ERDC/CERL TR-06-30

Construction Engineering
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Investigation of Mechanical Processes for Removing Lead-Based Paint (LBP) from Wood Siding

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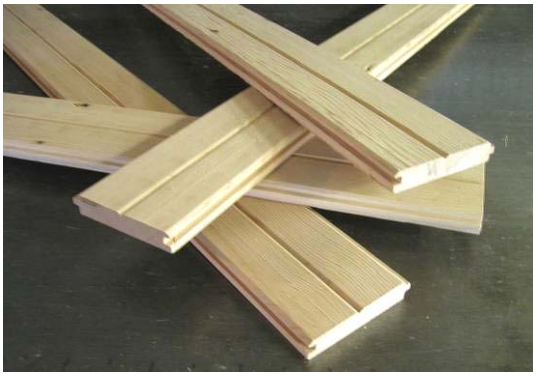
September 2006



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Robert H. Falk

Forest Products Laboratory
U.S. Department of Agriculture
One Gifford Pinchot Drive
Madison, WI 53726

John Janowiak

Wood Products Program
Pennsylvania State University
University Park, PA 16802-1013

Richard G. Lampo, Thomas R. Napier, Stephen D. Cosper, Susan A. Drozdz, and Edgar D. Smith

Construction Engineering Research Laboratory
U.S. Army Engineer Research and Development Center
2902 Newmark Drive
Champaign, IL 61826-9005

Steven Larson

Environmental Laboratory
U.S. Army Engineer Research and Development Center
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Final report

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Under MIPR2CCERB3002/PO, RDTE Work Unit D048/008B9A,
ERDC-CERL/EPA Interagency Agreement DW-96-93933801-0 on Fostering Deconstruction of Army Buildings, and National Defense Center for Environmental Excellence Project on Non-Hazardous Solid Waste, Task 303

Abstract: The U.S. Army is responsible for thousands of World War II-era wooden temporary buildings that must be removed in order to reduce Department of Defense (DoD) real property inventories. Most of those buildings were used long past their intended service lives and were well maintained. They contain large quantities of reusable wood materials with a significant potential resale value. Standard demolition procedures would destroy the value of that material and create new landfilling costs. Demolition would also incur considerable ancillary costs related to compliance with environmental regulations on the handling and disposal of debris contaminated with lead-based paint (LBP).

In order to promote DoD strategic waste management goals, decrease costs, recover value from past infrastructure investments, and reduce long-term liability, the U.S. Army Engineer Research and Development Center worked with other government agencies and private-sector partners to investigate the feasibility of salvaging high-quality wood from obsolete buildings and remanufacturing it into value-added products. Criteria for success included process efficiency, human and environmental safety, and potential marketability of the remanufactured products. This report documents investigations using both conventional and specially designed woodworking equipment to remove LBP from salvaged wood siding while concurrently remilling it into new profiles.

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Preface

The research documented in this report was performed under four related projects executed through three technical branches of the U.S. Army Engineer Research and Development Center – Construction Engineering Research Laboratory (ERDC-CERL):

- Reimbursable project 008GZ2, "Issues And Options Concerning The Disposal Of Hazardous Building Debris From Building Removal Operations at Fort Ord," funded by the U.S. Army Corps of Engineers (USACE) Base Realignment and Closure Office (BRACO), Military interdepartmental Purchase Request MIPR2CCERB3002/PO. Richard G. Lampo was the ERDC-CERL project manager and Martin J. Savoie was Chief, Materials and Structures Branch. The proponent was the Office of the Assistant Secretary of the Army for Installations and Environment (ASA (I&E)).
- Deconstruction at Fort Campbell was conducted under Research, Development, Test, and Evaluation (RDTE) Project D048, "Industrial Operations Pollution Control"; Work Unit 008B9A, "Military Unique Solid Waste." Thomas R. Napier was the ERDC-CERL project manager, and Donald K. Hicks was Chief, Facilities Maintenance Branch.
- Evaluation of processes to convert Fort Campbell siding materials into higher value products was conducted under U.S. Environmental Protection Agency (EPA) Interagency Agreement (IAG) DW-96-93933801-0, "Fostering Deconstruction of Army Buildings." Trudy Carr was the Fort Campbell Environmental Division technical monitor, and Ken Sandler was the EPA Office of Solid Waste technical monitor, Thomas R. Napier was the ERDC-CERL project manager, and Donald K. Hicks was Chief, Facilities Maintenance Branch.
- Project on Non-Hazardous Solid Waste, Task No. 303, Contract DAAE30-98-C-1050, executed by Concurrent Technologies Corporation (CTC), Largo, FL, as part of the Congressionally funded efforts under the National Defense Center for Environmental Excellence. Dr. Edgar D. Smith was the ERDC-CERL project technical representative, and Dr. Kirankumar Topudurti was Chief, Environmental Processes Branch. The proponent was the Office of the Assistant Secretary of the Army for Installations and Environment (ASA (I&E)).

Much of the work in these investigations was performed by Dr. Robert Falk, U.S. Department of Agriculture (USDA) Forest Products Laboratory (FPL), Madison, WI, under contract with CTC. Additional support was provided by Dr. John Janowiak at Pennsylvania State University.

This project would not have been possible without the cooperation of many people from several organizations:

Project funding to FPL was made available through Concurrent Technologies Corporation (CTC) and overall project management at CTC was provided by Belinda Bishop and Bill Boone. John Kucera and Bill Boone from CTC spent many hours packaging the lead-based paint (LBP)-coated siding after it was removed from the buildings and wading through the California regulatory and transportation issues in order to send it all to FPL. Their support in all of the coordination efforts that were necessary for the completion of this project is greatly appreciated.

The assistance provided by research assistant Jeff Kimmel and graduate student Brian Beakler from the Wood Products Program at Pennsylvania State University in grading, processing, and data analysis is greatly appreciated.

Thanks to staff at FPL, including Mike Kapsazk and Gary Litchenburg of Research Facilities Engineering (RFE) for providing internal personnel support. Tom Jacobsen, Safety Officer, provided invaluable help and advice on safety issues, including air monitoring and lead exposure testing. Wood shop personnel, including Steve Geier, Joe Balczewski, Bob Foss, and Ted Smith were important participants in the machining operations. Randy Wruk and Chester Filipowicz set up and debugged the dust collection system at FPL and provided very useful suggestions on its operation.

Thanks is given to Patricia Kemme, ERDC-CERL Environmental Chemistry Laboratory, for her help in getting the appropriate lead analyses completed on the different wood samples. Thanks is also given to Michelle Thompson, contractor, Applied Research Associates, Vicksburg MS, for her efforts related to preparing specimens and measuring lead concentrations as performed at the ERDC Environmental Laboratory (ERDC-EL).

Thanks to the staff at the Fort Ord Reuse Authority, including Stan Cook, Michael Houlemard, Jim Arnold, and James Feeney for their assistance

particularly with supplying the materials needed to conduct these investigations.

Thanks to Ken Sandler and Gwen Dipietro at EPA Office of Solid Waste for their participation with the Fort Campbell Pilot Deconstruction Project, and continued promotion of deconstruction and building materials salvage, reuse, and recycling throughout the Army and the construction industry at large.

Stanley Eller, Phillipe Morissette, and Thom Labrie from Auburn Machinery, Inc.*, and John Stevens from Wood Waste Diversion, LLC†, are gratefully acknowledged for organizing the demonstration of the mobile wood planing unit at Fort Ord.

L. Michael Golish was Chief, ERDC-CERL Facilities Division, and Dr. John T. Brandy was Chief, ERDC-CERL Installations Division. The Acting Deputy Director of ERDC-CERL was Dr. Kirankumar Topudurti and the Director was Dr. Ilker Adiguzel.

The Commander and Executive Director of ERDC was COL Richard B. Jenkins and the Director of ERDC was Dr. James R. Houston.

* Auburn Machinery, Inc., is now Auburn Enterprises, Inc., Auburn, ME.

† Wood Waste Diversion, LLC, has entered into a partnership with Auburn Enterprises under the name of USA Recovered Resources, Pacific Grove, CA

1 Introduction

Background

Immediately before and during the mobilization for World War II, the U.S. military services constructed tens of thousands of wood frame buildings officially designated as "temporary" construction. Owing to material quality, construction methods, and regular maintenance, many of those buildings were used for decades after the end of the war.

After the conclusion of the Cold War, the Department of Defense (DoD) designated many military installations as excess to contemporary defense requirements. DoD Base Realignment and Closure (BRAC) initiatives and the U.S. Army Facility Reduction Plan (FRP) have resulted in a significant reduction of defense real property inventory. However, the Army is still responsible for thousands of World War II-era wooden buildings, and these will at some point need to be removed. Most of the buildings targeted for future demolition have been well maintained, are structurally sound, and contain large quantities of potentially reusable wood materials. Many installations closed under BRAC contain millions of board feet* (bf) of lumber, representing millions of dollars in potential resale value.

In addition to the potential economic value represented by recovered wood construction materials, the Army may also be able to avoid various costs associated with standard demolition practices. For example, recovery of these materials would enable the Army to avoid landfill tipping fees, especially for lead-containing demolition waste categorized as hazardous under the Resource Conservation and Recovery Act of 1976 (RCRA).

Valuable wood construction materials may be recovered from wood frame buildings using a building removal method called *deconstruction*. Wood components can be removed intact with relative ease using manual or mechanically assisted labor. The purpose of deconstruction is to intentionally and carefully separate building materials for reuse and recycling. Conventional demolition methods, by contrast, almost always damage components beyond the point of reusability. The purpose of demolition is to rapidly remove an unneeded building and dispose of its rubble in a landfill.

* 1 ft = 0.3048 m.

There are numerous incentives for using deconstruction techniques to remove unwanted buildings from military lands and to remanufacture the salvaged materials. These include:

- strategic waste management that coincides with resource conservation
  - to reduce the volume of waste sent to landfills
  - to promote DoD sustainability goals
- net decrease in disposal costs
- creation of new salvage business opportunities
- reduction of long-term liability.

Most World War II-era Army temporary wooden buildings were constructed with solid wood siding that has the potential to be recycled or remanufactured as valuable building products. However the historical use of lead-based paint on those buildings poses deconstruction challenges in terms of mitigating lead exposure risks to wood processors and customers, and also with regard to the economic viability of the process.

Researchers at the U.S. Army Engineer Research and Development Center – Construction Engineering Research Laboratory (ERDC-CERL), working with personnel from the U.S. Department of Agriculture (USDA) Forest Products Laboratory (FPL), Pennsylvania State University, and the ERDC Environmental Laboratory (EL), coordinated research on building deconstruction methods and the remanufacture of wood construction materials with scheduled building removal activities at Fort Ord, CA, and Fort Campbell, KY.

Objectives

The objectives of this project were to (1) investigate the feasibility of using both conventional and specially designed woodworking equipment to remove lead-based paint (LBP) from salvaged wood siding, and (2) evaluate the quality and value of products remanufactured from that siding.

Approach

This investigation included the following tasks:

1. Shipment of recovered siding materials from installations to processing sites.

2. Investigation of amount of material removal required to achieve detectable lead limits acceptable to regulatory agencies.
3. Evaluation of woodworking equipment for technical suitability and economy.
4. Assessment of reworked wood products production cost and market value.
5. Disposal of lead-containing waste created by reprocessing recovered wood.

Appendix A provides more detail about each research task.

Fort Ord provided the principal source of salvaged siding evaluated in this study. Using hand tools, the siding was manually removed from two single-story barracks buildings (24 x 82 ft), numbered T2824 and T2825. These buildings were scheduled for removal in the summer of 2002 as part of a local municipal road improvement construction project (commonly referred to as the 12th Street Project). These two buildings are representative of many other one- and two-story wood frame barracks still standing at Fort Ord. This project made use of two single-story barracks for ease of access and siding removal. The total siding recovered from two single-story barracks would approximately equal the amount recovered from one two-story barracks, not including the extra board-feet available from the gable area of the second single-story building. Typical World War II-era temporary wooden barracks are shown in Figure 1.

Figure 1. Typical World War II-era wooden barracks at Fort Ord, showing Building T2825 in right foreground.

An onsite appraisal of the barracks siding materials at Fort Ord was completed in April 2002. The siding was visually inspected and photographed to document building exterior conditions. During the visit, each piece of siding on each building was given an identification (ID) number. The ID number included a letter prefix indicating wall orientation – north (N), east (E), south (S) or west (W) – and a number giving vertical location Figure 2 (a, b, and c). Building T2824 was marked with a red permanent marker and Building T2825 was marked with black.

In Figure 2a, note double nail pattern at left, indicated by rust spots. Also, note the difference in siding condition in Figures 2b (west wall) and 2c (south wall), which is apparently a result of differences in weathering and exposure.

Arrangements for siding salvage were coordinated through the Fort Ord Reuse Authority (FORA) as part of the 12th Street Project. California statutes on hazardous waste handling were obeyed during the shipping of these materials.

The scheduled deconstruction of five buildings at Fort Campbell (Figure 3) provided another source of wood siding for evaluation. The siding from those buildings was separated from the other salvaged materials because of its LBP content and the poor condition of the paint film. The siding was disposed of as debris except for boards from one two-story barracks building. Those boards were removed, bundled, banded, and shipped to FPL. In order to assess the condition of the siding boards relative to their position on the building, a coding scheme was adopted similar to that used at Fort Ord, with N, E, S, and W indicating compass orientation and a number indicating vertical and horizontal location of each piece. ERDC-CERL personnel coded each siding piece, and the boards were removed by Austin Habitat for Humanity, Austin, TX, the deconstruction contractors for this project.

Figure 2. Typical ID numbering of individual siding pieces at Fort Ord.

Figure 3. Deconstruction at Fort Campbell.

2 Description of Salvaged Siding

Salvaged feedstock from Fort Campbell

The siding salvaged from Fort Campbell was originally manufactured to a finished 23/32 in. thickness with a dressed width of 7-3/8 in.* All pieces were confirmed to be Southern Yellow Pine (*Pinus spp*). Southern Yellow Pine consists of six major commercial species, including loblolly, longleaf, shortleaf, slash, and pitch pine. These wood species are typically grouped together and have no major differences in market value except in niche recycled wood markets, where "heart pine" (a generic definition for higher-density, slower-grown Southern Yellow Pine) commands higher prices, especially for flooring. Therefore, no effort was made to confirm the exact species composition. Visual observations and handling weight differences suggested more than one Yellow Pine species was present in the supply of salvaged siding. The siding profile found at Fort Campbell was a standard siding pattern (No. 105) recognized by the Southern Pine Inspection Bureau (SPIB) wood product grading rules (SPIB 1994), shown in Figure 4. This type of horizontal "drop lap" siding pattern is common, with a long history of U.S. production from a range of commercial species. Note that Figure 4 indicates a 5 in. width. This pattern of siding was made in several widths, but the most common was a nominal 5 in.

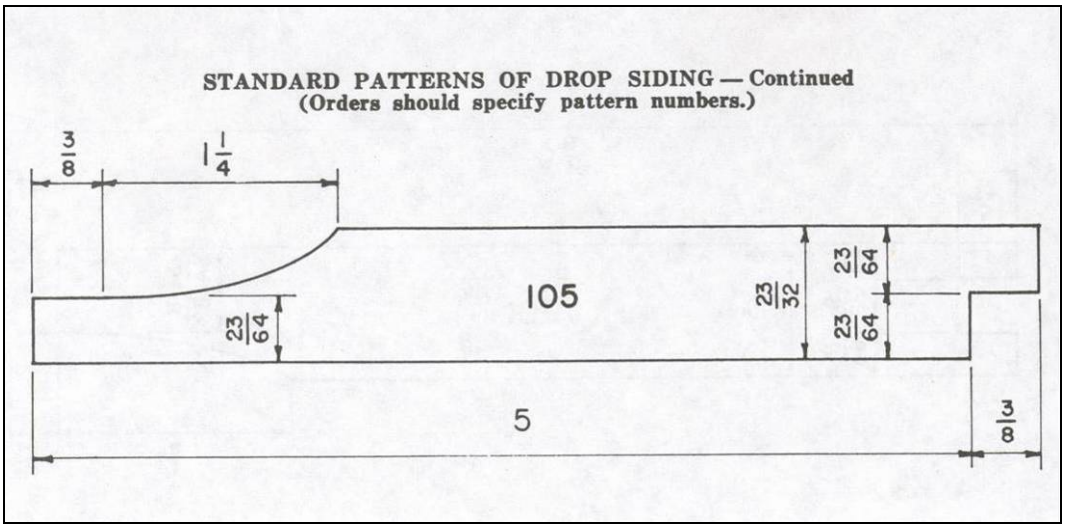

Figure 4. Standard profile of drop siding (SPIB 1994).

* 1 in. = 0.0254 m.

A visual assessment of the siding specimens from Fort Campbell indicated that it had been painted several times, but the paint surface was in poor condition. Surface quality varied considerably, and paint film separation and flaking were evident in most pieces (Figure 5). This paint failure was problematic because many siding pieces lost the hand-marked ID numbers during handling and transportation. This problem limited the ability to accurately account for and track all the siding back to its original building position.

Figure 5. Salvaged siding from Fort Campbell.

In spite of a difference in siding width, both the Fort Campbell and Fort Ord siding were nailed to the building framing using a double nail pattern spaced 24 in. on-center, as shown in Figure 2. Because the Fort Campbell buildings had wood siding overlaid with vinyl siding, additional nail holes were evident in every piece. Nail holes in salvaged siding are a significant factor that can reduce its value or limit its usefulness in certain ready-to-finish millwork products.

The siding from Fort Campbell showed more deterioration than the Fort Ord siding. One explanation for the difference may be that the Fort Campbell wood siding had been overlain with vinyl siding, which can trap mois-

ture and accelerate paint failure. More importantly, this trapping of moisture may have maintained high moisture content in the wood, promoting decay fungi growth. Wood decay and associated discoloration from staining fungi and molds were prevalent on a large number of siding pieces.

Metallic oxide staining (bluish to dark black) was also common in the Fort Campbell siding. Discoloration ranged from shallow to complete thickness penetration.

Where paint peeled from the siding, wood deterioration from weathering was evident. Losses in thickness as great as 1/32 in. from wind, sun, and rain erosion were found. Graying of the wood fibers and softening of the wood were also evident, indicative of photo-oxidative reactions resulting from solar ultraviolet (UV) exposure.

Many siding pieces had noticeable surface checking, from shallow to deep into the wood fiber. It was anticipated that planing to a depth of 1/16 – 3/16 in. would be sufficient to eliminate this defect as well as the photo-oxidative and fungus-induced discoloration. Elimination of such defects is critical for end-use applications that may require a transparent wood finish.

Decay effects due to the action of *basidiomycete* or other destructive soft-rot fungi were also evident. A few pieces of salvaged siding were so severely decayed that no usable wood material was left for product recovery.

Another major defect affecting the yield of recoverable wood was end-splitting. This defect resulted either from long-term exposure to wetting and drying cycles or damage occurring during deconstruction.

Salvaged feedstock from Fort Ord

Based on visual inspection, the siding salvaged from Ford Ord appeared to be exclusively Douglas fir (*Pseudotsuga menziesii*). A few questionable pieces were taken to Pennsylvania State University for both hand lens and microscopic examination. All pieces were confirmed to be Douglas fir. The Fort Ord siding had the same basic profile as the 7-3/8 in. wide siding salvaged from Fort Campbell, but it was 5-1/4 in. wide (nominal 5 in. width). The West Coast Lumber Inspection Bureau (WCLIB), which standardizes Douglas fir siding profiles, designates the Fort Ord boards as WC-105

(WCLIB 1989). The dimensions indicated in Figure 4 also apply to this siding pattern.

The siding salvaged from Fort Ord (Figure 6) was generally in much better condition than the Fort Campbell siding. In general, the same defects as described for Fort Campbell were found in the Fort Ord siding, but with much less frequency. The paint loss and wood weathering of the Fort Ord siding was more location-specific; the most severe degree of weathering and checking were found on pieces from the south sides of the building, where solar exposure was highest. Figure 2c shows a typical southern exposure and Figure 2b shows a typical western exposure.

Figure 6. Douglas fir siding salvaged from Fort Ord.

Inspection of siding shipped to FPL for processing

Each piece of siding shipped to FPL was individually inspected twice — once before any machining took place and once after being shaped into a product profile. The first inspection identified visual characteristics, determined trimming that would be required to eliminate unusable wood, and helped to separate each piece into a profile classification. The second inspection focused on quantifying defects that were not previously visible

through the paint of the unprocessed siding, and quantifying material losses due to defects that are not allowed to appear in the finished product.

Separation by profile classification was based mainly on recoverable length. Because wood flooring grades allow pieces as short as 16 in., pieces up to 7 ft in length were classified as tongue and groove (T&G) flooring. Wood paneling is typically sold in lengths greater than 8 ft, often to 10 ft, to accommodate vertical placement on interior walls. Therefore, siding pieces from 8 – 10 ft were separated for remanufacture into V-groove paneling. Lengths more than 10 ft were segregated as bevel siding for remanufacture, because longer siding is preferred in the home building market and commands the highest price. Figure 7 shows the first inspection in progress.

Figure 7. Quantitative inspection of Fort Campbell siding.

Information collected and recorded in the first inspection is shown below. The abbreviated codes, shown in parentheses, are used in the original data sets presented in Appendices B and C:

Original length: original siding length measured (ft-in) to plus/minus 0.5 inch basis.

Condition defects:

- severity of surface checking: light (1SC), moderate (2SC), and heavy (3SC), where light equals 1/16 in.; moderate 1/8 in., and heavy ¼ in. or more
- siding board distortion: cupping (C); twisting (T), and/or warpage (W)
- decay: wood peck (e.g. wood softening via soft-rot fungi) (SRD), discoloration suggesting white- or brown-rot (W/BRD)
- signs of insects: termite; carpenter ant; old-house timber borer or other evidence of round or flat head borer infestation (I).

Deconstruction defects:

- whole nails or portions of fastener shanks (N or NS)
- presence of Metallic Oxide with subsurface rust penetration (MR)
- other fastener removal damage (FRD).

Estimated end trim: material marked for end trim to remove end grain splits, end nail holes and other defects at the end of each piece.

Remanufacture classification: separate siding material for remilling into (1) T&G flooring (T&G); (2) V-groove paneling (VGP), or (3) bevel siding (BS).

Inspection of siding selected for onsite processing by Auburn

FORA donated 1,226 pieces of siding (7,830 lf) from previous deconstruction projects for use in the demonstration by Auburn Machinery, Inc. (later renamed Auburn Enterprises, Inc., Auburn, ME). The siding had been stored for many years under cover and was left over from a previous deconstruction project. A visual inspection of the wood indicated no discernable difference between this siding and the siding shipped to FPL. For this reason, all conclusions on the quality of the siding evaluated at FPL can be assumed applicable for the siding remilled by Auburn. The siding made available to Auburn at Fort Ord is shown in Figure 8.

Figure 8. Fort Ord siding provided for remanufacture by Auburn.

3 Remanufacture of Salvaged Siding

Products selected for the demonstration

The overriding constraint on the value-added wood products selected for evaluation in this study was the thickness of the available recovered stock (nominal ¾ in.). The three most feasible millwork profiles selected for study evaluation are shown in Figure 9 – Figure 11: T&G flooring and V-groove paneling for interior applications, and bevel siding for exterior applications. These specific profiles were chosen for several reasons:

- They are based on inspection rules from the WCLIB and SPIB for standard milled lumber profiles.
- Their thicknesses should allow for the removal of weathering-related defects and LBP from the salvaged wood.
- At least one product needed to be usable in short lengths without adverse effect on its market value.
- They maximize material recovery and produce a minimum of contaminated waste.
- They are common construction materials that are well accepted both by builders and end users.

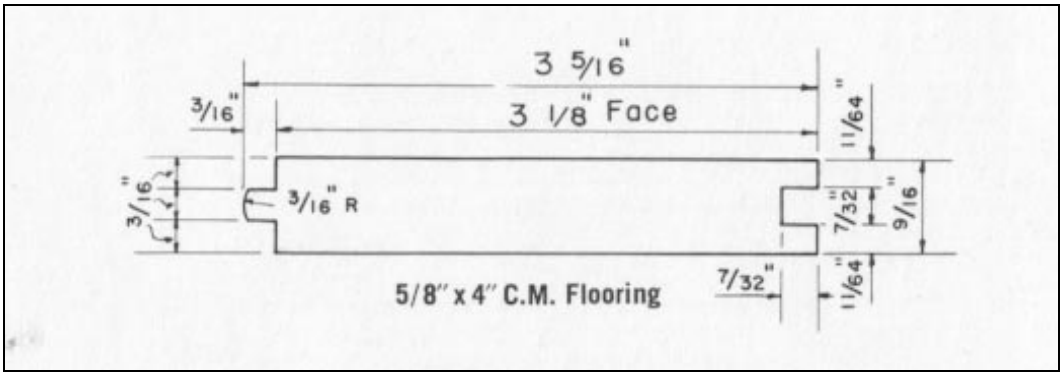

Figure 9. Tongue and groove (T&G) flooring profile.

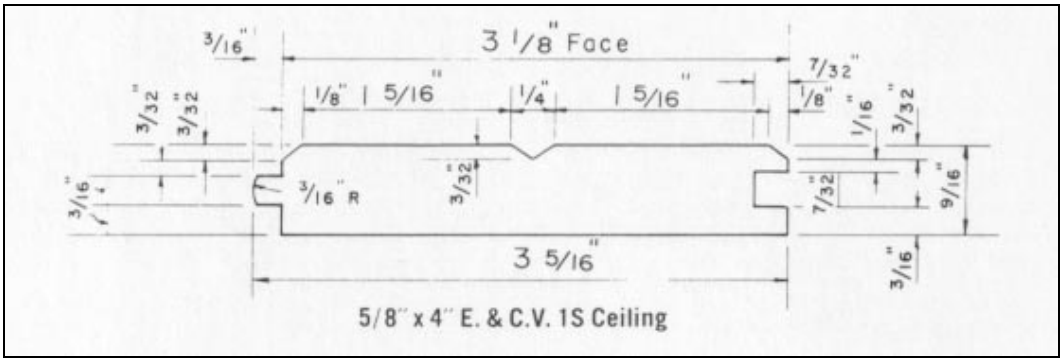

Figure 10. V-groove paneling profile.

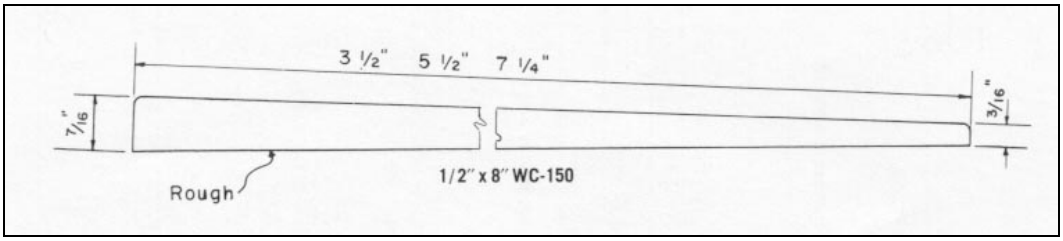

Figure 11. Bevel siding profile.

Preliminary remilling issues

Two types of woodworking equipment and dust collection were evaluated in this project. One was a conventional four-head woodworking molder at FPL; the other was a specialized planing system called "Yield Pro," from Auburn Machinery, which was incorporated into a trailer-based mobile unit by Wood Waste Diversion, LLC, Marina, CA. The FPL milling equipment was evaluated over an extended period from April – December 2002; the Auburn system was available for evaluation at Fort Ord for only one week in October 2002.

During evaluation of the equipment, the abrasive characteristics of paint and metal objects found in the used wood were a significant concern. If wear of the knife cutting edge was too rapid or excessive, the cost of re-sharpening and loss of value due to poor wood surface quality could make remanufacture impractical. This issue was especially pertinent to the types of equipment evaluated here. Compared with other woodworking machines, the knife edges in wood planers and molders are especially sensitive to declines in cutting performance caused by abrasive wear and damage from foreign objects. In addition to the abrasive nature of the paint, knives were dulled by embedded particles of grit and dirt found in weathered wood surfaces, and by metal objects such as nails. Lumber mills in the business of log conversion for lumber recovery are very familiar with

abnormal wear caused by soil contamination and metal objects, and they have established procedures to keep wood free from these materials.

Equipment and stock preprocessing at FPL

Mill shop equipment

A Diehl molder (Model D-6) located at FPL was used in the laboratory portion of this study (Figure 12). The machine, manufactured in 1966, is fully functional and typical of molder/planer equipment used widely by millwork producers. It is versatile enough to convert feedstock into many different types of surfaced four side (S4S) wood products in a single pass. In addition, these machines are readily found on the used machine market. The unit is equipped with four cutting heads — two for side cutting, and two for surface cutting.

Figure 12. FPL's Diehl S4S molder.

Inspection of the molder indicated that the cutter heads and arbor assemblies needed to be replaced. The existing rotor-style cutter heads with hub lockdowns for constant axial setup were replaced with precision chamber pressure sleeve cylinder cutter heads. This substitution was made to as-

sure accuracy, uniformity, and concentricity for quality processing performance. These replacement parts are shown in Figure 13.

