IDAWY ACQUISITION SERVICE CENTER INSTRUCTIONAL COVER SHEET

ISSUING OFFICE:

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
IDAWY ACQUISITION SERVICE CENTER
1405 HOLLIPARK DR.
IDAHO FALLS, ID 83401
FAX (208) 557-5829

SOLICITATION NO.: **AG-02NV-S-15-0081**

QUOTES ARE SOLICITED FOR: **SQUIRREL MEADOWS CABIN FLOOR REPLACEMENT**

SET-ASIDE: **SMALL BUSINESS SET-ASIDE**

IMPORTANT – NOTICE TO QUOTER:

AT A MINIMUM, QUOTER SHALL SUBMIT THE FOLLOWING DOCUMENTS AS THEIR RESPONSE TO THIS SOLICITATION:

1.SF-18 Request For Quotation (Complete, date, and sign)

2.Section B – Schedule of Items (Page 1). (Complete Unit Price and Amount)

3.Section K – Representations and Certifications (Pages 30-34). (**Complete the Representations and Certifications electronically via the System for Award Management (SAM) website at *www.sam.gov*)**

4.Section J – Experience Questionnaire (Pages 28-29)

5. Acknowledgement of Amendment (If Any)

IT IS REQUIRED THAT YOU WRITE THE SOLICITATION NUMBER ON THE OUTSIDE OF YOUR ENVELOPE.

Return to: IDAWY Acquisition Service Center
1405 Hollipark Drive
Idaho Falls, ID 83401

IT IS REQUIRED THAT ALL CONTRACTOR'S BE REGISTERED IN THE SYSTEM FOR AWARD MANAGEMENT DATABASE PRIOR TO AWARD UNDER THIS SOLICITATION. SEE CLAUSE 52.204-7 SYSTEM FOR AWARD MANAGEMENT FOR DETAILS ON HOW TO APPLY.

IT IS THE OFFERORS RESPONSIBILITY TO WATCH FOR ANY AND ALL AMENDMENTS TO THE SOLICITATION, WHICH SHALL BE ISSUED ELECTRONICALLY THROUGH THE IDAWY WEBSITE AT HTTP://WWW.FS.USDA.GOV/MAIN/CTNF/WORKINGTOGETHER/CONTRACTING .

REQUEST FOR QUOTATION *(THIS IS NOT AN ORDER)*		THIS RFQ [X] IS [ ] IS NOT A SMALL BUSINESS SET- ASIDE		PAGE OF PAGES
1. REQUEST NO. **AG-02NV-S-15-0081**	2. DATE ISSUED **07/11/2015**	3. REQUISITION/PURCHASE REQUEST NO.	4. CERT. FOR NAT.DEF. UNDER BDSA REG. 2 ☐ AND/OR DMS REG. 1	RATING
5a. ISSUED BY **IDAWY Service Center, 1405 Hollipark Dr., Idaho Falls, Id 83401**			6. DELIVER BY (*Date*) **See Contract Time**	

5b. FOR INFORMATION CALL (NO COLLECT CALLS)			7. DELIVERY		FOB DESTINATION
NAME	TELEPHONE NUMBER			X	OTHER (See Schedule)
	AREA CODE	NUMBER	9. DESTINATION		
AMELIA VELASCO	**208**	**557-5848**	a. NAME OF CONSIGNEE **Section C - Location & Description**		

8. TO:			
a. NAME	b. COMPANY		b. STREET ADDRESS
c. STREET ADDRESS			c. CITY
d. CITY	e. STATE	f. ZIP CODE	d. STATE / e. ZIP CODE

10. PLEASE FURNISH QUOTATIONS TO THE ISSUING OFFICE IN BLOCK 5A ON OR BEFORE CLOSE OF BUSINESS	IMPORTANT: This is a request for information, and quotations furnished are not offers. If you are unable to quote, please so indicate on this form and return it to the address in BLOCK 5A. This request does not commit the Government to pay any costs incurred in the preparation of the submission of this quotation or to contract for supplies or services. Supplies are of domestic origin unless otherwise indicated by quoter. Any representations and/or certifications attached to this Request for Quotations must be completed by the quoter.
July 24, 2015 no later than 3:00 p.m. MST	

11. SCHEDULE (Include applicable Federal, State and local taxes)

ITEM NO. (a)	SUPPLIES/SERVICES (b)	QUANTITY (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)
	Squirrel Meadows Cabin Floor Replacement Project , Caribou-Targhee National Forest, Fremont County, Idaho.	**PLEASE PLACE YOUR QUOTE IN SECTION B- SCHEDULE OF ITEMS**			
	This requirement is being procured as a fixed-price Simplified Acquisition.				
	Quotes received after the exact time specified for receipt of quotes will not be considered.				
	FACSMILE (FAX) WILL NOT BE ACCEPTED.				

12. DISCOUNT FOR PROMPT PAYMENT ☐	a. 10 CALENDAR DAYS (%)	b. 20 CALENDAR DAYS	c. 30 CALENDAR DAYS	d. CALENDAR DAYS NUMBER	PERCENTAGE

NOTE: Additional provisions and representations [X] are [ ] are not attached.

13. NAME AND ADDRESS OF QUOTER			14. SIGNATURE OF PERSON AUTHORIZED TO SIGN QUOTATION	15. DATE OF QUOTATION
a. NAME OF QUOTER **DUNS # _____ CAGE CODE _____**				
b. STREET ADDRESS			16. SIGNER	
			a. NAME (Type or print)	b. TELEPHONE
c. COUNTY				AREA CODE
d. CITY	e. STATE	f. ZIP CODE	c. TITLE (Type or Print)	NUMBER

PART I--THE SCHEDULE

SECTION B--SUPPLIES OR SERVICES AND PRICES

SQUIRREL MEADOWS CABIN FLOOR REPLACEMENT PROJECT
Caribou-Targhee National Forest
Fremont County, Idaho

This solicitation and any resulting contract is a firm-fixed price type of contract, which under the definition in FAR 16.202-1, "this type of contract provides for a price that is not subject to any adjustment on the basis of the contractor's cost experience in performing the contract. This contract type places upon the contractor maximum risk and full responsibility for all costs and resulting profit or loss."

