

# Annotated Bibliography on Deconstruction Publications

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Addis, Bill. Schouten, J. *Design for Deconstruction: Principles of design to facilitate reuse and recycling*. August 2004. Last accessed 17 August 2010.

<http://www.design4deconstruction.org/literature.html>

**Summary:** This book addresses the opportunities for maximizing the reuse of components and recycling of materials when a building is wholly or partially deconstructed or demolished. Carefully deconstructing a building, rather than demolishing it, often allows more of the components and equipment to be reused. The guide also reviews the processes by which buildings are demolished and can be deconstructed, the opportunities for reusing components and recycling materials, and current experience of designing for deconstruction, in both the construction and automobile industries. Also provides guidance for designers and their clients the principles and strategies for designing and specifications for new construction. This is achieved by considering various approaches at the design stage and indicating the best ways of considering the lifecycle of building elements, components and equipment.

Addis, Bill. Earthscan Publications Ltd. *Building with Reclaimed Components and Materials*. May 2006

<http://www.amazon.com/Building-Reclaimed-Components-Materials-Recycling/dp/1844072746>

**Summary:** Green and sustainable design is growing in prominence and popularity. National governments are active in promoting recycling and reducing the amount of waste going to landfill. This guide addresses the opportunities at the design phase of a project for minimizing the generation of waste by the use of recycled components and materials in buildings. It reviews current experience of designing with recycling in mind, the processes by which components and material can be reclaimed and the opportunities for specifying them during the design stage.

Augenbroe, Godfried; Pearce, Annie R. *Sustainable Construction in the United States of America: A Perspective to the year 2010*. June 1998. Last Accessed 24 November 2008. <http://www.p2pays.org/ref/14/13358.htm>

**Summary:** This report is part of a series of national reports produced by the CIB-W82 (Future Studies in construction), subgroup on Sustainable Construction 2010. This report is a contribution to a global assessment of sustainable construction. Deconstruction is not discussed explicitly, although it is brought up in conjunction with sustainability. This is a comprehensive report on sustainable building, with emphasis placed on green building and the need to reduce, and reuse resources in the construction industry.

Biddle, David. *Deconstruction Industry "Demolishes" the Alternative*. In *Business*. Vol. 23, No. 5. 27-30. July, 1 2001. Last Accessed 24 November 2008.

[www.allbusiness.com/public-administration/administration-environmental/1126329-1.html](http://www.allbusiness.com/public-administration/administration-environmental/1126329-1.html)

**Summary:** Spotlights one company based in Portland, Oregon which has successfully created a business in the deconstruction industry. Founder of company shares tips and tricks as well as strategies that make the company successful. Helps to prove that deconstruction is not only cost-competitive with demolition, but in most cases can be as quick, if not quicker in removing structures.

Browning, Preston; Guy, Brad; Beck, Chris. *Deconstruction: A New Cottage Industry for New Orleans*. August 2006. Last accessed 11 December 2008.

<http://www.lifecyclebuilding.org/files/Deconstruction%20A%20New%20Cottage%20Industry.pdf>

**Summary:** An article that proclaims deconstruction to be the best possible option for the cleanup recovery of a post-Katrina New Orleans. The article focuses on the benefits deconstruction brings over demolition: salvaging historic heritage laden items from New Orleans past, as well as providing job training and entry level jobs to many jobless New Orleans inhabitants. Other benefits include waste stream diversion, as well as the ability to create a reuse market, which would in turn create more jobs.

Building Green, Inc. *Greening Federal Facilities: An Energy, Environmental, and Economic Resource Guide for Federal Facility Managers and Designers*. May 2001. Last Accessed 1 December 2008.

<http://www1.eere.energy.gov/femp/pdfs/29267-0.pdf>

**Summary:** A thorough guide to creating a green federal facility, or retrofitting a federal facility with green technology, though applicable to any building. Part VII deals explicitly with material selection and waste management and recycling of C&D materials. Selection of pre-used materials is discussed and encouraged, as well as designing for deconstruction so that deconstruction will be easy at the end of its useful life. Waste reduction and recycling is encouraged. Deconstruction is suggested as the best option for the removal of buildings and discussed at length.

