

# 2005 AF&PA Wood Design Package

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## Introduction

The American Forest & Paper Association's (AF&PA) American Wood Council will publish the 2005 Wood Design Package in the first quarter of 2005. The following publications will be included in the package:

- *ANSI/AF&PA NDS-2005 National Design Specification® (NDS®) for Wood Construction* – with Commentary,
- *NDS Supplement – Design Values for Wood Construction, 2005 Edition,*
- *ANSI/AF&PA SDPWS-05 AF&PA Supplement – Special Design Provisions for Wind and Seismic (SDPWS)* with Commentary, and
- *ASD/LRFD Manual for Engineered Wood Construction, 2005 Edition.*

## History

In 1996, AF&PA first published the *Load and Resistance Factor Design (LRFD) Manual for Engineered Wood Construction*. It was an industry landmark, bringing together for the first time a broad range of technical information needed to design wood structures. Included in the Manual were Supplements containing design values for lumber, glued laminated timber, poles and piles, wood structural panels, shear walls and diaphragms, and connections. The *LRFD Manual* also contained guidelines for proprietary products such as prefabricated wood I-joists, structural composite lumber, metal plate connected wood trusses, and pre-engineered metal connectors.

In 1999, AF&PA published an *Allowable Stress Design (ASD) Manual for Engineered Wood Construction*, which incorporated most of the same information that was included in the *LRFD Manual*, except it was tailored to ASD. It included the 1997 *NDS*. The *ASD Manual* was updated and reprinted again in 2001 to coincide with development of the 2001 *NDS*.

## Reformat

Since developing these Manuals, AF&PA has received numerous user requests to re-package the design information in a more compact form, deleting duplicate or conflicting information, and organizing the information in a more user-friendly format. The industry's Technical Committee

considered these requests and endorsed reformatting information from both the LRFD and ASD Manuals.

As with the 2001 *ASD Manual*, the *NDS* and *NDS Supplement: Design Values for Wood Construction* will be maintained as separate documents. A commentary to the *NDS* is being developed and will be bound with the *NDS*. See the article in this issue of *Wood Design Focus* for an overview of changes in the 2005 *NDS*.

Also consistent with the 2001 *ASD Manual*, the *SDPWS* will be maintained as a separate document. The *SDPWS Commentary* will be bound with the *Supplement*.

A significantly rewritten *ASD/LRFD Manual for Engineered Wood Construction* will be developed as a separate document. It will contain most of the non-mandatory information currently contained in the 2001 *ASD Manual*, *ASD Supplements*, and *ASD Guidelines* (such as examples, span tables, load tables, and fire assemblies). The document will be formatted to match the *NDS* using the following principles:

- *Manual* Chapters will correspond to *NDS* Chapters,
- Reference adjustment factors which are included in the *NDS* or *NDS Supplement* will not be repeated in the 2005 *ASD/LRFD Manual*,
- Reference design values which are included in the *NDS* or *NDS Supplement* will not be repeated in the 2005 *ASD/LRFD Manual*,
- Care will be taken to distinguish clearly between ASD and LRFD when showing design examples.

**Table 1** shows how information will be incorporated into the 2005 *ASD/LRFD Manual* and how it corresponds to the 2001 *ASD Manual* and 1996 *LRFD Manual*.

## Companion Design Tools

A related design tool is also being developed to assist designers with the use of the 2005 *NDS*. The workbook entitled *Structural Wood Design Using ASD and LRFD* has been updated to include parallel ASD solutions to the 40 LRFD example problems originally shown in the workbook. See the related article in this issue of *WDF* for details.