New Hydroloc™ cylinder 150 mm diameter, 150 mm height body (2-1/8 in. bore) surface cutter heads and 150 mm diameter, 60 mm body height (1-13/16 in. bore) side cutter heads were purchased from Hermance Machinery, Inc., in Williamsport, PA. All four cylinder heads were ordered with a 12-degree cutting angle. This cutting angle is optimal for Douglas fir, but less efficient for other pine species, which machine better at different cutting angles.

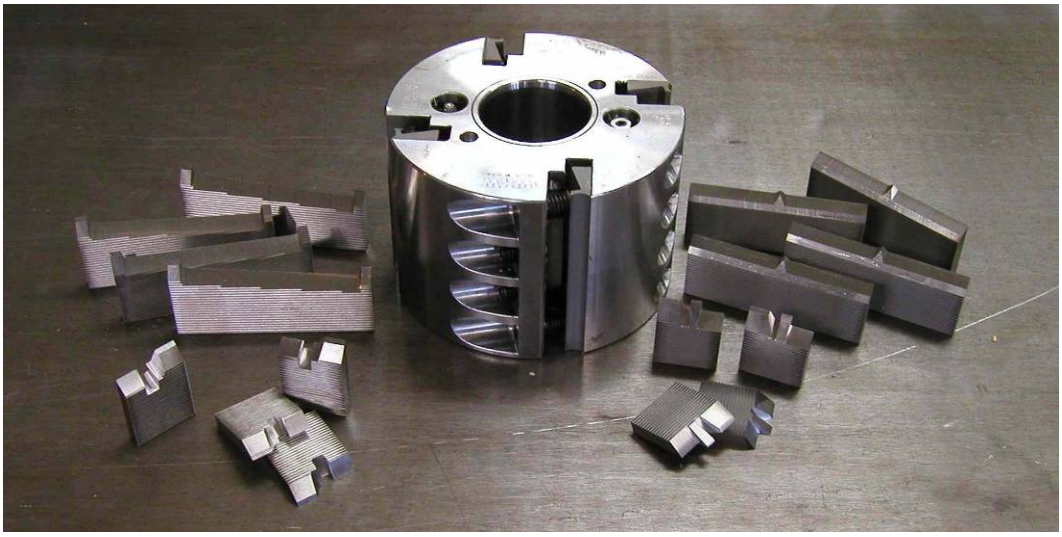

Figure 13. High-speed steel profile knives and Hydroloc™ cutter head.

Most of the Fort Ord siding was milled using the ordinary steel blades; the remainder of the Fort Ord siding and all of the Fort Campbell siding was milled using carbide steel blades. The Fort Ord Douglas fir siding was processed using flat and profile M-2 grade, high-speed steel (HSS) knives manufactured by Wisconsin Knife Works, Beloit, WI. Four knives were used in each cutter head. These 35-degree bevel knives with 16/60 corrugated back blades were matched to the replacement cutter heads. The corrugations on the backs of the knives simplified installation, removal, and mechanical locking of the knife in the cutter head; they are shown in Figure 14.

The excessive wear of HSS knives witnessed in early machining trials suggested that carbide knives could be a logical alternative. In addition to the abrasive nature of the paint, the Southern Pine siding from Fort Campbell

had a larger number of knots, which also tends to rapidly dull knives, also shown in Figure 14.

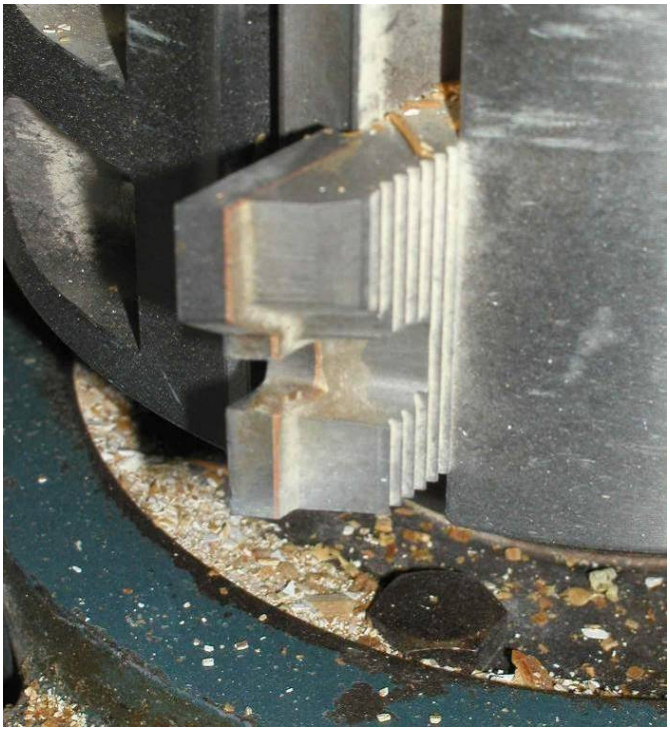

Figure 14. Carbide knife used to machine southern pine, showing corrugation on back.

Dust collection system

To avoid contaminating the existing FPL dust collection system with LBP, a dedicated dust collection system was purchased specifically for this project. Several manufacturers were contacted to find the dust collection system most suitable for collecting LBP-contaminated wood shavings. After reviewing equipment specifications it was determined that a 15 horsepower* fan blower and cyclone separation system, manufactured by Oneida Air Systems, Inc., Syracuse, NY, would meet the filtration and dust collection needs within the budget available. The Oneida system uses a cyclone for large particle collection and four pleated cartridge filters for fine particulates. It is tested and guaranteed by the manufacturer to filter 99.9% of all particles larger than 1 micron† at 4,200 cubic feet‡ per minute (CFM) and 12 in. static pressure (water gauge, or w.g.).

* 1 horsepower = 745.6999 watts.

† 1 micron = 1.0 E-06 m.

‡ 1 cu ft = 0.02831685 m^3.

As shown in Figure 15, the new dust collection system was installed outside the FPL mill shop in order to help reduce potential LBP exposure hazards.

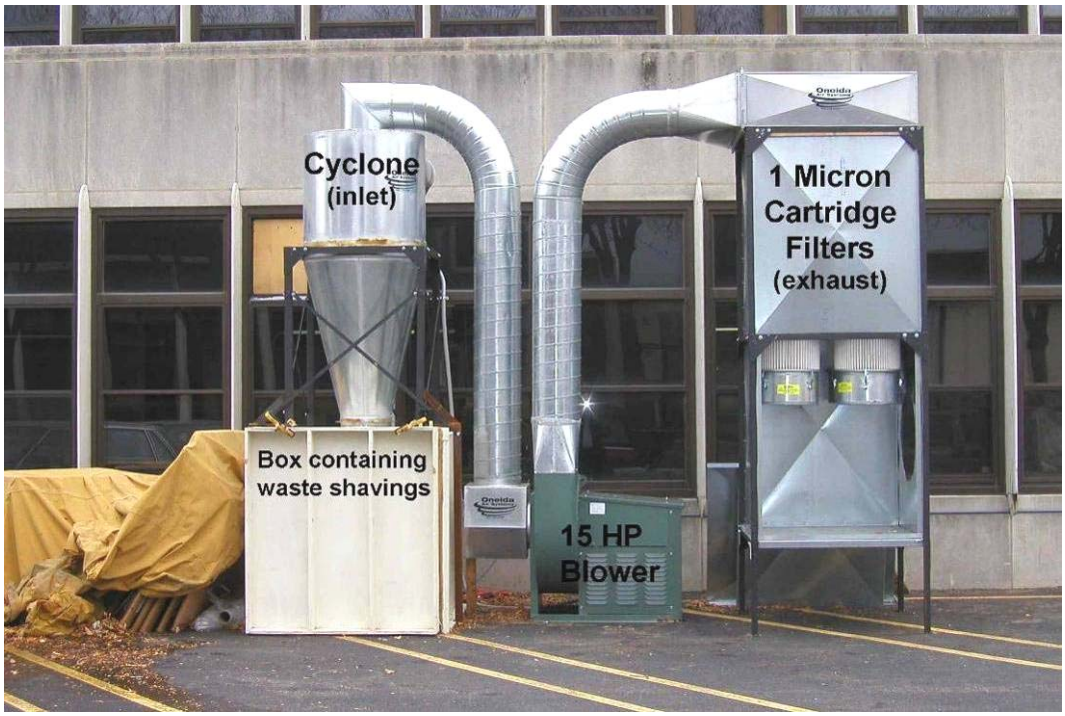

Figure 15. Oneida dust collection system as installed outdoors at FPL.

Preprocessing of siding feedstock

Before processing, each piece of siding was square end-trimmed. This step minimized material feeding problems in the four-head molder, removed wood that was unusable because of end-grain splitting or residual fasteners remaining after deconstruction, and ensured that only usable wood would be machined into finished millwork. End-cuts and crosscutting were performed on the 10 in. Makita compound sliding power miter box shown in Figure 16.

Directly after end-trimming, all siding pieces were ripped to a consistent width that was appropriate for the profile to be manufactured. The inline rip saw used in this step is shown in Figure 17.

To prevent costly damage to molder knives and to provide greater operator safety, all siding was scanned for nails and other embedded metal objects. The siding was visually examined during the initial inspection and again before processing using an inexpensive ($70 retail) hand-held metal detec-

tor manufactured by Lumber Wizard, Van Nuys, CA. Figure 18 shows the device, which emits an audible signal and/or vibration upon detecting metal. This device identified deeply embedded nails and small fragments of metal staples.

Figure 16. End-trimming with sliding compound miter saw.

Figure 17. Ripping of siding to width.

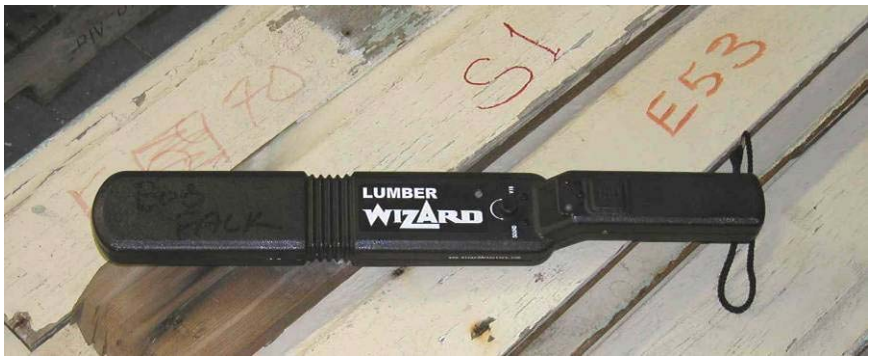

Figure 18. Hand-held metal detector.

Auburn Yield Pro processing capabilities

Overview

According to Auburn Machinery, the Yield Pro mobile processing unit was designed to:

- move processing of salvaged wood closer to its origination point, minimizing human and environmental exposure
- provide a self-contained system that can be operated at any site, even where no electrical service is available
- divert a significant volume of recoverable wood materials from landfills, which are increasingly being compelled by state laws to eliminate wood fiber
- reduce the cost of disposing of LBP-coated wood, which is planed from the wood substrate and disposed of separately to greatly reduce hazardous waste volumes
- reduce the negative environmental impact of the removing LBP-coated structures and disposing of the rubble in expensive, highly regulated hazardous waste landfills.

System milling capabilities

The Yield Pro machine evaluated in this study consisted of two planing heads (one top and one side head) and a side-ripping blade. (The side-ripping blade can be replaced with a hogging blade to grind up the removed material rather than leaving it in the form of a strip.) The machine is enclosed in a self-contained trailer that includes an electrical generator, an air compressor, a dust collection and storage system, and a fire suppression system (Figure 19).

Using cutting tools designed to process wood with embedded nails and surface coatings, this system can resize and profile salvaged wood into uniformly-dimensioned stock. Figure 20 shows the 5/8 in. x 4 in. rectangular blanks produced from salvaged wood using the Auburn system.

Dust collection capabilities

The dust collection system was equipped with a high-efficiency particulate air (HEPA) filter to contain the shavings, sawdust, and debris from processing. The residue storage chamber was equipped with an auger conveyer for transferring the collected debris into transport containers.

Figure 19. Auburn's Yield Pro mobile unit at Fort Ord.

Figure 20. Salvaged Fort Ord wood siding remilled into 5/8 x 4 in. boards for molding into value-added wood products.

4 Health and Safety Procedures

Overall health and safety objectives

Because this project involved the machining of wood contaminated with LBP, human and environmental safety were high priorities in the work setup and procedures. The objectives were to protect workers, other nearby personnel, and the general public from exposure to lead-containing dust or waste; and to monitor milling machinery and air quality to collect data on human and environmental exposure to lead.

Procedures at FPL

Minimization of lead exposure to wood shop personnel

A health and safety plan was initiated before any material was processed. In cooperation with the FPL Health and Safety Officer, a monitoring program was developed to ensure a safe work environment. The program addressed the following objectives:

- minimization of LBP exposure to wood shop personnel working directly with machining operations
- minimization of LBP exposure to the other staff and the public
- evaluation of indoor and outdoor air quality during machining operations per Occupational Safety and Health Administration (OSHA) and Environmental Protection Agency (EPA) regulations
- proper handling and disposal of LBP-contaminated waste products (shavings, cut-offs, etc.) according to applicable regulations.

The purchase and installation of a dedicated dust collection system prevented LBP from contaminating the existing FPL dust collection system. In addition to minimizing human exposure, the system also separated the LBP waste products for use in a separate treatability study (ERDC/CERL CR-03-3). Before any machining was performed, a meeting was held with all wood shop personnel, the FPL lead researcher, facilities management, and the Safety Officer. During this meeting, the project was described, health risks of working with LBP were discussed, and proposed safety procedures were reviewed. Participation by shop personnel was strictly on a voluntary basis. After an explanation of objectives, scope, and safety procedures to be used, all personnel volunteered to participate. All volunteers

were tested for a baseline blood lead level by a local hospital before machining began. All participants were fitted by a local safety equipment company with the type of HEPA dust mask recommended by OSHA safety regulations for protection from lead-contaminated dust, and they were instructed in proper use of the mask. Disposable Tyvek protective suits (Figure 21) also were provided for each worker to minimize the transfer of lead-contaminated dust to the employees' clothing, homes, or other parts of the shop. These suits were disposed of after each use.

Figure 21. Fitting of safety equipment by FPL safety officer.

Minimization of lead exposure to FPL staff and general public

In order to minimize lead exposure to FPL staff and the public, several measures were taken. As noted previously, a dedicated dust collection system was purchased and installed to direct the contaminated waste outdoors, where it was collected into appropriate containers. Cautionary an-

nouncements to staff about ongoing operations were made though the local daily bulletin. Work areas directly involved with milling operations were cordoned, either using signage or visible barriers like those shown in Figure 22.

Figure 22. Signage warning staff of lead hazard in the work area.

Indoor and outdoor air quality sampling

Air sampling was performed to determine whether the specific feedstock remilling operations produced hazardous levels of airborne lead. Personnel performing specific milling operations indoors were fitted with personal air-monitoring pumps. Also, a general purpose air-monitoring pump was used to sample air outside the building in order to establish a background control (clean) air sample before work began, and to sample the air around the dust collection system exhaust during the work. The air sample collection cartridges, shown in Figure 23, were sent for analysis to a laboratory licensed by the State of Wisconsin.

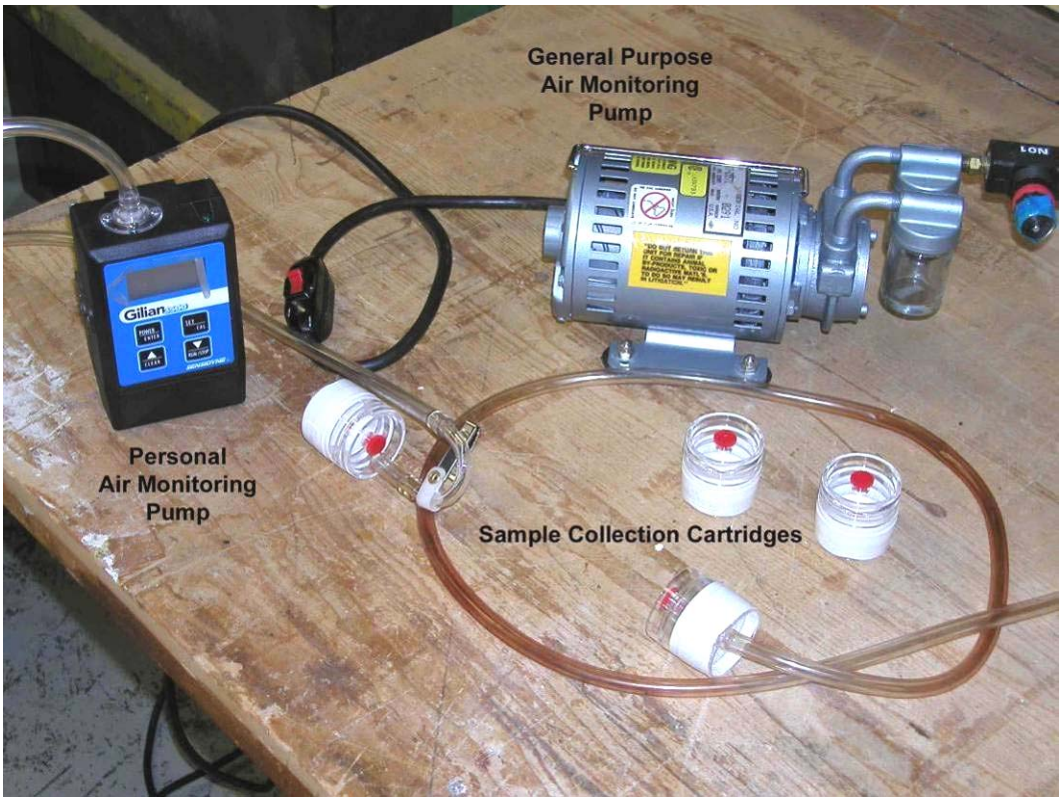

Figure 23. Air monitoring equipment used at FPL.

Handling and disposal of LBP-contaminated waste products

ERDC-CERL requested that all wood waste materials generated by the re-milling work be placed in containers to be shipped to other locations for further waste treatability studies. All cutoff scraps, edge trim pieces, and shavings from the molding operations were placed in either 55 gal* steel drums or standard Gaylord-type corrugated shipping boxes with plastic liners, as shown in Figure 24.

Procedures used in the Auburn mobile facility

Minimization of LBP exposure to operating personnel

Safety procedures were also implemented in the design and operation of the Yield Pro mobile wood processing unit. The dust collection system uses HEPA-level filtering and includes contained storage for the contaminated wood shavings. A HEPA filter can sequester particles as small as 0.3 microns, about one-third the size of particles captured by the existing FPL

* 1 gal = 3.785412 E-03 m^3.

dust collection unit. Safety procedures were verified and air quality data were collected during a demonstration of the unit on October 31, 2002,.

Figure 24. Containers used for storage and shipping of lead-contaminated wood waste.

Auburn and Wood Waste Diversion personnel used safety equipment similar to that used at FPL (i.e., HEPA face masks and Tyvek suits). Unlike the indoor operations at FPL, the Auburn mobile unit was operated outdoors, and it was determined that only personnel in the immediate vicinity of the work would need the personal safety equipment shown in Figure 25.

Minimization of lead exposure to the area and the general public

As indicated in Figure 20 and Figure 25, Auburn mobile unit operations were conducted in a very large parking lot at Fort Ord. This location provided good conditions for isolating mobile unit operations from nearby activities and the general public.

Evaluation of indoor and outdoor air quality during machining operations

During demonstration of the mobile unit on October 31, 2002, air quality was measured both inside and outside the unit. Forensic Analytical, a California-based environmental consulting firm, was contracted to perform the air sampling. As shown in Figure 26, measurement stations were established around the perimeter of the mobile unit at distances up to 65 ft.

In a manner similar to that used at FPL, personnel were fitted with air monitors for the duration of the machining operations.

Figure 25. Personal safety equipment used in the Yield Pro demonstration.

Figure 26. Setting up for air monitoring at Fort Ord demonstration.

Handling and disposal of LBP-contaminated waste materials

The waste materials generated by mobile unit operations were sequestered from the dust collection area into plastic bags using an auguring system (Figure 27). These materials were disposed of by Wood Waste Diversion.

Figure 27. Waste collection from mobile processing unit.

Testing for lead residuals

Depth of lead penetration in salvaged wood

Previous testing of wood siding from Fort Ord suggested that lead from the paint film may have penetrated to a considerable depth (more than 1/4 in.) in the wood siding*. To determine if this was the case, representative samples of siding from both Fort Ord and Fort Campbell were tested for total lead content. Specially purchased power woodworking equipment was used to plane off the paint surface and subsequent layers of wood to produce specimens of varying thickness. Specimens were sent to ERDC-CERL for analysis.

Residual lead on machinery surfaces

Lead testing was performed to determine whether residual lead was present on the molder and other machinery surfaces that were in contact with the LBP-coated wood or near the operation of this equipment. ASTM E1728-03, *Standard Practice for Collection of Settled Dust Samples Using Wipe Sampling Methods for Subsequent Lead Determination* (ASTM International 2003), was used to test for residual lead. Settled dust was collected using a special wiping cloth as specified in the test method.

* About 1999, during initial development of his concept for using a mobile wood planer to salvage high-quality wood from salvaged building components, John Stevens of Wood Waste Diversion tested samples of cleaned wood for total lead content. Around the same time, Stan Cook of the Fort Ord Reuse Authority independently performed qualitative tests for the presence of lead on wood samples that had been planed to different depths. The results of both tests were mutually supportive. The test results produced by Mr. Stevens were not formally documented, however. Information on the penetration of the lead into wood siding was first presented to ERDC-CERL personnel during a meeting at FORA in June 2001.

5 Demonstration Results

Fort Ord feedstock inspection and product yield estimates

A visual assessment of all pieces indicated that the siding recovered from Fort Ord was manufactured of very high quality Douglas fir. This determination was confirmed by the discovery of old grade stamps on the siding, as shown in Figure 28. This stamp shows that the siding as installed was grade C or better which, at the time, represented the highest grade of Douglas fir siding available. The condition of the siding as recovered was generally very good, with good paint adhesion and relatively little wood damage or degradation.

(C = visual grade, Oregon-American = Mill ID)

Figure 28. West Coast Lumber Association grade stamp on sample of salvaged Fort Ord siding.

Scanning with a metal detector indicated that relatively few pieces of metal (nails, staples, etc.) were embedded in the siding, signifying that the contractor did a good job of removing and preparing the siding for shipment.

An analysis of the inspection data provided the following information:

- Total footage of siding shipped to FPL from Fort Ord: 7,152 ft
- Total number of pieces: 1229
- Total footage lost to damage, decay, or end trimming: 1,542 ft
- Total number of whole pieces lost to damage or decay: 76
- Percentage of length lost to damage, decay, or end trimming: 22%.

Table 1 summarizes the defects found in the Fort Ord siding based on the inspection criteria described starting on page 10. Depending on which side of the building the siding was removed from, there was slight to heavy surface checking, probably caused by weathering. Cupping warp was apparent in relatively few pieces, probably because the siding was relatively narrow. Little brown rot was found (20 pieces out of 1229), either because it was not promoted by the local climate or because the buildings were well maintained. Many pieces of siding (265/1229) showed evidence of rust stains from the corrosion of metal fasteners and other hardware, probably promoted to some extent by the salty marine atmosphere around Fort Ord.

Table 1. Material irregularities and associated frequency by category (Fort Ord).

Defect Category	Type or Severity	No. of Boards with Observed Defects
Surface Checking		
	Up to slight	1
	Slight	96
	Slight to moderate	18
	Moderate	17
	Moderate to heavy	8
	Heavy	6
Warp		
	Bow	1
	Cup	16
Decay		
	Brown rot	16
	Soft rot	4
	combination	–
	mildew	10
Residual Fasteners		
	Metallic oxide/rust	292
	At least one nail	65
	Multiple nails	10
	At least one staple	8
	Multiple staples	5
	Tacks	1

Table 2 summarizes the percentage of material estimated to be recoverable for remanufacture after end-trimming to remove observed splits, as determined from the results of the original inspection. The numbers represent total boards as commingled from both Fort Ord buildings and catego-

rized by exposure. Note that approximately the same amounts of siding had been salvaged from both the east and west sides, and the north and south sides, respectively. Product recovery per grading was nearly the same, with the south side showing slightly more loss than the other sides of the buildings, as would be expected considering the weathering effects related to that exposure.

Table 2. Estimated recoverable amounts of Fort Ord siding ,by building wall orientation.

Exposure	Original Length (lf)	Recoverable Stock (lf)	Percentage
East	2360	2077	88.0
West	2328	2028	87.1
North	1028	885	86.0
South	961	762	79.3

Table 3 shows the estimated product yield for the Fort Ord siding. Note that the T&G flooring profile can be milled from the shorter lengths of siding and has a much lower average piece length than the other products. Also, because the flooring pieces may be shorter than the other products, the average piece count for is much higher than the other profiles.

Table 3. Estimated product yields for recovered Fort Ord siding.

Remanufactured Profile	Average Initial Piece Length (ft)	Number of Pieces	Estimated Product Yield (lf)
T&G Flooring	4.8	924	2997
V-Groove Paneling	7.1	85	707
Bevel Siding	14.3	148	1904

Fort Campbell feedstock inspection and product yield estimates

Visual inspection of all the pieces indicated that the Fort Campbell siding was manufactured from Southern Pine and contained many larger knots. The siding was generally in poor condition, with considerable flaking paint, warping and cracking, and a significant amount of deconstruction damage. More importantly, the grade stamps found on the siding indicated that the original wood was only of moderate quality —No. 2 lumber board stock , which allows much larger knots than siding grades. It is likely that, because these barracks were classified as temporary structures with an assumed service life of 3 years, No. 2 stock was considered adequate for the application. The stamp is shown in Figure 29.

(SPIB = Southern Pine Inspection Bureau, No. 2 = visual grade, 64 = mill number.)

Figure 29. Southern Pine Inspection Bureau grade stamp on sample of salvaged Fort Campbell siding..

Scanning with a metal detector indicated that a large number of metal objects (nails, staples, etc.) were embedded in the wood.

An analysis of the inspection data provided the following information:

- Total footage of siding shipped to FPL: 6,580 ft
- Total number of pieces: 881
- Total footage lost due to damage, decay, or end trimming: 1,854 ft
- Total number of whole pieces lost due to damage or decay: 101
- Percentage loss of length due to damage, decay, or end trimming: 28%.

Table 4 summarizes the types and amounts of defects found in the Fort Campbell siding. Slight to heavy surface checking was identified. Cupping warp was seen in a significant number of siding pieces, which is not unexpected in wider siding profiles. Brown-rot was present in many pieces, at a much higher incidence than siding sampled from Fort Ord. The incidence of rot indicates that either there was a higher amount of water intrusion into the Fort Campbell buildings or that the vinyl siding later applied to the buildings trapped excessive moisture in the wood.

Based on the results of the initial inspection, Table 5 summarizes the percentage of material estimated to be recoverable for remanufacture after end-trimming to remove observed splits. Note that the Fort Campbell estimate is significantly lower than the amount for the Fort Ord siding, primarily because of the higher incidence of checking, cupping, and decay.

Table 4. Material irregularities and associated frequency by category (Fort Campbell).

Defect Category	Type or Severity	No. of Boards with Observed Defects
Surface Checking		
	Up to slight	-
	Slight	114
	Slight to moderate	42
	Moderate	28
	Moderate to heavy	15
	Heavy	-
Warp		
	Bow	1
	Cup	34
Decay		
	Brown Rot	81
	Soft Rot	2
	combination	2
	mildew	-
Residual Fasteners		
	Metallic oxide/rust	5
	At least one nail	28
	Multiple nails	4
	At least one staple	1
	Multiple staples	1
	Tacks	-

Table 5. Lineal footage by building wall orientation (Fort Campbell).

Exposure	Original Length (lf)	Recovery (lf)	Product Recovery (%)
East	2272	1704	75.0
West	2256	1652	73.2
North	881	636	72.1
South	857	575	67.0

Table 6 shows the estimated product yield for the Fort Campbell siding. The yield of T&G flooring is lower than for Fort Ord, but the yield percentage of V-groove paneling is higher. This is because the average length of siding from Fort Campbell (5.7 ft) was greater than from Fort Ord (4.8 ft).

Table 6. Estimated product yields for siding from Fort Campbell.

Profile	Average Initial Piece Length (ft)	Piece Count	Estimated Recovery (lf)
T&G Flooring	5.7	507	2108
V-Groove Paneling	9.9	113	902
Bevel Siding	12.5	162	1705

Inspection results for remanufactured profiles

Figure 30 – Figure 32 show examples of the T&G flooring, V-groove paneling, and bevel siding, respectively, remanufactured from the Fort Ord siding.

Figure 30. T&G flooring produced from Fort Ord siding.