Buss, Kurt. The Reuse People of America *The City of Boulder and Building Deconstruction: Crossroads to the Future of Waste Reduction, Resource Conservation and Architectural Preservation*. January 2007. Last accessed July 22, 2010.

[http://thereusepeople.org/sites/thereusepeople.org/files/images/Case\\_Studies/Boulder\\_Report.pdf](http://thereusepeople.org/sites/thereusepeople.org/files/images/Case_Studies/Boulder_Report.pdf)

**Summary:** This source contains information on several aspects of Deconstruction as they pertain to Boulder, CO. However, the information is useful for anyone looking to start or expand a deconstruction business. The article gives detailed descriptions of the deconstruction process, difficulties, benefits of deconstruction, case studies and recommendations. There are statistics and data accompanying the case studies which show quantities and types of materials to be expected with specific square footage. The information exclusive to Boulder is scarce, but can be adapted describe any location and assist the deconstruction industry.

Byers, Patsy. *Building Deconstruction, Puns Intended*. Last Accessed 20 November 2008.

[http://extension.ucdavis.edu/unit/green\\_building\\_and\\_sustainability/pdf/resources/deconstruction.pdf](http://extension.ucdavis.edu/unit/green_building_and_sustainability/pdf/resources/deconstruction.pdf)

**Summary:** A relatively short article that focuses on the differences between deconstruction and demolition weighing both pros and cons against each other for both practices. Emphasis is added to the point that many studies show deconstruction to be cost-competitive with demolition. Case studies conducted in Hartford, CT, New Orleans, LA, and Washington D.C. are discussed.

California Environmental Protection Agency – Integrated Waste Management Board. *Resource Recovery Parks: A Model for Local Government Recycling and Waste Reduction*. Last accessed 4 December 2008.

<http://www.ciwmb.ca.gov/Publications/default.asp?pubid=919>

**Summary:** This is not a document that deals directly with deconstruction and its methods/merits/recovery rate/etc. However, this does explain how an end market for reusable C&D materials in California happened, and provides a model for what could be end markets for reusable C&D materials in other states.

California Environmental Protection Agency – Integrated Waste Management Board. *Military Base Closure Handbook: A Guide to Construction and Demolition Materials Recovery*. January 2002. Last Accessed 25 November 2008.

[www.ciwmb.ca.gov/publications/ConDemo/43396074.doc](http://www.ciwmb.ca.gov/publications/ConDemo/43396074.doc)

**Summary:** A thorough account of almost all facets of C&D in reference to military base deconstruction. Beyond that, this paper outlines numerous ways to demolish a structure, as well as ways to deconstruct it. Cost comparisons are made between demolition and deconstruction, specifically with the case study of the deconstruction of building 901. End markets for reusable items are discussed, as well as the end use of recyclable C&D waste. Also discussed at length are abatement methods for LBP and asbestos.

Chini, Abdol R.; Bruening, Stuart F. *Deconstruction and Material Reuse in the United States*. The Future of Sustainable Construction. May 14<sup>th</sup> 2003. Last accessed 24 November 2008.

<http://www.bcn.ufl.edu/iejc/pindex/109/chini.pdf>

**Summary:** The demolition of buildings produces enormous amounts of debris that in most countries results in a significant portion of the total municipal waste stream. Deconstruction is emerging as an alternative to demolition around the world. This paper will present an overview of the issues of deconstruction and materials reuse in the United States. The issues covered will include waste impact of the construction industry, deconstruction tools and techniques; economics of deconstruction and marketing of used building materials, materials reuse businesses, and barriers to deconstruction

Chini, Abdol R., ed. University of Florida. *Deconstruction and Materials Reuse – an International Overview*. CIB Publication 300. March 2005. Last accessed 17 August 2010.

[http://www.uni-siegen.de/fb10/subdomains/cibw115/publications/publications/cib\\_publication\\_300.pdf](http://www.uni-siegen.de/fb10/subdomains/cibw115/publications/publications/cib_publication_300.pdf).

**Summary:** This document is the final report of Task Group 39 of International Council for Research and Innovation in Building Construction (CIB). The goal of TG 39 is to produce a comprehensive analysis of, and a report on, worldwide building deconstruction and materials reuse programs that address the key technical, economic and policy issues needed to make deconstruction and reuse of building materials a viable option to demolition and landfilling. This report is a state-of-the-art report on deconstruction and material reuse in ten countries: Austria, Germany, Israel, Japan, Netherlands, New Zealand, Norway, Turkey, United Kingdom and the United States.