Quoter's shall submit a quote for all Base Items and all Optional Items in the Schedule of Items. Failure to comply with the instructions may render your quote nonresponsive and ineligible for contract award.

Prices on the Schedule shall reflect Contractor's full cost for materials, labor, supervision, overhead costs, and incidental items.

B- 1 - Schedule of Items

Pay Item	Item Description	MM*	Estimated Quantity	Pay Unit	Unit Price	Amount
011900	Mobilization	LSQ	1	LS	$_____	$_____
	Removal and Disposal of Existing Flooring	LSQ	1	LS	$_____	$_____
	Installation of Wood Flooring	LSQ	1	LS	$_____	$_____
		TOTAL AMOUNT QUOTED (All Items)				$_____

* Designated Method of Measurement:
LSQ - Lump Sum Quantities, LS – Lump Sum

B- 2: Quote on all items. Only quotes to the nearest cent will be accepted.

B- 3 - Note: Payment for bond premiums in accordance with FAR Clause 52.232-5, Payment Under Fixed-Price Construction Contracts, shall not be in addition to the contract price.

SECTION C--DESCRIPTION/SPECIFICATIONS/STATEMENT OF WORK

C- 1 - Project Description and Location

(a) Description of Work.

This project includes all labor, equipment and materials associated with installation of a new wood floor for the Squirrel Meadows cabin. Install 1" X 4" Douglas-Fir tongue and groove flooring and new wood trim. Flooring and trim shall be stained and varnished as described in the specifications. Provide labor and incidental connectors, transitions, thresholds and adhesive to provide a complete flooring installation.

(b) Project Location.

The work will be conducted at Squirrel Meadows Guard Station a historic cabin on the Ashton Ranger District. The site is accessed from HWY 47 East (through Ashton) to Hwy 32 and turn right (south) and travel 1 mile to the Ashton-Flagg Ranch Road (#261). Turn left (east) and travel 22 miles to Road #032, turn right (south) and travel to the Cabin. The structure is located approximately 24 miles east of the town of Ashton, Idaho over the Wyoming border.

(c) Site Visit. (See Section L, FAR Clause 52.236-27)

(d) Start Work.

It is estimated that work will begin in August 2015.

(e) Period of Performance. (See Section F, FAR Clause 52.211-10.)

C- 2 - Government-Furnished Property

The Government will provide the following items of Government property to the Contractor for use in the performance of this contract. This property shall be used and maintained by the Contractor in accordance with the provisions of the "Government Property" FAR clause contained elsewhere in the contract. The following items will be government furnished:

None

C- 3 – Inspection of Worksite

The Contractor acknowledges they have taken the necessary steps to ascertain the nature and location of work, and have investigated and satisfied themselves as to the general and local conditions that can affect the work or its cost. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from the responsibility of estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expenses to the government.

C- 4 – Recycling and Disposal of Refuse

With the exception of materials specifically indicated or specified to be salvaged for reuse in construction, or turned over to the Government, all refuse, excess or waste materials resulting from construction operations shall become the property of the Contractor and shall be recycled and/or disposed of. All disposals shall be in accordance with federal, state, and local laws and regulations. No disposal, viewing or sale of materials and/or equipment shall be allowed on Government property.

C- 5 – Waste Management and Disposal

Waste Management Plan shall be submitted along with 2 copies of plan within 14 days of date established for the Notice to Proceed.

The Contractor shall provide and maintain appropriate waste disposal containers or bins at the project site for the duration of the project construction. Verify with Contracting Officer for placement of disposal containers and bins on the project site.

Waste material and debris shall be picked up and deposited in the waste disposal bins on a daily basis. Containers must be emptied on a weekly basis unless more frequent empting is needed. Construction materials and debris shall not be allowed to become airborne or migrate into adjacent properties.

Burning or burying of construction waste material on site will not be permitted. Material shall be disposed of in accordance with the Waste Material Disposal specification.

C- 6 – Safety

During the execution of this contract, the Contractor shall conform to the rules and regulations as set forth by OSHA Safety and Health Standards, 29 CFR Part 1926 - Safety and Health Regulations for Construction. Smoking will not be permitted in any building or structure.

C- 7 – Site Information and Limitations

The following site conditions are considered incidental to the contract and the contractor will not be paid directly for any of the following items:

1. The construction site will be closed during construction. The Contractor will be responsible for signing and limiting access to materials and construction areas for the public.
2. Use of Site: Verify locations for materials storage and construction with COR. Do not disturb portions of site beyond areas in which the COR specifies.
3. There is no electrical service for the site. Contractor will be responsible for providing generator power if needed.
4. Water is available at the site for construction purposes, but is accessed with a hand pump.

C- 8 – Temporary Facilities/Access

Parking: Use designated areas for construction personnel or as approved by the Contracting Officer. All other parking is prohibited.

The contractor shall acknowledge they have taken the necessary steps to determine the nature and location of work, and have investigated and satisfied themselves as to the general and local conditions that can affect the work or its cost. Any failure of the contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from the responsibility of estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expenses to the government.

(a) STAGING AREA: Areas for staging operations and storage of materials shall be approved by the CO. The Contractor must request in writing for approval from the CO to stage trailers (work) on site. Overnight camping will be allowed on site.

(b) SANITARY FACILITIES: Toilet facilities will not be provided by the Government at job sites. The Contractor shall provide temporary toilet facilities (porta-potty) at the site during all construction work. Toilet facilities shall be provided at a rate of one stool for every 10 workers assigned or working on site with a minimum of one required.

(c) WATER AND ELECTRICITY: Water and utilities are not available at the site for construction purposes. The Contractor will be responsible for coordinating the installation of temporary power for the site and the cost for the service.

