service Interruption
 - Road Closure
 - Dust Control
 - Waste Control
 - Explosives
 - Accidents

- SITE RESTORATION
 - Drainage And Grading
 - Fill
 - Seeding

- CLEANING

- PROJECT CLOSEOUT
 - Pre-Final Inspection
 - Final Acceptance Inspection
 - Documentation

APPENDIX 02 42 13.13 A. SCHEDULE OF ITEMS TO BE REMOVED THROUGH PARTIAL DECONSTRUCTION

Appendix 02 42 13.13 B. SCHEDULE OF ITEMS TO BE RECOVERED FOR REUSE AND RECYCLING.

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--END OF SECTION TABLE OF CONTENTS --

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BMRA Model Guide Specification

SECTION 02 42 13.13
DECONSTRUCTION OF BUILDINGS

PART 1. GENERAL

• SUMMARY

○ Section Includes:

List all items included within the scope of this deconstruction Work. They may include, but are not limited to the following.

- Permit acquisition
- Utilities termination
- Utilities removal
- Building removal
- Foundation removal
- Concrete sidewalk removal
- Concrete paving removal
- Asphalt paving removal
- Backfill
- Site restoration
- Construction waste management and disposal
- []
- []

Where only partial deconstruction is required, list the components to be recovered for reuse. To simplify the specification, an appendix consisting of a room-by-room schedule of items to be recovered for reuse is the preferred method of describing this requirement.

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- Section includes: Removal of items described by Appendix 02 42 13.13 A., Schedule of Items to be Removed Through Partial Deconstruction.

Describe the Owner's requirement to remove the building by disassembly and to recover materials for reuse.

- Project Objectives: The Owner directs that the subject buildings and structures shall be deconstructed, as opposed to mechanical demolition, or wrecking. Recover for reuse the greatest amount of building materials, components, and products practical. Recycle materials that are not suitable for reuse. Minimize landfill disposal and incineration of debris. Employ building removal methods and techniques that preserve the function and value of building materials. Ensure protection from damage by mishandling, improper storage, contamination, inadequate protection, pilferage, and other causes that can diminish materials' value.

- RELATED SECTIONS

List Project Specification sections that describe the Work at a project level related to, but outside the scope of building deconstruction. Coordinate Related Sections with the requirements of this section as they apply specifically to the deconstruction Work. Avoid redundancy, contradiction, and omission. Related Sections may include, but are not limited to the following:

- 00 31 46 - Permits
- 00 45 13 - Bidder's Qualifications or 00 45 16 Proposer's Qualifications
- 01 14 13 - Access to Site

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- 01 14 19 - Use of Site
- 01 31 19 - Project Meetings
- 01 35 23 - Owner Safety Requirements
- 01 33 00 - Submittal Procedures
- 01 41 00 - Regulatory Requirements
- 01 43 00 - Quality Assurance
- 01 45 00 - Quality Control
- 01 51 13 - Temporary Electricity
- 01 52 00 - Temporary Facilities
- 01 66 13 - Product Storage and Handling Requirements for Hazardous Materials
- 01 71 16 - Acceptance of Conditions
- 01 73 23 - Bracing and Anchoring
- 01 74 13 - Progress Cleaning
- 01 74 19 - Construction Waste Management and Disposal
- 01 77 13 - Preliminary closeout reviews
- 01 77 16 - Final closeout reviews
- 01 78 00 - Closeout Submittals
- 02 01 00 - Maintenance of Existing Conditions
- 02 21 13 - Site Surveys
- 02 25 00 - Existing Materials Assessment
- 02 26 00 - Hazardous Material Assessment
- 02 41 13.23 - Utility Line Removal (including above ground and underground storage tanks)
- 31 22 00 - Grading
- 31 23 23 - Fill
- []
- []

● REFERENCES

The following references apply to building deconstruction Work.

- AHRI Guideline K -- Guideline for Containers for Recovered Non-Flammable Fluorocarbon Refrigerants

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- 29 CFR Part 1926 -- Safety and Health Regulations for Construction
- 40 CFR 61 -- National Emissions Standards for Hazardous Air Pollutants
- 40 CFR 82 -- Protection of Stratospheric Ozone
- 49 CFR 173.301 -- Shipment of Compressed Gases in Cylinders and Spherical Pressure Vessels

If separate sections are not included in the Project Specifications for removing hazardous waste and universal waste, the following may apply to building deconstruction Work.