Corbett, Charles; Powell, William G. UCLA Anderson School of Management. *The Reuse People: Turning Scrap Into Sales*. 2009. Last accessed 19 July 2010.

[http://thereusepeople.org/sites/thereusepeople.org/files/images/Case\\_Studies/Turning\\_Scrap\\_Into\\_Sales.pdf](http://thereusepeople.org/sites/thereusepeople.org/files/images/Case_Studies/Turning_Scrap_Into_Sales.pdf).

**Summary:** This article is about the creation and expansion of a deconstruction company called the Reuse People. Included are details concerning logistics, retail operations, and marketing. The deconstruction process is explained, mentioning several benefits and challenges that the Reuse People came across. The article also told of loopholes and creative business strategies the company used to promote the business. Demolition and deconstruction are compared and arguments are made to support deconstruction. These arguments are supported by charts and statistics.

Costello, Daniel T. Webster, Mark D. Greenbuild Conference. *Designing Structural Systems for Deconstruction: How to Extend a New Building's Useful Life and Prevent it from Going to Waste When the End Finally Comes* Nov. 2005. Last Accessed 17 August 2010. <http://www.lifecyclebuilding.org/files/Designing%20Structural%20Systems%20for%20Deconstruction.pdf>.

**Summary:** This paper applies the emerging concept of Design for Disassembly (DfD) to building structural systems. DfD benefits the environment by simplifying building modifications and end-of-life disassembly. Buildings' are more likely to be renovated, rather than replaced, when renovations are made simpler and less costly by the application of DfD. At the End of the building's life, materials are more likely to be salvaged or recycled if they can be easily removed and segregated. Structural systems generally account for well over 50% of a building's mass, so application of DfD to the structure is particularly worthwhile.

Dolan, Patrick J.; Lampo, Richard G.; Dearborn, Jacqueline C. *Deconstruction Institute: Concepts for Reuse and Recycling of Construction and Demolition Waste*. June 1999. Last accessed 2 December 2008.

[www.deconstructioninstitute.com/files/learn\\_center/27449035\\_LAM\\_RERE\\_FLM\\_post.PDF](http://www.deconstructioninstitute.com/files/learn_center/27449035_LAM_RERE_FLM_post.PDF)

**Summary:** This article deals exclusively with an army deconstruction case study, but can be applied to other facilities as well. This research project: (1) identified the primary opportunities, constraints, and means to divert C&D debris from the solid waste stream, (2) evaluated C&D material recycling technologies and materials, (3) identified construction materials from existing facilities that may be directly salvaged or reused without substantial alteration or reprocessing, and (4) developed guidelines that project managers can use to organize a construction project recycling program.

Falk, Bob. *Wood-Framed Building Deconstruction: A Source of Lumber for Construction?* Forest Products Journal. Vol. 52, No. 3. March 2002. Last Accessed 1 December 2008. <http://www.fpl.fs.fed.us/documnts/pdf2002/falk02a.pdf>

**Summary:** An article about the necessity for deconstruction for wood-framed buildings. Many of the wood-framed buildings being taken down contain high quality old growth lumber that is in high demand, which deconstruction is the only option to preserve. Conservation of virgin lumber needed, so salvaged lumber from deconstruction is an excellent choice. Cost effectiveness as well as waste stream diversion is discussed. Problems deconstructing newer structures due to prevalence of adhesives, as well as other issues are discussed; such as possible structural issues with reclaimed lumber.

Falk, Robert H.; Guy, G. Bradley. *Directory of wood-framed building deconstruction and reused wood building materials companies*. November 2005. Gen. Tech. Rep. FPL-GTR-150. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory. Last Accessed 24 November 2008.

[http://www.fpl.fs.fed.us/documnts/fplgtr/fpl\\_gtr150.pdf](http://www.fpl.fs.fed.us/documnts/fplgtr/fpl_gtr150.pdf)

**Summary:** This is a directory of companies involved in wood-framed building deconstruction, dismantling, and reused building materials that use, resell, and/or re-manufacture salvaged wood. Companies range from those that carryout targeted building removals, to companies that conduct residential and commercial demolition where the primary goal is building removal, and the recovery of materials is conducted opportunistically as a by-product.