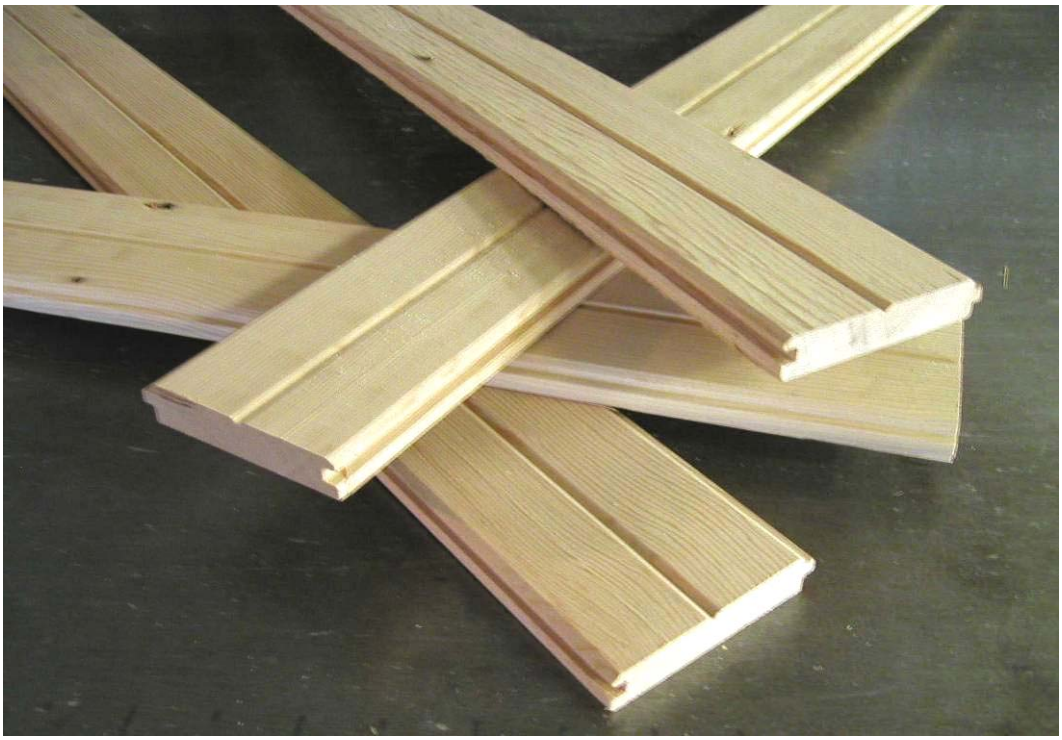

Figure 31. V-groove paneling produced from Fort Ord siding.

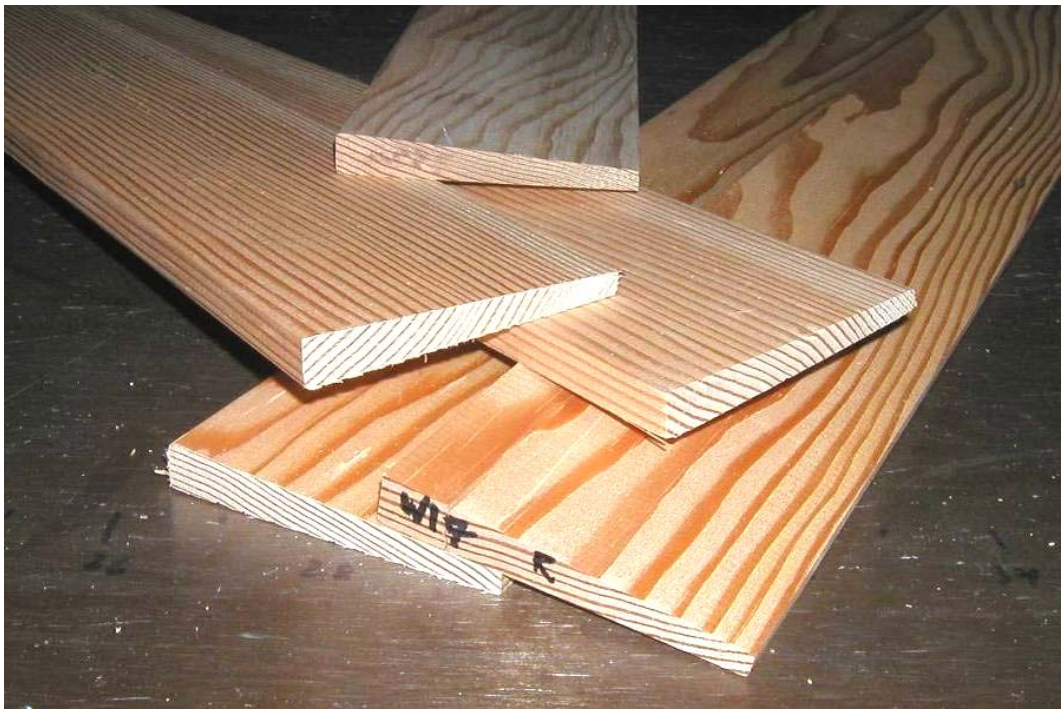

Figure 32. Bevel siding produced from Fort Ord siding.

Figure 33 shows T&G flooring produced from the Fort Campbell siding. Although there were many knots in the product because of the original grade of wood used, it appeared to be attractive and marketable.

Figure 33. T&G flooring produced from Fort Campbell siding.

As discussed in Chapter 2, the remanufactured products were visually inspected after processing to determine the losses due to defects not detected in the feedstock or otherwise not allowed by the applicable grading standard. For the Fort Ord materials this inspection also included examination of a large percentage of the milled pieces to determine grain orientation (i.e., either vertical or flat). Grain is an important characteristic for pricing wood because vertical grain commands a much higher price in some niche markets than flat grain due to its warp resistance, superior paint adhesion, and evenness of grain appearance. Figure 34 shows the difference between these two grain orientations. Table 7 indicates the distribution of vertical versus flat grain from the Fort Ord siding. Because the

Fort Campbell siding was generally a lower quality, grain orientation would not be a significant factor for determining price. Therefore, that wood was not inspected for grain orientation.

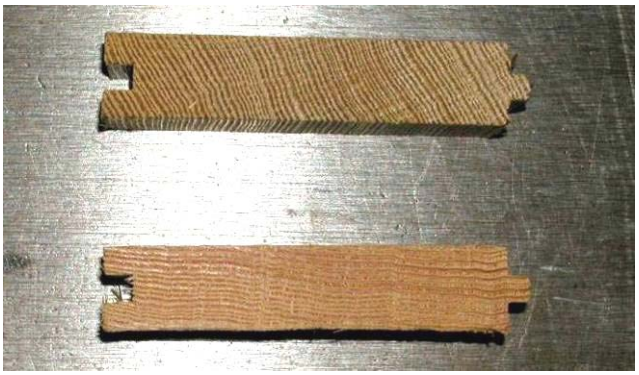

Figure 34. Samples of vertical grain (top) and flat grain (bottom).

Table 7. Grain orientation found in remanufactured Fort Ord siding products.

Grain Orientation	Total Length (lf)	Percent of Total
Flat	3632	70.3
Vertical	1534	29.7

Table 8 and Table 9 show that the losses resulting from the final inspection of milled profiles milled were much lower than the losses after the first inspection. The tables also show, as expected, that the total losses recorded for the Fort Campbell siding (32.5%) were higher than those for the Fort Ord siding (24.2%), with the losses after each inspection reflecting that same general trend. However, the losses were generated differently.

Table 8. Additional losses in length due to inspections (Fort Ord).

Profile	Original Trim Loss (lf)	Percent of Original Length	Additional Loss After Profiling (lf)	Percent of Original Length	Total Loss (lf)	Percent of Original Length
T&G Flooring	1144	16.0	63	0.9	1207	16.9
V-Groove Paneling	104	1.5	36	0.4	140	1.9
Bevel Siding	294	4.1	89	1.3	383	5.4
Total	1542	21.6	188	2.6	1730	24.2

Table 9. Additional losses in length due to inspections (Fort Campbell).

Profile	Original Trim Loss (lf)	Percent of Original Length	Additional Loss After Profiling (lf)	Percent of Original Length	Total Loss (lf)	Percent of Original Length
T&G Flooring	834	12.7	122	1.8	956	14.5
V-Groove Paneling	353	5.4	35	0.5	388	5.9
Bevel Siding	674	10.2	123	1.9	797	12.1
Total	1861	28.3	280	4.2	2141	32.5

Effects of knife composition on machined wood surface quality

In the wood industry, knives used to machine wood are typically manufactured from high-speed steel (HSS). Because most domestic woods are free of abrasive materials, HSS performs well for most applications. Carbide-tipped knives are harder and hold their edge much longer. They are many times more expensive than HSS, however, and therefore are typically used only where longer knife life is needed to avoid downtime or where abrasive materials are expected. In this study, both HSS and carbide knives were used and the results were evaluated.

As shown in Figure 35, the machining of the LBP siding was very abrasive to HSS knives; the knife was razor sharp when installed but dulled dramatically after machining less than 1,000 lf of siding. This dulling in turn degraded the surface quality of the machined wood, as shown in Figure 36.

Figure 35. HSS knife edge showing wear after machining Fort Ord siding.

Figure 36. Degradation of wood surface quality (top) due to dulling of HSS knives.

Carbide knives were investigated in machining the Fort Campbell siding. As shown in Table 10, 882 lf of siding were machined with HSS knives before serious dulling of the knives occurred. Using carbide tipped knives, 3,277 lf of siding were machined with no noticeable knife wear or surface quality degradation, as illustrated in Figure 37. This is nearly four times the amount of siding produced with the HSS knives. The test had to be discontinued at 3,277 lf, since no more siding was available to be machined. It was felt that significantly more footage of siding could be produced with these carbide knives before re-sharpening.

Table 10. Comparison between HSS and carbide knives.

Type of Knives	Siding Machined Before Surface Degradation (lf)
High Speed Steel (HSS)	882
Carbide	3277[1]

[1] Knives still sharp after processing all available siding.

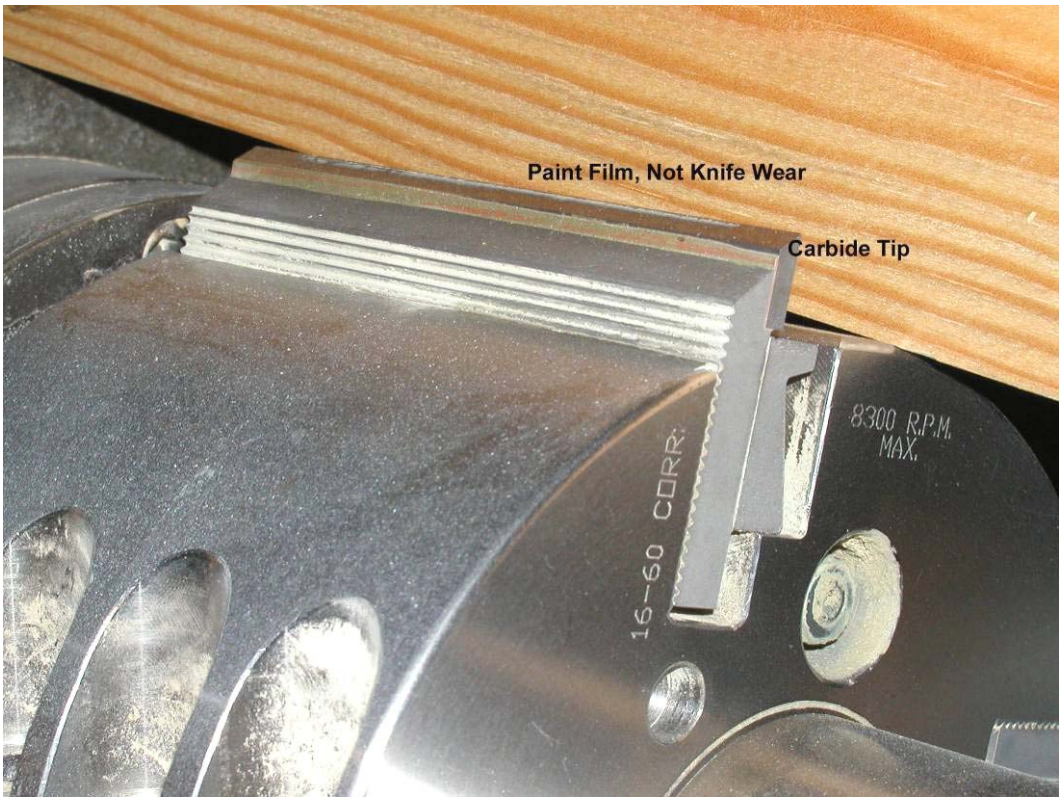

Figure 37. Carbide knife after machining, showing sharp edge with traces of paint residue.

Testing for residual lead

Depth of lead penetration

To determine amount of lead remaining in a piece of salvaged siding after removal of the lead-based paint layer, total lead concentrations were measured in boards before and after planing to different depths of cut. As shown in Table 11, total lead concentrations for six samples of Fort Ord siding indicate that lead concentrations in the board average about 5,500 mg/kg before planing (including the paint layer) and drop to an average of about 26 mg/kg at an average planing depth of about 0.06 in. (1/16 in., or 1.5 mm). Only one sample of Fort Campbell siding was tested, but the results were very close to the Fort Ord levels; total lead in the unplaned siding was found to be 5,900 mg/kg, and the level dropped to 31 mg/kg at depth of cut of 0.06 in. (1/16 in., or 1.5 mm). These results indicate that lead from the old paint layer has not penetrated the salvaged siding in significant quantities deeper than a few hundredths of an inch.

Table 11. Penetration of lead in wood siding.

Source	Sample No.	Depth of Cut[1] (in.) / (mm)	Total Lead Before Planing[2] (mg/kg)	Total Lead After Planing (mg/kg)
Fort Ord	1	0.04 / 1	5300	8.4
	2	0.05 / 1.3	6500	6.9
	3	0.05 / 1.3	7500	65.0
	4	0.07 / 1.8	1700	48.0
	5	0.08 / 2.0	6500	2.4
	6	0.10 / 2.5	5400	26.0
Fort Ord Average		0.065 / 1.7	5480	26.1
Fort Campbell	1	0.06 / 1.5	5900	31.0

[1] Amount of material removed with planer from top surface (painted) of siding.

[2] Indicates a sample with no planing (i.e., all paint remaining).

Samples of the siding were also sent to the ERDC Environmental Laboratory in Vicksburg, MS, where the amount of total lead was determined not in the planed board but in the removed layers of wood and paint. Samples were prepared using depths of cut between 0 – 2 mm, 2.5 – 4 mm, 4.5 – 6 mm, and 6.5 – 8 mm. (For reference, 1 mm = 0.04 in. = 5/128 in.). A thin section of 0.5 mm was removed between each cut for analysis and discarded, and the cutting tool and all surfaces were cleaned to reduce the potential for cross-contaminating interior wood with higher concentrations of lead particles from the surface. The results are shown in Table 12, and they also indicate that the concentration of lead in the salvaged siding decreases significantly after a few hundredths of an inch.

Table 12. Total lead in removed material.

Source	Sample No.	Total Lead in Removed Material at Various Depth Ranges (mg/kg)			
		0 – 2mm (0 – 0.08 in.)	2.5 – 4mm (0.10 – 0.16 in.)	4.5 – 6mm (0.18 – 0.24 in.)	6.5 – 8mm (0.26 – 0.31 in.)
Fort Ord	1	61,300	77	8	158
	2	135,600	369	153	192
	3	139,260	1,670	369	6
	4	242,800	131	143	54
	5	85,147	313	68	24
	6	151,887	281	75	66
Fort Campbell	1	65,880	369	153	192

Residual lead on machinery surfaces

The surfaces of machinery in close proximity to the FPL molder were tested to determine if lead-containing dust had migrated during the molding process. As shown in Table 13, lead was detected after machining approximately 5,000 lf of wood siding into profiles over about 4 hours. Note that the first two locations had higher lead levels before machining. Because machining took place some days before these measurements were taken, some dust from the previous profiling probably had settled on these more remote locations. The lead levels detected after machining indicated only moderate levels of lead 20 ft. from the molder operation, as noted in Table 13. As expected, lead levels were higher closer to the molder and high lead levels were found on the molder knives.

Table 13. Lead detected on machinery surfaces near molder[1].

Location	Area Sampled mm²	Lead Detected (µg/m²)	
		Before Machining	After Machining
Table saw tip 20 ft (6 m) from molder (north)	90	10	5
Top of sander motor 20 ft (6 m) from molder (east)	90	19	9
Infeed bed of molder	90	51	60
Bottom of molder knives (blades only)	<10	2	204
Top of in-line rip saw 3 ft (1 m) from molder	90	42	46

[1] All surfaces were blown off (compressed air) before sampling the Before Machining samples. Normal machine cleanup was performed (molder blown off with compressed air) before sampling the After Machining samples.

Air and blood monitoring at FPL

Air monitoring

The OSHA permissible exposure limit (PEL) for indoor lead exposure is 50 µg/m³ averaged over an 8 hour work shift. As shown in Table 14, indoor monitoring of air in the breathing zone of woodworking personnel at FPL indicated that lead levels were significantly below the PEL by at least an order of magnitude. This result indicates that the off-the-shelf dust collection system installed for the project was very effective in removing LBP dust from the indoor environment.

Outdoor measurements were made using a stationary pump. The worst-case exposure was expected to be at the exhaust vent of the dust collector.

Measurements at that location indicated a lead level of 9 µg/m^3, which is six times higher than the 1.5 µg/m^3 airborne lead level set by the EPA. Because the EPA limit applies to a 3 month average, a continuous woodworking operation using LBP materials would need to be continuously monitored to determine operating time limits that avoid exceeding the 3 month average. It is also possible that a more efficient filter system could be used to reduce any release of airborne lead-containing particulates.

Table 14. Results of indoor and outdoor air monitoring for lead for FPL remanufacturing operations.

Operation	Sampling Period (min)	Test Results (µg/m^3)	Calculated Exposure Level (µg/m^3)
Indoor Measurements			
Molder Operator	79	21	3.5[1]
Ripping on Table Saw	130	7	1.8[1]
Crosscutting on Chop saw	82	27	4.6[1]
Outdoor Measurements			
Outdoor Background	215	No Detect[2]	see footnote[3]
Dust Collector Exhaust	102	9[3]	

[1]OSHA 8-hour work shift time-weighted-average (TWA)

[2]<1.2 µg/m^3

[3]EPA Standard for airborne lead: 1.5 µg/m^3 averaged over a 3-month period.

Blood lead level monitoring

All staff involved in this research project at FPL had their blood lead levels checked before the project started, and immediately after all machining ended. As indicated in Table 15, two of six employees had elevated blood lead levels, one slightly elevated, and the other to a more significant level. OSHA considers a population normal level to be less than 10.0 µg/dl. Employee A had an elevated initial value of 9.8 µg/dl and a final value of 13.7 µg/dl. Discussions indicated that this individual had been recently involved in home remodeling projects involving LBP, which likely accounted for the elevated starting value. This employee also participated in all machining and all cleanup activities after machining, receiving the highest potential exposure of all employees.

Table 15. Blood level testing for FPL employees[1,2].

Employee	Start Value (µg/dl)	Final Value (µg/dl)
A	9.8	13.7
B	<5.0	<5.0
C	<5.0	<5.0
D	<5.0	<5.0
E	<5.0	5.9
F	<5.0	<5.0

[1] Normal range 0.0 - 9.9

[2] Concerns about subtle health effects including potential reproductive effects from lead exposure are generally at levels greater than 20.

Air monitoring for the Auburn mobile facility

The California Occupational Safety and Health Administration (CalOSHA) sets a PEL for indoor lead exposure at 50 µg/m3 as averaged over an 8 hour work shift. It also sets an "action level" at 30 µg/m3. As shown in Table 16, air monitoring sensors on two workers exceeded those levels; both were wearing HEPA dust collection masks as required by CalOSHA when the action level is exceeded. As measured at a perimeter around the Auburn mobile unit, air sampling indicated that two sites exceeded the EPA airborne lead particulate limit of 1.5 µg/m3. As noted for the FPL site, a continuous woodworking operation involving LBP would need to be continuously monitored to determine operational time limits in order that the 3-month limit not be exceeded.

After the conclusion of this demonstration and the associated air monitoring program, modifications were made to the mobile unit for the purpose of further reducing airborne lead levels during operation. At the time of publication, retesting had not been completed to measure the results of those modifications*.

* In a subsequent demonstration of the modified equipment during April 2005 at Camp Roberts, CA, personal monitoring showed airborne lead levels all below any action levels. Details of these results will be documented in a future report dedicated to the Camp Roberts project.

Table 16. Results of indoor and outdoor air monitoring for lead for Auburn demonstration.

Operation	Sampling Period (min)	Test Results (µg/m³)	Calculated Exposure Level (µg/m³)
Operator Measurements			
Mobile Unit Operator	149	600	186.3[1]
Outfeed Handler	136	19	5.4[1]
Infeed Siding Handler	125	150	39.1[1]
Infeed Helper	133	4	2.5[1]
Surrounding Area Measurements			
45 ft. N of Unit	199	0.6	EPA standard for air-borne lead: 1.5 µg/m³ averaged over a 3-month period.
20 ft. NE of Unit	184	1.5	
20 ft. SE of Unit	184	2.3	
65 ft. SE of Unit	185	<0.07	
35 ft. S of Unit	193	<0.07	
20 ft. SW of Unit	198	0.5	
20 ft. NW of Unit	196	0.6	
65 ft. NW of Unit	186	0.09	

[1]OSHA 8-hour work shift time-weighted-average (TWA).

6 Product Valuation

Purpose and approach

In addition to determining the technical feasibility of remanufacturing salvaged wood siding into useful construction materials, an objective of this demonstration was to estimate the market value of the remanufactured wood profiles.

Many factors will affect the cost of remanufacturing a consumer product from salvaged wood siding, including deconstruction costs, amortization costs for milling equipment, labor costs, proximity to markets, available quantities of materials, and marketing costs. A prospective manufacturer would have to decide which products to market as well as whether to sell at the larger-volume wholesale level or the smaller retail niche market. An attempt was made to estimate product values for those two potential markets, but a comprehensive analysis of product production and marketing costs was beyond the scope of this study.

Market value for remanufactured wood siding products was determined using data from the virgin wood products market and the recycled wood products market. The virgin wood products market involves the large-volume of trade of wood products of established sizes, grades, and profiles. (approximately 50 billion board-feet in the United States in 2006). Information is usually in terms of national, and sometimes regional, wholesale prices. Both wholesale and retail markets are greatly affected by location, specie, season, local construction practices, and regional product demand. In addition, market value is continually influenced by a process of negotiation between seller and buyer, and prices are set on the basis of specific order size, established business relationships, and other factors that are difficult to quantify as a constant. Where possible, specific millwork pricing is provided, but the prices should be assumed best estimates and not to precisely reflect regional prices.

Information on the recycled wood products market was gathered largely through searches of product retailer web sites. Although the information indicates retail product value, it was beyond the scope of this study to determine sales volume and market demand at the listed prices.

Standard millwork and product grades for virgin wood products

Millwork is a class of wood products that includes flooring, paneling, interior and exterior molding, and siding produced in a variety of standard finished sizes and grades. This millwork is produced from feedstock according to the following schedule (Table 17) from a nominal size to a final or worked dimension.

Table 17. Standard millwork raw feedstock dimensions.

Thickness[1] (in.)		Width (in.)		
Nominal	Worked	Nominal	Face	Overall
3/8	5/16	2	1-1/8	1-3/8
1/2	7/16	3	2-1/8	2-3/8
5/8	9/16	4	3-1/8	3-3/8
1	3/4	5	4-1/8	4-3/8
1-1/4	1	6	5-1/8	5-3/8
1-1/2	1-1/4			

Source: Southern Pine Inspection Bureau grading rules (SPIB, 1994).

[1]These thickness apply to all widths.

[2]West Coast Lumber Inspection Bureau grading rules are similar but allow a light (-1/32″) worked thickness (WCLIB, 2001).

Grade quality classifications for Douglas fir (DF) and Southern Pine (SP) millwork products recognized under WCLIB and SPIB rules are shown in Table 18.

Table 18. Millwork grades.

Millwork	DF Product Grade[1,2] (WCLIB Rules)	SP Product Grades[2] (SPIB Rules)
T&G Flooring	C&Btr, D, E	B&Btr, C, C&Btr, D, No. 2, No. 3
V-Groove Paneling (Ceiling Pattern)	C&Btr, D, E	B&Btr, C, C&Btr, D, No. 2, No. 3
Bevel Siding	C&Btr, D, E	B&Btr, C, C&Btr, D, No. 2, No. 3

[1] DF products include options for VG-vertical grain, FG-fine grain, and MG-mixed grain designations.

[2] Btr (better) classifications are combinations of the grade mixed with next higher grade or millwork with fewer imperfections than allowed in-grade.

For Southern Pine, B&Btr is the highest quality, descending in quality to No. 3. National retailers seldom inventory No. 2 or 3 millwork. No. 2 grade is serviceable, but individual pieces may require trimming to eliminate de-

fects. This grade is typically reserved for applications of less critical appearance. Market value depends greatly on the grade the finished product.

With the exclusion of red cedar, which is graded under separate rules, C&Btr is the highest-quality millwork grade for most western softwood species. This grade offers a combination of fine appearance and good resistance to wear, particularly desirable in floor installations. The C&Btr quality consists of most pieces being entirely clear with only minor imperfections. D-grade millwork for flooring is high in serviceability for wear but less satisfactory in appearance. WCLIB recommends the use of E-grade flooring for subfloor, sheathing, and similar applications.

Valuation issues for FPL millwork

Because of the high quality of the original wood, the profiles produced from the Douglas fir siding from Fort Ord generally meet the current C&Btr grade. The Southern Pine V-groove paneling trimmed profiles produced from the Fort Campbell siding were generally consistent with the much lower D grade millwork. While the size and number of knots generally met D-grade quality, some pieces were found to have imperfections due to checking that are more consistent with a No. 2 grade.

It is important to note that nail holes and residual rust discoloration are not defined in millwork grading rules as permissible imperfections. These defects must be considered when comparing the remanufactured millwork to virgin millwork grading rules. Potentail losses due to rust discoloration were considered when estimating length losses in the second inspection. Only a market analysis can precisely evaluate consumer acceptance of such imperfections. It also must be noted that the profiles produced in this project should not be viewed as ready-to-use, especially in the case of the bevel siding, because some repair or filling of nail holes would be necessary before installation.

Valuation issues for 5/8 in. Auburn profiles

As stated previously, a rectangular profile of nonstandard thickness (5/8 in.) was produced from Fort Ord siding using the Auburn mobile unit. Attempts to obtain market information from retailers for a comparable profile was unsuccessful because ¾ in. floor and panel products are almost universally inventoried. Consequently, industry trade associations do not tend to track orders of lumber and millwork at or less than ¾ in. thick-

ness. The only widely traded product identified that might be produced from the 5/8 in. x 4 in. blank is nominal ½ in. (7/16 in. actual dimension) bevel siding, the same profile produced using the FPL molder. However, Douglas fir is not a typical species used for bevel siding. The prices found are for Western red cedar 6 in. nominal bevel siding.

Wholesale values of millwork

Several custom mills contacted by telephone declined to disclose any mill prices and would only provide quotes for purchase orders. Larger planing mills contacted also were unwilling to provide information except to certified wholesalers. Internet-based inquiries attempting to obtain prices were insufficient to provide reliable data. Overall, the best information on the current market was obtained from industry sources that regularly monitor mill purchase invoices on a monthly order basis, such as *Crow's Market Report Weekly*, published by C.C. Crow Publications, Inc., Portland, OR.

Table 19 summarizes the composite mill index prices for several relevant standard product sizes and finish grades. Freight on board (FOB) mill pricing for Douglas fir and Southern Pine is provided for 1 x 4 (actual ¾ in. x 3.5 in.) boards and S4S boards, the feedstock generally used to mill the same profiles produced with the FPL molder. In addition to the feedstock price, profiles such as these would require a milling charge of about $100 – $200 per thousand board feet (Mbf) for profiling. This information was confirmed through correspondence with the Western Wood Products Association (WWPA 2003)*. Footage-based upcharges and setup fees vary between mills, depending on the specific profile. This compiled information can be used to develop an approximate dollar value for the remanufactured Douglas fir and Southern Pine millwork.

* Telephone conversations between personnel at the Wood Products Program, Pennsylvania State University, and the Western Wood Products Association, Portland, OR, during April and June 2002.

Table 19. Current wholesale prices for finish grade lumber, molding feedstock and bevel siding.

		Tracked Composite Price [1]		
Species	Product Description Grade	Source A [2]	Source B [3]	Source C [4,5]
Douglas fir [5]	1 x 4 Clear &Btr Vertical Grain	n/a	n/a	1675
Douglas fir [4]	1 x 4 Clear Mixed Grain	n/a	n/a	1050
Southern Pine [6]	1 x 4 D grade	600	615	n/a
Douglas fir [7]	½ x 4 Bevel Siding Clear Vertical Grain	n/a	n/a	n/a
Douglas fir [7]	½ x 4 Bevel Siding Clear Mixed Grain	n/a	n/a	n/a
Western Red Cedar [8]	½ x 6 Bevel Siding Clear Vertical Grain	1180	1175	n/a
Western Red Cedar [8]	½ x 6 Bevel Siding A grade	1100	1095	n/a
Douglas fir [9]	5/4 S2S Molding	1125	n/a	1100

[1] Mill pricing--U.S. dollars f.o.b. to wholesaler per Mbf.