**Table 1.** Organizational Tracking Between 2005 ASD/LRFD Manual, 2001 ASD Manual, and 1996 LRFD Manual.

<i>2005 ASD/LRFD Manual</i>	<i>2001 ASD Manual</i>	<i>1996 LRFD Manual</i>
Chapter 1: General Requirements for Structural Design	Chapter 1: Introduction	Chapter 1: Introduction
1.1 Products Covered in this Manual	1.4 Products Covered in this Manual	1.4 Products Covered in this Manual
1.2 General Requirements	1.1 General Information	1.1 General Information
1.3 Design Procedures	1.1.1 Allowable Stress Design	1.1.1 Load and Resistance Factor Design
Chapter 2: Design Values for Structural Members	Existing project profile case studies will be migrated to the AWC website	Existing project profile case studies will be migrated to the AWC website
2.1 General Information	1.2 Design Responsibilities	1.2 Design Responsibilities
2.2 Reference Design Values	1.1.3 Reference Conditions	1.1.5 Reference Conditions
2.3 Adjustment of Design Values	--	--
Chapter 3: Design Provisions and Equations	<i>ASD Manual</i> Chapters 3 to 6	<i>LRFD Manual</i> Chapters 3 to 6
3.1 General	--	--
3.2 Bending Members – General	5.1 General Information	5.1 General Information
3.3 Bending Members – Flexure	5.2 Design for Moment	5.2 Design for Moment
3.4 Bending Members – Shear	5.3 Design for Shear	5.3 Design for Shear
3.5 Bending Members – Deflection	--	--
3.6 Compression Members – General	Chapter 4 Compression Members	Chapter 4 Compression Members
3.7 Solid Columns	Chapter 4 Compression Members	Chapter 4 Compression Members
3.8 Tension Members	Chapter 3 Tension Members	Chapter 3 Tension Members
3.9 Combined Bending and Axial Loading	Chapter 6 Bending Plus Axial Loads	Chapter 6 Bending Plus Axial Loads
3.10 Design for Bearing	4.3.3 Bearing Capacity Checks	4.3.3 Bearing Capacity Checks
Chapter 4: Sawn Lumber	<i>ASD Lumber Supplement</i>	<i>LRFD Lumber Supplement</i>
4.1 Introduction to Structural Lumber	2. Introduction to Structural Lumber	2. Introduction to Structural Lumber
4.2 Reference Design Values	--	--
4.3 Design Adjustment Factors	4.1 General (Design Adjustment Factors)	4.1 General (Design Adjustment Factors)
4.4 Special Design Considerations	6. Other Considerations	6. Other Considerations
Chapter 5: Structural Glued Laminated Timber	<i>ASD Structural Glued Laminated Timber Supplement</i>	<i>LRFD Structural Glued Laminated Timber Supplement</i>
5.1 Introduction to Structural Glued Laminated Timber	2. Introduction to Structural Glued Laminated Timber	2. Introduction to Structural Glued Laminated Timber
5.2 Reference Design Values	3. Allowable Stress and Stiffness	3. Reference Strength and Stiffness
5.3 Design Adjustment Factors	4. Design Adjustment Factors	4. Design Adjustment Factors
5.4 Special Design Considerations	6. Other Considerations	6. Other Considerations
Chapter 6: Poles and Piles	<i>ASD Timber Poles and Piles Supplement</i>	<i>LRFD Timber Poles and Piles Supplement</i>
6.1 Introduction to Timber Poles and Piles	2. Introduction to Timber Poles and Piles	2. Introduction to Timber Poles and Piles
6.2 Reference Design Values	4.1 General (Design Values)	4.1 General (Reference Strengths)
6.3 Design Adjustment Factors	--	--
6.4 Special Design Considerations	6. Other Considerations	6. Other Considerations
Chapter 7: Wood I-Joists	<i>ASD Wood I-Joists Guideline</i>	<i>LRFD Wood I-Joists Guideline</i>
7.1 Introduction to Prefabricated Wood I-Joists	2. Introduction to Prefabricated Wood I-Joists	2. Introduction to Prefabricated Wood I-Joists
7.2 Reference Design Values	3. Design Capacity	3. Reference Resistance
7.3 Design Adjustment Factors	4. Design Adjustment Factors	4. Design Adjustment Factors
7.4 Special Design Considerations	6. Supplemental Design Considerations	6. Supplemental Design Considerations