Falk, Robert; Guy, Brad. The Taunton Press, Inc. *Unbuilding: Salvaging the Architectural Treasures of Unwanted Houses*. 2007

**Summary:** The country's two leading expert advocates for salvaging parts of unwanted houses rather than demolishing them explain the "green" art of unbuilding (or deconstruction) and take the reader on a fascinating tour of the process. This is the first and only book that addresses this growing trend. Contains fascinating details on construction techniques for houses both ancient and of more contemporary vintage and methods used to determine their value or salvagability. Covers a variety of projects, from simply dismantling a wall to completely unbuilding an entire house safely, while saving the reusable parts and pieces for another building or for another purpose - including sales. It is satisfying, fun and economical to reuse old building materials both for their original purpose or for decorative purposes

Gibeau, Eleanor M.; Guy, Bradley. *Deconstruction Institute: A Guide to Deconstruction*. January 2003. Last accessed 1 December 2008. [http://www.deconstructioninstitute.com/files/learn\\_center/45762865\\_guidebook.pdf](http://www.deconstructioninstitute.com/files/learn_center/45762865_guidebook.pdf)

**Summary:** An extensive account of deconstruction. This guide literally provides step by step instructions on how to deconstruct a structure. It covers all necessary pre-deconstruction facets (safety, abatement, permits, utilities, etc.), all necessary deconstruction steps, and provides a lengthy appendix providing samples of necessary forms, surveys, tools, even other deconstruction resources.

Guy, Brad. McLendon, Sean. "How cost effective is deconstruction?" *Biocycle*, Vol. 42, No. 7. 75-80. July 2001.

<http://www.jgpress.com/BCContents/2001/July01.html>

**Summary:** The Center for Construction and Environment at the University of Florida deconstructed six wood-framed residential structures located in Gainesville and Alachua County during 1999-2000. This University of Florida project compiles comparative data on demolition vs. deconstruction/ salvage, and suggests policies that would improve recovery rates.

Guy, Brad. Williams, Timothy. University of Florida. *Design for Deconstruction and Reuse – Distillation of a Home*. Sept. 2003. Last Accessed 17 August 2010. [http://www.design4deconstruction.org/pdf/Designforceconstruction\\_Distillationofahome.pdf](http://www.design4deconstruction.org/pdf/Designforceconstruction_Distillationofahome.pdf).

**Summary:** This report highlights many issues that are common to residential deconstruction and subsequent material reuse. This report has a case study where 44% of the materials were recovered from a residential building and 20% of the reclaimed materials were used to construct a new building on the same site. There is a breakdown of a deconstruction techniques, construction details and design for reuse principles.

Guy, Brad. *Deconstruction Institute: Green Demolition Certification*. August 2003.

Last Accessed 2 December 2008.

[http://www.deconstructioninstitute.com/files/learn\\_center/74145578\\_GreenDemoCert09-16.pdf](http://www.deconstructioninstitute.com/files/learn_center/74145578_GreenDemoCert09-16.pdf)

**Summary:** This Green Demolition Certification has been developed to provide guidance for governmental agency and industry audiences interested in environmentally and socially responsible management of demolition wastes. Its aim is to provide guidance, and a valid means to qualify a "green" building demolition. It includes the diversion of the maximum amount of materials from the landfill and maximizing social and economic benefits to the community. It uses three major categories of 1) The Building, 2) Planning, and 3) Environmental Health and Safety. It gives policy-makers a means to validate a "green" demolition when developing demolition debris management regulations and incentives.

Guy, Brad; Ciarimboli, Nicholas. *Design for Disassembly in the built environment: A Guide to Closed Loop in Design and Building*. c. 2007. Last accessed 11 December 2008. <http://www.lifecyclebuilding.org/files/DfDseattle.pdf>

**Summary:** An article that does not deal directly with deconstruction, but with the emerging concept of designing for deconstruction. The importance of deconstruction as well as multiple ways to design for deconstruction (DfD) are discussed; specifically through the example of a few case studies where DfD is implemented and discussed.

Guy, Bradley. Shell, Scott. *Design for Deconstruction and Material Reuse*. Last Accessed 16 August 2010.