- *(Specify State)* Regulated Wastes
- *(Specify State)* Disposal Requirements
- 40 CFR Part 61, Subpart M – National Emission Standard for Asbestos.
- 40 CFR Part 82, Subpart F - Recycling and Emissions Reduction.
- 40 CFR Part 257 and 40 CFR Part 258 - Non-Hazardous Waste.
- 40 CFR Part 261 – Identification and Listing of Hazardous Waste.
- 40 CFR Part 261, Subpart C – RCRA Characteristic Hazardous Wastes.
- CFR Part 261, Subpart D - RCRA Listed Hazardous Wastes.
- 40 CFR Part 263 – Standards Applicable to Transporters of Hazardous Waste.
- 40 CFR Part 264 – Standards for Hazardous Waste Treatment, Storage, and Disposal Facilities.
- 40 CFR Part 273 – Universal Waste Management.
- 40 CFR Part 279 – Standards for the Management of Used Oil.
- 40 CFR Part 761 – Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and use Prohibitions.
- 49 CFR Part 171 – Department of Transportation (DOT) General Information, Regulations, and Definitions.
- 49 CFR Part 172 – DOT Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements.

If a separate section is not included in the Project Specification for the removal and disposal of asbestos and asbestos-containing materials, the following apply to building deconstruction Work.

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- *(Specify State)* asbestos abatement regulations and applicable local requirements
- *(Specify State)* training, licensure, notification, and removal requirements for asbestos and asbestos-containing materials.
- *(Specify State)* disposal requirements for asbestos and asbestos-containing materials.

Where only partial deconstruction Work will be performed, the following applies.

- 40 CFR Part 745 – Lead-Based Paint Poisoning Prevention in Certain Residential Structures
- DEFINITIONS – The following definitions apply in the context of this specification
 - Contractor: The entity retained under a formal Agreement by the Owner to perform services for the Owner. A Contractor may a single entity with overall responsibility for all described Work, or may be any subcontractor, organization, business, or trade performing a portion of the Work under a general or prime Contractor. In the context of this specification the Contractor is the party performing deconstruction and related services.
 - Debris: Building materials and content that are destroyed through the demolition (or wrecking) process.
 - Deconstruction: The systematic dismantling and removal of a structure or its parts to salvage and harvest the components, with the purpose of reusing and recycling the reclaimed materials for their maximum value; the disassembly of a building with the explicit intent of recovering building materials for reuse in a safe and economical manner.
 - Demolition (or Wrecking): The removal of a building in the quickest and least expensive manner possible, typically by crushing the building into debris.
 - Landfill Disposal: The disposition of material in a facility permitted by the prevailing authority for the permanent disposal of waste.
 - Owner: The entity who possesses property. In the context of this specification, the Owner requires the removal of a building from their property as a stand-alone project, or as task within a larger construction or development project and retains a demolition and/or deconstruction Contractor for services. The term Owner also applies to an architect,

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engineer, construction manager or other professional the Owner designates as their Agent or Project Representative.

- Recycling: The conversion of a material into a feedstock to be used in the manufacture of another product.
- Reuse: The subsequent use of a material, product, or component in generally the same manner as the original use, allowing for cleaning, repair, and/or repurposing.
- Recovery (or Salvage): Removal of materials, products, or components from a building with the explicit intent of maintaining the materials' integrity, functionality, and value.
- Utilities termination: The deactivation of electrical, domestic water, gas, sanitary, and other services to the building.
- Waste: Materials for which no other purpose is practical and the only possible disposition is landfill disposal.

- PROJECT DESCRIPTION

Delete or add items to the scope, as appropriate.

- Deconstruction scope: Provide all labor, supplies, materials, equipment, and other resources necessary to remove the buildings, structures, and site features indicated on the [Site Plan] [].

--or--

- Deconstruction scope: Provide all labor, supplies, materials, equipment, and other resources necessary to perform the following:
 - Deconstruct the following buildings.

Identify buildings by title, building number, address, or other appropriate identifier.

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- []
- []
- []
- []

- Terminate electrical, gas, water and sanitary utilities services.
- Remove electrical, gas, water, and sanitary lines.
- Remove building piers, floor slabs, foundations and footings and other substructure elements.
- Remove concrete and asphalt parking, paving, and sidewalks.
- Fill excavations and grade to drain.
- Seed, mulch, and water exposed soil.
- []
- []

A pre-deconstruction survey should identify materials that are damaged, deteriorated, or otherwise unsuitable for reuse or recycling. Consider what quantity or percentage of materials are viable for recovery and reuse or recycling on a project-specific basis when establishing a minimum diversion criterion.