C-10 - Submittals

(a) Definition: Submittals - Product literature, catalog cuts, product samples, shop drawings, as-built drawings, Quality Control Plans, and other documents submitted to the Contracting Officer for information or for review and approval when required**.**

(b) Submittals shall be presented in two copies unless indicated otherwise. The Contracting Officer will return one copy of the submittal to the Contractor, whether approved or rejected.

(c) Salient characteristics of the materials proposed for use shall be clearly identified in the submittal. The Project Site Superintendent shall certify that he has reviewed the submittal and has determined that the

submittal is in full compliance with the requirements of the Contract. Illegible, incomplete, or uncertified submittals may be rejected.

(d) Submittals shall be approved by the Contracting Officer prior to any work being performed on the contract or materials being delivered to the job site.

(e) Review of submittals, and corrections or comments made during the review, does not relieve the Contractor from compliance with the requirements of this Contract.

(f) Allow 14 calendar days for government review of submittals. Review time shall commence upon receipt of a satisfactory submittal certified by the Project/Site Superintendent containing all information required to completely and thoroughly evaluate the submittal. Time shall start anew for each submittal and any required resubmissions.

C-11 – Hazardous Material Identification

Submit Material Safety Data Sheets (MSDS) for any materials defined as hazardous under the most current revision of Federal Standard 313. Two copies of each MSDS shall be submitted to the Contracting Officer no later than the delivery date of the product.

C-12 - As-Built Drawings

When Shop Drawings are required by the specifications, the Contractor shall maintain at the job site one set of contract drawings marked in red to show any deviations which are found to exist or have been made from the contract drawings. Upon completion of the work, the marked set of drawings shall be delivered to the Contracting Officer. Request for final payment will not be approved until the marked drawings are delivered to the Contracting Officer.

C-13 - AGAR 452.211-73 Attachments To Statement Of Work/Specifications (FEB 1988)

The attachments to the Statement of Work/Specifications listed in Section J are hereby made part of this solicitation and any resultant contract.

NOTE: Offeror's are cautioned to carefully review these Project Specifications prior to submission of offers. All specifications contained in Section J are binding on the parties signing the contract.

SECTION E--INSPECTION AND ACCEPTANCE

E- 1 - FAR 52.252-2 Clauses Incorporated by Reference (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es): www.arnet.gov/far/

FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) CLAUSES

52.246-12 Inspection of Construction (AUG 1996)

E- 2 – Pre-Final and Final Inspection

a. Pre-final Inspection: The Government may, at its own discretion, conduct a pre-final inspection prior to the contractor requesting a final inspection. Any discrepancies noted shall be corrected prior to final inspection.

b. Final Inspection: When the work is ready for final inspection, the Contractor shall submit a written request for the final inspection to the duly assigned Contracting Officer's Representative at least seven (7) days prior to the desired final inspection date. The final inspection will be performed with the Contractor by the appropriate Government personnel. If any discrepancies are noted, they shall be handled in accordance with 52.246-12.

SECTION F--DELIVERIES OR PERFORMANCE

F- 1 - FAR 52.252-2 Clauses Incorporated by Reference (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es): www.arnet.gov/far/

FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) CLAUSES

52.242-14 Suspension of Work (APR 1984)

F- 2 - FAR 52.211-10 Commencement, Prosecution, and Completion of Work (APR 1984)

The Contractor shall be required to (a) commence work under this contract within 10 calendar days after the date the Contractor receives the notice to proceed, (b) prosecute the work diligently, and (c) complete the entire work ready for use not later than 30 calendar days after the contractor receives the notice to proceed. The time stated for completion shall include final cleanup of the premises.

SECTION H--SPECIAL CONTRACT REQUIREMENTS

H- 1 - FAR 52.252-2 Clauses Incorporated by Reference (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es): www.arnet.gov/far/ and the Agriculture Acquisition Regulations may be accessed at www.usda.gov/da/procure/agar/subchaph.html#11.

AGRICULTURE ACQUISITION REGULATION (48 CFR CHAPTER 4) CLAUSES

452.236-72 Use of Premises (NOV 1996)

H- 2 - Use of Premises

The Contractor shall comply with the regulations governing the operation of premises which are occupied and shall perform the contract in such a manner as not to interrupt or interfere with the conduct of Government business.

H- 3 - Incidental Payment Items

The intent of the contract is to provide for the complete construction of the project described in the contract. Unless otherwise provided, the Contractor shall furnish all labor, materials, equipment, tools, transportation, and supplies and perform all work required to complete the project in accordance with drawings, specifications, and provisions of the contract. Payment for contract work will be made only for and under those pay items included in the Schedule of Items. All other work and materials will be considered as incidental to and included in the payment for items shown.

H- 4 - Conformity With Drawings and Specifications

Unless working tolerances are specified, all work performed and materials furnished shall be in reasonably close conformity with lines, grades, cross sections, dimensions, and material requirements shown on the drawings, indicated in the specifications, or designated on the ground. "Reasonably close conformity" is compliance with reasonable and customary manufacturing and construction tolerances.

H- 5 - Samples, Tests, Cited Specifications

Reference made in the contract to specifications, standards, or test methods adopted by AASHTO, ASTM, GSA, or other recognized National technical associations, shall mean specifications, standards, or test methods (including interim or tentative issues) which are in effect on the date of the solicitation.

H- 6 - Barricades, Warning Signs, and Other Devices

The Contractor shall provide, erect, and maintain all necessary barricades, suitable and sufficient lights, danger signals, signs, and other traffic control devices, and shall take all necessary precautions for the protection of the work and safety of the public. Roads closed to traffic shall be protected by effective barricades, and obstructions shall be illuminated during the hours of darkness. Suitable warning signs shall be provided to properly control and direct traffic.

The Contractor shall erect warning signs in advance to any place on the project where operations may interfere with the use of the road or trail by traffic and at all intermediate points where the new work crosses or coincides with an existing road or trail. All road barricades, warning signs, lights, temporary signals, flagmen and pilot car operators and equipment, and other protective devices, except for special devices, shall conform with Part VI of the Manual on Uniform Traffic Control Devices for Streets and Highways, published by the Federal Highway Administration and applicable safety codes.