[2] Crows Market Report Weekly for 01/17/2003, C.C. Crow Publications, Inc., P.O. Box 25749 Portland, OR.

[3] Random Lengths Lumber Market Report week of 01/17/2003, Random Lengths, PO Box 867, Eugene, OR.

[4] Average three year high/low range, Western Wood Products Assoc., 522 SW Fifth Ave. Suite 500, Portland, OR.

[5] C&Btr VG Douglas fir finish grade lumber over last three years have ranged $1600/mbf to $1750/mbf

[6] Kiln dried nominal board foot measure.

[7] Bevel siding based on surface measure for kiln-dried material.

[8] Western cedar prices are for comparative purposes only.

[9] Tracking of Douglas fir limited to 5/4 molding stock.

Based on the above information it is estimated that the remanufactured Douglas fir millwork would have a potential producer sale value of about $1.20 – $1.90/bf. The lower dollar amount is based on clear mixed grain Douglas fir plus $0.20/bf for valued-added milling ($200/Mbf upcharge). The higher value corresponds to a dollar amount including grade sorting to separate out the more valuable vertical grain (VG) pieces. Again, this value does not account for possible devaluing due to nail holes or rust discoloration.

In contrast, southern pine millwork would have a significantly lower potential market value. Using the averaged source pricing from Table 19 for finish grade D lumber (i.e., $615 + $600/2 = $608/Mbf plus $200/Mbf) as feedstock with upcharge for molder processing, the potential value can be estimated at about $0.80/bf.

Retail values of reclaimed wood products

The most readily available marketing information for reclaimed wood products is found on the Internet. Although a thorough search did not provide pricing on V-groove paneling, bevel siding (or 5/8 in. lumber) prices on a number of antique flooring products were available. Prices vary widely depending on species, region, grade, dimension, etc., and are most commonly given on a square-foot coverage basis. In addition, prices were generally available for Douglas fir, but less so for Southern Pine. In the antique flooring market, most Southern Pine flooring advertised is heart pine, a denser, slower-grown pine from old-growth Southern Pine forests. Generally, heart pine is found in wood buildings older than the WWII-vintage buildings evaluated in this study. Very little heart pine was found in the Fort Campbell siding (< 5%). For this reason, no attempt has been made to assign a market price for the flooring manufactured from Fort Campbell siding.

Table 20 provides a list of some advertised flooring prices from a number of websites found by searching for "antique flooring" or "Douglas fir flooring." Prices range from $3.00 to almost $11.00/sf. Although these are asking prices and no information is available on actual sales, the retail value of the Fort Ord siding can be estimated. A lower figure of $4.00/sf is assumed. Because the flooring produced is 3-1/8 inch wide, 4 lf would be required to produce 1 sq ft of flooring. This assumption implies a retail flooring value of $1.00/lf. If an average single-story barracks contains 3,500 lf of siding, and the production of flooring results in a 29% total trim loss (Table 8), each barracks would produce at least $2,500 in value, if all siding were remanufactured as flooring. This value could potentially double if the flooring could be marketed as clear and efforts were made to segregate the vertical grain boards.

Table 20. Selected list of advertised flooring available on the internet.

Company	T&G Flooring Product[1] (width)	Price (per sf)	World Wide Web Address
Country Classic Flooring	Reclaimed Southern Pine [4-3/4″]*	$4.90-$5.90	www.firfloors.com
	#2 fir flooring [3″, 5 in. & 7″]	$3.00-$4.45	
Hill Country Woodworks of Texas	Long leaf pine [3-1/8″]*	$6.50	www.texaswoodwork.com
James & Company Recycled and Reclaimed Timbers	Long leaf pine [4″]*	$5.25 (email quote)	www.jamesandcompany.com
	Douglas fir [4″]*	$3.00 (email quote)	
Old Grain - Reclaimed Wood Specialists	inquiries by phone or email	quote	www.oldgrain.com
Olde Good Things	Long leaf heart pine [3 in. & 4″]	$6.25	www.oldegoodwood.com
	Reclaimed wood flooring*	$3.00-$5.00	
Sylvan Brandt, LLC	Resawn narrow heart pine* [3″, 5 in. & 7″]	$7.00	www.sylvanbrandt.com
	Above with new T&G	$8.00	
Traditional Woodworks & Lumber Company	Aged Douglas fir [3″]*	$4.95	www.tradwood.com
	Clear vertical-grain Douglas fir [3″]	$10.85	
	Aged Memphis yellow pine [3″]*	$5.00	
Trestlewood Reclaimed Wood Products	Smooth Southern Pine [4-3/4″]*	$5.00	www.trestlewood.com
	#1 Douglas fir	quote	
	#2 Douglas fir [3″]*	$6.50	

[1]Materials may contain nail holes or other deconstruction-related defects

Installation of flooring

A portion of the produced T&G flooring was installed in two rooms at the FPL for display purposes. Although the lead penetration tests indicated that only a trace amount of lead was likely to be present in the remanufactured flooring (because more than 0.06 in. was removed from the painted surface), the air was monitored during the floor sanding process to ensure that the workers were not exposed to an unsafe level of lead-containing dust. A personal air monitoring pump was fitted to the floor sander operator (Figure 38). No lead was detected in the air sample, indicating that the remanufactured flooring product was free of any significant lead content. A swab test for lead, after the floor was finished with polyurethane, produced negative results. Figure 39 shows the floor after finishing.

Figure 38. Sanding process for remanufactured flooring, showing air monitoring pump fitted at operator's waist.

Figure 39. Installed floor after finishing.

7 Conclusions and Recommendations

Conclusions

In this demonstration, salvaged wood siding from WWII-era temporary barracks buildings was re-milled into T&G flooring, V-groove paneling, and bevel siding. Based on the results of this project, it is concluded that salvaged wood siding coated with LBP can be safely machined into value-added products.

The following specific findings and observations are offered:

1. Wood siding salvaged from military buildings can be successfully remanufactured into value-added products using equipment commonly found in the new and used woodworking machinery markets.
2. When properly sized and specified, commercially available woodworking dust collection systems can be used to safely filter and collect waste LBP shavings and dust created by re-machining wood coated with LBP. Worker exposure to lead in the immediate vicinity of remanufacturing operations at FPL was less than one-tenth that of the OSHA PEL for indoor lead exposure (50 $\mu g/m^3$).
3. An evaluation of T&G flooring, V-groove paneling, and bevel siding profiles indicated that all could successfully be remanufactured from the ¾ in. thick salvaged wood siding. It is concluded that T&G flooring is the most promising product because short pieces of siding are acceptable as feedstock for that profile. The nail holes in the salvaged siding may not significantly affect the value of the T&G flooring for some markets.
4. An evaluation of the Douglas fir siding from Fort Ord and the Southern Pine siding from Fort Campbell indicated that up to one-third of total length may be lost to end trim and the elimination of splits, and other defects.
5. The siding salvaged from Fort Ord contained much less wood decay than the siding salvaged from Fort Campbell. The primary reason for the difference is likely to be the drier seasonal conditions at the Fort Ord location. Surface checking and end-splits were found less frequently in the Fort Ord siding than in the Fort Campbell siding.
6. As much as 50 percent of the weight of the salvaged Fort Ord siding can be diverted from landfill disposal by remanufacturing into T&G flooring.

Waste reduction benefits for the other profiles and the Fort Campbell siding were somewhat lower.

7. An estimated market value for flooring produced from siding salvaged from a typical two-story Fort Ord barracks is estimated to be at least $5,000.
8. It is estimated that the remanufactured Douglas fir millwork would have a potential producer sale value of about $1.20 – $1.90/bf. In contrast, Southern Pine millwork would have a significantly lower potential market value — about $0.80/bf. Because little heart pine was found in the Fort Campbell siding, material of that quality is not suitable for remanufacture into quality flooring.

Due to the limitations of study scope, this investigation does not provide a precise indication of cost efficiencies that might be realized on a production basis using these methods. Also, due to limitations on the quality of economic data available to the authors, market valuations of the remanufactured products are only educated projections.

Recommendations

In order to improve the technologies and processes for removing LBP from salvaged wood and recover high-quality feedstock for re-milling purposes, follow-on case studies are recommended in which the equipment and methods described here are used in an integrated building deconstruction process. Such studies would enable development of better data on marketing and production costs as well as life-cycle cost benefits for military installations. Other future actions and issues to consider include the following:

- Develop guidance on assessing potential value of siding and other appearance-grade materials coated with LBP.
- Develop guidance for removing, handling, and transporting siding and other appearance-grade materials for the purpose of reprocessing into higher-value products.
- Compile directories or other resources to identify markets for unimproved siding (i.e., processors) or improved siding (i.e., consumers).

References

Southern Pine Inspection Bureau (SPIB). 1994. *Standard grading rules for Southern Pine lumber*. Pensacola, FL: SPIB.

Timmons, Dale M. September 2003. *Application of thermochemical conversion to treat demolition debris from Fort Ord*. ERDC/CERL CR-03-3. Champaign, IL: Engineer Research and Development Center – Construction Engineering Research Laboratory.

West Coast Lumber Inspection Bureau (WCLIB). 2001. *Standard grading rules for West Coast Lumber*. Standard No. 17. Portland, OR: WCLIB.

Appendix A: Description of Research Tasks

The tasks comprising this research effort are described below, as extracted from the project planning documentation:

(Task 1) Shipment of Siding Materials: As part of a building removal contract being initiated by the Fort Ord Reuse Authority, approximately 4,000 square feet of wood siding coated with LBP is to be stockpiled at Fort Ord, CA, for use in this research effort. The Forest Products Laboratory shall arrange for this siding to be shipped to wherever the woodworking equipment to be used in this study is located, including, but not limited to: Madison, WI; University Park, PA; or Auburn, ME. Additional LBP-coated siding materials and dimensional lumber from Fort Campbell may also be included in the overall amount of wood materials to be used in this study.

(Task 2) Investigate Depth of Material Removal: Using a representative sampling of boards, investigate the mechanical removal of the paint film using power woodworking equipment. (Note that there is no requirement to use any particular type of woodworking equipment for this Task. However, a comparison of machinery to accomplish the material removal is an element in Task 3 below.) Take different levels of cuts from the board surface until detectable lead in the board is below a 5 ppm level. An analysis of the residual board (after shaving off the paint film or wood layers) shall be made to establish an average lead concentration. The removed shavings shall also be analyzed to determine leachable and total lead content per California State EPA TCLP and total lead testing protocols.

(Task 3) Evaluation of Woodworking Equipment: Evaluate different types of conventional power woodworking equipment as well as machinery especially developed by the Auburn Machinery Inc., Auburn, ME, to remove LBP coatings from wood siding, considering productivity, efficiency, operating costs, durability, sensitivity to irregularities and contaminants in the feedstock, and potential for production-scale operations for each type equipment. Where shortcomings in processing are encountered, assess if and how the shortcomings might be overcome, and at what cost in order to maintain long-term processing viability. FPL is responsible for all arrangements with Auburn Machinery regarding access and use of the subject equipment.

(Task 4) Assess Market Value For Reworked Wood: At each stage of paint and wood surface removal operations, assess the value and marketability of the reworked board for reuse as siding. Assess the costs to produce and the resulting market value of new wood products (e.g., wainscoting or flooring) made from the original siding profile. At initial stages of paint and wood surface removal, the board may have a lead concentration of greater than 5 ppm. Determine if lead concentrations greater than 5 ppm will seriously limit the marketability and reuse of the boards as siding or other products. Also assess potential benefits of reworking standard dimensional lumber that is coated with LBP on one of more sides into other profiles and wood products. CTC and ERDC-CERL will help provide information to FPL concerning regulatory constraints that may affect the reuse or recycling of cleaned or reworked products.

(Task 5) Dispose of Removed LBP Wastes: All LBP films and lead-containing wood shavings shall be collected and readied for disposal per applicable Federal and State regulations. These materials shall be disposed of at the expense of FPL. However, note that ERDC-CERL will likely want all or most of these wastes for use in other investigations it is conducting concerning the disposal on LBP materials. In that case, ERDC-CERL will arrange for the shipment of these materials to wherever needed.

Appendix B: Fort Ord Siding Deconstruction Material Data Sheets

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
E1	5.4				1		0.21	T&G F		B	48	
E2	5.4				1		0.17	T&G F		B	48	
E3	5.4	1			1		0.17	T&G F		B	48	
E4	3.0				1		0.33	T&G F		B	3	
E4	5.4				1		0.25	T&G F		B	49	
E5	5.3				1		0.25	T&G F		B	47	
E6	5.3				1		0.21	T&G F		B	48	
E7	5.4				1		0.25	T&G F		B	40	
E8	5.4				1		0.17	T&G F		B	40	
E9	5.3				1		0.42	T&G F		B	49	
E10	5.3				1		0.17	T&G F		B	50	
E11	5.3	1			1		0.50	T&G F		B	43	
E12	5.3				1	MR	0.54	T&G F		B	38	
E13	6.9	1			1	MR N	0.38	T&G F		B	42	
E15	1.4				1		0.17	T&G F		B	6	
E16	5.3	1			1	MR	0.58	T&G F		B	41	
E17	1.6				1		1.58	T&G F	Y	B	53	short
E19	3.0				1		0.29	T&G F		B	8	
E20	7.0				1	MR	0.33	T&G F		B	41	
E21	3.0				1		0.17	T&G F		B	3	
E21	8.4				1	MR	1.08	VGC		B	59	
E22	8.5				1	MR	2.50	T&G F		B	58	split
E23	8.4	1 > 2			1		1.00	VGC		B	58	hole drilled grout plugged
E27	3.0				1		0.29	T&G F		B	7	4-1/2 in. width
E28	3.0				1		0.50	T&G F		B	7	
E29	3.0				1		0.38	T&G F		B	54	
E30	3.0				1		0.21	T&G F		B	7	
E31	3.1				1		0.54	T&G F		B	5	
E32	3.0				1		0.29	T&G F		B	7	
E32	6.0				1		0.42	T&G F		B	44	
E33	3.1				1		0.17	T&G F		B	6	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
E34	3.1				1		0.25	T&G F		B	8	
E34	3.0				1		3.00		Y	B	3	
E35	3.0				1		0.38	T&G F		B	7	
E35	3.0				1		3.00		Y	B	3	hole cut-out
E36	3.0				1		0.29	T&G F		B	7	
E37	3.0				1	MR	0.42	T&G F		B	7	
E38	6.0	3			1		6.00		Y	B	49	cutting-heavy
E39	6.1				1		0.75	T&G F		B	40	
E40	6.0				1	MR	0.75	T&G F		B	38	
E42	3.0				1		0.25	T&G F		B	8	
E43	3.0		C		1		0.17	T&G F		B	3	
E43	3.0				1		0.25	T&G F		B	6	
E44	3.0				1		0.33	T&G F		B	8	
E45	3.1				1		0.50	T&G F		B	7	
E46	3.0				1		0.50	T&G F		B	6	
E47	3.0				1		0.38	T&G F		B	8	
E48	3.0				1		0.25	T&G F		B	5	
E49	3.0				1		0.21	T&G F		B	10	
E50	3.0				1	N	0.33	T&G F		B	10	
E51	3.0				1		0.17	T&G F		B	7	
E52	3.0				1	MR	0.29	T&G F		B	8	
E53	9.1				1	MR	0.50	VGC		B	58	
E54	9.1				1		0.42	VGC		B	58	
E56	14.0				1		0.88	BS		B	9	
E57	12.0				1	MR	0.29	BS		B	9	
E58	14.1				1	MR	0.67	BS		B	9	
E59	6.0				1		0.50	T&G F		B	39	
E60	6.0				1		0.17	T&G F		B	39	
E61	6.1				1		0.38	T&G F		B	47	
E62	6.0				1		0.38	T&G F		B	44	
E63	6.0				1		0.25	T&G F		B	47	
E67	6.0				1		0.42	T&G F		B	48	
E68	6.0				1		0.17	T&G F		B	39	
E69	6.0				1		0.54	T&G F		B	50	
E70	6.0				1		0.17	T&G F		B	39	
E71	6.0				1		0.79	T&G F		B	40	
E72	6.0				1		0.25	T&G F		B	50	shake

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
E73	13.5				1		0.46	BS		B	2	
E74	12.0				1	MR	0.63	BS		B	9	
E75	13.5				1	MR	0.50	BS		B	2	
E76	12.0				1		0.58	VGC		B	58	
E77	4.0	1			1		0.17	T&G F		B	41	
E79	14.0				1		0.83	BS		B	57	
E80	4.0				1	N	1.17	T&G F		B	45	4-1/4 in. width
E81	6.0				1		0.25	T&G F		B	39	
E82	6.0				1		0.13	T&G F		B	39	
E83	6.0				1	MR N	0.42	T&G F		B	39	hole cut-out
E84	6.0				1		0.46	T&G F		B	45	
E85	3.0				1		0.92	T&G F		B	3	
E85	6.0				1		0.83	T&G F		B	39	
E86	6.0				1		0.17	T&G F		B	39	
E87	6.0				1		0.17	T&G F		B	39	
E88	6.0				1		0.33	T&G F		B	40	
E89	6.0	1			1		0.38	T&G F		B	41	
E90	6.0				1		0.29	T&G F		B	38	
E91	6.0				1		0.17	T&G F		B	50	
E92	16.0				1	MR N	0.42	BS		B	2	
E93	16.0	1			1	MR	1.58	BS		B	9	
E94	13.5	1			1	MR	1.00	BS		B	51	
E95	3.0				1		0.50	T&G F		B	7	4-3/8 in. width
E96	2.8				1		0.21	T&G F		B	3	
E97	3.0				1		0.25	T&G F		B	5	drilled hole
E99	3.0				1		0.17	T&G F		B	5	
E100	3.0				1	N	0.42	T&G F		B	55	
E101	3.0				1	MR	0.17	T&G F		B	5	
E102	3.0				1		0.17	T&G F		B	6	
E103	3.0				1	MR N	0.33	T&G F		B	5	
E104	3.0				1		0.17	T&G F		B	8	
E107	13.5	1 > 2			1		3.00	BS		B	51	splitting
E108	15.0	1			1		0.63	BS		B	9	
E109	16.4				1		1.08	BS		B	57	
E110	6.0	1			1		0.33	T&G F		B	44	4-1/8 in. width
E111	6.1				1		0.25	T&G F		B	39	
E113	6.0				1		0.17	T&G F		B	47	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
E114	6.1				1		0.21	T&G F		B	50	
E114?	15.4	2 > 3			1		1.92	BS		B	57	
E115	6.0				1		0.33	T&G F		B	50	
E116	6.1				1		0.58	T&G F		B	39	
E117	6.9	2			1	N	0.17	T&G F		B	39	
E118	6.1				1		0.58	T&G F		B	39	
E119	6.1				1		0.17	T&G F		B	47	
E120	6.1				1		0.25	T&G F		B	48	
E121	9.9				1	MR	3.50	T&G F		B	59	cut-out notch
E122	9.1				1	MR	0.58	VGC		B	4	
E123	15.1				1	MR	1.79	BS		B	2	
E124	8.0				1		1.25	VGC		B	58	
E125	13.5				1	MR	0.50	BS		B	9	
E126	17.0				1		1.50	BS		B	2	
E127	9.1				1		0.25	VGC		B	4	
E128	15.0				1	MR N	1.58	BS		B	9	
E130	2.9				1	N	0.17	T&G F		B	7	
E131	2.9				1		0.42	T&G F		B	5	
E132	2.9				1		0.25	T&G F		B	10	
E133	2.9				1		0.25	T&G F		B	10	
E134	3.0				1		0.42	T&G F		B	8	
E135	2.9				1	MR	0.33	T&G F		B	8	
E136	2.9				1		0.42	T&G F		B	7	
E139	2.8				1		0.42	T&G F		B	8	
E140	2.8				1	MR	0.33	T&G F		B	7	
E142	2.8				1	MR	0.67	T&G F		B	6	
E144	2.8				1	MR	0.67	T&G F		B	8	
E145	2.8		C		1	MR	0.67	T&G F		B	10	
E146	3.5	1			1		0.50	T&G F		B	55	4-1/4 in. width
E148	1.4				1		1.42	T&G F	Y	B	53	short
E148	5.1				1		0.17	T&G F		B	49	
E157	3.1				1		0.29	T&G F		B	55	
E158	5.1				1	MR	0.71	T&G F		B	42	
E159	4.0				1		0.58	T&G F		B	40	
E160	4.1				1		0.42	T&G F		B	40	
E161	4.9				1	N	0.42	T&G F		B	40	
E162	4.1				1		0.29	T&G F		B	41	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
E163	4.1				1		0.25	T&G F		B	41	
E164	4.1	1			1		0.46	T&G F		B	42	
E165	4.1				1		0.25	T&G F		B	41	
E166	4.1				1		0.25	T&G F		B	42	
E167	4.3				1		0.17	T&G F		B	40	
E168	4.1				1		0.25	T&G F		B	40	
E169	4.1				1		0.17	T&G F		B	41	
E170	9.1				1		3.67	T&G F		B	9	
E171	12.1				1	MR	0.33	BS		B	9	
E172	12.1				1	MR	0.88	BS		B	2	
E172	3.0				1		0.17	T&G F		B	3	
E173	13.6	1			1	MR	0.96	BS		B	51	
E174	3.0				1		0.25	T&G F		B	60	4-1/4 in. width
E175	3.0				1		0.42	T&G F		B	8	
E176	3.0	1			1		0.25	T&G F		B	5	
E177	3.0				1		0.25	T&G F		B	6	
E178	3.0				1		0.21	T&G F		B	8	
E179	3.0				1		0.17	T&G F		B	10	
E180	3.0				1		0.17	T&G F		B	6	
E181	3.0				1		0.21	T&G F		B	6	
E182	7.0				1	MR	0.92	T&G F		B	39	
E183	3.0				1		0.17	T&G F		B	7	
E186	3.1				1		0.42	T&G F		B	5	
E187	15.1				1	MR	1.75	BS		B	9	
E188	14.1				1	MR	0.46	BS		B	9	
E189	10.1	1			1		1.04	VGC		B	4	
E191	12.0				1	MR STP3	0.38	BS		B	9	
E192	3.0				1		0.08	T&G F		B	3	
E192	3.1				1	MR	1.17	T&G F		B	10	
E193	3.0				1		0.33	T&G F		B	60	4-1/4 in. width
E194	3.0				1		0.46	T&G F		B	8	
E195	3.0				1		0.17	T&G F		B	8	
E196	3.0			mildew	1		0.08	T&G F		B	10	
E197	3.0	1			1		0.25	T&G F		B	10	
E199	3.0				1		0.21	T&G F		B	56	
E200	3.0				1		0.17	T&G F		B	52	
E202	2.9				1		0.38	T&G F		B	52	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
E203	3.0	2 > 3			1	STP	0.50	T&G F		B	8	
E204	3.0				1	STP12	0.38	T&G F		B	8	
E205	3.0	2			1	STP9	0.75	T&G F		B	7	9 staples
E206	2.9				1	STP	0.17	T&G F		B	7	
E207	3.0				1		0.38	T&G F		B	10	
E208					1		0.17	T&G F		B	52	4-3/8 in. width
E209	3.0				1		0.17	T&G F		B	10	
E210	3.0				1		0.17	T&G F		B	56	
E212	3.0				1		0.54	T&G F		B	60	
E215	3.0				1		0.25	T&G F		B	52	
E219	3.0				1	N	0.25	T&G F		B	10	
E220	9.1				1	MR N2	0.50	VGC		B	59	
E221	9.1			BRD	1	MR	1.08	VGC		B	58	
E222	8.1				1		0.54	VGC		B	58	
E223	7.6				1	MR	0.25	T&G F		B	42	
E224	9.1				1	MR	1.92	VGC		B	4	
E225	9.0				1	MR N	1.67	T&G F		B	42	
E226	9.1				1	MR	1.00	T&G F		B	42	
N1	9.8				1	MR	1.17	VGC		B	4	
N2/N34	15.5	1 > 2			1		3.92	BS+T&GF		B	52	cut-out
N3	3.7				1		0.25	T&G F		B	54	
N4	3.7				1		0.67	T&G F		B	55	
N5	3.7				1		0.33	T&G F		B	55	
N6	3.7				1		0.25	T&G F		B	54	
N8	3.7	1 > 2			1		0.29	T&G F		B	53	
N9	3.7				1		0.42	T&G F		B	60	
N10	3.7				1		0.21	T&G F		B	55	
N11	3.7				1		0.92	T&G F		B	53	
N12	3.7	1 > 2			1		0.46	T&G F		B	55	
N13	3.7				1		0.25	T&G F		B	54	
N14	9.9				1	MR	0.83	VGC		B	59	
N15	5.5	1			1		3.00	T&G F		B	43	
N15	9.9				1		0.92	VGC		B	58	
N16	9.9				1		0.58	VGC		B	59	
N17	9.9	1 > 2			1	MR	1.08	VGC		B	58	
N18	9.9				1		5.67	T&G F		B	58	split
N19	9.9				1	MR	0.42	VGC		B	4	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
N20	9.9	1			1	MR	1.42	VGC		B	4	
N21	4.6				1		1.46	T&G F		B	42	bevel 2-ends
N22	6.6				1	N	1.42	T&G F		B	37	bevel 2-ends
N23	2.7				1		2.67		Y	B	10	bevel end
N24	3.8				1		0.75	T&G F		B	41	
N25	4.8	3			1		2.25	T&G F		B	42	
N26	5.8				1		1.38	T&G F		B	45	bevel 1-end, hole cut-out
N27	15.9				1		0.92	BS		B	9	
N28	15.6	1 > 2			1	MR N	1.42	BS		B	52	
N29	15.0	1			1	MR N	2.42	BS+T&GF		B	52	hole 1″, bevel 1-end
N30	9.7				1	MR	2.58	VGC		B	4	
N31	15.5				1	MR	2.08	BS		B	2	bevel _-end
N32	13.3				1		0.88	BS		B	9	
N33	15.5				1	N	0.79	BS		B	9	
N35	3.2				1		0.63	T&G F		B	55	
N36	8.8				1	N3	0.29	VGC		B	4	
N37	8.8				1		0.17	VGC		B	4	
N40	3.3				1		0.29	T&G F		B	5	
N41	3.3				1	MR	0.58	T&G F		B	5	
N42	3.2				1		0.42	T&G F		B	54	
N43	3.2				1		0.46	T&G F		B	52	
N44	3.3				1		0.25	T&G F		B	5	
N45	3.2				1		0.58	T&G F		B	60	
N46	3.3				1	MR	0.42	T&G F		B	6	
N47	5.5				1		0.54	T&G F		B	38	
N48	5.5	2			1		0.25	T&G F		B	38	
N49	5.5				1		0.17	T&G F		B	47	
N50	5.5	1			1		0.17	T&G F		B	41	
N51A	5.5			mildew	1		0.17	T&G F		B	38	
N51B	5.5				1		0.33	T&G F		B	47	
N52	5.5				1		0.29	T&G F		B	42	
N53	5.5				1		0.21	T&G F		B	38	
N54	5.5				1		0.46	T&G F		B	45	
N56	5.5	1			1		2.50	T&G F		B	44	
N57	5.5				1		0.17	T&G F		B	45	
N58	5.5			mildew	1		0.25	T&G F		B	38	
N59	5.5				1		0.25	T&G F		B	38	pitch heavy