One total diversion rate for a building or buildings is typically specified. It is then the Contractor's responsibility to decide what materials, in what quantities, will be recovered for reuse, will be recycled, and will be landfilled. This information must then be documented in the Contractor's Construction Waste Management and Disposal Plan.

As recycling asphalt, brick, concrete (ABC), has become common, some consider these materials the "lowest hanging fruits" to meet the minimum diversion criteria, discouraging diversion of other materials. Consider whether ABC materials should be included or excluded in the diversion calculation. Alternatively, diversion from a minimum number of material streams in addition to ABC materials may be specified.

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- Waste diversion performance requirements: Divert a minimum of [75] [] percent of the building’s non hazardous materials from landfill disposal, by weight. Include a minimum of four material streams in the diversion calculation. Do not include [asphalt, brick, concrete or] soils in the diversion calculation. Do not count as diversion materials recycled by a mixed C&D debris recycling facility that are incinerated or used as landfill alternate daily cover. Verify through [an independent third party] [a Certificate of Compliance] that all materials counted as diversion when processed by a mixed C&D debris recycling facility are delivered for secondary processing into another product.

The Owner typically does not direct the Contractor as to specific materials and quantities to be recovered for reuse, recycling, or landfill disposal. However, if the Owner has performed an accurate survey of the building’s content, and is confident they can define realistic recovery rates for specific materials without imposing unachievable conditions or excessive cost, a more detailed description of material recovery and recycling requirements can be developed.

- Waste diversion performance requirements: Divert building materials as described in Appendix 02 42 13.13 B., Schedule of Items to be Recovered for Reuse and Recycling. Do not include pavement or soils in the diversion calculation. Do not count as diversion materials recycled by a C&D recycling facility that are incinerated or used as landfill alternate daily cover. Verify through [an independent third party] [a Certificate of Compliance] that all materials counted as diversion when processed by a mixed C&D debris recycling facility are delivered for secondary processing into another product.

List, any materials, components, or products the Owner will retain, and will not be available to the Contractor. List bulk materials by type and quantity. List specific items by location, type, and other appropriate identifying information.

- Owner retained materials: The Owner retains ownership of the following:
 - []

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- []
- []

Remove the designated items intact without damage or contamination. Place Owner-retained items in a location on the site directed by the Owner. Protect items from physical and environmental damage. Do not place items directly on the ground or hardstand surfaces.

- Title to materials: Title to all materials, except those to be retained by the Owner, is vested with the Contractor. All revenues from recovered and recycled materials and all cost avoidance through reduced landfill fees accrue to the Contractor. Responsibility for and expenses associated with debris and waste disposal are borne by the Contractor.

- SUBMITTALS

- Work Plan / Deconstruction Plan: Refer to Section 01 33 00 Submittal Procedures. Include the following in the Work Plan / Deconstruction Plan, as applied to the deconstruction Work.
 - Description of the deconstruction means, methods, techniques, and procedures to be applied to removing the buildings and structures.
 - Deconstruction schedule; sequence and duration of activities.
 - Labor and equipment applied to deconstructing the building(s).
 - Identification of load-bearing components including:
 - Verification that vertical load bearing elements are sufficient to support deconstruction and equipment loads, and that roof and floor decks are suitable to perform as safe working platforms.
 - Structural safety hazards.
 - Methods to retain structural stability throughout the deconstruction process.
 - Site layout showing access to and use of the site during deconstruction Work.
 - Material handling and processing procedures.
 - Material loading and transportation procedures.

The Owner reserves the right to request further information and clarifications. If further information is requested, a Notice to Proceed for the deconstruction Work will not be issued without responding to the Owner's request.

- Health and Safety Plan: Refer to Section 01 35 23 Owner Safety Requirements. Include the following in the Health and Safety Plan, as applied to the deconstruction Work.
 - Designation of a Competent Person to oversee the deconstruction Work.