<http://www.design4deconstruction.org/pdf/DesignforDeconstructionandMaterialsReuse.pdf>.

**Summary:** This paper will discuss principles of design for disassembly and lessons learned from deconstruction practice to propose guidelines for design for deconstruction as a form of environmentally responsible architecture. Although there are three fundamental buildings types – residential, commercial, and industrial, this paper will focus on the generic levels of: whole-building, elements, components, sub-components, and materials.

Jacoby, Ryan Michael. *Deconstruction: A Tool for Reform as the Construction and Demolition Industry Moves Toward Sustainability*. A Thesis. Presented to Antioch University Seattle. Raleigh, North Carolina. December 2001. Last Accessed August 24, 2010.

<http://www.p2pays.org/ref/03/02282.pdf>

**Summary:** This thesis is an argument for the widespread proliferation of deconstruction as a viable alternative to the demolition process. Provides by a historical examination of the construction and demolition industry, with a focus on its negative environmental impacts. Attention is also given to developments within the industry to become more sustainable, and how these changes can facilitate and accommodate deconstruction.

Kilbert, Charles; Chini, A.; Languell, J. (2001). *Chapter 9: Implementing deconstruction in the United States*. In *Overview of deconstruction in selected countries*. CIB Publication 252, Conseil International du Batiment. Last accessed 24 November 2008.

[http://www.envirobuildcanada.com/groups/research/prothos/onware.x/\\$Document/public/11805768043434/00003665/cib\\_chapter11.pdf](http://www.envirobuildcanada.com/groups/research/prothos/onware.x/$Document/public/11805768043434/00003665/cib_chapter11.pdf)

**Summary:** The status of deconstruction in nine countries is analyzed in this article. More specifically, chapter nine is dedicated to deconstruction in the United States. The amount of waste generated by the construction industry is discussed along with benefits of deconstruction and how to best establish the deconstruction industry, specifically by teaming with building designers to start building structures in a way that promotes easy deconstruction at end of useful life.

\*\*Note: Above link is a brief summary of each chapter only. Full article requires membership to specific pay sites.

Leroux, Kivi; Neil Seldman. *"Deconstruction: Salvaging yesterday's buildings for tomorrow's sustainable communities."* May 1999. Last Accessed 25 November 2008.

<http://www.ilsr.org/recycling/decon/deconreportes.html>

**Summary:** A thorough article that discusses the economic, social, environmental, and local community benefits that are derived from deconstructing structures, rather than demolishing them. Cost comparisons are shown and discussed between deconstruction and demolition, through the use of several case studies, as well as through federal programs such as HOPE VI and the decommissioning of military installations. Also discussed is the need for an end market for these salvaged goods. Included are two very useful appendices that include contact information for deconstruction specialists as well as many informational resources on deconstruction.

Materials for the Future Foundation, Inc. – Prepared for EPA Region 9. *NAS Alameda Deconstruction*.

Last Accessed 3 December 2008.

[www.lifecyclebuilding.org/files/Urban%20and%20Economic%20Development%20Division.pdf](http://www.lifecyclebuilding.org/files/Urban%20and%20Economic%20Development%20Division.pdf)

**Summary:** An excellent deconstruction case study, not because it proves the merits of deconstruction, rather because it explicitly details the issues that one can run into while trying to pursue deconstruction; specifically, a decommissioned military/naval/etc. base. Solutions to ever emerging issues discussed as well as lessons learned.

Milani, Brian. *Building Materials in a Green Economy: Community-based Strategies for Dematerialization*. August 25, 2001. Last Accessed 28 November 2008. <http://www.greeneconomics.net/BuildMatEssay.html#Deconstruction>

**Summary:** An article delivered to the biennial conference of the Canadian Society for Ecological Economics (CANSEE), which does not focus on deconstruction versus demolition, rather on sustainable building in the construction industry. Deconstruction is discussed as a preferred and eventually singular method for building demolition. The need for salvage/reuse and a reduced consumption of virgin materials will be paramount in a society which an estimated 40% of waste is C&D material.

Morgan, Chris. Stevenson, Fionn. *Designing and Detailing for Deconstruction*. 2005. Last Accessed 17 August 2010. <http://www.design4deconstruction.org/pdf/DeconstructionBuildingDisassemblyandMaterialSalvage.pdf>.