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
N60	5.5				1		0.63	T&G F		B	45	
N62	3.7				1		1.08	T&G F		B	6	bevel _-end
N63	4.8				1		1.25	T&G F		B	41	
N64	5.8				1		0.83	T&G F		B	46	bevel 1-end
N66	9.8				1		1.08	VGC		B	59	bevel 1-end
N67	3.2				1		0.29	T&G F		B	4	square cut-out, single board<
N67	6.2				1		1.08	T&G F		B	50	bevel 1-end
N68	3.1				1		3.08	T&G F	Y	B	55	split
N69/N38	12.0				1		4.75	BS+T&GF		B	52	cut-out
N70	3.3				1		0.21	T&G F		B	52	
N71	3.2				1	N	0.29	T&G F		B	54	
N72	3.2				1		0.25	T&G F		B	56	
N73	3.2				1		0.67	T&G F		B	56	
N74	3.2				1		0.50	T&G F		B	6	
N75	3.2	1 > 2			1		0.29	T&G F		B	55	
N77	9.9				1		3.83	T&G F		B	4	square cut-out
N78	9.9				1		0.75	VGC		B	4	
N79	9.9				1	MR N	0.96	VGC		B	59	
N80	9.9				1		0.58	VGC		B	58	
N81	9.0				1		0.54	VGC		B	58	
N82	9.9				1	MR	0.63	VGC		B	59	
N83	9.9				1	MR	0.38	VGC		B	59	
N84	9.9				1	MR	0.75	VGC		B	4	
N85	3.7				1		0.33	T&G F		B	4	square cut-out, single board<
N86	3.7				1		0.42	T&G F		B	40	
N87	3.7				1		0.33	T&G F		B	40	
N88	3.7				1		0.17	T&G F		B	40	
N89	3.7				1	N	0.33	T&G F		B	40	
N91	3.7				1		0.50	T&G F		B	54	
N92	3.7				1		1.04	T&G F		B	55	
N93	3.7				1		1.04	T&G F		B	55	
N94	3.7				1		0.50	T&G F		B	54	
N95	3.7				1		0.33	T&G F		B	56	
S1	17.5	1			1	MR	0.71	BS		B	9	
S2	11.0				1	N	0.67	VGC		B	52	
S3	13.0				1		6.42	T&G F		B	57	
S4	4.2				1	MR	0.71	T&G F		B	38	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
S5	4.2	1	C	SRD	1	MR	0.75	T&G F		B	43	
S6	4.2	1	C		1	MR	1.25	T&G F		B	43	
S7	4.2	1			1	MR	0.83	T&G F		B	43	
S7	3.7				1		0.17	T&G F		B	53	
S8	4.2	2		SRD	1	MR	0.42	T&G F		B	38	
S9	4.2	1			1	MR	0.42	T&G F		B	38	
S10	4.2	1			1	MR	1.08	T&G F		B	38	
S11	4.2				1	MR	0.75	T&G F		B	43	
S12	4.2				1	MR	0.42	T&G F		B	46	
S13	4.2				1	MR	0.71	T&G F		B	38	
S14	4.2	3		BRD	1	MR	2.50	T&G F		B	43	
S15	4.2				1	MR	0.50	T&G F		B	38	
S16	4.3	1			1	MR	1.92	T&G F		B	43	
S17	4.2	1			1	MR	0.71	T&G F		B	38	
S18	4.3	1			1	MR	0.92	T&G F		B	43	
S19	4.3	1			1	MR	0.83	T&G F		B	43	
S20	4.3	1			1	MR	0.50	T&G F		B	43	
S21	4.4	1			1		1.54	T&G F		B	43	bevel 2-ends
S22	6.5				1	MR	1.50	T&G F		B	39	
S23	2.7				1		1.17	T&G F		B	7	
S24	3.8	1			1	MR	0.88	T&G F		B	43	bevel 1-end
S25	4.8	1			1	MR	1.00	T&G F		B	43	bevel 1-end
S26	5.8				1		1.17	T&G F		B	44	bevel 1-end
S27	17.0				1	MR	2.58	BS		B	2	bevel 2-ends
S28	18.0				1	MR	2.04	BS		B	2	bevel _-end
S29	11.2			BRD	1	MR	1.08	VGC		B	4	
S29	10.6				1	MR	0.96	VGC		B	59	bevel 1-end
S30	13.4				1	MR	1.54	BS		B	2	bevel _-end
S31	8.0				1	MR	1.13	T&G F		B	42	
S32	17.3				1		1.42	BS		B	57	bevel 1-end
S35	3.2				1	MR	0.50	T&G F		B	55	
S36	3.2				1	MR	3.21		Y	B	6	split @CL
S37	3.2				1	MR	0.88	T&G F		B	53	
S38	3.2	1			1	MR	0.58	T&G F		B	5	
S39	3.2	1 > 2	C		1	N	0.50	T&G F		B	53	
S40	3.5			BRD	1		3.17	T&G F		B	5	split @CL
S41	3.2				1		0.25	T&G F		B	54	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
S42	3.2	2 > 3			1	MR	0.54	T&G F		B	53	
S43	3.2				1	N	0.75	T&G F		B	53	
S45	15.7				1	MR N	1.25	BS		B	51	
S46	15.5	1 > 2	C		1	MR	1.17	BS		B	58	
S48	15.7		C		1	MR	0.83	BS		B	51	
S49	15.6				1	MR N	2.00	BS		B	51	
S49	3.2				1		3.17	T&G F	Y	B	55	split
S50	15.7				1		4.92	T&G F		B	58	splitting
S51	15.7				1	N4	1.17	BS		B	52	
S53	3.7				1		1.17	T&G F		B	55	bevel 1-end
S54	4.8				1		0.83	T&G F		B	48	bevel 1-end
S55	5.8				1		1.67	T&G F		B	39	
S56	10.0				1	MR	1.00	VGC		B	4	holes-2
S64	3.0				1	N	0.50	T&G F		B	53	ring shank nail
S66	3.0				1	MR	0.29	T&G F		B	3	
S68	3.0				1	MR	0.83	T&G F		B	53	hole cut-out
S69/S33	14.4				1		####		Y	B	9	single board<
S70	3.4	1			1		0.58	T&G F		B	55	
S71	3.4				1		0.50	T&G F		B	54	
S72	3.4				1	MR	0.50	T&G F		B	53	
S73	3.4				1	MR	0.58	T&G F		B	55	
S74	3.4				1	MR	0.50	T&G F		B	55	
S75	3.4				1	MR	0.50	T&G F		B	53	
S76	3.4	1			1	MR	0.46	T&G F		B	55	
S77	3.4	1 > 2	C		1		0.58	T&G F		B	53	
S78	3.4				1		0.58	T&G F		B	54	
S79	3.6				1	N	0.46	T&G F		B	53	
S80	3.4		C		1	MR	0.75	T&G F		B	54	
S81	7.9	1			1	MR	0.71	T&G F		B	42	
S97	15.7	2 > 3			1	MR N	3.92	BS		B	52	
W1	5.4				1		1.00	T&G F		B	48	
W2	5.4				1		0.25	T&G F		B	48	
W3	5.3				1		0.54	T&G F		B	45	
W4	5.4				1		0.25	T&G F		B	47	pitch heavy
W5	5.4				1		0.25	T&G F		B	48	
W6	5.4				1		0.17	T&G F		B	46	
W7	5.4				1		0.21	T&G F		B	44	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
W8	5.4				1		1.17	T&G F		B	45	
W9	5.4				1	MR	0.33	T&G F		B	48	
W10	5.3				1	MR	0.50	T&G F		B	45	
W11	5.3				1	MR	0.25	T&G F		B	45	
W100	3.0				1	MR	0.75	T&G F		B	10	
W101	12.1				1		0.92	BS		B	58	
W102	10.6				1	MR	0.33	VGC		B	51	
W103	9.0				1	MR	1.08	VGC		B	52	
W104	7.6				1	MR	0.79	T&G F		B	46	
W106	6.0				1		0.21	T&G F		B	45	
W107	4.0	2			1		0.25	T&G F		B	49	
W108	6.0				1		0.92	T&G F		B	45	
W109	6.0				1		0.63	T&G F		B	45	
W110	6.1				1		0.21	T&G F		B	46	
W111	6.0				1		0.17	T&G F		B	46	
W112	6.1				1		0.33	T&G F		B	46	
W113	5.4				1		0.21	T&G F		B	48	
W114	6.1	1			1		0.33	T&G F		B	47	
W114	2.9				1		2.88		Y	B	3	split @CL
W115	6.1				1		0.29	T&G F		B	47	
W116	6.1				1		0.92	T&G F		B	40	
W117	2.8				1		1.17	T&G F		B	3	
W118	2.8				1		0.83	T&G F		B	3	
W119	2.0				1		0.38	T&G F		B	10	
W12	5.4				1		0.33	T&G F		B	48	
W120	2.8				1	MR	1.17	T&G F		B	50	
W123	2.8				1		0.63	T&G F		B	49	
W124	2.9				1		0.67	T&G F		B	50	
W125	2.8				1	N	0.42	T&G F		B	50	
W129	3.0				1		0.17	T&G F		B	10	
W13	13.4				1		0.75	BS		B	51	
W130	3.0				1		0.25	T&G F		B	8	
W132	3.0	2			1		0.58	T&G F		B	7	
W133	3.0				1		0.29	T&G F		B	7	
W135	3.0				1		0.96	T&G F		B	50	
W136	3.0				1		0.29	T&G F		B	49	
W137	3.0				1		0.33	T&G F		B	49	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
W138	3.0				1		3.00		Y	B	49	splitting
W139	14.2				1	MR	1.25	BS		B	57	
W14	3.3				1		0.67	T&G F		B	50	
W141	7.0				1	MR	0.58	T&G F		B	46	
W142	9.1				1		1.50	VGC		B	58	hole cut-out
W143	2.9				1		0.33	T&G F		B	50	
W144	6.9	1			1	N STP	0.54	T&G F		B	43	
W145	14.2				1	MR	1.17	BS		B	57	
W146	13.3				1	MR	0.75	BS		B	57	
W147	13.4	1			1		0.75	BS		B	51	
W148	3.1				1		0.29	T&G F		B	6	
W149	3.0				1		0.17	T&G F		B	6	
W150	3.0				1		0.25	T&G F		B	3	weathered
W150	3.1				1		0.17	T&G F		B	6	
W151	3.1				1		0.17	T&G F		B	5	
W153	3.2	3			1		3.17		Y	B	50	
W155	3.0				1		0.17	T&G F		B	3	
W155	3.1				1		0.42	T&G F		B	50	
W157	3.1				1		0.38	T&G F		B	50	
W158	3.1				1		0.38	T&G F		B	49	
W159	7.5				1		7.50		Y	B	59	cut-out
W16	13.4				1	MR	3.00	BS		B	51	hole cut-out
W160	5.3				1		5.33		Y	B	49	split lengthwise
W160B	7.0				1		7.00		Y	B	46	
W161	16.1	1			1	MR	0.92	BS		B	57	
W165	1.5				1		0.33	T&G F		B	6	
W169	1.4				1		0.33	T&G F		B	6	
W17	4.0				1	N	0.00	T&G F		B	45	
W17	5.4				1		0.29	T&G F		B	46	
W170	1.4				1		0.21	T&G F		B	6	
W173	3.0				1		3.00		Y	B	10	cut edge
W174	16.0				1	MR	0.67	BS		B	57	
W176	3.9				1		3.92		Y	B	46	split 2-ends
W177	3.9				1		0.21	T&G F		B	42	
W178	4.0				1		0.50	T&G F		B	40	
W179	3.9	1			1		0.25	T&G F		B	41	
W18	15.4				1	MR	0.33	BS		B	52	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
W180	4.0				1		0.38	T&G F		B	41	
W181	4.0				1	N	0.25	T&G F		B	43	
W182	4.0				1	MR	0.63	T&G F		B	40	
W182	4.0				1		0.33	T&G F		B	43	
W183	4.0				1	MR N	0.29	T&G F		B	42	
W183	1.5				1		1.54		Y	B	3	
W186	12.9				1		6.67	T&G F		B	57	splitting
W187	15.8				1	MR	0.92	BS		B	51	
W188	13.8				1	MR N	1.96	BS		B	2	
W189	13.8				1		1.42	BS		B	51	
W19	13.4				1	MR	0.92	BS		B	51	
W191	9.0				1		1.75	T&G F		B	42	
W192	7.0				1	MR	1.83	T&G F		B	44	
W193	6.1				1		0.17	T&G F		B	41	
W194	6.1				1	N	3.17	T&G F		B	41	
W197	6.9				1		3.33	T&G F		B	48	cut-out
W198	6.0				1		0.38	T&G F		B	46	
W199	6.0	0 > 1			1	MR	0.42	T&G F		B	43	
W20	14.1				1		1.17	BS		B	57	
W200	6.0				1	MR	0.92	T&G F		B	47	
W201	6.0				1		0.42	T&G F		B	46	
W202	6.0				1	MR	0.33	T&G F		B	47	
W203	6.0				1	MR	0.33	T&G F		B	41	
W204	8.9				1		3.25	T&G F		B	58	cut-out
W205	5.0				1		1.71	T&G F		B	45	
W206	3.1				1		3.08		Y	B	8	
W208	3.0				1	MR	0.29	T&G F		B	10	
W21	13.5				1	N	1.21	BS		B	51	
W23	6.0				1		0.25	T&G F		B	42	
W24	6.0				1		0.17	T&G F		B	45	
W25	6.0				1		0.21	T&G F		B	46	
W26	6.0				1		0.17	T&G F		B	46	
W27	6.0				1		0.25	T&G F		B	45	
W28	6.0				1		0.21	T&G F		B	45	
W29	6.1				1	MR	0.58	T&G F		B	47	
W30	6.1				1		0.29	T&G F		B	47	
W31	6.0				1	MR	0.50	T&G F		B	47	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
W33	6.0				1		0.25	T&G F		B	48	
W34	4.0				1		0.17	T&G F		B	49	
W35	10.1				1		1.08	VGC		B	51	
W36	14.0				1	MR	1.75	BS		B	51	hole cut-out
W37	16.0				1	MR	2.83	BS		B	57	
W38	17.0				1	STP	1.21	BS		B	51	
W39	3.0				1		1.08	T&G F		B	5	
W40	3.0				1		0.50	T&G F		B	10	
W41	3.0				1		0.63	T&G F		B	49	
W42	3.1				1		0.17	T&G F		B	49	
W45	3.1				1	MR	0.50	T&G F		B	5	
W48	3.0		C		1		0.63	T&G F		B	49	
W51	7.9				1	MR	0.25	VGC		B	58	
W52	3.0				1		0.75	T&G F		B	49	
W53	15.5				1	MR	0.58	BS		B	57	
W54	2.0				1		0.17	T&G F		B	5	
W55	6.0				1		0.25	T&G F		B	41	
W56	6.0				1		0.21	T&G F		B	46	
W57	6.0	1			1		0.17	T&G F		B	41	
W58	6.0				1	MR	0.54	T&G F		B	42	
W59	6.0				1		0.25	T&G F		B	41	
W60	6.0				1		0.21	T&G F		B	49	
W61	6.0	1			1		0.79	T&G F		B	48	
W62	6.0	1			1		0.38	T&G F		B	43	
W63	6.0				1		0.67	T&G F		B	46	
W64	6.0				1		0.50	T&G F		B	47	
W65	6.1				1		0.46	T&G F		B	47	
W66	14.0				1	MR	4.33	VGC		B	51	
W67	4.0				1		0.08	T&G F		B	46	
W68	14.0				1	MR	0.67	BS		B	51	
W69	14.0				1	N	0.75	BS		B	57	
W70	12.5				1	MR	0.38	BS		B	57	
W71	13.5				1		0.25	BS		B	57	
W72	13.5				1		2.00	BS		B	52	
W74	6.0				1		0.13	T&G F		B	45	
W75	6.0				1		0.17	T&G F		B	47	
W76	6.0				1		0.46	T&G F		B	42	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
W77	6.0				1	MR	0.33	T&G F		B	40	
W78	6.0				1		0.33	T&G F		B	40	
W79	6.0				1		0.33	T&G F		B	48	
W80	6.0	3			1		1.00	T&G F		B	48	
W81	6.0				1		0.50	T&G F		B	48	
W82	6.0				1	MR	0.50	T&G F		B	47	
W83	5.5				1		0.29	T&G F		B	42	
W84	6.0				1	MR	1.08	T&G F		B	40	
W85	4.0				1		0.17	T&G F		B	46	
W86	14.0				1	MR	0.33	BS		B	57	
W87	16.0				1		1.04	BS		B	52	
W88	14.0				1	MR	0.83	BS		B	57	
W90	3.1				1		0.17	T&G F		B	3	
W90	3.7				1		0.58	T&G F		B	5	
W90	3.0				1		0.38	T&G F		B	50	
W91	3.0				1		0.42	T&G F		B	3	
W91	3.0				1		0.54	T&G F		B	50	
W92	3.1				1		0.25	T&G F		B	3	
W96	2.3				1		2.25		Y	B	49	split lengthwise
W97	3.0				1		0.38	T&G F		B	49	
W98	3.0		C		1		0.75	T&G F		B	50	
E1	3.0				1	STP	0.25	T&G F		R	24	3-5/8 in. width
E2	3.0				1		0.25	T&G F		R	65	
E3	3.0				1		0.42	T&G F		R	24	
E5	3.0				1		0.08	T&G F		R	65	
E6	3.0				1		0.17	T&G F		R	22	
E7	3.0				1		0.25	T&G F		R	19	
E8	3.0			mildew	1		0.17	T&G F		R	16	
E9	3.0				1		0.17	T&G F		R	16	
E10	3.0	1			1		0.17	T&G F		R	22	
E11	3.0				1	MR	0.17	T&G F		R	16	
E12	3.0			mildew	1		0.21	T&G F		R	18	
E13	9.1				1	MR	0.46	VGC		R	62	
E14	6.0				1		0.42	T&G F		R	31	
E15	9.0				1	MR	0.29	VGC		R	15	
E16	9.1				1	MR	0.29	VGC		R	15	
E17	9.1				1	MR	0.29	VGC		R	15	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
E18	4.5				1	MR	0.29	T&G F		R	29	
E19	9.1				1	MR	3.67	T&G F		R	68	
E20	3.0				1		0.42	T&G F		R	20	3-1/2 in. width
E23	3.0				1	MR	1.08	T&G F		R	18	
E23	2.8				1				Y	R	70	bevel 1-end, hole, <18″
E24	3.0				1		0.25	T&G F		R	16	
E24	3.1				1		0.25	T&G F		R	26	_-3/8 in. width
E25	3.0				1		0.33	T&G F		R	24	
E25	3.0				1		0.17	T&G F		R	25	
E26	3.0				1		0.21	T&G F		R	24	
E26	3.0				1		0.21	T&G F		R	25	
E27	3.0				1		0.42	T&G F		R	20	
E28	3.0				1	N	0.21	T&G F		R	24	
E28	3.0				1	N	0.50	T&G F		R	25	
E29	3.0				1	N	0.50	T&G F		R	24	
E30	3.0				1	N	0.42	T&G F		R	24	
E31	3.0				1		0.63	T&G F		R	69	
E32	3.1				1		3.08		Y	R	21	splits @CL
E33	3.0				1		3.00		Y	R	18	narrow
E36	3.0				1	STP2	0.33	T&G F		R	22	3-5/8 in. width
E37	3.0				1		0.21	T&G F		R	16	
E38	3.0				1		0.17	T&G F		R	22	
E39	3.0				1		0.17	T&G F		R	16	
E40	3.0				1		0.17	T&G F		R	22	
E41	3.0				1		0.42	T&G F		R	22	
E42	3.0				1		0.17	T&G F		R	22	
E44	3.0				1		3.00		Y	R	16	split @CL
E45	3.0				1	tack	0.21	T&G F		R	16	
E46	3.0				1		0.21	T&G F		R	20	
E46	6.0				1		0.67	T&G F		R	29	
E47	3.0				1		3.00		Y	R	22	split nearCL
E48	6.0				1		0.25	T&G F		R	37	
E49	10.1	1			1	MR	1.67	VGC		R	62	
E51	6.1				1	MR	0.21	T&G F		R	33	
E52	1.5				1		1.54		Y	R	18	
E53	10.1				1	MR	0.75	VGC		R	68	
E54	6.1				1		1.29	T&G F		R	35	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
E55	13.6				1		0.63	BS		R	68	
E55	2.0				1		0.17	T&G F		R	23	
E56	4.1	1			1		0.25	T&G F		R	33	
E57	4.9				1		0.25	T&G F		R	32	
E57	6.0				1		0.17	T&G F		R	36	
E58	4.1				1		0.29	T&G F		R	35	
E59	4.0				1		0.42	T&G F		R	36	
E60	4.1				1		0.29	T&G F		R	35	
E61	4.1	1			1		0.50	T&G F		R	36	
E62	4.1				1		0.42	T&G F		R	36	
E63	4.1				1		0.25	T&G F		R	36	
E64	4.0				1	N	0.33	T&G F		R	36	
E65	4.2				1	N	0.25	T&G F		R	34	
E66	4.9				1		0.17	T&G F		R	35	
E67	4.2	2			1		1.21	T&G F		R	34	
E68	9.1				1		0.58	VGC		R	67	
E69	9.0				1		0.42	VGC		R	62	
E70	9.1				1		0.25	VGC		R	68	split lengthwise
E72	5.0				1	MR	0.33	T&G F		R	33	
E73	5.1	1 > 2			1		1.00	T&G F		R	28	3-3/4 in. width
E74	5.1	1			1		0.25	T&G F		R	31	drilled hole
E75	5.1	1			1		0.50	T&G F		R	29	
E76	2.1	1			1		0.17	T&G F		R	70	
E77	2.1				1		0.17	T&G F		R	24	
E78	2.0				1		0.13	T&G F		R	23	
E78	2.1	2			1		2.13		Y	R	20	splitting
E79	2.1				1		0.58	T&G F		R	20	
E80	2.1				1		0.50	T&G F		R	70	
E81	2.1				1		0.21	T&G F		R	20	
E82	2.1				1		0.21	T&G F		R	20	
E83	2.1				1		0.29	T&G F		R	24	
E84	2.1	2			1		0.50	T&G F		R	20	
E86	2.9				1		0.33	T&G F		R	70	
E87	2.9				1		0.29	T&G F		R	66	
E88	2.9				1		0.42	T&G F		R	69	
E89	2.9				1		0.29	T&G F		R	70	
E90	3.0				1		0.42	T&G F		R	63	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
E91	3.0				1		0.42	T&G F		R	25	
E91	2.9				1		0.25	T&G F		R	69	
E92	3.0				1		0.17	T&G F		R	23	
E92	2.9	1			1		0.58	T&G F		R	70	
E93	2.9				1		0.33	T&G F		R	69	
E94	2.8				1		0.21	T&G F		R	16	
E95	2.8				1	MR	0.25	T&G F		R	69	
E96	3.0				1		0.25	T&G F		R	26	
E97	2.8				1		0.25	T&G F		R	24	
E98	2.8				1		0.46	T&G F		R	24	
E99	2.8				1	N2	0.33	T&G F		R	69	
E100	2.9				1		0.58	T&G F		R	18	
E101	17.1				1		0.75	BS		R	64	
E102	13.6		C		1		0.83	BS		R	64	
E103	10.5	1			1		0.63	VGC		R	15	
E104	17.1				1		1.50	BS		R	64	
E105	3.0				1		0.17	T&G F		R	19	
E105	7.0				1		0.67	T&G F		R	34	
E106	15.1				1		0.38	BS		R	14	
E106	3.0				1	N	0.29	T&G F		R	17	
E107	10.5			BRD	1	MR	0.25	BS		R	13	
E108	6.0	1			1		0.50	T&G F		R	30	3-3/4 in. width
E109	6.0	2			1		1.67	T&G F		R	37	
E110	6.0				1		0.17	T&G F		R	28	
E111	6.0				1		0.25	T&G F		R	37	
E112	2.1				1		0.13	T&G F		R	26	
E112	6.0				1		0.17	T&G F		R	37	
E113	6.1	1			1		0.33	T&G F		R	28	
E114	6.0			mildew	1		0.17	T&G F		R	37	
E115	6.0	1 > 2			1		0.21	T&G F		R	37	
E116	6.0				1		0.21	T&G F		R	37	
E117	6.0	1			1		0.17	T&G F		R	28	
E118	6.0				1		0.25	T&G F		R	37	
E119	6.1				1		2.00	T&G F		R	37	
E120	15.5				1	MR	0.58	BS		R	64	
E120	3.0				1		3.00		Y	R	18	narrow
E121	16.5				1	MR	4.67	BS		R	14	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
E122	15.0				1	MR	0.96	BS		R	14	
E123	3.0				1		3.00		Y	R	66	3-3/4 in. narrow
E124	3.0				1		0.67	T&G F		R	70	
E125	3.0				1		0.50	T&G F		R	66	
E126	3.0				1		0.25	T&G F		R	66	
E127	3.0				1		0.33	T&G F		R	66	
E128	3.0				1		0.25	T&G F		R	66	
E129	3.0				1		0.25	T&G F		R	70	
E129	1.5				1		1.46		Y	R	26	short
E130	3.0				1		0.25	T&G F		R	66	
E131	3.0				1		3.00		Y	R	66	split
E132	3.0				1	MR	0.50	T&G F		R	69	
E133	3.0				1	MR	0.38	T&G F		R	66	
E134	2.9				1		1.04	T&G F		R	63	
E135	6.0				1		6.00	T&G F		R	27	narrow (counted as waste)
E136	2.9				1		0.25	T&G F		R	25	
E136	6.0				1		0.25	T&G F		R	28	
E137	2.9				1		0.33	T&G F		R	25	
E137	6.0				1		0.29	T&G F		R	28	
E138	6.0				1		0.08	T&G F		R	28	
E139	6.0				1		0.25	T&G F		R	31	
E140	6.0				1		0.17	T&G F		R	33	
E141	2.8				1	MR	0.58	T&G F		R	26	
E141	6.0				1		0.21	T&G F		R	28	
E142	6.0				1		0.33	T&G F		R	31	
E143	2.8				1		1.25	T&G F		R	23	
E143	6.0				1		0.42	T&G F		R	28	
E144	6.0				1		0.25	T&G F		R	31	
E145	6.0				1		0.58	T&G F		R	29	
E147	2.1				1		0.21	T&G F		R	23	
E149	14.0				1		0.92	BS		R	67	
E149	2.1				1		0.08	T&G F		R	23	
E150	14.0				1	N	1.25	BS		R	64	
E150	2.1				1		0.08	T&G F		R	23	
E151	16.5				1	MR	3.58	BS		R	64	
E151	2.1				1		0.33	T&G F		R	19	
E152	2.1				1		0.08	T&G F		R	17	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
E152	6.0				1		0.17	T&G F		R	30	3-5/8 in. width
E153	2.1				1		0.17	T&G F		R	26	
E153	6.0				1		0.25	T&G F		R	28	
E154	2.1				1		0.17	T&G F		R	26	
E154	6.0				1		0.25	T&G F		R	29	
E155	2.1				1	N	0.08	T&G F		R	17	
E155	6.0				1		0.17	T&G F		R	28	
E156	2.1				1		0.33	T&G F		R	23	
E156	6.0				1		0.50	T&G F		R	28	
E157	6.0				1		0.17	T&G F		R	29	
E158	6.0				1		0.17	T&G F		R	31	
E159	6.0				1		0.17	T&G F		R	37	
E160	6.0				1		0.17	T&G F		R	37	
E161	6.0				1		0.17	T&G F		R	37	
E162	6.0				1		0.33	T&G F		R	30	
E163	6.0				1		0.42	T&G F		R	37	
E164	15.5				1		1.92	BS		R	64	
E165	14.0				1		1.50	BS		R	67	
E166	16.0				1	MR	2.83	BS		R	64	
E167	14.0				1		0.33	BS		R	64	
E168	12.0				1		1.50	BS		R	64	
E169	12.0				1		0.96	BS		R	68	
E171	3.0				1		0.13	T&G F		R	70	
E173	3.0				1		0.38	T&G F		R	69	
E174	3.0				1		0.17	T&G F		R	66	
E175	2.9				1		0.83	T&G F		R	70	
E176	3.0				1		1.42	T&G F		R	63	
E177	3.0				1		0.33	T&G F		R	20	
E178	3.0				1		0.50	T&G F		R	20	
E179	3.0				1		1.33	T&G F		R	63	
E180	3.0				1		0.42	T&G F		R	69	
E181	3.0	1 > 2			1		1.42	T&G F		R	66	
E182	3.0				1		0.13	T&G F		R	23	
E182	6.0				1		0.17	T&G F		R	37	
E183	4.1	1			1	N2	0.50	T&G F		R	31	
E184	3.1				1		0.33	T&G F		R	19	
E184	4.1			BRD	1		4.08		Y	R	31	split @CL