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- Hazard communication plan for deconstruction activities.
 - Training for deconstruction workers.
 - Inclusion of deconstruction activities as a safety meeting topic.
 - Equipment safety and operation; qualifications of equipment operators.
 - Fall protection methods.
 - Vertical conveyance of materials; protected drop zones, debris chutes, receptacle location.
 - Personnel Protection Equipment.
 - Protection from airborne lead-based paint dust.
 - Respiratory protection.
 - Procedures for developing an employee Exposure Negative Assessment.
 - Housekeeping procedures; chip and dust control, protective clothing, hand washing requirements, clothes changing facilities, and other similar practices.
 - Fire protection and response plans.
 - Accident response plans.
 - Hazardous material removal, handling, and disposal plans.
 - Hazardous material spill response plans.
 - Accident and emergency response plans.
- Quality Management Plan: Refer to Sections 01 45 00 Quality Control. Include the following in the Quality Management Plan, as applied to the deconstruction Work.
- Designation of the Quality Manager for the deconstruction Work.
 - Plans and schedules for conducting inspections.
 - Documentation of inspection results.
 - Procedures for identifying deficiencies and implementing corrective actions.
 - Procedures for verifying compliance with prevailing environmental regulations.
 - Procedures for monitoring and recording recovery for reuse, recycling, and landfill disposal data.
- Deconstruction Waste Management Plan (*or Waste Reduction Plan, or Materials Management Plan*): Refer to Section 01 74 19 Construction Waste Management and Disposal. Include the following in the Deconstruction Waste Management Plan.
- Construction and demolition waste diversion criteria.
 - Designation of the Waste Manager for the deconstruction Work.
 - Actions that will be taken to reduce solid waste generation, including coordination with subcontractors to ensure awareness and participation.
 - Description of the regular meetings to be held to address materials reuse, recycling, and waste reduction.

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- Description of the specific approaches to be used in reuse and recycling of materials, components, and products generated during deconstruction, including the areas on site and equipment to be used for processing, sorting, and temporary storage of materials.
- Characterization, including types and estimated quantities, of the materials and content present in the building(s) to be deconstructed.
- Name of landfill and/or incinerator facilities to be used and the estimated costs, assuming all materials will be disposed of as waste.
- Identification of reuse outlets or programs to which materials will be sent.
- Identification of off-site recycling facilities and portable or moveable equipment for recycling on-site. Include verification each piece of equipment is permitted with the appropriate authority for the intended purpose.
- List of specific materials, by type and quantity, which will be recovered for reuse and recycled.
- Denailing and material processing and handling locations and methods.
- Identification of materials that cannot be reused or recycled, with an explanation or justification.
- Description of the means to protect materials recovered for reuse from contamination and physical and environmental damage.
- Description of collection locations and methods for both source-segregated and mixed recyclable materials.
- Description of the means of collecting and transporting recovered materials to resale outlets and recycling facilities.
- Description of waste diversion monitoring and reporting procedures.
- Estimated costs and savings, indicating costs associated with deconstruction, values of recovered and recycled materials, and disposal cost reduction.

Submit the Deconstruction Waste Management Plan to the Owner for review and approval no later than [15] [] working days prior to beginning deconstruction Work. The Owner reserves the right to reject the Plan and require revisions. A Notice to Proceed for the deconstruction Work will not be issued without an approved Plan.

- Progress Reports: Include in weekly Progress Reports quantities of materials, by weight, that have been recovered for reuse, materials that have sent to recycling facilities or recycled on-site, and waste materials sent for landfill disposal or incineration. Provide a running summary of the waste diversion rate. If the actual diversion rate is below the target diversion rate, provide a description of how the target rate will be achieved.
- Closeout Submittals:

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- Upon the pre-final inspection of the deconstruction Work, provide to the Owner a summary report of the final material reuse, recycling, and landfill disposal performance.
- Upon the final inspection, provide a final diversion report indicating all materials recovered for reuse, outlets or markets to which reusable materials were sent, all recycled materials and recycling facilities, and all materials sent for landfill disposal. Provide copies of receipts for all sales, donations, recycling, and landfill disposal transactions. Provide an independent audit, Certificate of Compliance, or similar verification that mixed construction and demolition debris is recycled for a legitimate secondary process and is not incinerated or used as landfill alternate daily cover.

- QUALITY ASSURANCE

- Contractor Qualifications: Possess all skills, qualifications, and experience required to deconstruct buildings, effectively recover building materials, and provide materials to used building material markets. Such skills may reside either within the Contractor's organization or through subcontract, partnership, or similar association.

Select the Owner's preferred metric for the deconstructor's qualifications

 *

- The Contractor shall be credentialed as a Building Material Reuse Association Designated Deconstruction or Master Trainer.

-OR-

- The Contractor shall have a minimum of [5] [] years deconstruction experience, have successfully completed a minimum of [10] [] deconstruction projects of a similar construction type, scale, and scope to the designated buildings, and who is knowledgeable about used material markets and reuse opportunities].
- Provide a Supervisor with comparable experience to the above who shall be present at all times during the deconstruction to direct the Work.

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- Regulatory Requirements: The Contractor shall be responsible for knowledge of and compliance with all federal, state, and local regulations and Standards that apply to the deconstruction and related Work.

- PROJECT / SITE CONDITIONS

- Environmental Requirements: Refer to 02 24 00 Environmental Assessment.