Necessary warning signs and guards shall be posted during blasting operations to safeguard the public.

H- 7 - Contract Administration

(a) CONTRACTING OFFICER means a person with the authority to enter into, administer and/or terminate contracts and make related determinations and findings. The Contracting Officer signs all contractual documents, approves and signs all modifications to contracts, processes and approves payment requests, reviews and makes final decisions on contractual discrepancies, and administers the contract. The Contracting Officer is the only authorized individual to make changes to a contract.

(b) CONTRACTING OFFICER'S REPRESENTATIVE. The Contracting Officer will designate a representative, hereinafter referred to as the Contracting Officer's Representative (COR) or, alternatively, as the Engineer, who will provide on-the-ground administration for the Government. The COR will be designated in writing and a copy of the designation will be furnished to the Contractor before or at the pre-work conference. The Contractor is cautioned to read the COR designation because certain authority under the contract is reserved solely for the Contracting Officer. The term "Contracting Officer" as used throughout the contract shall be interpreted to include the Contracting Officer's designated representative(s) acting within the limits of their delegation of authority.

(c) CONTRACTOR'S REPRESENTATIVE. Any representative of the Contractor shall be designated in writing. The designation shall clearly indicate the name and limitations of authority, if any, of the representative.

H- 8 – Work Schedule

A ***Work Schedule*** shall define the overall time required to perform the identified work. Each major task, including beginning time and ending time, shall be identified within the schedule. Notify the Contracting Officer whenever there are significant departures from the approved Work Schedule. Submit any requests to modify the Work Schedule, in writing to the Contracting Officer with an explanation for the deviation.

H- 9 - Subcontract Data

The Contractor shall submit an executed Statement and Acknowledgment Standard Form 1413, to the Contracting Officer for every subcontractor (including every subcontractor of the second or lower tier) that will be performing work at the construction site. This shall be submitted before the subcontractor begins work. This form provides an acknowledgment by the subcontractor that mandatory "flowdown" contract clauses have been included in their contract in accordance with FAR Clause 52.222-11. Completing this form creates no contractual relationship between subcontractors and the Government.

H-10 - Site Superintendent

It shall be the responsibility of the Contractor to provide a responsible site superintendent to represent the Contractor in the field in all matters under this contract including, but not limited to construction, day-to-

day coordination of activities, control over employees and subcontractors, and coordination with local Government personnel. The site superintendent shall be designated in writing. They shall be available on site in person to respond to any and all problems during normal working hours. The site superintendent shall be responsible for on-site Quality Control.

Site superintendent shall maintain on site a file containing the following project documents.

- Executed Copy of the Contract
- Contract Drawings
- Contract Specifications
- Quality Control Plan – (up to date)
- As-Built Drawing – (up to date) if required
- Work Orders
- Modifications

This file shall be maintained and available to the Contracting Officer upon request. If the Site Superintendent is replaced, the existing Superintendent shall review all documents and ongoing issues with the new Superintendent.

H-11 - Designation of Contracting Officer Representative

Prior to the commencement of work, the COR will be designated. The COR is responsible for administering the performance of the work under this contract. In no event, however, will any understanding, agreement, modification, change order, or other matter deviating from the terms of this contract be effective or binding upon the Government unless formalized by the Contracting Officer prior to the completion of this contract.

H-12 – Pre-work Conference

Prior to commencement of work, the Contracting Officer will arrange a meeting with the Contractor to discuss the contract terms and work performance requirements. Also at this meeting such things as work progress schedule and fire prevention and suppression plans shall be developed and established in writing.

PART II--CONTRACT CLAUSES

SECTION I--CONTRACT CLAUSES

I- 1 - FAR 52.252-2 Clauses Incorporated by Reference (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):
www.arnet.gov/far/
www.usda.gov/procurement/policy/agar.html

FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) CLAUSES

52.204-10	Reporting Executive Compensation and First Tier Subcontract Awards (JUL 2013)
52.204-18	Commercial and Government Entity Code Maintenance (NOV 2014)
52.209-6	Protecting the Government's Interest when Subcontracting with Contractors Debarred, Suspended, or Proposed for Debarment (AUG 2013)
52.209-10	Prohibition on Contracting with Inverted Domestic Corporation (DEC 2014)
52.219-6	Notice of Total Small Business Set-Aside (NOV 2011)
52.219-28	Post-Award Small Business Program Rerepresentation (JUL 2013)
52.222-3	Convict Labor (JUN 2003)
52.222-55	Minimum Wages Under Executive Order 13658 (DEC 2014)
52.222-6	Construction Wage Rate Requirements (MAY 2014)
52.222-7	Withholding of Funds (MAY 2014)
52.222-8	Payrolls and Basic Records (MAY 2014)
52.222-9	Apprentices and Trainees (JUL 2005)
52.222-10	Compliance with Copeland Act Requirements (FEB 1988)
52.222-11	Subcontracts (Labor Standards) (MAY 2014)
52.222-12	Contract Termination - Debarment (MAY 2014)
52.222-13	Compliance with Construction Wage Rate Requirements and Related Act Regulations (MAY 2014)
52.222-14	Disputes Concerning Labor Standards (FEB 1988)
52.222-15	Certification of Eligibility (MAY 2014)
52.222-20	Contracts for Materials, Supplies, Articles, and Equipment Exceeding $15,000 (MAY 2014)
52.222-21	Prohibition of Segregated Facilities (FEB 1999)
52.222-26	Equal Opportunity (MAR 2007)
52.222-27	Affirmative Action Compliance Requirements for Construction (FEB 1999)
52.222-36	Equal Opportunity for Workers with Disabilities (JUL 2014)
52.222-50	Combating Trafficking in Persons (MAR 2015)
52.223-2	Affirmative Procurement of Biobased Products Under Service and Construction Contracts (SEP 2013)
52.223-3	Hazardous Material Identification and Material Safety Data (JAN 1997) Alternate I (JUL 1995)
52.223-5	Pollution Prevention and Right-to-Know Information (MAY 2011)
52.223-6	Drug-Free Workplace (MAY 2001)
52.223-17	Affirmative Procurement of EPA-designated Items in Service and Construction Contracts (MAY 2008)
52.223-18	Contractor Policy to Ban Text Messaging While Driving (AUG 2011)