**Summary:** Minimizing resource use is a key issue in relation to sustainable design, and specific detailing for the deconstruction of buildings is becoming increasingly important as part of Scotland's commitment to reduce construction waste and increase construction efficiency. The beginning chapters examine the context and principles of designing for deconstruction while the last chapter consists of typical construction details and alternatives. These alternatives optimize the potential for each detail to exploit deconstruction and waste reduction techniques, along with explanations and costs.

NAHB Research Center, Inc. *Deconstruction – Building Disassembly and Material Salvage: The Riverdale Case Study*. June 1997. Last Accessed 17 August 2010.

<http://www.design4deconstruction.org/pdf/DeconstructionBuildingDisassemblyandMaterialSalvage.pdf>.

**Summary:** In an effort to address a number of questions about deconstruction, the manual disassembly and salvage of common building materials were fully documented for a 2,000 square foot, 4-unit, residential building in an urban area of Baltimore County, Maryland. Although this single project cannot address all of the issues involved in the comparison of deconstruction and straight demolition, key results are discussed in the following areas: labor requirements, labor activities, job training, diversion rate, salvage value, total cost comparison, environmental benefits, and lead/asbestos removal.

NAHB Research Center, Inc. *A Guide to Deconstruction*. February 2000. Last Accessed 20 November 2008.

<http://www.huduser.org/publications/pdf/decon.pdf>

**Summary:** Subtitled as 'An Overview of deconstruction with a focus on Community Development Opportunities complete with deconstruction project profiles and case studies', this guide actually provides something for everyone. Gain details on the benefits and the types of deconstruction, important tips on assessing buildings, a discussion of labor strategies, and tips for managing salvaged materials.

National Demolition Association. *Demolition...The First Step of Reconstruction: A Continuum of Choice*. November, 1999. Last accessed 4 December 2008.

<http://www.demolitionassociation.com/Portals/0/pdfs/The%20First%20Step%20of%20Reconstruction.pdf>

**Summary:** Deconstruction from the demolition association's point of view. Notes that deconstruction has merit, but also claims that demolition is able to achieve high recovery rates of reusable/recyclable materials as well. Discusses frequently asked questions about the difference between demolition and deconstruction. Provides several case studies in which demolition has achieved recovery rates of 80% or better, one in which 100% recovery rate is cited.

Patel, Nina. *Remodeling Magazine. The Economics of Deconstruction*. October 2008. Last accessed July 26, 2010.

<http://www.remodeling.hw.net/green-remodeling/deconstruction.aspx>.

**Summary:** This article comes from a magazine focused on remodeling; therefore most of the information pertains to renovation projects. The resource outlines costs to the client and company for these deconstruction projects. The costs are weighed, taking into account environmental benefits, taxes, dumpsters, and contracting fees. Instructions are given for appraising materials, starting a deconstruction company, and weighing costs with tax credits for donation. There are a few full color pictures of the deconstruction process and piles of materials as well.

Schneider, Ann. University of California, Santa Cruz. *The Fort Ord Deconstruction Pilot Project*. October 1997. Last Accessed 20 November 2008.

<http://www.fora.org/Reports/pdp.pdf>

**Summary:** The Fort Ord deconstruction project attempts deconstruction on a large scale, across 28,000 acres and 7,000 buildings. Of those 7,000 buildings 1200(+/-) contained hazardous material and required abatement. By the year 2000, an anticipated 90% recovery rate of materials from 400 sub-standard units should be achieved. Looks at the positive and negative aspects of deconstruction on a large scale as well as lessons learned for future deconstruction.

Shell, Scott; Gutierrez, Octavio; Fisher, Lynn. Prepared for U.S. Environmental Protection Agency – Region 9. *Design for Deconstruction: The Chartwell School Case Study*. Last accessed 10 December 2008.

<http://www.lifecyclebuilding.org/files/DFD.pdf>

**Summary:** In order to further the prevalence of deconstruction, this article looks at how the construction industry will need to start designing for deconstruction (DfD). This is done through a general overview of deconstruction, as well as an analysis of the Chartwell School case study. A very detailed approach is taken in this case study to show how to reduce material use, as well as provide ways to design the building not only for deconstruction, but for future expansion if needed.