If the buildings to be deconstructed were built prior to 1978, they may contain lead-based paint. If lead-based paint is known to be present, or is suspected, include the following disclosure.

It is preferred the Owner have performed a lead survey prior to beginning deconstruction Work. Reference any such surveys in 02 24 00 Environmental Assessment. This disclosure is recommended even if a lead survey was performed, as surveys may miss LBP, especially if it is concealed by other finishes or surfaces.

- The Bidder or Proposer is hereby informed and does acknowledge that lead-based paint was commonly used at the time this building was constructed and/or modified and may exist on painted surfaces of the building or within the building and/or its associated structures. In accordance with the Environmental Protection Agency and the Department of Housing and Urban Development’s final rule “Lead; Requirements for Disclosure of Known Lead-Based Paint and/or Lead-Based Paint Hazards in Housing” (61 FR 9064-9088), a federally approved lead hazard information pamphlet and disclosure of any known lead-based paint and/or lead-based paint hazards will be provided to a potential bidder upon request and to the purchaser upon contract award. The property may be inspected for lead-based paint during time specified for pre-bid inspection, or scheduled at a time after that date. Inspection must be scheduled with the Owner.

- Existing Conditions: Refer to 00 31 00 Available Project Information and 02 21 13 Site Surveys.

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- Buildings and other structures to be removed, site access, and areas of the site available for deconstruction and material handling activities are indicated on the [Site Drawings] [].
- Building plans, elevations, sections, and details are indicated on the [Architectural Drawings] [].
- Structural layout, materials, and details are indicated on the [Structural Drawings] [].

The Owner typically does not direct the Contractor as to sequencing project activities. If there is compelling reason to perform deconstruction within a particular sequence, include the following. Ensure that all such sequencing is physically able to be accomplished.

• SEQUENCING

- Complete the following activities prior to the commencement of deconstruction.

- []
- []
- []

- Complete the following activities concurrent with deconstruction.

- []
- []
- []

- Complete the following activities after completion of the buildings' deconstruction.

- []
- []
- []

• SCHEDULING:

- Begin mobilization for deconstruction activities within [] work days after issuance for the Notice to Proceed for deconstruction.
- Complete all deconstruction activities within [] work days after issuance for the Notice to Proceed for deconstruction.

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- Complete all site restoration activities within [] work days after issuance for the Notice to Proceed for deconstruction.

The Owner typically does not direct the Contractor as to the project's schedule. If there is compelling reason to establish interim milestones during the project's duration, include the following.

- Complete the following tasks according to the following schedule.
 - [] within [] work days after issuance for the Notice to Proceed for deconstruction.
 - [] within [] work days after issuance for the Notice to Proceed for deconstruction.
 - [] within [] work days after issuance for the Notice to Proceed for deconstruction.
 - []
 - []

PART 2. PRODUCTS (Not used)

PART 3. EXECUTION

● EXAMINATION

- Site verification of conditions: The Contractor is responsible for verifying that all conditions affecting the deconstruction Work are consistent with the information provided by the Owner.
- Discrepancies with information provided by the Owner: Immediately report to the Owner discrepancies between conditions portrayed in information by the Owner and actual conditions that may affect the progress of the deconstruction Work and may alter scope and compensation. Do not continue the deconstruction Work without approval by the Owner.

● PREPARATION

- Site perimeter: Protect the deconstruction jobsite perimeter from pedestrian access. Perimeter protection shall consist of chain link, wire mesh, snow fencing or similar

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continuous barrier material a minimum of [42 inches] [48 inches] [60 inches] [] high.

- Allow site access only at the designated locations. Secure access locations after working hours and when not supervised during working hours.
 - Provide warning signs and notices during the removal of hazardous materials, as required by the prevailing hazardous material regulations.
 - Provide signs at all access locations requiring all personnel to wear personal protective equipment while on the jobsite.
- Adjacent properties: Do not disturb adjacent properties beyond the buildings and structures designated for deconstruction.
- Protect doors, windows, and surfaces of adjacent buildings where they may be exposed to damage from debris, equipment, or other deconstruction Work.
 - Where necessary, provide temporary shoring and bracing for support of adjacent building components to prevent settlement or other movement.
 - Protect adjacent land areas from compaction and surface damage by vehicles, equipment, and worker traffic.
 - Provide protective measures to control accumulation and migration of dust, dirt, debris, and other materials and contaminants onto adjacent properties. Remove any debris accumulating on adjacent properties within the day of its occurrence.
 - Repair or restore all adjacent property damaged as a result of the deconstruction Work, as approved by the Owner.
- Trees and shrubs: Protect trees within the project site and adjacent properties which might be damaged during the deconstruction Work, and which are indicated to be left in-place.
- Do not fasten ropes, cables, or guys, or otherwise use trees for anchorage or support for conducting any deconstruction activities.
 - Erect and secure a 6 foot high fence a minimum distance of 5 feet from the trunk of individual trees or follow the outer perimeter of branches for clumps of trees.
 - Repair or replace trees and shrubs designated as remaining in place that are damaged as a result of the deconstruction Work, as approved by the Owner.
- Water resources: Protect surface water from sedimentation and contamination from the deconstruction Work. Control the disposal of fuels, oils, bitumen, calcium chloride, acids or harmful materials both on and outside of the deconstruction Work area. Implement measures to prevent chemicals, fuels oils, greases, bituminous materials, herbicides, and insecticides from entering public waters. Prevent water used in onsite material processing, demolition, cleanup, and other waste waters from re-entering surface water courses.