52.224-1 Privacy Act Notification (APR 1984)
52.225-13 Restrictions on Certain Foreign Purchases (JUN 2008)
52.228-2 Additional Bond Security (OCT 1997)
52.228-11 Pledges of Assets (JAN 2012)
52.228-12 Prospective Subcontractor Requests for Bonds (MAY 2014)
52.228-14 Irrevocable Letter of Credit (NOV 2014)
52.232-5 Payments Under Fixed-Price Construction Contracts (MAY 2014)
52.232-23 Assignment of Claims (MAY 2014)
52.232-27 Prompt Payment for Construction Contracts (MAY 2014)
52.232-33 Payment of Electronic Funds Transfer – System for Award Management (JUL 2013)
52.232-39 Unenforceability of Unauthorized Obligations (JUN 2013)
52.233-1 Disputes (MAY 2014) Alternate I (DEC 1991)
52.233-3 Protest After Award (SEP 2006)
52.233-4 Applicable Law for Breach of Contract Claim (OCT 2004)
52.236-2 Differing Site Conditions (APR 1984)
52.236-3 Site Investigation and Conditions Affecting the Work (APR 1984)
52.236-5 Material and Workmanship (APR 1984)
52.236-6 Superintendence by the Contractor (APR 1984)
52.236-8 Other Contracts (APR 1984)
52.236-9 Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements (APR 1984)
52.236-10 Operations and Storage Areas (APR 1984)
52.236-11 Use and Possession Prior to Completion (APR 1984)
52.236-12 Cleaning Up (APR 1984)
52.236-13 Accident Prevention (NOV 1991)
52.236-14 Availability and Use of Utility Services (APR 1984)
52.236-15 Schedules for Construction Contracts (APR 1984)
52.236-17 Layout of Work (APR 1984)
52.236-21 Specifications and Drawings for Construction (FEB 1997)
52.242-13 Bankruptcy (JUL 1995)
52.243-5 Changes and Changed Conditions (APR 1984)
52.244-6 Subcontracts for Commercial Items (MAR 2015)
52.245-1 Government Property (APR 2012) ALT I (APR 2012)
52.245-9 Use and Charges (APR 2012)
52.246-21 Warranty of Construction (MAR 1994)
52.249-1 Termination for Convenience of the Government (Fixed-Price) (Short Form) (APR 1984)
52.249-10 Default (Fixed-Price Construction) (APR 1984)
52.253-1 Computer Generated Forms (JAN 1991)

AGRICULTURE ACQUISITION REGULATION (48 CFR CHAPTER 4) CLAUSES

452.224-70 Confidentiality of Information (FEB 1988)
452.236-73 Archeological or Historic Sites (FEB 1988)
452.236-74 Control of Erosion, Sedimentation and Pollution (NOV 1996)
452.236-76 Samples and Certificates (FEB 1988)
452.236-77 Emergency Response (NOV 1996)

I- 2 – FAR 52.204-12 Data Universal Numbering System Number Maintenance (DEC 2012)

(a) *Definition.* "Data Universal Numbering System (DUNS) number," as used in this clause, means the 9-digit number assigned by Dun and Bradstreet, Inc. (D&B) to identify unique business entities, which is used as the identification number for Federal contractors.

(b) The Contractor shall ensure that the DUNS number is maintained with Dun & Bradstreet throughout the life of the contract. The Contractor shall communicate any change to the DUNS number to the Contracting Officer within 30 days after the change, so an appropriate modification can be issued to update the data on the contract. A change in the DUNS number does not necessarily require a novation be accomplished. Dun & Bradstreet may be contacted—

(1) Via the internet at http://fedgov.dnb.com/webform or if the Contractor does not have internet access, it may call Dun and Bradstreet at 1-866-705-5711 if located within the United States; or

(2) If located outside the United States, by contacting the local Dun and Bradstreet office.

I- 3 – FAR 52.204-13 System for Award Management Maintenance (JUL 2013)

(a) Definitions. As used in this clause—

"Data Universal Numbering System (DUNS) number" means the 9-digit number assigned by Dun and Bradstreet, Inc. (D&B) to identify unique business entities, which is used as the identification number for Federal contractors.

"Data Universal Numbering System+4 (DUNS+4) number" means the DUNS number assigned by D&B plus a 4-character suffix that may be assigned by a business concern. (D&B has no affiliation with this 4-character suffix.) This 4-character suffix may be assigned at the discretion of the business concern to establish additional SAM records for identifying alternative Electronic Funds Transfer (EFT) accounts (see the FAR at subpart 32.11) for the same concern.

"Registered in the System for Award Management (SAM) database" means that—

(1) The Contractor has entered all mandatory information, including the DUNS number or the DUNS+4 number, the Contractor and Government Entity (CAGE) code, as well as data required by the Federal Funding Accountability and Transparency Act of 2006 (see Subpart 4.14), into the SAM database;

(2) The Contractor has completed the Core, Assertions, Representations and Certifications, and Points of Contact sections of the registration in the SAM database;

(3) The Government has validated all mandatory data fields, to include validation of the Taxpayer Identification Number (TIN) with the Internal Revenue Service (IRS). The Contractor will be required to provide consent for TIN validation to the Government as a part of the SAM registration process; and

(4) The Government has marked the record "Active".

"System for Award Management (SAM)" means the primary Government repository for prospective Federal awardee and Federal awardee information and the centralized Government system for certain contracting, grants, and other assistance-related processes. It includes—

(1) Data collected from prospective Federal awardees required for the conduct of business with the Government;

(2) Prospective contractor-submitted annual representations and certifications in accordance with FAR Subpart 4.14; and

(3) Identification of those parties excluded from receiving Federal contracts, certain subcontracts, and certain types of Federal financial and non-financial assistance and benefits.