*(Table continued on the next page.)*

**Table 1 (continued).** Organizational Tracking Between 2005 ASD/LRFD Manual, 2001 ASD Manual, and 1996 LRFD Manual.

<i>2005 ASD/LRFD Manual</i>	<i>2001 ASD Manual</i>	<i>1996 LRFD Manual</i>
Chapter 8: Structural Composite Lumber	<i>ASD Structural Composite Lumber Guideline</i>	<i>LRFD Structural Composite Lumber Guideline</i>
8.1 Introduction to Structural Composite Lumber	2. Introduction to Structural Composite Lumber	2. Introduction to Structural Composite Lumber
8.2 Reference Design Values	3. Design Values	3. Reference Strengths
8.3 Design Adjustment Factors	4. Design Adjustment Factors	4. Design Adjustment Factors
8.4 Special Design Considerations	5. Other Considerations	5. Other Considerations
Chapter 9: Wood Structural Panels	<i>ASD Wood Structural Panels Supplement</i>	<i>LRFD Structural-Use Panels Supplement</i>
9.1 Introduction to Wood Structural Panels	2. Introduction to Wood Structural Panels	2. Introduction to Wood Structural Panels
9.2 Reference Design Values	3. Design Capacities	3. Reference Strength and Stiffness
9.3 Design Adjustment Factors	4. Design Adjustment Factors	4. Design Adjustment Factors
9.4 Special Design Considerations	6. Other Considerations	6. Other Considerations
Chapter 10: Mechanical Connections	<i>ASD Manual Chapter 7 and ASD Pre-Engineered Metal Connectors Guideline</i>	<i>LRFD Manual Chapter 7 and LRFD Pre-Engineered Metal Connectors Guideline</i>
10.1 Introduction to Mechanical Connections	7.1 General Information	7.1 General Information
10.2 Reference Design Values	--	--
10.3 Design Adjustment Factors	7.2 Adjustment Factors	7.2 Adjustment Factors
10.4 Typical Connection Details	7.4 Typical Connection Details	7.5 Typical Connection Details
10.5 Pre-Engineered Metal Connectors	<i>ASD Pre-Engineered Metal Connectors Guideline</i>	<i>LRFD Pre-Engineered Metal Connectors Guideline</i>
Chapter 11: Dowel-Type Fasteners	<i>ASD Manual Chapter 7</i>	<i>LRFD Manual Chapter 7</i>
11.1 Introduction to Dowel-Type Fasteners		
11.2 Reference Withdrawal Design Values	7.2.2 Design for Withdrawal Load	7.2.2 Design for Withdrawal Load (nails) 7.3.2 Design for Withdrawal Load (bolts)
11.3 Reference Lateral Design Values	7.2.1 Design for Lateral Load	7.2.1 Design for Lateral Load (nails) 7.3.1 Design for Lateral Load (bolts)
11.4 Combined Lateral and Withdrawal Loads		
11.5 Design Adjustment Factors		
11.6 Special Design Considerations	7.2.3 Installation Requirements	7.2.3 Installation Requirements
Chapter 12: Split Ring and Shear Plates	<i>ASD Manual Chapter 7</i>	<i>LRFD Manual Chapter 7</i>
12.1 Introduction to Split Ring and Shear Plates		
12.2 Reference Design Values	7.3.1 Design for Lateral Load	7.4.1 Design for Lateral Load
12.3 Design Adjustment Factors		
12.4 Special Design Considerations	7.3.2 Installation Requirements	7.4.2 Installation Requirements
Chapter 13: Timber Rivets		
13.1 Introduction to Timber Rivets		
13.2 Reference Design Values		
13.3 Design Adjustment Factors		
13.4 Special Design Considerations		

*(Table continued on the next page.)*

**Table 1 (continued).** Organizational Tracking Between 2005 ASD/LRFD Manual, 2001 ASD Manual, and 1996 LRFD Manual.

<i>2005 ASD/LRFD Manual</i>	<i>2001 ASD Manual</i>	<i>1996 LRFD Manual</i>
Chapter 14: Shear Walls and Diaphragms	<i>ASD Manual Chapter 9 and ASD Wood Structural Panel Shear Wall and Diaphragm Supplement</i>	<i>LRFD Manual Chapter 9</i>
14.1 Introduction to Shear Walls and Diaphragms	Supplement Section 2 Introduction and Manual 9.1 General Information	9.1 General Information
14.2 Reference Design Values (reference SDPWS)	Manual 9.2 Design	9.2 Design
14.3 Design Adjustment Factors		
14.4 Special Design Considerations	Supplement Section 5 Other Considerations	
Chapter 15: Special Loading Conditions		
15.1 Introduction to Special Loading Conditions		
Chapter 16: Fire Design		
16.1 Introduction to Fire Design		
16.1.1 Designing for Fire Safety	1.3.3 Designing for Fire Safety	1.3.3 Designing for Fire Safety
16.2 Fire Considerations		
16.2.1 Lumber	<i>ASD Lumber Supplement 6.3</i>	
16.2.2 Glued Laminated Timber	<i>ASD Glulam Supplement 6.5</i>	<i>LRFD Glulam Supplement 6.5</i>
16.2.3 Poles and Piles	<i>ASD Poles/Piles Supplement 6.3</i>	<i>LRFD Poles/Piles Supplement 6.4</i>
16.2.4 Wood I-Joists	<i>ASD I-Joist Guideline 6.12</i>	<i>LRFD I-Joist Guideline 6.12</i>
16.2.5 Structural Composite Lumber	<i>ASD SCL Guideline 5.4</i>	<i>LRFD SCL Guideline 5.4</i>
16.2.6 Trusses	<i>ASD Truss Guideline 4.4 and 4.5</i>	<i>LRFD Truss Guideline 4.3 to 4.5</i>
16.3 Design Examples	<i>AF&amp;PA Technical Report 10</i>	

### Conclusion

The 2005 AF&PA Wood Design Package will be published in the first quarter of 2005 and will contain:

- 2005 NDS and Commentary,
- 2005 NDS Supplement: Design Values for Wood Construction,
- 2005 AF&PA Supplement: Special Design Provisions for Wind and Seismic (SDPWS) and Commentary, and
- 2005 ASD/LRFD Manual for Engineered Wood Construction.

Designers should find the reformatted package much easier to navigate and use. It will have a more concise form,

duplicate or conflicting information will have been removed, and the documents will have information organized in a more user-friendly format.

The 2005 Wood Design Package will be available first quarter of 2005. Call 1-800-890-7732 to order or shop online at [www.awc.org](http://www.awc.org).

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