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- Air: Prevent airborne discharges.
 - Burning shall not be permitted.
 - Maintain all excavations, stockpiles, access roads, waste areas and other work to be free from excess dust. Control dust to prevent the creation of a nuisance in areas adjacent to the site. Use of water will not be permitted when it will result in the contamination of runoff, excessive runoff leaving the project site, safety hazard, or other objectionable conditions. Use of potable water for dust control shall not be permitted where other suitable water sources are available.

- Erosion control: Limit disturbance of the site and exposure of soil to those areas necessary to perform the deconstruction Work.
 - Provide silt barriers around exposed ground surfaces. Provide erosion and sedimentation control for loose soil in piles of 24 inches or higher subject to erosion from rainfall. Restore disturbed areas as soon as practicable after completion of the deconstruction Work.
 - Control the disposal of fuels, oils, bitumen, calcium chloride, acids or harmful materials both on and outside of the deconstruction Work area. Implement measures to prevent chemicals, fuels oils, greases, bituminous materials, herbicides, and insecticides from entering public waters. Prevent water used in onsite material processing, concrete curing, demolition, concrete cleanup, and other waste waters from re-entering streams.
 - Where required by prevailing regulations, prepare a storm water pollution prevention plan to identify potential discharges to storm water and to develop appropriate management practices to eliminate these discharges and to limit soil erosion and pollution of adjacent surface water.

- Utility Lines: Protect existing buried and aboveground utility lines from damage. If utility lines are damaged during the deconstruction Work, immediately report damages to the Owner. The Contractor shall be responsible for repairing such damage.
 - Coordinate with all utility providers regarding the schedule for interruption or termination, who will perform utilities termination, location of closures or disconnection, capping, filling, and other tasks required for the utilities deactivation.
 - Terminate utilities in accordance with Section 02 41 13.23- Utility Line Removal. Prior to beginning deconstruction Work, provide the Owner with written verification that each utility is inactive within 10 ft. of the building's footprint and outside areas where heavy construction equipment will applied to the deconstruction

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Work. Cap the ends of water sanitary, and gas lines. Remove electrical drops at the poles.

- If any electrical service is to remain active within the building during deconstruction activities:
 - Lock and tag deactivated circuit breakers to prevent their activation.
 - Prominently label live receptacles, switches, fixtures, equipment and other electrical components as “LIVE” in such a manner to prevent labels from being removed, dislodged, or obscured.
 - Undetected Utilities: Immediately report to the Owner detection of any utilities that are not identified in existing project conditions. If the utility is active and will create a hazard, stop Work until the utility is terminated and the utility provider verifies it is safe to resume Work.
 - Repair or replace utilities designated as remaining in place that are damaged as a result of the deconstruction Work, as approved by the Owner.
- DECONSTRUCTION
 - Personnel protection: During deconstruction, continuously evaluate the condition of the structures being removed and take immediate action to protect all personnel working in and around the building(s) being removed. No area, section, or component of floors, roofs, walls, columns, pilasters, or other structural element shall be allowed to be left standing without sufficient bracing, shoring, or lateral support to prevent collapse or failure while personnel perform work in the immediate area. Structural components that are designed and constructed to stand without lateral bracing may remain standing without additional bracing, shoring, or lateral support until removed. Ensure no unstable elements are left unsupported, which may include but are not limited to elements that are compromised by physical damage, deterioration, damage by organisms, or fire damage. Place and secure bracing, shoring, or lateral support as required as a result of any cutting, removal, or deconstruction work.
 - Temporary facilities: Refer to Section 01 52 00 Temporary Facilities. Provide and maintain the following throughout the duration of the deconstruction Work.
 - Administrative field office or similar location where the Contractor’s representative and project documents are located at all times during the deconstruction Work. Provide the Owner with telephone contact for the Contractor’s representative during mobilization.
 - Potable water and sanitary facilities at each building deconstruction site.
 - Weather protection, consisting of shade and cooling areas during hot weather and warming shelters during cold weather.