(b) The Contractor is responsible for the accuracy and completeness of the data within the SAM database, and for any liability resulting from the Government's reliance on inaccurate or incomplete data. To remain registered in the SAM database after the initial registration, the Contractor is required to review and update on an annual basis, from the date of initial registration or subsequent updates, its information in the SAM database to ensure it is current, accurate and complete. Updating information in the SAM does not alter the terms and conditions of this contract and is not a substitute for a properly executed contractual document.

(c) (1)

(i) If a Contractor has legally changed its business name, doing business as name, or division name (whichever is shown on the contract), or has transferred the assets used in performing the contract, but has not completed the necessary requirements regarding novation and change-of-name agreements in subpart 42.12, the Contractor shall provide the responsible Contracting Officer a minimum of one business day's written notification of its intention to—

(A) Change the name in the SAM database;

(B) Comply with the requirements of subpart 42.12 of the FAR; and

(C) Agree in writing to the timeline and procedures specified by the responsible Contracting Officer. The Contractor shall provide with the notification sufficient documentation to support the legally changed name.

(ii) If the Contractor fails to comply with the requirements of paragraph (c)(1)(i) of this clause, or fails to perform the agreement at paragraph (c)(1)(i)(C) of this clause, and, in the absence of a properly executed novation or change-of-name agreement, the SAM information that shows the Contractor to be other than the Contractor indicated in the contract will be considered to be incorrect information within the meaning of the "Suspension of Payment" paragraph of the electronic funds transfer (EFT) clause of this contract.

(2) The Contractor shall not change the name or address for EFT payments or manual payments, as appropriate, in the SAM record to reflect an assignee for the purpose of assignment of claims (see FAR subpart 32.8, Assignment of Claims). Assignees shall be separately registered in the SAM. Information provided to the Contractor's SAM record that indicates payments, including those made by EFT, to an ultimate recipient other than that Contractor will be considered to be incorrect information within the meaning of the "Suspension of Payment" paragraph of the EFT clause of this contract.

(3) The Contractor shall ensure that the DUNS number is maintained with Dun & Bradstreet throughout the life of the contract. The Contractor shall communicate any change to the DUNS number to

the Contracting Officer within 30 days after the change, so an appropriate modification can be issued to update the data on the contract. A change in the DUNS number does not necessarily require a novation be accomplished. Dun & Bradstreet may be contacted

(i) Via the internet at http://fedgov.dnb.com/webform or if the contractor does not have internet access, it may call Dun and Bradstreet at 1-866-705-5711 if located within the United States; or

(ii) If located outside the United States, by contacting the local Dun and Bradstreet office.

(d) Contractors may obtain additional information on registration and annual confirmation requirements at https://www.acquisition.gov.

I- 4 - AGAR 452.209-71 Assurance Regarding Felony Conviction Or Tax Delinquent Status For Corporate Applicants (FEB 2012) Alt I (FEB 2012)

(a) This award is subject to the provisions contained in the Consolidated Appropriations Act, 2012 (P.L. No. 112-74), Division E, Sections 433 and 434 regarding corporate felony convictions and corporate federal tax delinquencies. Accordingly, by accepting this award the contractor acknowledges that it –

(1) does not have a tax delinquency, meaning that it is not subject to any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability, and

(2) has not been convicted (or had an officer or agent acting on its behalf convicted) of a felony criminal violation under any Federal law within 24 months preceding the award, unless a suspending and debarring official of the United States Department of Agriculture has considered suspension or debarment of the awardee, or such officer or agent, based on these convictions and/or tax delinquencies and determined that suspension or debarment is not necessary to protect the interests of the Government.

(b) If the awardee fails to comply with these provisions, the Forest Service may terminate this contract for default and may recover any funds the awardee has received in violation of sections 433 or 434.

I- 5 - FAR 52.225-9 Buy American Act-Construction Materials (MAY 2014)

(a) *Definitions*. As used in this clause—

"Commercially available off-the-shelf (COTS) item"—

(1) Means any item of supply (including construction material) that is—

(i) A commercial item (as defined in paragraph (1) of the definition at FAR 2.101);

(ii) Sold in substantial quantities in the commercial marketplace; and

(iii) Offered to the Government, under a contract or subcontract at any tier, without modification, in the same form in which it is sold in the commercial marketplace; and

(2) Does not include bulk cargo, as defined in 46 U.S.C. 40102(4), such as agricultural products and petroleum products.

“Component” means an article, material, or supply incorporated directly into a construction material.

“Construction material” means an article, material, or supply brought to the construction site by the Contractor or a subcontractor for incorporation into the building or work. The term also includes an item brought to the site preassembled from articles, materials, or supplies. However, emergency life safety systems, such as emergency lighting, fire alarm, and audio evacuation systems, that are discrete systems incorporated into a public building or work and that are produced as complete systems, are evaluated as a single and distinct construction material regardless of when or how the individual parts or components of those systems are delivered to the construction site. Materials purchased directly by the Government are supplies, not construction material.

“Cost of components” means—

(3) For components purchased by the Contractor, the acquisition cost, including transportation costs to the place of incorporation into the construction material (whether or not such costs are paid to a domestic firm), and any applicable duty (whether or not a duty-free entry certificate is issued); or

(4) For components manufactured by the Contractor, all costs associated with the manufacture of the component, including transportation costs as described in paragraph (1) of this definition, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the construction material.

“Domestic construction material” means—

(1) An unmanufactured construction material mined or produced in the United States;

(2) A construction material manufactured in the United States, if—

(i) The cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. Components of foreign origin of the same class or kind for which nonavailability determinations have been made are treated as domestic; or

(ii) The construction material is a COTS item.

“Foreign construction material” means a construction material other than a domestic construction material.

“United States” means the 50 States, the District of Columbia, and outlying areas.

(b) Domestic preference.

(1) This clause implements 41 U.S.C. chapter 83, Buy American, by providing a preference for domestic construction material. In accordance with 41 U.S.C. 1907, the component test of the Buy American statute is waived for construction material that is a COTS item. (See FAR 12.505(a)(2)). The Contractor shall use only domestic construction material in performing this contract, except as provided in paragraphs (b)(2) and (b)(3) of this clause.