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
E185	3.0				1		1.17	T&G F		R	18	3-1/2 in. width
E185	3.0				1		0.13	T&G F		R	25	
E186	3.0				1		0.13	T&G F		R	69	KNOT
E187	3.0				1		0.21	T&G F		R	70	
E188	3.0	2 > 3			1		0.25	T&G F		R	69	
E190	3.0				1		0.25	T&G F		R	69	
E190	1.5				1		1.54		Y	R	17	short
E191	3.0				1		0.33	T&G F		R	63	
E193	3.0				1	MR	0.29	T&G F		R	20	
E194	3.0				1		0.21	T&G F		R	20	
E195	3.0				1		0.63	T&G F		R	69	
E196	3.0				1		0.58	T&G F		R	65	
E197	6.0				1		3.50	T&G F		R	29	square cut-out
E198	2.0				1	N			Y	R	70	split
E199					1				Y	R	70	split
E200	2.1				1		2.08		Y	R	70	narrow, split
E201	3.0				1	MR	0.42	T&G F		R	23	
E201					1				Y	R	63	3-7/8 in. narrow
E202	3.0				1		3.00		Y	R	69	hole
E203	3.0				1		3.00		Y	R	20	hole cut-out
E204	8.5				1	MR	1.08	VGC		R	15	
E205	8.4	1		BRD	1	MR	0.83	VGC		R	62	
E206	8.4	1			1	MR	0.42	VGC		R	62	
E207	8.4				1		0.25	VGC		R	62	
E208	8.4			BRD	1		0.25	T&G F		R	32	
E209	8.4			SRD	1	MR	0.92	VGC		R	15	
E210	8.4				1		2.50	T&G F		R	15	
E211	3.0				1		0.29	T&G F		R	23	
E212	5.3				1		0.33	T&G F		R	34	
E213	3.0				1		0.13	T&G F		R	25	
E213	5.3	1			1		0.33	T&G F		R	34	
E214	3.0				1		0.25	T&G F		R	25	
E214	5.3				1		0.38	T&G F		R	36	
E215	5.3	1			1		0.17	T&G F		R	34	checking light
E216	3.0				1		0.25	T&G F		R	26	
E216	5.3				1		0.50	T&G F		R	36	
E217	3.0				1		0.42	T&G F		R	25	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
E217	5.3				1		0.33	T&G F		R	30	
E218	5.3				1		0.50	T&G F		R	34	
E219	5.3				1		0.38	T&G F		R	30	
E22	3.0				1		0.17	T&G F		R	24	
E220	5.3				1	MR	0.42	T&G F		R	35	
E221	5.3				1		5.33	T&G F	Y	R	36	splitting heavy
E221	5.3				1		0.17	T&G F		R	35	
E222	5.3				1	MR	0.29	T&G F		R	35	
Exx	15.1				1	MR	0.63	BS		R	13	xx denotes lost numeric code
N1	15.5				1	MR	1.38	BS		R	14	
N2	3.7				1		0.17	T&G F		R	21	
N3	3.7				1		0.33	T&G F		R	63	
N4	3.7				1		0.21	T&G F		R	61	
N5	3.7				1		0.21	T&G F		R	21	
N6	3.3				1		0.33	T&G F		R	21	
N7	3.7	1			1		0.33	T&G F		R	21	
N8	3.8				1		0.21	T&G F		R	31	
N9	3.7				1		0.25	T&G F		R	33	
N10	3.7				1		0.29	T&G F		R	33	
N11	3.7				1	MR	0.42	T&G F		R	31	
N12	3.8				1		0.17	T&G F		R	32	
N13	3.8	1			1		0.21	T&G F		R	31	
N14	10.0			BRD	1		0.38	VGC		R	67	decay @edge
N15	10.0				1	MR	1.17	VGC		R	15	
N16	10.0				1		1.17	VGC		R	67	
N17	10.0				1		2.00	VGC		R	68	
N20	9.9				1	MR N3	0.75	VGC		R	15	
N22	6.7				1		1.50	T&G F		R	29	bevel 2-ends
N24	3.8				1		0.92	T&G F		R	61	bevel 1-end
N25	4.8				1		0.92	T&G F		R	38	
N26	5.8				1		0.83	T&G F		R	30	bevel 1-end
N27	13.1				1		0.83	BS		R	68	
N28	9.7				1		1.17	VGC		R	62	
N29	6.3				1		0.92	T&G F		R	34	bevel 1-end
N30	7.2				1		0.25	T&G F		R	34	
N31	7.7				1		0.21	VGC		R	15	
N32	5.2				1		1.17	T&G F		R	33	bevel 1-end

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
N33	3.2			BRD	1		0.29	T&G F		R	63	decay @end
N34	12.0				1		0.25	BS		R	64	
N36	3.3				1		0.83	T&G F		R	71	from N72 cut-out piece
N37	3.3			mildew	1	N	0.71	T&G F		R	21	
N38	3.3				1		0.38	T&G F		R	21	
N39	3.2				1		0.17	T&G F		R	19	
N39	3.0				1	MR	1.38	T&G F		R	21	
N40	3.3				1		0.29	T&G F		R	21	
N41	3.3				1		3.25		Y	R	71	split
N42	3.3				1	MR	0.33	T&G F		R	32	
N43	3.3				1		0.67	T&G F		R	71	
N44	3.3				1	MR	0.50	T&G F		R	22	
N45	15.1				1		0.33	BS		R	68	
N46	9.5				1		1.13	VGC		R	15	bevel _-end
N47	2.7				1		0.92	T&G F		R	70	bevel 1-end
N48	3.5				1		0.75	T&G F		R	70	bevel 1-end
N49	4.8				1		1.00	T&G F		R	29	
N50	5.8				1		1.00	T&G F		R	29	
N51	4.0				1		0.75	T&G F		R	28	bevel 1-end
N52	7.7			BRD	1		0.83	T&G F		R	32	bevel 1-end
N53	9.8				1		0.42	VGC		R	68	
N55	3.3				1		0.42	T&G F		R	69	
N56	3.3				1	N	0.92	T&G F		R	69	
N57	3.3				1		0.29	T&G F		R	70	
N58	3.3				1		1.00	T&G F		R	63	
N59	3.3				1		0.29	T&G F		R	71	
N60	3.3				1		0.21	T&G F		R	18	
N61	3.3				1		0.25	T&G F		R	63	
N61	2.7				1		2.71		Y	R	26	split @CL, bevel _-end
N62	3.3				1		0.38	T&G F		R	63	
N63	9.9				1	MR	0.54	VGC		R	62	
N64	9.9				1		0.71	VGC		R	67	
N65	9.9				1	MR	0.75	VGC		R	67	
N66	9.9				1		0.92	VGC		R	15	
N67	9.9				1	MR	0.83	VGC		R	15	
N68	9.9				1		0.33	VGC		R	15	
N69	9.9				1		1.33	VGC		R	67	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
N70	9.9				1		1.00	VGC		R	62	
N71	5.0				1		0.83	T&G F		R	33	bevel 1-end
N72	3.7				1		1.83	T&G F		R	61	from N36 cut-out piece
N73	3.7				1		0.63	T&G F		R	71	
N74	3.7				1		0.29	T&G F		R	61	
N75	3.7				1		0.63	T&G F		R	71	
N76	3.2				1		0.25	T&G F		R	25	
N76	3.7				1		0.46	T&G F		R	71	
N77	3.8				1		0.25	T&G F		R	35	
N78	3.8				1		0.42	T&G F		R	63	
N79	3.8				1		0.67	T&G F		R	61	
N80	3.7				1	MR	0.21	T&G F		R	69	
N81	3.7				1	MR	1.33	T&G F		R	70	
N82	3.7				1		0.25	T&G F		R	71	
N83	3.8				1		0.38	T&G F		R	63	
N93	3.0				1		3.00		Y	R	18	split @CL
N192	6.1				1		0.75	T&G F		R	31	
S1	9.8				1		0.58	VGC		R	62	3 1″holes
S3?	8.9			BRD	1		5.25	T&G F		R	62	portion hole
S4	4.3				1		0.42	T&G F		R	33	
S5	4.3	1			1	MR	0.29	T&G F		R	32	
S6	4.3	1			1	MR	0.58	T&G F		R	32	
S7	4.2	2			1	MR	0.63	T&G F		R	36	cut-outs
S8	4.3	1			1		0.75	T&G F		R	32	hole @edge
S9	4.3				1	MR	0.42	T&G F		R	32	hole cut-out
S10	4.3				1	MR	0.42	T&G F		R	32	
S11	4.3				1		0.25	T&G F		R	33	
S12	4.3				1	MR	0.25	T&G F		R	33	
S13	4.3				1		0.33	T&G F		R	31	
S14	4.3				1		0.42	T&G F		R	28	
S15	4.3				1		0.42	T&G F		R	36	splitting heavy
S16	4.3	1			1	MR	0.50	T&G F		R	28	
S17	4.3				1		0.33	T&G F		R	33	
S18	4.3		C		1		0.46	T&G F		R	35	
S19	4.3	3			1	MR	0.50	T&G F		R	32	
S20	4.3				1		4.25		Y	R	29	splitting @CL
S21	4.4				1		1.58	T&G F		R	35	bevel 2-ends

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
S22	6.3				1		1.75	T&G F		R	29	bevel 2-ends
S23	2.7				1	MR	0.96	T&G F		R	24	
S24	3.7		C		1	MR	1.04	T&G F		R	71	bevel 1-end
S25	4.8				1		1.33	T&G F		R	28	
S26	5.8				1	MR	0.96	T&G F		R	35	bevel 1-end
S27	5.6				1		0.96	T&G F		R	33	bevel 1-end
S28	11.5				1		5.50	T&G F		R	68	
S31	13.3				1	MR	2.08	T&G F		R	15	
S32	12.6			SR	1	MR	1.08	BS		R	68	SR? light
S33	12.0			BRD	1		4.00	T&G F		R	68	decaty 3-places
S34	15.6				1	MR	0.79	BS		R	14	
S35	11.4				1		7.67	T&G F		R	13	cut-out
S36	3.2				1	MR N	0.96	T&G F		R	21	
S37	3.2				1	MR	0.42	T&G F		R	21	
S38	3.2				1	MR	0.46	T&G F		R	71	
S39	3.2				1	MR	0.50	T&G F		R	16	
S40	3.2				1	MR	0.50	T&G F		R	21	
S41	3.2				1	MR	0.58	T&G F		R	22	
S42	3.2				1		0.46	T&G F		R	16	
S43	3.2				1	MR	0.54	T&G F		R	71	
S44	3.2				1	MR	0.63	T&G F		R	61	
S45	3.2				1	MR	0.50	T&G F		R	16	
S46	15.7	2 > 3			1	MR	2.79	BS		R	14	
S47	10.2				1	MR	3.00	VGC		R	62	bevel 1-end
S48	15.6	2			1	MR	1.50	BS		R	14	
S49	15.6				1	MR	0.71	BS		R	14	
S50	12.7	1		BRD	1	MR	1.83	BS		R	68	
S51	15.7	2			1	MR	2.33	BS		R	67	
S52	15.6			BRD	1		1.33	BS		R	68	decay multiple spots
S52	2.7				1		2.67		Y	R	26	
S53	2.7				1		2.71		Y	R	24	bevel _-end
S54	3.7				1		0.92	T&G F		R	61	bevel 1-end
S55	4.8				1		1.00	T&G F		R	29	
S56	5.8				1		1.00	T&G F		R	31	bevel 1-end
S57	7.9				1	MR	1.00	VGC		R	62	bevel 1-end
S57	3.0				1		3.00		Y	R	23	narrow
S58	3.0				1	MR	0.50	T&G F		R	19	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
S58	9.9			BRD	1	MR	0.75	VGC		R	15	
S59	12.8				1	MR	1.17	BS		R	13	bevel 1-end
S59	3.0				1	N	0.46	T&G F		R	19	
S60	3.4				1	MR	0.42	T&G F		R	15	single board<
S60	3.0				1		0.54	T&G F		R	19	
S61	3.0				1		0.38	T&G F		R	19	
S61	3.0				1	MR	0.83	T&G F		R	66	
S62	3.0				1		0.46	T&G F		R	23	
S62	3.0				1	MR	0.67	T&G F		R	69	
S63	3.0				1		1.00	T&G F		R	19	
S63					1	MR			Y	R	70	split
S64	3.0				1		3.00		Y	R	69	narrow
S65	3.0				1	MR	0.38	T&G F		R	21	
S65	3.0				1	MR	0.33	T&G F		R	23	
S66	3.0				1	MR	0.50	T&G F		R	25	
S67	3.0				1	MR	0.58	T&G F		R	23	
S67	3.0				1	MR	0.71	T&G F		R	61	
S68	3.0				1	MR	1.17	T&G F		R	22	
S69	3.0				1	MR N	0.33	T&G F		R	22	
S70	3.0				1	MR	0.38	T&G F		R	22	
S71	3.0				1	MR	0.42	T&G F		R	18	
S72	3.1				1	MR	0.46	T&G F		R	15	single board<
S73	3.4				1		0.58	T&G F		R	61	
S74	3.4				1	MR	0.38	T&G F		R	71	
S75	3.4				1	N	0.50	T&G F		R	61	
S76	3.4				1	MR	0.42	T&G F		R	61	
S77	3.5				1		0.42	T&G F		R	24	
S78	3.4				1		0.46	T&G F		R	71	
S79	3.4				1		0.50	T&G F		R	71	
S80	3.4				1		0.50	T&G F		R	71	
S81	3.4				1		0.54	T&G F		R	61	
S82	3.4				1	MR	1.00	T&G F		R	71	
S83	3.4				1		1.00	T&G F		R	71	
S84	1.5				1		1.54		Y	R	18	
W1	5.4				1		0.42	T&G F		R	36	
W2	5.3				1		0.17	T&G F		R	37	
W3	5.4				1		0.17	T&G F		R	34	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
W4	5.4				1		0.33	T&G F		R	27	
W5	5.3				1		0.17	T&G F		R	27	
W7	5.3	1			1		0.67	T&G F		R	27	
W8	5.3				1		0.21	T&G F		R	27	
W9	5.3				1		0.25	T&G F		R	37	
W10	5.3				1		0.50	T&G F		R	27	
W11	5.3				1		0.25	T&G F		R	37	
W12	5.3				1		0.33	T&G F		R	30	
W14	5.3				1	MR	0.54	T&G F		R	36	
W15	1.3				1		1.25		Y	R	25	short
W17	11.3				1	MR	2.67	BS		R	13	hole cut-out
W17	18.0				1	MR N split	3.96	BS		R	14	split
W19	15.4				1	MR	0.67	BS		R	68	
W20	17.4				1	MR	0.50	BS		R	67	
W21	4.7				1		1.58	T&G F		R	33	bevel 2-ends
W21	6.0				1		0.25	T&G F		R	35	
W22	2.0				1		0.08	T&G F		R	25	
W22	6.0				1		0.25	T&G F		R	36	
W23	6.0				1		0.33	T&G F		R	34	
W24	6.0				1		0.21	T&G F		R	30	
W25	6.0				1		0.25	T&G F		R	29	
W26	6.0				1		0.25	T&G F		R	35	
W27	6.0				1		0.25	T&G F		R	32	
W28	6.0				1		0.58	T&G F		R	31	
W29	6.0				1		0.67	T&G F		R	30	
W30	6.0	1			1	MR	0.58	T&G F		R	32	
W31	6.0		C		1		0.25	T&G F		R	31	
W32	6.0				1		0.33	T&G F		R	30	
W33	16.0				1		2.25	BS		R	68	hole cut-out
W34	17.0				1	MR	1.54	BS		R	13	hole-side
W35	17.0				1	MR	0.42	BS		R	14	(no reman-class, assigned BS by JD
W36	3.0				1		0.33	T&G F		R	66	4 in. width
W37	3.0				1		0.25	T&G F		R	21	
W38	3.0				1		0.42	T&G F		R	61	
W39	3.1				1		0.29	T&G F		R	18	
W40	3.1				1		0.17	T&G F		R	16	
W41	3.1				1		0.79	T&G F		R	18	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
W42	3.0				1		0.25	T&G F		R	20	
W43	3.1				1		0.29	T&G F		R	17	
W43	3.0				1		0.38	T&G F		R	20	
W44	3.0				1		0.29	T&G F		R	19	
W44	3.1				1		0.25	T&G F		R	26	
W45	3.1				1		0.33	T&G F		R	21	
W46	3.1				1		0.21	T&G F		R	17	
W46	3.0				1	MR	0.29	T&G F		R	18	
W47	3.0	1			1		0.33	T&G F		R	19	
W47	3.0		C		1		1.08	T&G F		R	19	
W48	15.0				1		0.67	BS		R	67	
W49	3.0				1		0.38	T&G F		R	26	
W49	4.5				1		0.42	T&G F		R	28	
W50	3.0				1		1.00	T&G F		R	26	
W51	17.5				1	MR	1.88	BS		R	14	
W52	6.0				1		0.33	T&G F		R	30	narrow, 3-1/8 in. width
W54	3.3				1		0.29	T&G F		R	16	
W54	6.0				1		0.25	T&G F		R	34	
W55	6.0				1		0.46	T&G F		R	27	
W56	6.0				1		0.50	T&G F		R	34	
W58	6.0				1		0.17	T&G F		R	30	
W58	6.0				1		0.21	T&G F		R	30	
W59	6.0				1		0.25	T&G F		R	34	
W60	6.0	2			1		0.83	T&G F		R	30	
W61	6.0				1		0.29	T&G F		R	34	
W62	6.0				1		0.42	T&G F		R	30	
W63	6.0				1	MR	0.58	T&G F		R	36	
W65	15.5				1		0.88	BS		R	67	
W66	15.0				1	MR	1.42	BS		R	14	
W68	17.0				1	MR	1.17	BS		R	67	
W69	6.0				1		0.58	T&G F		R	27	
W69	5.3	2 > 3			1		1.17	T&G F		R	27	
W70	6.0				1		0.54	T&G F		R	27	
W71	6.0				1		0.25	T&G F		R	33	
W72	6.0				1	N3	0.33	T&G F		R	35	
W74	6.0				1		0.67	T&G F		R	27	
W75	6.0				1		0.54	T&G F		R	27	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
W75	6.0				1		0.25	T&G F		R	32	
W76	6.0	1			1		0.29	T&G F		R	27	
W77	6.0				1		1.00	T&G F		R	35	
W78	2.0				1		0.13	T&G F		R	17	short
W79	6.0				1		0.33	T&G F		R	27	
W81	16.0	1			1	STP	1.75	BS		R	13	
W82	14.1				1		0.96	BS		R	67	
W83	3.0				1		0.33	T&G F		R	66	3-7/8 in. width
W84	3.0				1		0.21	T&G F		R	16	
W85	3.0				1		0.83	T&G F		R	61	
W86	3.0				1		0.21	T&G F		R	22	
W87	3.0				1		0.42	T&G F		R	63	
W88	3.1				1		0.13	T&G F		R	63	
W89	3.0				1		0.29	T&G F		R	24	
W89	3.0				1	MR	0.54	T&G F		R	25	
W92	3.0				1		0.46	T&G F		R	26	
W93	3.0			mildew	1		0.29	T&G F		R	26	
W94	3.1				1		0.38	T&G F		R	17	
W94	3.0				1		3.00		Y	R	20	split @CL
W95	12.1				1	MR N2	0.83	BS		R	14	
W95	3.0				1		0.46	T&G F		R	23	
W96	10.6	1			1		0.67	VGC		R	67	
W97	6.0				1		0.25	T&G F		R	30	
W98	6.0	1			1		0.50	T&G F		R	30	
W99	3.0				1		0.58	T&G F		R	19	
W99	6.1				1		0.33	T&G F		R	35	
W100	6.0				1		0.38	T&G F		R	30	
W101	6.0				1		0.25	T&G F		R	36	
W102	6.0				1		0.38	T&G F		R	30	
W103	6.0				1	N	0.25	T&G F		R	28	end grain N
W104	6.1				1		0.54	T&G F		R	34	
W105	6.1	1			1		0.33	T&G F		R	35	
W105	2.0				1	N	2.00		Y	R	25	short
W106	6.0				1		0.58	T&G F		R	27	
W106	6.0				1		0.25	T&G F		R	28	
W107	6.0				1		0.38	T&G F		R	29	
W108	6.0				1		0.96	T&G F		R	27	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
W110					1		0.42	T&G F		R	27	
W111	4.1				1	N	0.75	T&G F		R	36	
W112	2.1				1	STP3	2.13		Y	R	18	3-7/8 in. width
W113	2.8				1		0.67	T&G F		R	61	
W115	2.9				1	MR	0.46	T&G F		R	22	
W116	2.9				1	MR	0.46	T&G F		R	22	
W118	2.0				1		0.17	T&G F		R	17	
W119	2.8	weathered			1		0.58	T&G F		R	20	weathered
W120	3.0				1		0.29	T&G F		R	22	3-3/4 in. width
W121	2.9				1		0.54	T&G F		R	26	
W121	3.0				1		0.50	T&G F		R	65	
W122	2.9				1		0.21	T&G F		R	26	
W122	3.0				1		0.50	T&G F		R	65	
W123	3.0				1		0.25	T&G F		R	21	
W124	3.0	1 > 2			1		0.33	T&G F		R	22	
W125	3.0				1		0.29	T&G F		R	22	
W126	2.9				1	N	0.29	T&G F		R	17	
W126	3.0				1		0.17	T&G F		R	24	
W127	3.0				1		0.29	T&G F		R	20	
W127	2.9				1		0.13	T&G F		R	23	
W128	3.0				1		0.38	T&G F		R	16	
W128	3.0				1		0.17	T&G F		R	19	
W129	3.0				1		0.42	T&G F		R	65	
W130	3.0				1		0.67	T&G F		R	19	
W131	3.0				1		0.21	T&G F		R	26	
W131	9.0				1		3.33	T&G F		R	62	cut-out
W132	6.9				1		0.33	VGC		R	67	
W133	14.2				1	MR	0.88	BS		R	13	
W134	16.3	2			1	MR	2.58	T&G F		R	14	
W134	3.0				1		0.21	T&G F		R	19	
W135	12.1				1	MR	1.67	T&G F		R	15	
W136	14.2				1	MR N2	0.96	BS		R	64	
W137	4.9				1		0.83	T&G F		R	37	bevel
W139	4.1				1	MR N	0.75	T&G F		R	36	
W140	3.3				1		0.29	T&G F		R	16	3-5/8 in. width
W140	2.9				1	MR	0.67	T&G F		R	19	
W141	3.3	1			1		0.21	T&G F		R	63	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
W142	3.3				1		0.29	T&G F		R	65	
W143	3.3				1		0.21	T&G F		R	63	
W144	3.2				1		0.17	T&G F		R	21	
W145	3.3				1		0.17	T&G F		R	21	
W146	3.3				1		0.21	T&G F		R	21	
W147	3.3				1		1.17	T&G F		R	63	
W148	3.3				1		0.25	T&G F		R	16	
W149	3.3	1			1		0.42	T&G F		R	66	
W150	3.3				1		0.21	T&G F		R	71	
W151	12.7				1		1.25	VGC		R	67	
W152	3.1				1		0.25	T&G F		R	17	
W152	3.0				1	N	3.00		Y	R	65	3-3/4 in. narrow
W153	3.0				1		0.25	T&G F		R	24	
W154	3.0				1		0.42	T&G F		R	18	
W154	3.1				1		0.29	T&G F		R	25	
W156	3.0				1		0.25	T&G F		R	18	
W156	3.1				1		0.25	T&G F		R	26	
W157	3.0				1		0.50	T&G F		R	63	
W159	3.0	weathered back			1		0.46	T&G F		R	16	weathered back
W161A	3.0				1		0.46	T&G F		R	18	
W161B	3.0				1		0.38	T&G F		R	18	
W162	3.0				1		0.54	T&G F		R	20	
W162	1.4				1		1.42		Y	R	17	short, split
W163	3.0				1		0.83	T&G F		R	65	
W163	1.5				1		1.46		Y	R	17	short
W164	7.3	1			1	MR	0.83	VGC		R	62	
W164	1.4				1		1.42		Y	R	25	short
W165	6.0				1		0.46	T&G F		R	35	3-3/4 in. width
W166	6.0				1		0.33	T&G F		R	34	
W166	1.0				1		1.00		Y	R	17	short (entered 1 for length and was
W167	6.0				1		0.25	T&G F		R	32	
W167	1.0				1		1.00		Y	R	17	short (entered 1 for length and was
W168	6.0				1		0.17	T&G F		R	34	
W168	1.0				1		1.00		Y	R	17	short (entered 1 for length and was
W169	6.0				1	MR	0.25	T&G F		R	38	
W170	6.0			mildew	1		0.25	T&G F		R	38	
W171	6.0				1		0.33	T&G F		R	31	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
W171	1.0				1		1.00		Y	R	17	short (entered 1 for length and was
W172	6.0				1		0.33	T&G F		R	33	
W172	1.4				1		1.42		Y	R	25	short
W173	6.0				1		0.33	T&G F		R	27	
W174	6.0				1		0.38	T&G F		R	29	
W175	2.2				1		0.17	T&G F		R	23	
W176	6.0				1				Y	R	32	split @CL longitudinal
W177	15.0				1		0.58	BS		R	14	
W178	6.0				1		0.58	T&G F		R	27	
W179	10.9				1		0.33	VGC		R	67	
W180	15.8		1 > 2		1	MR	1.67	BS		R	64	
W181	13.7				1		3.75	BS		R	67	hole cut-out
W182	13.8		2 > 3		1	MR N4	3.83	BS		R	64	
W184	9.0	1			1		0.58	VGC		R	62	
W185	6.2	2	BOW		1		0.67	T&G F		R	34	
W186					1		0.42	T&G F		R	32	cut-out
W188	12.1				1	STP	0.67	BS		R	13	
W189	6.1				1		1.83	T&G F		R	35	
W190	1.8				1		0.13	T&G F		R	17	
W190	6.1				1		0.67	T&G F		R	33	
W191	6.1	1			1		0.38	T&G F		R	33	
W193	6.1	1			1		0.25	T&G F		R	32	
W194	6.1				1		0.42	T&G F		R	32	
W195	1.7				1		0.17	T&G F		R	17	
W195	6.1				1	MR	0.67	T&G F		R	33	
W196	1.7				1		0.08	T&G F		R	19	
W197	5.0				1	N	0.42	T&G F		R	36	pullout from nail
W198	3.0				1		3.00		Y	R	61	hole cut-out
W199	3.1				1		0.17	T&G F		R	65	
W200	3.1				1	N	0.29	T&G F		R	24	
W203	3.1				1	MR N	0.46	T&G F		R	23	
F0104U	15.4				1	MR	2.92	BS		R	72	6 in. hole 2′ Lt end
F0SP1	15.0	1 > 2			1		3.21	BS		SP	1	
F0SP2	14.8				1		0.42	BS		SP	1	
F0SP3	6.1	2			1		2.88	T&G F		SP	1	
F0SP4	6.1	1			1		0.69	T&G F		SP	1	
F0SP5	6.1				1	MR	1.33	T&G F		SP	1	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
F0SP6	6.5				1		1.42	T&G F		SP	1	
F0SP7	9.1	1			1		1.04	VGC		SP	1	
F0SP8	9.1				1	N	0.75	VGC		SP	1	
F0SP9	14.8	1			1		2.50	BS		SP	1	
F0SP10	15.0	1			1	MR N	2.25	BS		SP	1	
F0SP11	11.7				1	MR	1.75	BS		SP	1	
F0SP12	11.8	1			1		2.33	BS		SP	1	
F01U	15.0				1	MR	0.29	BS			13	
F02U	18.0				1	MR STP	0.46	BS			13	
F03U	18.0	1			1	MR	0.38	BS			13	
F04U	17.4	1			1	MR	0.67	BS			13	
F05U	18.0				1	MR	0.83	BS			13	
F06U	10.0				1	MR	0.42	BS			13	
F07U	10.6				1	MR	1.08	BS			13	
F08U	10.0				1	MR	0.38	BS			13	
F09U	9.2				1	MR	0.50	BS			13	
F010U	5.5	1			1		0.58	T&G F			11	
F011U	5.5	1			1		3.67	T&G F			11	
F012U	5.0				1		0.33	T&G F			11	
F013U	4.0				1		0.21	T&G F			11	
F014U	6.0				1		0.46	T&G F			11	
F015U	4.0				1		0.33	T&G F			11	
F016U	5.5				1		0.79	T&G F			11	
F017U	4.6				1	MR	0.38	T&G F			11	
F018U	5.7				1		1.00	T&G F			11	bevel _-end
F019U	6.1				1	MR	0.63	T&G F			11	
F020U	6.0				1		2.29	T&G F			11	
F021U	3.0				1		3.00		Y		11	hole @CL
F022U	2.7				1		2.71		Y		11	short
F023U	2.1				1	MR	0.29	T&G F			11	
F024U	1.7				1		1.71		Y		11	short
F025U	1.7				1		1.71		Y		11	short
F026U	1.7				1		1.71		Y		11	short
F027U	1.7				1		0.17	T&G F			11	
F028U	1.7				1		1.71		Y		11	short
F029U	1.5				1		1.50		Y		12	
F030U	1.7				1		1.71		Y		12	

Piece ID	Original Length (ft)	Checking?	Warp?	Decay?	Insect?	Const & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
F031U	1.7				1		1.71		Y		12	
F032U	1.8				1		1.75		Y		12	
F033U	1.7				1		0.17	T&G F			12	
F034U	1.7				1		0.50	T&G F			12	
F035U	5.5				1		1.38	T&G F			12	
F036U	5.5			mildew	1		0.38	T&G F			12	
F037U	6.0				1						12	
F0100U	12.0				1		0.38	BS			72	fixture above 6′0 in. opening btm e
F0101U	11.0				1		4.67	BS			72	6 in. dia. Cut-out, both ends broker
F0102U	15.4				1	MR	2.33	BS			72	7 in. hole cut-out 2′ Lt end
F0103U	12.7	1 > 2			1	MR	0.83	BS			72	1 in. hole 4′4 in. Rt end
F0105U	14.0				1	MR	0.50	BS			72	
F0106U	15.5	1			1		3.42	BS			72	7 in. hole Btm edge 4′6 in. Rt end
F0107U	17.4	1			1	MR	0.67	BS			72	