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- All buildings designated for deconstruction are available for Contractor's use until they are deconstructed.
- Water and sanitary facilities on the Owner's property are [available] [not available] to the Contractor.
- Before final acceptance of the deconstruction Work, remove all temporary utilities, facilities, and construction from the deconstruction jobsite.

Provide information for any facilities the Owner will make available to the Contractor for temporary use during the deconstruction Work.

- The Owner makes the following facilities available to the Contractor for [material storage] [material processing] [shipping and handling] [] for [the duration of the deconstruction Work] or until []. Upon vacating these facilities, clean and restore them to the condition in which they were prior to the Contractor's use.

○ Hazardous materials:

- Survey each building to be deconstructed for fluorescent tubes, PCB-containing ballasts, and mercury (Hg)-containing switches and control devices. Report the contents of each building to Owner. The Contractor shall be responsible for the removal, handling, packing, and disposal of fluorescent tubes and PCB-containing ballasts.
- Assume fluorescent light fixture ballasts are PCB containing unless labeled by the manufacturer as "NO PCBs" or similar wording. At their option and expense, the Contractor may perform testing on suspected PCB-containing ballasts to determine PCB content.
- Remove fluorescent tubes, PCB-containing ballasts, and mercury (Hg)-containing ampoules prior to beginning any deconstruction Work on a building. Either removing hazardous materials from all buildings at one time or from each building individually prior to its deconstruction is acceptable.
- Certify to the Owner fluorescent tubes, PCB-containing ballasts, and mercury (Hg)-containing switches and control devices have been removed prior to beginning deconstruction.
- Deposit all hazardous materials directly into the appropriate containers upon their removal.

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- Do not leave hazardous materials unsecured on the jobsite without supervision. Lock or secure containers at the end of the workday.

Specific procedures for cleanup of hazardous material spills should be described in the Health and Safety Plan.

- In the event that fluorescent tubes are broken or mercury (Hg) or PCBs are spilled, immediately stop work, evacuate the area, block the affected area from access by workers, and notify the Owner. Clean spills according to the spill cleanup plans included in the Health and Safety Plan.
- The Contractor is responsible for cleaning spills and obtaining certification or clearance from the appropriate environmental authorities that the spill site is suitable for Work to resume. Provide the Owner with the certification or clearance prior to resuming Work.

Coordinate the following with 02 26 00 – Hazardous Material Assessment. Ensure provisions are consistent regarding who is responsible for testing and abating previously undetected asbestos or asbestos-containing materials.

- In the event previously undetected asbestos or asbestos-containing material is encountered or suspected, stop Work immediately and notify the Owner. The Owner will notify the Contractor whether the material is tested to be asbestos or asbestos-containing. If asbestos or asbestos containing, the Owner shall have the material removed and shall notify the Contractor when the affected building is cleared for Work to resume.
- Building materials handling: Preserve the value of recovered materials for reuse. The Contractor shall be responsible for any loss or damage incurred during the recovery, handling, processing, staging or storing, loading, and transporting building materials off the jobsite.

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- Temporary electrical service: [The Contractor is responsible for providing temporary electrical service for the deconstruction Work] [Temporary electrical service is available to the Contractor as indicated on the [Site Drawing] []].
- Utility service interruption: Coordinate with the affected utility provider regarding temporary termination of a utility outside the jobsite boundaries. Obtain written approval from the utility for the temporary interruption. Provide the Owner with the written approval at least 5 days prior to the utility's interruption, indicating when the interruption will begin, any provisions for moving or protecting the utility, and when service will be restored. No single outage shall exceed 4 hours unless approved by the Owner.
- Road closure: Coordinate with the appropriate jurisdiction regarding closure or obstruction of a street, sidewalk, or other public right of way. Submit to the Owner the authority's approval at least 2 days in advance of each closure or obstruction.
- Waste Control: Prevent building materials, debris, rubbish, and other waste materials from becoming a nuisance or hazard within designated work areas and adjacent areas.
 - Police the site for rubbish, trash, and recyclable materials daily, or more frequently if necessary to prevent their blowing and scattering within the work areas and adjacent areas.
 - Regularly clean work of nails and other sharp metals that may cause foot injuries and vehicle tire punctures.
 - Collect waste daily and deposit in a receptacle. Remove all waste from each building's site no later than [14] [] days after that building has been deconstructed.
 - Remove and transport waste in a manner to prevent spillage on streets or adjacent areas. Police any material falling from the vehicle at the time of the spillage.
 - Process and store salvaged building materials in a neat and orderly manner. Prevent damage and contamination of materials to be salvaged and recycled.
 - The Contractor shall be responsible for the removal of any waste material dumped by the Contractor or any Subcontractors in unauthorized areas, and for remediation of the dump site.
- Explosives: Use of explosives are not permitted.
- Fire prevention: Torch cutting and similar hot work is not permitted without approval by the Owner. Provide fire extinguishers or other fire suppression methods where combustible materials are exposed to sparks from grinding, cutting or similar methods, as described in the Health and Safety Plan.