(2) This requirement does not apply to information technology that is a commercial item or to the construction materials or components listed by the Government as follows:

NONE

(3) The Contracting Officer may add other foreign construction material to the list in paragraph (b)(2) of this clause if the Government determines that—

(i) The cost of domestic construction material would be unreasonable. The cost of a particular domestic construction material subject to the requirements of the Buy American statute is unreasonable when the cost of such material exceeds the cost of foreign material by more than 6 percent;

(ii) The application of the restriction of the Buy American statute to a particular construction material would be impracticable or inconsistent with the public interest; or

(iii) The construction material is not mined, produced, or manufactured in the United States in sufficient and reasonably available commercial quantities of a satisfactory quality.

(c) Request for determination of inapplicability of the Buy American statute.

(1) (i) Any Contractor request to use foreign construction material in accordance with paragraph (b)(3) of this clause shall include adequate information for Government evaluation of the request, including—

(A) A description of the foreign and domestic construction materials;
(B) Unit of measure;
(C) Quantity;
(D) Price;
(E) Time of delivery or availability;
(F) Location of the construction project;
(G) Name and address of the proposed supplier; and
(H) A detailed justification of the reason for use of foreign construction materials cited in accordance with paragraph (b)(3) of this clause.

(ii) A request based on unreasonable cost shall include a reasonable survey of the market and a completed price comparison table in the format in paragraph (d) of this clause.

(iii) The price of construction material shall include all delivery costs to the construction site and any applicable duty (whether or not a duty-free certificate may be issued).

(iv) Any Contractor request for a determination submitted after contract award shall explain why the Contractor could not reasonably foresee the need for such determination and could not have requested the determination before contract award. If the Contractor does not submit a satisfactory explanation, the Contracting Officer need not make a determination.

(2) If the Government determines after contract award that an exception to the Buy American statute applies and the Contracting Officer and the Contractor negotiate adequate consideration, the Contracting Officer will modify the contract to allow use of the foreign construction material. However, when the basis for the exception is the unreasonable price of a domestic construction material, adequate consideration is not less than the differential established in paragraph (b)(3)(i) of this clause.

(3) Unless the Government determines that an exception to the Buy American statute applies, use of foreign construction material is noncompliant with the Buy American statute.

(d) *Data*. To permit evaluation of requests under paragraph (c) of this clause based on unreasonable cost, the Contractor shall include the following information and any applicable supporting data based on the survey of suppliers:

Foreign and Domestic Construction Materials Price Comparison

Construction Material Description	Unit of Measure	Quantity	Price (Dollars)*
Item 1:			
Foreign construction material	_____	_____	_____
Domestic construction material	_____	_____	_____
Item 2:	_____	_____	_____
Foreign construction material	_____	_____	_____
Domestic construction material			

[*List name, address, telephone number, and contact for suppliers surveyed. Attach copy of response; if oral, attach summary.*]
[*Include other applicable supporting information.*]
[** Include all delivery costs to the construction site and any applicable duty (whether or not a duty-free entry certificate is issued).*]

I- 6 - FAR 52.228-13 Alternative Payment Protections (JUL 2000)

(a) The Contractor shall submit one of the following payment protections:

(1) Payment Bond
(2) Irrevocable Letter of Credit (ILC)
(3) Money orders, drafts, cashier's checks, or certified checks.

(b) The amount of the payment protection shall be 100 percent of the contract price.

(c) The submission of the payment protection is required within 10 days of contract award.

(d) The payment protection shall provide protection for the full contract performance period plus a one-year period.

(e) Except for escrow agreements and payment bonds, which provide their own protection procedures, the Contracting Officer is authorized to access funds under the payment protection when it has been alleged in writing by a supplier of labor or material that a nonpayment has occurred, and to withhold such funds pending resolution by administrative or judicial proceedings or mutual agreement of the parties.

(f) When a tripartite escrow agreement is used, the Contractor shall utilize only suppliers of labor and material that signed the escrow agreement.

I- 7 - AGAR 452.228-70 Alternative Forms of Security (NOV 1996)

If furnished as security, money orders, drafts, cashier's checks, or certified checks shall be drawn payable to: USDA Forest Service.

I- 8 – FAR 52.232-40 Providing Accelerated Payment to Small Business Subcontractors (DEC 2013)

(a) Upon receipt of accelerated payments from the Government, the Contractor shall make accelerated payments to its small business subcontractors under this contract, to the maximum extent practicable and prior to when such payment is otherwise required under the applicable contract or subcontract, after receipt of a proper invoice and all other required documentation from the small business subcontractor.

(b) The acceleration of payments under this clause does not provide any new rights under the Prompt Payment Act.

(c) Include the substance of this clause, including this paragraph (c), in all subcontracts with small business concerns, including subcontracts with small business concerns for the acquisition of commercial items.

I- 9 – FAR 52.236-7 Permits and Responsibilities (NOV 1991)

The Contractor shall, without additional expense to the Government, be responsible for obtaining any necessary licenses and permits, and for complying with any Federal, State, and municipal laws, codes, and regulations applicable to the performance of the work. The Contractor shall also be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire work, except for any completed unit of work which may have been accepted under the contract.

I-10 - Order of Precedence--Construction

Any inconsistency in this solicitation or contract shall be resolved by giving precedence in the following order:

(a) The Schedule (excluding the Specifications) (Sections A-H).

(b) The representations and other instructions (Sections K and L).

(c) Contract clauses (Section I).

(d) Other Documents, Exhibits, and Attachments (Section J).

(e) The Specifications.

(f) Drawings.

I-11 - Landscape Preservation

(a) The Contractor shall confine operations to within the clearing limits or other areas designated in contract documents, and prevent the depositing of rocks, excavated materials, stumps, or other debris

outside of these limits. Material, which falls outside of these limits, shall be retrieved, disposed of, or incorporated in the work as directed by the Contracting Officer.