Appendix C: Fort Campbell Siding Deconstruction Material Data Sheets

Piece ID	Original Length (ft)	checking	Warp	Decay?	Insect?	Constr & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
E-1-1	14.0						1.2	BS		B	35	
E-1-2	14.8	1					2.3	BS		B	10	
E-1-3	13.5						0.7	BS		B	37	
E-1-4	14.0	1					1.0	BS		B	45	
E-1-5	6.3						6.3		Y	B	33	
E-2-1	6.0	1					2.0	T&G F		B	21	
E-2-2	13.7	1					1.0	BS		B	37	
E-2-3	13.9					N	0.8	BS		B	41	
E-2-4	13.9		T				4.5	BS		B	37	
E-2-5	6.4						1.4	T&G F		B	21	
E-2-5	11.4			BRD		N	4.2	BS		B	37	
E-3-1	8.4	1				N	0.7	VGC		B	10	
E-3-2	7.4	1					2.6	T&G F		B	10	
E-3-3	8.7						1.5	VGC		B	24	
E-3-4	5.1						0.8	T&G F		B	39	
E-3-5	4.9						1.1	T&G F		B	36	
E-3-6	6.0					N	1.5	T&G F		B	35	
E-3-8	2.9						2.9		Y	B	8	split @CL
E-3-9	4.2	1				N	1.0	T&G F		B	46	
E-4-1	5.1			BRD			1.2	T&G F		B	39	
E-4-2	8.1			BRD++			1.3	T&G F		B	37	
E-4-3	11.8						2.4	BS		B	34	
E-4-4	8.1	1					0.3	VGC		B	38	
E-4-5	14.0	1	C				0.8	BS		B	5	
E-4-6	10.1						0.9	BS		B	35	
E-4-7	5.9						5.9		Y	B	39	
E-4-8	12.0	1 > 2					1.2	BS		B	32	
E-4-9	6.3		B				6.3		Y	B	32	
E-4-10	3.3						3.3		Y	B	34	
E-5-1	11.1						2.5	VGC		B	35	
E-5-2	5.9					N	0.6	T&G F		B	38	

Piece ID	Original Length (ft)	checking	Warp	Decay?	Insect?	Constr & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
E-5-3	8.0						0.5	VGC		B	40	5-1/2 in. width
E-5-4	6.0						1.0	T&G F		B	39	
E-5-6	6.0						0.8	T&G F		B	13	
E-5-7	12.0						0.6	BS		B	41	
E-5-8	12.0	1					1.8	BS		B	42	
E-5-9	9.0						1.1	VGC		B	18	
E-5-10	3.3					N	0.6	T&G F		B	46	
E-6-2	12.0			BRD			2.0	BS		B	11	
E-6-3	12.0	1 > 2					1.0	BS		B	19	
E-6-4	12.0						1.9	BS		B	32	
E-6-5	10.1	1					0.4	BS		B	38	
E-6-6	14.1	1					1.8	BS		B	10	
E-6-7	12.0	1					2.5	BS		B	33	
E-6-8	4.2	1					1.0	T&G F		B	14	
E-6-10	3.3	1 > 2	C				1.5	T&G F		B	3	
E-7-2	3.9					MR	0.6	T&G F		B	15	
E-7-3	12.1						0.9	BS		B	10	
E-7-4	10.0						0.8	BS		B	37	
E-7-5	14.0	1 > 2					1.1	BS		B	32	
E-7-6	12.1						0.8	BS		B	37	
E-7-10	3.3	2					0.8	T&G F		B	16	
E-8-1	7.0						7.0		Y	B	5	
E-8-2	4.3						1.5	T&G F		B	39	
E-8-4	4.2			BRD		N	1.3	T&G F		B	8	
E-8-5	4.2						0.4	T&G F		B	8	
E-8-5	2.2						0.7	T&G F		B	21	
E-8-6	4.5						1.5	T&G F		B	20	
E-8-6	2.2						2.2		Y	B	46	
E-8-7	8.0						6.3	T&G F		B	12	cut-out
E-8-8	10.0							VGC		B	38	
E-8-9	4.2	1					1.0	T&G F		B	2	
E-8-10	9.0						1.0	VGC		B	35	
E-9-1	3.3	1 > 3					0.8	T&G F		B	30	
E-9-2	6.4					N2	1.5	T&G F		B	20	
E-9-2	6.4						1.2	T&G F		B	41	
E-9-3	6.4	1					1.5	T&G F		B	9	
E-9-4	6.4						1.0	T&G F		B	2	

Piece ID	Original Length (ft)	checking	Warp	Decay?	Insect?	Constr & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
E-9-5	6.4						0.8	T&G F		B	37	
E-9-6	6.4	1					1.8	T&G F		B	10	
E-9-7	10.2						1.1	VGC		B	28	
E-9-8	6.3						0.5	T&G F		B	34	
E-9-9	6.4	1					1.1	T&G F		B	10	
E-9-10	7.0					N	2.0	T&G F		B	47	
E-10-1	3.3						0.8	T&G F		B	29	
E-10-2	6.4						0.7	T&G F		B	17	
E-10-3	6.4						1.1	T&G F		B	21	
E-10-4	6.4						3.2	T&G F		B	33	
E-10-4	4.2						1.6	T&G F		B	35	
E-10-5	6.4						0.6	T&G F		B	9	
E-10-6	6.4						6.4		Y	B	30	
E-10-8	12.3						0.9	BS		B	37	
E-10-10	11.1	1					1.1	BS		B	32	
E-11-1	3.3						3.3		Y	B	22	split
E-11-2	6.4						2.3	T&G F		B	30	
E-11-3	6.4						2.5	T&G F		B	12	
E-11-4	6.4						2.4	T&G F		B	36	
E-11-5	6.4	1 > 2					1.8	T&G F		B	6	
E-11-6	6.3	1					1.5	T&G F		B	10	
E-11-7	12.2	1 > 2					3.0	BS		B	37	
E-11-9	10.2	1					1.3	VGC		B	32	
E-12-2	6.4	3					2.1	T&G F		B	30	
E-12-3	6.4					N	1.1	T&G F		B	6	
E-12-4	6.4	2					2.0	T&G F		B	11	
E-12-5	6.4						2.1	T&G F		B	35	
E-12-6	6.3	1					1.1	T&G F		B	1	
E-12-7	6.3						3.3	T&G F		B	26	
E-12-8	8.0						1.3	VGC		B	18	
E-12-9	4.2	1 > 2	C				1.4	T&G F		B	4	
E-12-10	9.1						9.1		Y	B	25	est. 2′5 in. end trim
E-13-1	3.3						0.5	T&G F		B	17	
E-13-3	2.9						2.9		Y	B	23	split
E-13-3	6.4						2.2	T&G F		B	26	
E-13-4	6.4						1.4	T&G F		B	13	
E-13-5	6.4						2.1	T&G F		B	18	

Piece ID	Original Length (ft)	checking	Warp	Decay?	Insect?	Constr & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
E-13-6	6.3						2.6	T&G F		B	16	
E-13-7	12.2	1					1.6	BS		B	10	
E-13-8	4.3	1 > 2					1.3	T&G F		B	21	
E-13-9	2.2						0.7	T&G F		B	40	
E-13-10	11.2						2.0	BS		B	37	
E-14-3	6.4	2					2.8	T&G F		B	15	
E-14-3	2.8						2.8		Y	B	25	
E-14-4	6.4						1.4	T&G F		B	40	
E-14-5	6.4	1 > 2					1.2	T&G F		B	28	
E-14-6	6.3						1.4	T&G F		B	38	
E-14-7	2.3						2.3		Y	B	36	
E-14-8	14.1						1.7	BS		B	37	
E-14-9	6.4		B				1.0	T&G F		B	36	
E-14-10	6.8						6.8		Y	B	18	
E-15-1	3.3						1.4	T&G F		B	22	
E-15-3	2.9						2.9		Y	B	11	
E-15-3	2.9						2.9		Y	B	12	splitting
E-15-3	6.4			BRD		N	1.1	T&G F		B	36	
E-15-4	6.4	2					1.2	T&G F		B	16	
E-15-5	6.5						0.8	T&G F		B	28	
E-15-7	10.1	1 > 2					4.0	VGC		B	48	
E-15-8	6.3						6.3		Y	B	36	
E-15-9	10.3	1					1.0	VGC		B	37	
E-15-10	3.1	1					1.0	T&G F		B	45	
E-16-1	3.2						3.2		Y	B	19	split
E-16-3	6.4						1.0	T&G F		B	31	
E-16-4	6.3						0.7	T&G F		B	34	
E-16-5	6.3						1.1	T&G F		B	33	
E-16-6	6.1						0.7	T&G F		B	36	
E-16-7	4.1						1.8	T&G F		B	12	
E-16-8	12.2	1				MR	0.9	BS		B	16	
E-16-9	4.2	2 > 3					2.1	T&G F		B	2	
E-16-10	9.1		C				2.2	VGC		B	18	
E-17-1	7.8			BRD			2.0	T&G F		B	6	
E-17-2	10.0						2.0	VGC		B	6	
E-17-3	10.1	1	C				1.1	VGC		B	6	
E-17-4	10.0		C				1.8	VGC		B	16	

Piece ID	Original Length (ft)	checking	Warp	Decay?	Insect?	Constr & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
E-17-6	6.1						0.8	T&G F		B	41	
E-17-7	10.0						1.3	VGC		B	42	
E-17-8	6.1	1 > 2					1.3	T&G F		B	23	
E-17-9	6.8						6.8		Y	B	22	low grade
E-17-10	10.3					N	2.3	VGC		B	14	
E-18-1	15.2		C				2.4	BS		B	9	
E-18-2	13.9	2 > 3					4.1	BS		B	16	
E-18-3	7.8						1.2	VGC		B	18	
E-18-4	8.2	1					0.9	T&G F		B	2	
E-18-5	13.9						3.8	BS		B	3	
E-18-6	11.9	1					3.6	VGC		B	11	
E-18-7	4.3	2					1.8	T&G F		B	5	
E-18-8	11.1					N2	1.3	BS		B	11	
E-19-1	9.1	1	C				1.3	VGC		B	20	
E-19-2	11.0						3.0	VGC		B	19	
E-19-3	14.0	1					0.4	BS		B	9	
E-19-4	15.9					MR	3.0	BS		B	7	
E-19-5	12.0	1					2.1	BS		B	11	
E-19-6	12.8	1	C				3.5	BS		B	4	
E-19-7	10.3		C				1.5	BS		B	1	
E-20-2	14.1						4.4	BS		B	11	
E-20-2	6.4	2					1.7	T&G F		B	29	
E-20-2	4.0		C				2.1	T&G F		B	30	
E-20-4	10.1	2		BRD			2.7	VGC		B	5	
E-20-5	12.0					N	1.1	BS		B	11	
E-20-6	7.9					N	1.7	BS		B	4	
E-20-7	8.0						0.8	T&G F		B	2	
E-20-8	15.9	1 > 2					1.2	BS		B	5	
E-20-9	13.3	1					1.7	BS		B	12	
E-21-1	12.1	1					2.3	BS		B	28	
E-21-1	3.3					Screw	1.0	T&G F		B	48	
E-21-2	5.9					N	0.8	T&G F		B	24	
E-21-3	6.0	1					0.8	T&G F		B	5	
E-21-4	16.1			BRD		N	0.6	BS		B	7	
E-21-5	13.9			BRD			2.8	BS		B	7	
E-21-6	18.0	1 > 2					5.5	BS		B	23	
E-21-7	12.0	1					1.6	VGC		B	24	

Piece ID	Original Length (ft)	checking	Warp	Decay?	Insect?	Constr & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
E-21-8	3.3						3.3		Y	B	42	
E-22-1	11.1						1.8	VGC		B	3	
E-22-2	14.1	1 > 2					3.2	BS		B	23	
E-22-3	16.0	2					1.1	BS		B	15	
E-22-4	13.9						13.9		Y	B	25	splitting heavy
E-22-5	4.0	1					1.4	T&G F		B	21	
E-22-6	6.0						2.6	T&G F		B	25	
E-22-7	14.1	1					1.7	BS		B	14	
E-22-8	11.2	2		BRD			1.3	BS		B	9	
E-23-1	13.2						2.8	BS		B	15	
E-23-3	14.0	2					1.5	BS		B	12	
E-23-3	12.0						4.8	VGC		B	20	
E-23-4	11.9						2.6	VGC		B	25	
E-23-5	12.0						1.6	BS		B	23	
E-23-6	6.2			BRD			1.2	T&G F		B	6	
E-23-7	8.0						1.0	T&G F		B	3	
E-23-8	5.2	1 > 2		BRD			1.8	T&G F		B	19	
E-24-1	11.1						11.1		Y	B	22	split, cut-out
E-24-2	14.1			BRD			8.3	T&G F		B	7	cut-out
E-24-3	12.0	2					12.0		Y	B	14	splitting
E-24-4	6.1		C				2.0	T&G F		B	25	
E-24-6	14.0	1 > 2	C				1.2	BS		B	16	
E-24-7	10.2						0.7	BS		B	10	cut-out
E-24-8	9.1						1.5	VGC		B	11	
E-25-1	3.3						0.8	T&G F		B	15	
E-25-2	6.4						3.0	T&G F		B	43	
E-25-3	6.4						1.3	T&G F		B	19	
E-25-4	6.4						1.1	T&G F		B	7	
E-25-5	6.4			BRD			1.7	T&G F		B	4	
E-25-6	6.3						1.8	T&G F		B	13	
E-25-7	2.2	1 > 2		BRD			0.6	T&G F		B	40	
E-25-8	9.5	1					1.3	T&G F		B	20	
E-25-9	6.4	1					0.8	T&G F		B	17	
E-25-10	3.3					N	2.4	T&G F		B	22	
E-26-2	6.4						2.0	T&G F		B	41	
E-26-3	6.4	1					0.9	T&G F		B	26	
E-26-3	3.5						0.7	T&G F		B	41	

Piece ID	Original Length (ft)	checking	Warp	Decay?	Insect?	Constr & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
E-26-4	6.3	2 > 3	C				6.3		Y	B	21	
E-26-5	6.4		C				1.0	T&G F		B	24	
E-26-6	6.3		C				0.8	T&G F		B	24	
E-26-7	6.2						0.8	T&G F		B	22	
E-26-8	10.3	1 > 2					1.7	VGC		B	22	
E-26-9	6.4	1 > 2					2.0	T&G F		B	19	
E-26-10	3.3						0.8	T&G F		B	15	
E-26-10	3.3						0.8	T&G F		B	44	
E-27-1	3.3	1					0.9	T&G F		B	45	
E-27-2	6.4						0.8	T&G F		B	40	
E-27-3	6.4						2.0	T&G F		B	26	
E-27-4	6.4						2.0	T&G F		B	17	
E-27-6	6.3	1					0.1	T&G F		B	28	
E-27-7	8.2	1 > 2					4.4	T&G F		B	37	
E-27-8	8.2	1					0.8	VGC		B	24	
E-27-9	6.4	1					1.3	T&G F		B	21	
E-27-10	3.3			BRD			1.0	T&G F		B	39	
E-28-1	3.3						1.5	T&G F		B	17	
E-28-3	6.4	1					1.3	T&G F		B	28	
E-28-4	6.3						1.7	T&G F		B	4	
E-28-5	6.4	1					1.1	T&G F		B	21	
E-28-6	6.3						4.3	T&G F		B	48	
E-28-7	10.2	1					1.0	BS		B	15	
E-28-8	6.3						0.8	T&G F		B	39	
E-28-9	6.4						6.4		Y	B	22	
E-28-10	3.0						3.0		Y	B	39	
E-29-3	6.4						0.8	T&G F		B	31	
E-29-4	6.4	1					1.0	T&G F		B	14	
E-29-5	6.4	1 > 2					3.6	T&G F		B	46	
E-29-6	6.3		C				1.3	T&G F		B	21	
E-29-7	4.2	1 > 2					2.3	T&G F		B	21	
E-29-9	6.3	1					1.3	T&G F		B	42	
E-29-10	3.3						1.0	T&G F		B	23	
E-29-10	3.3						0.7	T&G F		B	32	
E-30-2	6.4						1.6	T&G F		B	38	
E-30-3	6.4						1.1	T&G F		B	36	
E-30-4	6.4	1					0.5	T&G F		B	47	

Piece ID	Original Length (ft)	checking	Warp	Decay?	Insect?	Constr & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
E-30-5	6.4						1.3	T&G F		B	32	
E-30-6	6.4						2.3	T&G F		B	29	
E-30-7	8.2	1					1.0	VGC		B	13	
E-30-8	8.2						0.6	VGC		B	31	
E-30-9	6.4						1.8	T&G F		B	17	
E-30-10	3.3						0.7	T&G F		B	26	
E-31-2	6.4	1 > 2					1.2	T&G F		B	20	
E-31-3	6.4	1					1.2	T&G F		B	5	
E-31-4	6.4	1					0.8	T&G F		B	47	
E-31-5	6.4									B	8	(no entries)
E-31-6	6.4						0.9	T&G F		B	32	
E-31-7	16.3	1					2.1	BS		B	43	
E-31-8	6.4		C				1.0	T&G F		B	2	
E-31-9	3.3	1		BRD			1.1	T&G F		B	24	
E-31-11	3.3	1					0.9	T&G F		B	42	
E-32-1	3.3						0.6	T&G F		B	40	
E-32-2	6.4						0.2	T&G F		B	18	
E-32-3	6.4						6.4		Y	B	32	splitting
E-32-4	6.4						0.5	T&G F		B	3	
E-32-5	6.4						1.2	T&G F		B	40	
E-32-6	6.4		C				1.4	T&G F		B	29	
E-32-7	14.1						1.6	BS		B	38	
E-32-8	2.3						0.3	T&G F		B	26	
E-32-9	6.4	1	C				1.1	T&G F		B	29	
E-32-10	3.3						1.3	T&G F		B	44	
E-33-1	3.3	1 > 2					0.7	T&G F		B	22	
E-33-2	6.2						0.5	T&G F		B	45	
E-33-4	6.3	1 > 2					2.2	T&G F		B	35	
E-33-5	3.8						3.8		Y	B	22	
E-33-7	3.8						1.0	T&G F		B	13	
E-33-8	2.1						0.5	T&G F		B	47	
E-33-9	4.2						0.7	T&G F		B	9	
E-33-10	3.6						0.3	T&G F		B	5	
E-33-11	6.3						0.8	BS		B	47	
E-33-12	3.8						3.8		Y	B	43	
E-33-13	5.8						2.5	T&G F		B	25	broken piece
E-33-14	8.3						1.2	VGC		B	41	

Piece ID	Original Length (ft)	checking	Warp	Decay?	Insect?	Constr & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
E-33-16	3.3						1.0	T&G F		B	36	
E-33-17	4.3	1					0.9	T&G F		B	30	
E-34-1	3.4						1.3	T&G F		B	41	5-1/2 in. width
E-34-3	10.0						0.4	VGC		B	7	
E-34-4	12.1	2					0.9	BS		B	15	
E-34-5	3.9						0.5	T&G F		B	28	
E-34-7	12.0	1					1.5	T&G F		B	20	5-1/2 in. width
E-34-8	10.1						4.2	VGC		B	20	5-1/2 in. width
E-34-9	7.1						0.5	T&G F		B	8	
N-1-1	8.0						3.0	T&G F		B	31	
N-2-1	9.3			BRD			2.0	VGC		B	20	
N-2-2	9.3			BRD			3.3	BS		B	5	
N-3-1	4.2			BRD			0.6	T&G F		B	44	
N-3-2	10.2						10.2		Y	B	12	splitting @CL
N-3-2	6.1			BRD			6.1		Y	B	47	
N-4-1	10.2		C	BRD		N	2.5	BS		B	4	
N-4-3	9.5	1					2.8	VGC		B	45	
N-5-1	10.2						2.0	VGC		B	27	
N-5-3	5.3						5.3		Y	B	47	splitting
N-5-4	4.7						0.9	T&G F		B	17	
N-6-1	10.2			BRD			1.4	BS		B	11	
N-6-3	10.2	1		SRD/BRD			2.1	VGC		B	11	
N-7-1	10.2	1		BRD			1.8	VGC		B	46	
N-7-3	10.3	1					3.7	VGC		B	45	
N-8-1	9.7						2.0	VGC		B	47	3/4 in. hole drilled
N-9-1	10.2			BRD			2.0	VGC		B	23	
N-9-4	4.8	1		BRD		N	0.8	T&G F		B	45	
N-10-1	10.2						1.5	VGC		B	13	
N-10-3	10.3	1					1.7	VGC		B	10	
N-11-1	5.3		C				1.4	T&G F		B	17	
N-11-3	10.2	1					1.2	VGC		B	16	
N-12-1	4.8	1 > 2					1.2	T&G F		B	19	
N-12-2	5.3			BRD			3.0	T&G F		B	18	
N-12-3	3.3			BRD			1.3	T&G F		B	31	
N-12-3	10.3			SRD			3.0	VGC		B	33	
N-13-1	10.2		C				1.3	VGC		B	20	
N-13-2	3.3	1		BRD		STP	0.8	T&G F		B	12	

Piece ID	Original Length (ft)	checking	Warp	Decay?	Insect?	Constr & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
N-14-1	10.2	1	C				2.3	VGC		B	16	
N-14-2	3.1						0.9	T&G F		B	8	
N-14-3	9.8						9.8		Y	B	4	
N-15-1	4.8	1					0.7	T&G F		B	28	
N-15-2	5.4						1.1	T&G F		B	21	
N-15-2	4.3						0.6	T&G F		B	36	
N-15-3	10.1	2 > 3		BRD			5.2	T&G F		B	14	
N-15-3	3.3						1.3	T&G F		B	25	
N-16-1	8.3			BRD		N	1.4	VGC		B	3	
N-16-3	6.8	1 > 2					2.0	T&G F		B	26	
N-17-1	2.7	1		BRD			1.2	T&G F		B	46	
N-17-2	3.1						2.6	T&G F		B	8	hole cut-out
N-17-2	6.8						1.2	T&G F		B	28	
N-17-4	9.8						2.0	VGC		B	13	
N-18-1	8.7						3.0	T&G F		B	25	
N-18-2	2.1						0.4	T&G F		B	42	
N-18-3	9.5	2				N2	1.6	VGC		B	9	
N-19-1	6.8			BRD			1.4	T&G F		B	36	
N-19-2	9.6			BRD			1.6	VGC		B	4	
N-19-2	6.0						1.2	T&G F		B	17	dark discoloration
N-19-3	6.8						1.9	T&G F		B	36	
N-20-1	8.7						0.8	VGC		B	38	
N-20-2	4.5						1.0	T&G F		B	34	
N-20-3	3.2	2				N	0.8	T&G F		B	36	
N-20-3	6.6						1.4	T&G F		B	42	
N-21-2	6.4						0.6	T&G F		B	28	
N-21-3	6.9	1					1.1	T&G F		B	17	
N-21-7	9.9			BRD			2.9	VGC		B	1	
N-22-1	9.8			B			2.7	VGC		B	23	
N-22-2	6.7						1.9	T&G F		B	40	
N-22-3	10.3	2		BRD			2.7	VGC		B	16	
N-23-1	8.8	1 > 2		BRD			1.3	VGC		B	5	
N-23-3	10.3						1.1	VGC		B	10	
N-24-1	4.7					N	2.1	T&G F		B	41	
N-24-2	5.4						0.5	T&G F		B	6	
N-24-3	6.3	1					1.1	T&G F		B	4	
N-24-4	10.2	1		BRD			2.0	VGC		B	47	

Piece ID	Original Length (ft)	checking	Warp	Decay?	Insect?	Constr & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
N-25-2	4.9	1					0.8	T&G F		B	2	
N-25-3	3.2	1 > 2					0.7	T&G F		B	6	
N-25-4	5.5	1					0.5	T&G F		B	12	
N-25-4	6.8	1 > 2					1.6	T&G F		B	47	
N-25-5	4.8	1 > 2					0.6	T&G F		B	38	
N-26-1	8.8	2	C				3.3	T&G F		B	5	
N-26-2	7.3	1					1.0	T&G F		B	17	
N-27-1	8.0						1.1	VGC		B	19	
N-27-2	6.6						0.7	T&G F		B	28	
N-27-3	5.4		C				2.5	T&G F		B	26	
N-27-4	4.8						0.5	T&G F		B	12	
N-28-1	4.8	1					1.1	T&G F		B	44	
N-28-2	4.0						0.2	T&G F		B	4	
N-28-3	2.9						0.3	T&G F		B	40	
N-28-5	10.3	1		BRD			2.5	VGC		B	31	
N-29-1	9.8			BRD			2.5	VGC		B	34	
N-29-2	6.7	1					0.9	T&G F		B	1	
N-29-3	10.3					N2	2.8	VGC		B	40	
N-30-1	8.7			BRD			1.3	VGC		B	40	
N-30-2	4.3							T&G F		B	14	
N-30-3	3.4	1				N	1.5	T&G F		B	44	
N-30-4	5.4						0.7	T&G F		B	43	
N-30-4	4.8						0.5	T&G F		B	44	
N-30-5	4.8	1		BRD			1.0	T&G F		B	6	
N-31-1	4.8	1	C				1.1	T&G F		B	24	
N-31-2	5.3	1					1.1	T&G F		B	21	
N-31-3	6.3	1					1.1	T&G F		B	2	
N-31-4	10.2			BRD			2.7	VGC		B	48	
N-32-1	8.8						1.7	VGC		B	23	
N-32-2	4.4						0.8	T&G F		B	41	
N-32-2	6.1	1 > 2					6.1		Y	B	42	
N-32-3	6.5						6.5		Y	B	44	split narrow
N-32-4	4.8	1					0.6	T&G F		B	31	
N-33-1	6.8	1					3.5	T&G F		B	48	
N-33-2	16.4	1				N	1.5	BS		B	14	
N-34-1	8.2						4.5	T&G F		B	42	split off ends
N-34-2	14.8					N	2.1	BS		B	18	

Piece ID	Original Length (ft)	checking	Warp	Decay?	Insect?	Constr & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
N-35-2	10.0	1					1.1	BS		B	44	
N-35-3	6.1						3.0	T&G F		B	34	
N-35-4	2.8						0.4	T&G F		B	16	
N-36-1	12.4	1					3.7	BS		B	9	bevel 1-end
N-36-2	7.9	1 > 2		BRD			5.4	T&G F		B	3	
N-36-3	8.8						1.6	VGC		B	31	bevel 1-end
N-37-1	5.8						2.0	T&G F		B	39	bevel 1-end
N-37-2	13.3	2					2.3	BS		B	3	bevel 1-end
N-38-1	16.0	1					7.8	BS		B	7	bevel 1-end
N-38-2	8.0						3.0	T&G F		B	45	
N-39-2	4.0						1.1	T&G F		B	34	
N-39-3	4.9						1.6	T&G F		B	26	bevel 1-end
N-40-1	7.3			BRD			2.3	T&G F		B	34	bevel 1-end
N-40-2	6.9			BRD			2.0	T&G F		B	33	
N-41-1	6.0			BRD			3.1	T&G F		B	47	bevel 1-end
N-41-2	5.4	1					1.8	T&G F		B	46	
N-42-1	4.4			BRD			2.1	T&G F		B	33	bevel 1-end
N-42-2	3.9						1.2	T&G F		B	32	
N-43-1	8.8	1					0.6	VGC		B	28	
N-44-1	7.3						1.8	T&G F		B	3	bevel 2-ends
S-1-1	12.0	1 > 2					4.5	VGC		B	47	
S-1-2	10.6						10.6		Y	B	4	splitting
S-2-1	12.1			BRD			2.4	BS		B	11	
S-2-2	5.1	2					1.6	T&G F		B	2	
S-2-3	6.9	1 > 2				N	4.6	T&G F		B	34	
S-3-1	12.1						2.8	BS		B	15	
S-3-2	12.1			BRD			12.1		Y	B	41	broken half
S-4-1	12.1	1					4.7	BS		B	15	
S-4-2	12.1						4.2	BS		B	12	
S-5-1	12.1	1		BRD		N	3.6	BS		B	5	
S-5-2	12.1						4.8	VGC		B	37	
S-6-1	12.1	1 > 2					4.0	VGC		B	5	
S-6-2	12.1	1		BRD			2.8	BS		B	9	
S-7-1	12.1	1 > 2					2.1	BS		B	1	
S-7-2	12.1			BRD			3.2	BS		B	28	
S-8-1	12.1	1 > 2		BRD			2.7	BS		B	15	
S-8-2	12.1	1	C				1.5	BS		B	38	

