



Facilities Reduction Program
Best Practices Toolbox



UNITED STATES ARMY CORPS OF ENGINEERS
FACILITIES REDUCTION PROGRAM

Best Practices Toolbox

(Library Document)

FRP Summary of Best Practices

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INTRODUCTION

This document represents a compilation of Best Practices that have been developed under efforts of the Facility Reduction Program (FRP). FRP Best Practices are typically a resulting practice that is derived from:

- Successful industrial practices;
- Practices developed to maximize efficiency;
- Practices demonstrated to optimize economic benefits;
- Practices required to meet statutory or policy requirements; and/or
- Other practices determined to be in the best interest of the Army.

For additional information on topics related to each of these Best Practices, refer to the [FRP Guide to Best Practices](#).

FRP BEST PRACTICES

BEST PRACTICE: Metal building components have a significant salvage value and should be recycled to the maximum extent practicable. Nearly all metals have salvage value. However, the effort required to separate some metals may not result in a “net” salvage value to the project. For example, items such as copper plumbing and electrical wire and other “incidental” items will be separated and diverted, but often at a break-even cost to the project. Significant salvage credits to the project have been noted where heavy equipment is located inside a building to be demolished. In general, heavy structural components (i.e. beams and trusses) may result in significant salvage credits that reduce the overall cost of demolition. Metal coverings, such as sheet metals will be separated, but the labor usually offsets the salvage credit to the project. A supplemental guidance document for consideration of metal diversion is currently under development and should be available in the FRP Toolbox library in Fall of 2007 (QTR01FY2008).

For additional information, visit the following links:

[ACSIM Sustainable Management of Waste in Military Construction, Renovation, and Demolition Activities – Supplemental Guidance](#)

[FRP Guide to Best Practices: 1.5.4 Diversion, Recycling, and Reuse](#)

[Toolbox Table of Anticipated Diversion Quantities](#)

[FRP Guide to Diversion Opportunities](#)

BEST PRACTICE: Wood/timber components should be recycled to the maximum extent practicable. In general, large-dimension solid roof/support beams have the greatest salvage value while nailed/bolted laminated beams have little salvage value. Instances of obtaining salvageable lumber in a cost-effective manner are generally rare in consideration of the entire Army inventory. However, an installation must meet requirements of the [Army’s Diversion Policy](#) on a per project basis. Therefore, if packaging or other diversion opportunities are not available, an installation may be forced to consider wood salvage. In addition to recovering wood for reuse, it may be cost effective to contract with a vendor to provide on-site GRINDING services. Grinding can

be an effective means to divert wood while providing a useful by-product for mulch, soil stabilization, soil amendments, etc. Another consideration for grinding/recycling relates to gypsum or other construction materials that can provide a beneficial by-product.

For additional information, visit the following links:

[ACSIM Sustainable Management of Waste in Military Construction, Renovation, and Demolition Activities – Supplemental Guidance](#)
[FRP Guide to Best Practices: 1.5.4 Diversion, Recycling, and Reuse](#)
[Toolbox Table of Anticipated Diversion Quantities](#)
[FRP Guide to Diversion Opportunities](#)

BEST PRACTICE: Masonry, Asphalt, Concrete, and Stone should be crushed on-site and retained for aggregate/stabilization material or sent off-site to a commercial recycling facility. Due to their high project-proportional weights, these materials make excellent diversion candidates to meet requirements of the Army's Diversion Policy. In some instances, diversion of the foundation alone will meet the Army's 50% diversion goal. A supplemental guidance document for concrete diversion considerations has been developed for FRP. **Concrete C&D Debris Diversion Policies, Best Practices, and Considerations** is currently available in the FRP Best Practices Toolbox Library.

For additional information, visit the following links:

[Concrete C&D Debris Diversion Policies, Best Practices, and Considerations](#)
[ACSIM Sustainable Management of Waste in Military Construction, Renovation, and Demolition Activities – Supplemental Guidance](#)
[FRP Guide to Best Practices: 1.5.4 Diversion, Recycling, and Reuse](#)
[Toolbox Table of Anticipated Diversion Quantities](#)
[FRP Guide to Diversion Opportunities](#)

BEST PRACTICE: Whenever practicable, wood and gypsum board debris can be ground and retained for reuse such as fill, mulch, soil stabilization, or other application. However, sustainment of such activity on a cost-effective basis is likely found near urban areas and is often justified as the result of cost-avoidance and local availability of mobile grinding equipment. Refer to the Toolbox Library for additional information and ideas regarding reuse and recycle of C&D debris.

For additional information, visit the following links:

[ACSIM Sustainable Management of Waste in Military Construction, Renovation, and Demolition Activities – Supplemental Guidance](#)
[FRP Guide to Best Practices: 1.5.4 Diversion, Recycling, and Reuse](#)
[Toolbox Table of Anticipated Diversion Quantities](#)
[FRP Guide to Diversion Opportunities](#)

BEST PRACTICE: Based on construction materials, certain facilities are commonly associated with low waste diversion quantities. Whenever practical, such facilities should be packaged with other facilities containing high diversion quantities to meet the

Army's 50% Diversion Goal.

For additional information, visit the following links:

[ACSIM Sustainable Management of Waste in Military Construction, Renovation, and Demolition Activities – Supplemental Guidance](#)

[FRP Guide to Best Practices: 1.5.4 Diversion, Recycling, and Reuse](#)

[Toolbox Table of Anticipated Diversion Quantities](#)

[FRP Guide to Diversion Opportunities](#)

BEST PRACTICE: Some of the greatest cost add-ons in a demolition contract are commonly related to environmental/HAZMAT conditions that require special handling or abatement. The best way to execute a project, with assurance of an adequate budget, is to verify such special environmental/HAZMAT conditions prior to project execution. An experienced and reputable demolition contractor often has knowledge and experience to identify common problems. It may also be helpful to contact your local Directorate of Environmental Compliance and Management (DECAM) or designated environmental official for surveys regarding known quantities and recommended actions.