Thormark, C. *Environmental analysis of a building with reused building materials*. Lund Institute of Technology, Department of Building Science, Sweden. Sept. 1999. Last accessed 17 August 2010.

<http://www.design4deconstruction.org/pdf/Environmentalanalysisofabuildingwithreusedbuildingmaterials.pdf>.

**Summary:** In order to reduce the environmental impacts within the building sector, recycling of building materials is on the increase. Projects are carried out on several levels and are often well analyzed regarding the economic consequences; however, the actual environmental effects are rarely studied. This paper presents a study of the environmental impacts due to a building from 1997 with a large proportion of reused building materials and components. Two cases were studied; (i) the building as it was built with a large proportion of reused materials and components (ii) the building as if all materials and components had been new. The results showed that the environmental impacts were about 55% of the impacts that would have been caused if all materials had been new.

United States Environmental Protection Agency – Pollution Prevention Program Office. *Lifecycle Construction Resource Guide*. February 2008. Last accessed 8 December 2008.

<http://www.lifecyclebuilding.org/files/Lifecycle%20Construction%20Resource%20Guide.pdf>

**Summary:** This guide introduces a broad range of building project participants to the opportunities and challenges associated with lifecycle construction, with a focus on building deconstruction, materials reuse, and design for deconstruction. Through six case studies, the document highlights what are emerging as best practices as well as key lessons that can aid in the planning and implementation of future projects. It is important to note that this document is not a “how-to” manual; a significant and growing body of information exists describing in great detail how to deconstruct a building and how to design a building for deconstruction. This document identifies these resources and encourages the reader to consult them as the next step in considering, planning, or implementing a lifecycle construction project.

United States Environmental Protection Agency – Solid Waste and Emergency Response. *Building Savings – Strategies for Waste Reduction of Construction and Demolition Debris from Buildings*. June 2000. Last accessed 28 November 2008.

<http://www.ilsr.org/recycling/buildingdebris.pdf>

**Summary:** Article contains general information about deconstruction and the benefits it provides. Seven successful examples are given to be used as models by others implementing their own programs to reduce disposal. This fact sheet packet is aimed at local governments that want to encourage more building-related construction and demolition debris recovery, building owners and developers interested in green building design, and building contractors seeking a competitive edge.

Urban and Economic Development Division – U.S. EPA. *Building Deconstruction and Material Reuse in Washington D.C.* December 1999. Last accessed 26 November 2008. <http://www.smartgrowth.org/library/Dcdeconreport.html>

**Summary:** An article that strictly discusses deconstruction in the Washington D.C. area. Points made and challenges faced however, are applicable to most areas. Discusses the pros and cons of deconstruction, and the issue of end markets, end use, and whether or not deconstruction frequency is a problem of awareness, or supply. Discusses deconstruction on Brownfield sites, and whether that precludes deconstruction or not.

Webster, Mark D.; Costello, Daniel T. Prepared for Greenbuild Conference, Atlanta, GA. *Designing Structural Systems for Deconstruction: How to Extend a New Building's Useful Life and Prevent it from Going to Waste When the End Finally Comes.* November 2005. Last accessed 15 December 2008.

<http://www.lifecyclebuilding.org/files/Designing%20Structural%20Systems%20for%20Deconstruction.pdf>.

**Summary:** This paper gives information on designing for deconstruction (DfD). DfD can apply to construction of a new building or renovations. Specific benefits are outlined by the resource such as LEED certifications, simplicity of design, and cost reductions. There are instructions on how to design for reuse using several common materials such as wood, steel, masonry, and concrete. What works and doesn't work in this construction technique is outlined to maximize the efficiency of building and deconstruction. The resource is beneficial for construction companies, engineers, and general environmentalists.

**Disclaimer:** This document attempts to provide deconstruction resources for educational and informational purposes only. The Connecticut Department of Environmental Protection (CT DEP) maintains the content in this document is to enhance public knowledge and facilitate understanding of waste reduction, reuse and recycling. The CT DEP is not responsible for any content found within this document and/or listed websites. The CT DEP is not recommending these resources over any others and recognizes these represent only a partial listing of resources on this subject. Last revised September 2, 2010.



CT DEP, Source Reduction and Recycling  
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860.424.3366