Piece ID	Original Length (ft)	checking	Warp	Decay?	Insect?	Constr & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
S-9-1	12.1	2 > 3					3.1	VGC		B	25	
S-9-5	12.1	2		BRD		N	2.6	BS		B	12	
S-10-1	12.1			BRD		N	2.6	BS		B	5	
S-11-1	12.1	1 > 2					1.8	BS		B	13	
S-11-2	12.1			BRD		N	1.1	BS		B	38	
S-12-1	12.1	1 > 2		BRD			7.1	T&G F		B	46	
S-12-2	12.1	2 > 3		BRD			4.4	T&G F		B	2	
S-13-1	5.7						3.0	T&G F		B	43	
S-14-1	5.7	2 > 3		BRD			2.6	T&G F		B	6	
S-14-2	10.8	1					5.7	T&G F		B	42	split end
S-15-1	5.6	1 > 2					0.2	T&G F		B	44	
S-15-2	7.0	1 > 2					1.5	T&G F		B	1	
S-15-4	2.2						2.2		Y	B	46	
S-15-5	4.8			BRD			1.0	T&G F		B	3	
S-16-1	14.8	1 > 2					4.3	BS		B	19	
S-17-1	9.1			ROT			9.1		Y	B	18	
S-17-2	12.0						0.7	BS		B	7	
S-18-1	4.8			BRD			1.3	T&G F		B	46	
S-18-2	3.8		C	BRD			3.8		Y	B	30	
S-18-2	12.1	2 > 3					12.1		Y	B	37	
S-18-3	7.5						3.9	T&G F		B	18	
S-19-1	10.8			BRD			5.2	T&G F		B	45	
S-19-2	6.0	2					1.3	T&G F		B	16	
S-19-3	4.8						1.4	T&G F		B	12	
S-19-3	4.8						4.8		Y	B	31	
S-20-1	6.8	1		BRD			1.2	T&G F		B	46	
S-20-2	12.1						1.1	BS		B	40	
S-20-3	10.8			BRD			1.6	VGC		B	31	
S-21-1	2.8						2.8		Y	B	43	
S-21-2	13.9						1.6	BS		B	47	
S-21-3	6.1	1				N	2.4	T&G F		B	28	
S-21-4	6.8		C	BRD			1.7	T&G F		B	26	
S-22-1	12.8			BRD			3.3	BS		B	46	
S-22-2	8.3						1.4	VGC		B	28	
S-22-3	4.8						4.8		Y	B	30	
S-23-1	13.0						2.0	BS		B	32	
S-23-2	13.0	2 > 3					4.5	BS		B	14	(no reman-class assigned, BS by JDK)

Piece ID	Original Length (ft)	checking	Warp	Decay?	Insect?	Constr & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
S-24-1	6.5						4.8	T&G F		B	24	
S-24-2	10.2	2					1.0	BS		B	15	
S-24-3	2.8	2 > 3					2.8		Y	B	21	
S-25-1	8.8	1					1.8	T&G F		B	17	
S-25-2	4.2						1.7	T&G F		B	25	
S-25-2	13.0			BRD			4.2	BS		B	48	
S-26-1	13.0	2 > 3					4.6	BS		B	16	
S-26-2	8.9	1					0.8	VGC		B	20	
S-27-1	6.8	1 > 2					2.0	T&G F		B	45	
S-27-2	6.3						1.2	T&G F		B	13	
S-27-3	13.0			BRD			3.1	BS		B	11	
S-28-1	4.8	1 > 2					0.5	T&G F		B	28	
S-28-2	6.5						0.7	T&G F		B	12	
S-28-3	13.0	1					3.0	BS		B	45	
S-29-1	13.0	1 > 2					3.5	BS		B	34	
S-29-2	13.0						2.2	BS		B	34	
S-30-1	8.8	1					2.9	T&G F		B	5	
S-30-2	4.2			BRD			1.5	T&G F		B	33	
S-30-3	4.2						1.0	T&G F		B	47	
S-31-1	4.8						2.3	T&G F		B	42	
S-31-2	8.0	2 > 3					1.7	T&G F		B	9	
S-31-3	11.9						4.6	T&G F		B	34	
S-31-4	4.8	3					2.6	T&G F		B	30	
S-32-1	6.8	1 > 2					1.3	T&G F		B	21	
S-32-2	4.1	1					0.5	T&G F		B	29	
S-32-3	10.0	2 > 3					2.8	VGC		B	22	
S-32-4	8.8	1	C	BRD			2.0	T&G F		B	16	
S-33-1	4.8						1.2	T&G F		B	29	
S-33-2	13.9	2 > 3					2.6	BS		B	48	checxking @ end
S-33-3	8.0						1.0	T&G F		B	17	
S-34-1	3.8						1.7	T&G F		B	39	
S-34-2	14.0	1					0.4	BS		B	45	
S-34-3	6.6						1.4	T&G F		B	43	
S-35-1	12.1	1 > 2					1.3	BS		B	28	
S-35-2	12.3						0.9	BS		B	4	bevel 2-ends
S-36-1	8.9						2.6	T&G F		B	33	
S-36-2	3.6	1					0.7	T&G F		B	48	

Piece ID	Original Length (ft)	checking	Warp	Decay?	Insect?	Constr & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
S-37-1	5.5	1					0.9	T&G F		B	14	
S-37-3		1	C						Y	B	6	splitting
S-38-1	6.2	1				N	1.8	T&G F		B	17	
S-38-2	6.3						6.3		Y	B	34	
S-39-1	4.1						4.1		Y	B	17	
S-39-2	5.7						5.7		Y	B	31	bevel 1-end
S-40-2	2.3						2.3		Y	B	34	
W-1-1	2.6						2.6		Y	B	11	
W-1-2	12.2			BRD			2.4	BS		B	40	
W-2-1	11.1						11.1		Y	B	33	5-1/4 in. width
W-2-2	13.5						4.1	BS		B	11	~1/4 _immed
W-2-3	14.0			BRD			4.3	BS		B	33	
W-2-4	16.1	1 > 2 3?					5.3	BS		B	48	
W-2-5	12.1						1.5	BS		B	41	
W-2-6	12.3	1 > 2					1.5	BS		B	38	
W-2-7	0.9			BRD			0.9		Y	B	48	
W-3-1	14.1			BRD			14.1		Y	B	10	BRD riddled
W-3-2	14.5			SRD			1.5	BS		B	16	shallow SRD ?
W-3-3	13.3				Y		1.6	BS		B	45	
W-3-4	12.4	1		BRD			5.4	BS		B	33	
W-3-5	12.7	1		BRD			1.6	BS		B	9	
W-3-6	13.7	1 > 2					13.7		Y	B	37	
W-3-7	6.5	1					2.0	T&G F		B	41	
W-4-1	10.0			BRD			4.3	T&G F		B	43	
W-4-2	10.0	1					2.1	VGC		B	15	
W-4-3	10.5	1 > 2					1.8	BS		B	41	
W-4-4	2.7						0.7	T&G F		B	30	
W-4-5	10.0					N	0.9	BS		B	45	
W-4-6	13.9	2					0.8	BS		B	12	
W-4-7	9.9						1.1	VGC		B	33	
W-4-8	9.7	1 > 2		BRD		N	3.3	T&G F		B	35	
W-4-9	7.6	1					3.0	T&G F		B	40	
W-5-1	13.1			BRD			2.3	VGC		B	24	
W-5-2	12.0						4.9	VGC		B	35	
W-5-3	12.0	1					1.2	BS		B	9	
W-5-4	10.0	1					1.6	VGC		B	42	
W-5-5	12.0	1				N	1.5	BS		B	46	

Piece ID	Original Length (ft)	checking	Warp	Decay?	Insect?	Constr & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
W-5-6	6.0						2.3	T&G F		B	8	split
W-5-7	6.0	1					0.8	T&G F		B	23	
W-5-8	8.0	1		SRD			3.3	T&G F		B	14	
W-5-9	11.1						0.4	BS		B	37	
W-6-1	9.1			BRD			1.5	VGC		B	44	
W-6-2	13.1		B				2.5	BS		B	38	
W-6-3	10.0						2.0	VGC		B	35	
W-6-4	10.0						1.7	VGC		B	13	(no reman-class assigned, VGC by JDK)
W-6-5	10.0						0.6	BS		B	45	
W-6-6	10.1						3.7	VGC		B	20	
W-6-7	13.9	1 > 2					1.9	BS		B	28	
W-6-8	13.1						6.3	T&G F		B	35	
W-7-1	11.1	1					1.1	BS		B	14	
W-7-2	10.0						0.9	VGC		B	32	
W-7-3	6.0	1					1.1	T&G F		B	42	
W-7-4	10.0	1 > 2					1.7	BS		B	13	
W-7-5	12.0	1 > 2					1.6	BS		B	31	
W-7-6	10.0	2 > 3				N	1.0	VGC		B	10	
W-7-7	12.0						12.0		Y	B	23	
W-7-8	10.0						1.4	VGC		B	27	
W-8-1	9.1			BRD			3.4	T&G F		B	13	
W-8-2	5.9			BRD			1.0	T&G F		B	39	
W-8-3	10.1						4.3	T&G F		B	16	
W-8-4	6.0						0.6	T&G F		B	13	
W-8-5	10.0						10.0		Y	B	10	
W-8-6	5.6						1.0	T&G F		B	2	
W-8-7	14.0	1		BRD			2.8	BS		B	15	
W-8-8	14.1	1 > 2		BRD			5.5	T&G F		B	46	
W-9-1	3.0			BRD			3.0		Y	B	26	broken piece
W-9-2	4.2			BRD			1.0	T&G F		B	6	
W-9-4	4.3						2.2	T&G F		B	27	
W-9-5	5.4						2.2	T&G F		B	39	
W-9-8	6.0	1		BRD			2.5	T&G F		B	44	
W-9-9	2.4						2.4		Y	B	36	
W-9-10	2.7						1.7	T&G F		B	32	
W-10-2	4.4			BRD			1.0	T&G F		B	29	
W-10-3	10.4			BRD			1.8	VGC		B	20	

Piece ID	Original Length (ft)	checking	Warp	Decay?	Insect?	Constr & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
W-10-4	6.3						1.2	T&G F		B	1	
W-10-5	6.4	1				N	2.1	T&G F		B	29	
W-10-6	6.4		C				1.5	T&G F		B	24	
W-10-7	6.4						1.6	T&G F		B	32	
W-10-8	6.4						2.0	T&G F		B	35	
W-10-9	3.2						1.7	T&G F		B	39	
W-11-1	11.3		B	BRD			1.8	VGC		B	26	
W-11-2	4.4			BRD			1.1	T&G F		B	29	
W-11-3	10.4						9.0	T&G F		B	38	
W-11-4	6.0	1					1.6	T&G F		B	5	
W-11-4	6.4	2		BRD			1.5	T&G F		B	13	
W-11-5	6.4			BRD			1.1	T&G F		B	30	
W-11-6	6.4						0.9	T&G F		B	43	
W-11-7	6.4						0.8	T&G F		B	45	
W-12-2	4.4			BRD			2.6	T&G F		B	29	
W-12-3	10.4					N	2.4	BS		B	38	
W-12-4	6.3	1 > 2		BRD			1.3	T&G F		B	18	
W-12-4	6.4	1					1.3	T&G F		B	32	
W-12-5	12.0	1					0.7	BS		B	6	
W-12-5	6.4			BRD			1.8	T&G F		B	7	
W-12-6	6.4					N	1.8	T&G F		B	35	
W-12-7	6.4						2.3	T&G F		B	25	
W-12-8	3.2	2 > 3					3.2		Y	B	47	
W-13-1	11.3	2		BRD			1.8	BS		B	12	
W-13-2	10.4			BRD			3.3	VGC		B	18	
W-13-2	4.4						4.4		Y	B	25	
W-13-4	6.3	1					1.3	T&G F		B	22	
W-13-4	6.8						0.4	T&G F		B	33	
W-13-5	6.4						4.0	T&G F		B	20	
W-13-5	6.4	2					3.0	T&G F		B	30	
W-13-6	6.4	1 > 2		BRD			2.5	T&G F		B	21	
W-13-7	6.4	1					1.2	T&G F		B	24	
W-14-1	11.3			BRD			2.3	VGC		B	40	
W-14-2	4.2			BRD			1.6	T&G F		B	26	
W-14-3	4.9						1.5	T&G F		B	13	
W-14-4	2.9			BRD			1.0	T&G F		B	30	
W-14-5	6.3	2 > 3		BRD			3.8	T&G F		B	20	

Piece ID	Original Length (ft)	checking	Warp	Decay?	Insect?	Constr & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
W-14-5	6.4	1					1.0	T&G F		B	29	
W-14-6	6.4			BRD			2.3	T&G F		B	9	
W-14-7	6.4		C				1.6	T&G F		B	26	
W-14-8	6.4	1					1.9	T&G F		B	36	
W-14-9	3.2	1					1.5	T&G F		B	35	
W-15-1	11.3					N	4.8	T&G F		B	34	end odd
W-15-3	4.9						1.0	T&G F		B	38	
W-15-4	2.9						1.3	T&G F		B	43	
W-15-5	6.3	1					0.5	T&G F		B	2	
W-15-5	6.3	1					1.4	T&G F		B	22	
W-15-5	5.8			BRD			2.0	T&G F		B	29	
W-15-7	6.4		C			N	0.8	T&G F		B	2	
W-15-8	6.4	1					0.7	T&G F		B	7	
W-16-1	4.4	1		BRD		N	1.7	T&G F		B	15	
W-16-1	3.3	1					1.4	T&G F		B	23	
W-16-2	4.3	1					1.5	T&G F		B	30	
W-16-3	4.9	1		BRD			1.5	T&G F		B	2	
W-16-4	2.9						2.9		Y	B	30	
W-16-5	6.3			BRD			1.3	T&G F		B	17	
W-16-5	6.4	1					1.2	T&G F		B	36	
W-16-6	6.4						3.2	T&G F		B	43	
W-16-7	6.4			BRD			2.8	T&G F		B	26	
W-16-8	6.4	1					0.7	T&G F		B	22	
W-16-9	3.2						3.2		Y	B	41	
W-17-2	4.2	1		BRD			0.9	T&G F		B	15	
W-17-5	6.4						1.8	T&G F		B	16	
W-17-5	2.2	1					0.4	T&G F		B	48	
W-17-6	6.4	1 > 2					1.4	T&G F		B	10	
W-17-7	6.4	3					6.4		Y	B	29	
W-17-8	6.3			BRD			1.3	T&G F		B	30	
W-18-1	3.2						0.5	T&G F		B	36	
W-18-2	10.2	2					1.6	VGC		B	11	
W-18-3	10.7			BRD			2.2	BS		B	13	
W-18-5	7.9						1.9	T&G F		B	25	
W-18-6	10.0	2 > 3					2.2	VGC		B	3	
W-18-7	12.0	1 > 2					1.0	BS		B	4	
W-18-8	10.0						2.4	VGC		B	24	

Piece ID	Original Length (ft)	checking	Warp	Decay?	Insect?	Constr & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
W-18-9	10.0	1 > 2					0.8	BS		B	9	
W-18-9	7.0						1.6	T&G F		B	13	
W-18-10	9.0					N	3.4	T&G F		B	4	
W-19-1	9.1						1.6	VGC		B	19	
W-19-1	3.3		C				0.7	T&G F		B	21	
W-19-3	14.1			BRD			3.3	BS		B	7	
W-19-4	12.0						0.8	BS		B	10	
W-19-5	12.0						4.8	VGC		B	31	
W-19-6	10.0						0.3	BS		B	5	
W-19-7	13.8						2.2	BS		B	8	
W-19-8	6.1	1					0.9	T&G F		B	2	
W-19-9	7.0						0.5	T&G F		B	8	
W-20-1	13.1						1.4	BS		B	10	
W-20-3	14.0	1 > 2					1.6	BS		B	14	
W-20-4	16.0	1 > 2					1.2	BS		B	14	
W-20-5	11.4	1					1.0	BS		B	15	
W-20-6	11.9						1.8	BS		B	9	
W-20-7	6.2					N	0.3	T&G F		B	6	
W-20-8	12.0	2					0.5	BS		B	15	
W-20-9	5.0			BRD			0.9	T&G F		B	3	
W-21-1	7.1						3.3	T&G F		B	26	
W-21-2	14.1			BRD			1.8	BS		B	47	
W-21-3	7.0						7.0		Y	B	18	
W-21-3	5.3	1					1.5	T&G F		B	24	
W-21-4	8.0					MR	1.2	VGC		B	22	
W-21-6	10.0	1					0.8	BS		B	8	
W-21-7	11.1	1					1.8	BS		B	16	
W-22-1	9.1					N3	4.8	T&G F		B	19	split
W-22-2	8.0			BRD			0.8	T&G F		B	9	
W-22-3	16.1	2					2.5	BS		B	11	
W-22-4	9.8						1.2	VGC		B	19	
W-22-5	8.1						0.8	VGC		B	9	
W-22-6	11.9						2.2	T&G F		B	19	
W-22-7	5.9						1.0	T&G F		B	26	
W-22-8	6.0						0.7	T&G F		B	7	
W-22-9	6.1	1				N2	0.8	T&G F		B	10	
W-22-10	7.1						0.8	T&G F		B	4	

Piece ID	Original Length (ft)	checking	Warp	Decay?	Insect?	Constr & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
W-23-1	5.2			BRD			1.4	T&G F		B	12	
W-23-2	14.0						3.0	BS		B	23	
W-23-3	10.1						1.8	VGC		B	24	
W-23-4	6.0						0.4	T&G F		B	7	
W-23-5	9.8	1					0.7	BS		B	1	
W-23-6	12.0						0.4	BS		B	5	
W-23-8	12.1	2		BRD			2.8	BS		B	7	
W-23-9	11.2			BRD			1.5	BS		B	31	
W-24-1	11.2	1 > 2					3.2	VGC		B	20	
W-24-2	9.9					N	1.0	VGC		B	1	
W-24-3	10.1						1.0	BS		B	14	
W-24-4	6.0	1					0.8	T&G F		B	4	
W-24-5	6.0						1.1	T&G F		B	23	
W-24-6	7.8						1.1	VGC		B	25	
W-24-7	8.1			BRD			4.1	T&G F		B	16	
W-24-8	8.8						2.7	T&G F		B	43	
W-24-9	10.0						1.1	BS		B	38	
W-24-10	7.0	1					2.0	T&G F		B	17	
W-25-1	3.5						0.7	T&G F		B	8	
W-25-1	4.5					N2	1.9	T&G F		B	33	
W-25-4	11.9	2		BRD			5.5	T&G F		B	14	cut-out
W-25-5	2.4						2.4	T&G F	Y	B	13	
W-25-6	6.3						1.5	T&G F		B	13	
W-25-7	8.0	1					1.2	T&G F		B	15	
W-25-8	10.0					N2	1.3	BS		B	47	
W-25-9	10.8						6.8	T&G F		B	22	
W-25-10	3.0			BRD			1.3	T&G F		B	44	
W-26-1	3.2			BRD			1.3	T&G F		B	2	
W-26-2	4.4	1 > 2		BRD			1.3	T&G F		B	23	
W-26-4	10.4			BRD			2.2	VGC		B	24	
W-26-5	6.3						1.3	T&G F		B	20	
W-26-6	6.4			BRD			0.8	T&G F		B	22	
W-26-7	6.4						3.0	T&G F		B	21	
W-26-8	6.4	1					1.8	T&G F		B	7	
W-26-9	6.8	1					1.2	T&G F		B	42	
W-26-10	3.3						3.3		Y	B	42	
W-27-1	3.2			BRD			0.6	T&G F		B	2	

Piece ID	Original Length (ft)	checking	Warp	Decay?	Insect?	Constr & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
W-27-2	4.4	1		BRD			1.4	T&G F		B	6	
W-27-3	4.4	1					1.3	T&G F		B	19	
W-27-6	6.4	1					0.6	T&G F		B	14	
W-27-7	6.4						1.3	T&G F		B	17	
W-27-8	6.4	1					2.2	T&G F		B	31	
W-27-9	6.4					N	0.6	T&G F		B	8	
W-27-10	3.2						0.9	T&G F		B	17	
W-28-1	3.2	1					0.5	T&G F		B	3	
W-28-2	4.3						1.1	T&G F		B	19	
W-28-3	4.4						1.5	T&G F		B	19	
W-28-4	10.4						1.1	VGC		B	7	
W-28-5	6.3	1	C				2.1	T&G F		B	20	
W-28-6	6.4					N	0.8	T&G F		B	26	
W-28-7	6.4						1.1	T&G F		B	24	
W-28-8	6.4						1.4	T&G F		B	7	
W-28-9	6.3	1					0.6	T&G F		B	4	
W-28-10	3.3						1.0	T&G F		B	3	
W-29-1	3.2	1 > 2					0.8	T&G F		B	18	
W-29-2	4.3						1.1	T&G F		B	18	
W-29-4	10.5	1 > 2		BRD			0.8	BS		B	3	
W-29-5	6.3						1.0	T&G F		B	22	
W-29-5	6.3	1					1.3	T&G F		B	23	
W-29-6	6.4	2					1.0	T&G F		B	3	
W-29-7	6.4	1 > 2					3.1	T&G F		B	18	
W-29-8	4.4					MR	1.3	T&G F		B	22	
W-29-8	6.3						2.2	T&G F		B	25	
W-29-9	6.4						3.1	T&G F		B	25	splitting
W-29-10	3.2						3.2		Y	B	48	
W-30-1	3.2			BRD			1.0	T&G F		B	40	
W-30-2	4.3						1.2	T&G F		B	43	
W-30-3	4.4			BRD		N	1.7	T&G F		B	6	
W-30-4	2.0						2.0		Y	B	29	
W-30-5	6.3						0.4	T&G F		B	25	
W-30-6	6.4	1					1.3	T&G F		B	9	
W-30-7	6.3			BRD			1.5	T&G F		B	12	
W-30-9	6.4						1.0	T&G F		B	39	
W-30-10	4.3			BRD			1.5	T&G F		B	33	

Piece ID	Original Length (ft)	checking	Warp	Decay?	Insect?	Constr & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
W-31-1	3.2						1.1	T&G F		B	43	
W-31-5	6.3	1					1.0	T&G F		B	19	
W-31-6	6.3						2.3	T&G F		B	23	
W-31-7	6.3						1.1	T&G F		B	8	
W-31-8	6.3						0.7	T&G F		B	6	
W-31-9	6.4						1.0	T&G F		B	30	
W-31-10	3.3	1					0.6	T&G F		B	2	
W-32-1	3.2			BRD			1.4	T&G F		B	30	
W-32-2	4.3						1.5	T&G F		B	43	
W-32-3	4.4						1.2	T&G F		B	3	
W-32-4	10.4						0.7	BS		B	7	
W-32-5	6.5						1.5	T&G F		B	12	
W-32-6	6.3		C				1.7	T&G F		B	23	
W-32-7	6.4						0.5	T&G F		B	25	
W-32-8	6.3			BRD			0.9	T&G F		B	7	
W-32-9	6.4	1					1.2	T&G F		B	6	
W-32-10	3.3						3.3		Y	B	41	
W-33-2	4.4	1					1.0	T&G F		B	3	
W-33-3	4.4						1.3	T&G F		B	26	
W-33-4	10.4						2.7	VGC		B	19	6-3/4 in. width
W-33-5	6.3		C				1.3	T&G F		B	24	
W-33-6	6.2						0.7	T&G F		B	8	
W-33-7	4.8						1.7	T&G F		B	8	
W-33-7	10.0						0.3	BS		B	38	
W-33-8	6.4						0.7	T&G F		B	6	
W-33-9	6.4						0.3	T&G F		B	8	
W-33-10	3.3	1					1.0	T&G F		B	21	
W-33-10	3.2						1.0	T&G F		B	24	
W-34-1	3.1	1					1.1	T&G F		B	14	
W-34-2	3.8						3.8		Y	B	33	
W-34-2	4.1						0.3	T&G F		B	46	
W-34-4	3.9						3.9		Y	B	47	narrow
W-34-6	3.9						3.9		Y	B	8	
W-34-7	10.2						1.0	BS		B	44	
W-34-8	3.9						0.9	T&G F		B	11	
W-34-9	6.0						0.3	T&G F		B	4	
W-34-10	3.9						3.9	T&G F	Y	B	11	est. 1'3 in. end-trim

Piece ID	Original Length (ft)	checking	Warp	Decay?	Insect?	Constr & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
W-34-11	6.2	1					0.8	T&G F		B	14	
W-34-12	3.5						3.5		Y	B	44	
W-34-13	6.1	1					0.4	T&G F		B	5	
W-34-14	3.8						1.7	T&G F		B	19	5 in. width
W-34-15	6.2						0.9	T&G F		B	23	
W-34-16	3.8						3.8	T&G F	Y	B	8	narrow, est. 2′ end-trim ?
W-34-17	6.2	1 > 2					1.7	T&G F		B	4	
W-34-18	3.7						0.7	T&G F		B	40	5-1/4 in. width
W-34-19	3.3						0.9	T&G F		B	41	
W-35-1	1.3						1.3		Y	B	18	
W-35-3	16.0	1					1.8	BS		B	31	5-3/8 in. width
W-35-4	5.0						1.6	T&G F		B	9	
W-35-8	10.0						1.5	VGC		B	18	5-1/2 in. width
W-35-9	11.2	1				N	1.4	VGC		B	20	5-1/2 in. width
W?	3.2			BRD			3.2		Y	B	39	
Void	6.6						0.9	T&G F		B	28	
Void	5.1	1				STP	0.7	T&G F		B	29	
Void	4.9			BRD			1.8	T&G F		B	29	
Void	4.0	1		BRD			1.2	T&G F		B	29	
Void	3.2						3.2		Y	B	29	
Void	3.5						3.5		Y	B	30	
Void	5.2			BRD			0.6	T&G F		B	31	
Void	5.4						2.8	T&G F		B	31	
Void	8.8						3.0	T&G F		B	31	
Void	5.4						1.1	T&G F		B	32	
Void	7.7	1					1.3	T&G F		B	32	
Void	6.5						1.5	T&G F		B	32	5-1/4 in. width
Void	9.0	1					3.7	T&G F		B	33	
Void	3.5					N3	3.5		Y	B	33	
Void	9.3			BRD			9.3		Y	B	34	
Void	1.8						1.8		Y	B	34	
Void	2.3						2.3		Y	B	34	
Void	4.7	1 > 2	C				2.5	T&G F		B	35	
Void	9.1	1 > 2	C/T				1.3	VGC		B	35	
Void	6.3						3.0	T&G F		B	35	
Void	7.8						1.9	T&G F		B	35	
Void	2.8						2.8		Y	B	36	

Piece ID	Original Length (ft)	checking	Warp	Decay?	Insect?	Constr & Decon Defects	Estimate End Trim (ft)	End Product Class	Waste?	Material Coding	Data Sheet Pg. No.	Comments
Void	6.4						2.1	T&G F		B	36	
Void	6.3						1.3	T&G F		B	37	
Void	6.1						0.8	T&G F		B	38	
Void	6.3						2.9	T&G F		B	39	
Void	2.3						2.3		Y	B	39	
Void	3.0			BRD			1.3	T&G F		B	39	
Void	4.2						2.1	T&G F		B	39	
Void	3.2						0.6	T&G F		B	40	
Void	6.9						1.7	T&G F		B	40	bevel 1-end
Void	9.7	1					2.8	T&G F		B	41	
Void	4.5						2.2	T&G F		B	41	bevel 2-ends
Void	2.5						2.5		Y	B	42	
Void	2.0						2.0		Y	B	42	
Void	2.3	1					0.8	T&G F		B	42	
Void	4.8						4.8		Y	B	42	
Void	4.3						1.5	T&G F		B	43	
Void	6.7						6.7		Y	B	43	
Void	5.8						5.8		Y	B	43	
Void	6.3			BRD			1.8	T&G F		B	43	
Void	7.9						7.9		Y	B	44	
Void	4.7						4.7		Y	B	44	
Void	9.9						9.9		Y	B	44	narrow
Void	9.3						9.3		Y	B	44	split narrow
Void	4.0						4.0		Y	B	44	
Void	12.1	1		BRD			6.4	BS		B	45	
Void	3.3						0.1	T&G F		B	45	
Void	14.8						1.5	BS		B	45	
Void	3.3						3.3		Y	B	46	
Void	1.9						1.9		Y	B	46	
Void	8.0						0.4	VGC		B	46	5-1/2 in. width
Void									Y	B	46	
Void	6.2	1 > 2					1.0	T&G F		B	47	
Void	3.0						3.0		Y	B	48	
Void	3.3						3.3		Y	B	48	
Void	3.3						0.9	T&G F		B	48	
Void	2.4							T&G F		B	48	

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Robert H. Falk, John Janowiak, Richard G. Lampo, Thomas R. Napier, Stephen D. Cosper, Susan A. Drozdz, Steven Larson, Edgar D. Smith

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14. ABSTRACT

The U.S. Army is responsible for thousands of World War II-era wooden temporary buildings that must be removed in order to reduce Department of Defense (DoD) real property inventories. Most of those buildings were used long past their intended service lives and were well maintained. They contain large quantities of reusable wood materials with a significant potential resale value. Standard demolition procedures would destroy the value of that material and create new landfilling costs. Demolition would also incur considerable ancillary costs related to compliance with environmental regulations on the handling and disposal of debris contaminated with lead-based paint (LBP).

In order to promote DoD strategic waste management goals, decrease costs, recover value from past infrastructure investments, and reduce long-term liability, the U.S. Army Engineer Research and Development Center worked with other government agencies and private-sector partners to investigate the feasibility of salvaging high-quality wood from obsolete buildings and remanufacturing it into value-added products. Criteria for success included process efficiency, human and environmental safety, and potential marketability of the remanufactured products. This report documents investigations using both conventional and specially designed woodworking equipment to remove LBP from salvaged wood siding while concurrently remilling it into new profiles.

15. SUBJECT TERMS
lead-based paint (LBP) | temporary buildings | paint removal
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Research, Development, Test, and Evaluation (RDTE) Project D048, (Industrial Operations Pollution Control”; Work Unit 008B9A, “Military Unique Solid Waste”.

U.S. Environmental Protection Agency (EPA) Interagency Agreement (IAG) DW-96-93933801-0, “Fostering Deconstruction of Army Buildings”.

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