For additional information, visit the following links:

[FRP Guide to Best Practices: 1.6 Environmental/HAZMAT Considerations](#)

[Toolbox Library: Environmental](#)

BEST PRACTICE: Asbestos Containing Material (ACM) should be handled in accordance with local, state, and federal requirements. The presence of ACM is not always an indication that abatement will be required. The classification of ACM, friable vs. non-friable, in addition to other considerations, demolition vs. renovation, dictate the level of required abatement.

For additional information, visit the following links:

[Toolbox Library: Environmental](#)

[AR 420-70: Section 3.6](#)

BEST PRACTICE: Mercury vapor lamps should be removed and recycled with a reputable contractor prior to facility removal.

For additional information, visit the following links:

[FRP Guide to Best Practices: 1.6 Environmental/HAZMAT Considerations](#)

BEST PRACTICE: Waste POL's should be assessed for environmental contamination and properly taken out of service in accordance with local, state, and federal regulations.

For additional information, visit the following links:

TBD

BEST PRACTICE: Contaminated (non-RCRA) soils should be removed and properly disposed of in accordance with local, state, and federal regulations. Proper testing should be conducted to verify that the contaminated soil is considered non-hazardous (non-RCRA).

For additional information, visit the following links:

TBD

BEST PRACTICE: No federal or state laws or regulations require abatement of lead-based paint (LBP) or other lead hazards prior to removal of a facility via demolition. Because there are no governing regulations, IMA must establish a Policy to be used when removing facilities known or presumed to contain lead-based paint (LBP). This policy does not apply to renovation or remodeling of facilities for re-use or re-occupation. Please refer to the [IMA LBP policy](#) for more information.

For additional information, visit the following links:

[IMA Policy for Removal of Facilities that Contain Lead-based Paint](#)

[AR 420-70: Section 3.3](#)

[FRP Guide to Best Practices: 1.6 Environmental/HAZMAT Considerations](#)

BEST PRACTICE: When practical and budgets permit, using a single contractor to manage the demolition and environmental activities will eliminate contractor cross-liability, minimize work interruptions if environmental issues are uncovered, and simplify contracting and management.

For additional information, visit the following links:

[FRP Guide to Best Practices: 3.0 Project Execution](#)

[FRP Guide to Best Practices: 5.0 FRP Administrative Functions](#)

BEST PRACTICE: When practical, Firm Fixed Price contracts secured by open and competitive bid are recommended.

For additional information, visit the following links:

[FRP Guide to Best Practices: 3.0 Project Execution](#)

[FRP Guide to Best Practices: 5.0 FRP Administrative Functions](#)

BEST PRACTICE: All contractor candidates should be allowed to inspect a facility without restraint, including partial demolition, to alleviate disclosure allegations and potential overlooked items.

For additional information, visit the following links:

[FRP Guide to Best Practices: 2.2.1 ID of Enviro/HAZMAT Issues](#)

BEST PRACTICE: Structures such as pools or buildings that contain basements, are built on slopes, or have other extenuating circumstances that will result in a large void when the structure is removed, may require significant backfill materials. The cost to import backfill materials can be very significant to the overall cost of a project. When significant amounts of concrete, CMU, or other masonry materials will be available, on-site crushing and retainment for backfill can often reduce landfill AND backfill costs.

For additional information, visit the following links:

[FRP Guide to Best Practices: 1.5.4 Diversion, Recycling, and Reuse](#)

[FRP Guide to Diversion Opportunities](#)

BEST PRACTICE: The base project costs (\$/SF) maybe reduced if additional facilities can be added to this project. As a rule of thumb, approximately 10,000 SF of buildings or equivalent are necessary to exceed cost associated with crew and equipment mobilization and other overhead costs.

For additional information, visit the following links:

[FRP Guide to Best Practices](#)

BEST PRACTICE: Tipping fees at off-site waste disposal facilities can be significantly reduced by mandatory diversion of all concrete and metal C&D debris. When significant quantities of concrete do not justify on-site crushing, materials should be stockpiled for future crushing or hauled to an off-site recycling facility.

For additional information, visit the following links:

[FRP Guide to Best Practices: 1.5.4 Diversion, Recycling, and Reuse](#)

[FRP Guide to Diversion Opportunities](#)

BEST PRACTICE: Cost avoidance with on-site disposal does not preclude the need for compliance with Army diversion policy. In general, concrete and metals should never be placed in a landfill. Other C&D debris should be diverted whenever economically practical.

For additional information, visit the following links:

[FRP Guide to Diversion Opportunities](#)

BEST PRACTICE: Diversion estimates should be reconsidered if facilities are added or removed from a project. Diversion estimates typically assume employment of the best practices listed below.

- Crush concrete on-site, send to commercial recycler, or store on-site for future crushing/use.
- All metals should be sent to salvage/recycling center.
- Wood salvage is rare and requires solid, large-dimension timber to be economically practical. However, a cheap labor pool (i.e. volunteers) has been used for some deconstruction pilot projects. If mulch or soil stabilization

materials are in demand at your installation, wood grinding may also be a consideration to elevate project diversion.

- Gypsum recycling is limited based on current market conditions, but can be achieved in certain regions. Check with local recyclers to determine practicality for your location.
- Equipment, fixtures, doors, windows, and other select items may be effectively removed for reuse under certain conditions. Some charitable organizations (i.e. Habitat for Humanity) have been effective in certain areas. Special attention should be given to experience and safety when employing such methods of diversion.

For additional information, visit the following links:

[FRP Guide to Diversion Opportunities](#)