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- Accidents: Report to the Owner all accidents and injuries requiring medical attention no later than the next workday after the injury.
- SITE RESTORATION
 - Drainage and grading: Refer to 31 22 00 Grading. Prevent runoff from accumulating in the deconstructed buildings' footprints and other excavated areas. Meet adjacent elevations and slope to direct runoff into existing drainage patterns. Remove sediment, debris, and other obstacles from culverts, swales, and existing drainage courses within the project boundaries.
 - Fill: Refer to 31 22 23 Fill.
 - Remove organic and other unsuitable materials from areas to be filled. Existing brick, stone, concrete, and other inert rubble may remain if it will be covered by a minimum of 6 inches of soil. Burying additional rubble is not permitted.
 - Remove basement walls to a minimum of [4'-0] [] below grade. Basement floor slabs may remain in place if they are fractured to allow drainage. Verify floor slab drainage prior to filling.
 - Do not place fill when the subsurface is frozen, excessively wet, extremely dry, or otherwise detrimental to proper grading and seeding.
 - Fill excavations in lifts of no greater than 3 feet and compact each lift prior to the placement of the next lift.
 - Place a minimum of 6 inches of topsoil over excavated areas to be seeded with turf grass.
 - Seeding: Refer to 32 92 00 Turf and Grasses. Sow (*specify grass species*) grass on all fill and topsoil exposed by deconstruction Work. Do not seed when drought, excessive moisture, or other adverse conditions will prevent germination. Uniformly spread hay or straw mulch over seeded areas on the same day as the seed is applied. Water seeded areas within the workday on which the seed and mulch is spread. Provide a 1-year warranty on turf seeded by the Contractor.
- CLEANING
 - Unless otherwise approved by the Owner, remove all materials, tools, waste and signs of operations such as work areas, temporary structures, stockpiles of materials, and waste prior to the pre-final inspection.
 - Remove all physical hazards from the deconstruction jobsite. Cap protruding reinforcing bars that are approved by the Owner to remain in place. Magnet-sweep the site for nails, screws, and other sharp metal pieces. Remove all broken glass from the deconstruction site.

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- Remove all rock and rubble larger than [3 inches] [] from the deconstruction site surface.
- PROJECT CLOSEOUT
 - Pre-final inspection: The [Owner] [Owner and Contractor together] shall perform a pre-final inspection at the substantive completion of the deconstruction Work. Develop a punch list of deficiencies, outstanding Work yet to be performed, items not in conformance of this Contract, and potential change orders. Complete all punch list items within the specified Contract duration unless otherwise approved by the Owner.
 - Final acceptance inspection: The [Owner] [Owner and Contractor together] shall perform a final acceptance inspection upon completion of all deconstruction Work, including punch list items. Notify the Owner the when Work will complete and allow them at least [14] [] days after notification to schedule the final acceptance inspection.
 - Documentation: Provide to the Owner all project documentation upon completion of the deconstruction Work. This may include, but is not limited to the following:
 - Final inspection, acceptance, and/or clearances from permitting, environmental, and other governmental and regulatory jurisdictions and authorities for Work related to deconstruction.
 - Final inspection, acceptance, and/or clearance from utility providers for Work related to deconstruction.
 - Final material reuse, recycling, and waste quantities and rates.
 - LEED reporting data.

Release Date: 28 APRIL, 2015

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APPENDIX 02 42 13.13 B. SCHEDULE OF ITEMS TO BE RECOVERED FOR REUSE AND RECYCLING.

As a minimum, remove the following building materials and components for reuse and recycling according to the following quantities.

Material / Component	Location	Estimated Total Quantity Available	Minimum Quantity Recovered for Reuse *	Minimum Quantity Recycled *	Comment

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*As percent of the total estimated quantity available.

--END OF SECTION --