(b) Operation shall be scheduled and conducted to minimize erosion of soils and to prevent silting and muddying of streams, rivers, irrigation systems, and impoundments (lakes, reservoirs, etc.).

Pollutants such as fuels, lubricants, bitumens, raw sewage, and other harmful materials shall not be discharged into or near rivers, streams, and impoundments or into natural or manmade channels leading thereto. Wash water or waste water from concrete or aggregate operations shall not be allowed to enter live streams prior to treatment by filtration, settling, or other means sufficient to reduce the sediment content to not more than that of the stream into which it is discharged.

Mechanized equipment shall not be operated in live streams without written approval by the Contracting Officer.

PART III--LIST OF DOCUMENTS, EXHIBITS, AND OTHER ATTACHMENTS

SECTION J--LIST OF ATTACHMENTS

J- 1 – Construction Wage Rate Requirements: If this is a contract in excess of $2,000, the Davis Bacon Act requires the Contractor to pay certain minimum wages and benefits to employees working under this contract. These required minimum wages are stated in the attached Wage Decision.

J- 2 - Wage Decision No. ID150021 06/05/2015

J- 3 - Specification(s) –

See separate attached document. The following specifications are a part of this solicitation and any resulting contract.

J- 4 - Exhibit(s) –

The following exhibit is part of this solicitation and will be used for evaluation purposes only. This exhibit will not be incorporated into the contract.

Exhibit 01 – Experience Questionnaire

See separate attached document for exhibit 2. The following exhibit is part of this solicitation and any resulting contract.

Exhibit 02 – National Wood Flooring Association Installation Guidelines

J- 5 – Drawing(s) –

See separate attached document. The following drawings are a part of this solicitation and any resulting contract.

General Decision Number: ID150021 06/05/2015 ID21

Superseded General Decision Number: ID20140021

State: Idaho

Construction Type: Building

Counties: Bear Lake, Bingham, Fremont, Lemhi, Oneida and
Teton Counties in Idaho.

Note: Executive Order (EO) 13658 establishes an hourly minimum wage of $10.10 for 2015 that applies to all contracts subject to the Davis-Bacon Act for which the solicitation is issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.10 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/02/2015
1	01/16/2015
2	01/23/2015
3	05/08/2015
4	06/05/2015

BRID0003-003 06/01/2014

	Rates	Fringes
BRICKLAYER	$ 23.60	14.23

CARP0808-001 06/01/2014

	Rates	Fringes
CARPENTER	$ 26.25	13.80

ZONE PAY:
ZONE 1 0-30 MILES: FREE
ZONE 2 MORE THAN 30-60 MILES: $2.00/PER HOUR
ZONE 3 MORE THAN 60 MILES: $3.00/PER HOUR

If a project is located in more than one zone the lower zone rate shall apply

ZONES SHALL BE MEASURED FROM THE THE FOLLOWING U.S. POST OFFICES:

BOISE: 304 N. 8TH STREET
TWIN FALLS: 253 2ND AVE. WEST
POCATELLO: CLARK STREET
IDAHO FALLS: 875 NORTH CAPITAL AVE.

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* ELEC0449-007 06/01/2015

	Rates	Fringes
ELECTRICIAN (Including Low Voltage Wiring)	$ 27.83	12.67

ENGI0370-013 08/01/2013

ZONE 1 (Anyone working on HAZMAT jobs working with supplied air shall receive $1.00 per hour above classification)

	Rates	Fringes
POWER EQUIPMENT OPERATOR:		
Group 3		
Forklift	$ 26.44	10.25
Group 5		
Backhoe (up to 3/4 yd), Industrial Oiler	$ 26.92	10.25
Group 6		
Backhoe (3/4 yd to 3 1/2 yd), Crane (up to and including 50 ton)	$ 27.09	10.25
Group 7		
Excavator, Crane (over 50 tons), Tower Crane, Heavy Duty Mechanic	$ 27.46	10.25

ZONE PAY:
Zone Centers: Boise, Twin Falls, Pocatello, and Idaho Falls
Zone 1 0 - 30 miles: free
Zone 2 30 - 60 miles: $25.00/per day
Zone 3 More than 60 miles: $30.00/per day.

CRANE LONG BOOM PAY:

A. Crane Booms, 100ft to 150ft, fifteen cents over scale
B. Crane Booms, 150 ft to 200 ft, thirty cents over scale
C. Crane Booms, over 200 ft., forty-five cents over scale

IRON0732-002 06/01/2013

	Rates	Fringes
IRONWORKER, STRUCTURAL	$ 26.00	17.70+a

a: PAID HOLIDAYS: New Years Day, Memorial Day, July 4th, Labor Day, Veteran's DAy, Thanksgiving Day, Day following Thanksgiving, and Christmas Day.

LABO0155-005 01/01/2015

	Rates	Fringes

LABORER (Common or General)
Group 1.....$ 25.79 11.45
LABORER: Mason Tender -
Cement/Concrete
Group 4.....$ 26.09 11.45

PLUM0648-004 06/01/2013

	Rates	Fringes
PLUMBER	$ 27.93	14.25

ROOF0200-002 06/01/2012

	Rates	Fringes
ROOFER	$ 21.52	10.70

SHEE0103-003 07/01/2014

	Rates	Fringes
SHEET METAL WORKER, Includes HVAC Duct Installation	$ 25.11	15.88

TEAM0983-001 01/01/2015

	Rates	Fringes
TRUCK DRIVER		
GROUP 5A	$ 24.51	13.55
GROUP 5B	$ 24.69	13.55
GROUP 5C	$ 24.92	13.55
GROUP 5D	$ 25.03	13.55
GROUP 5E	$ 25.66	13.55
GROUP 5F	$ 26.10	13.55

GROUP DEFINITIONS:

GROUP 5A: Dump (0-16 yds)
GROUP 5B: Dump (16-30 yds)
GROUP 5C: Dump (30-50 yds)
GROUP 5D: Dump (50-75 yds)
GROUP 5E: Dump (75-100 yds)
GROUP 5F: Dump (over 100 yds)

SUID2010-014 08/08/2012

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 14.76	2.80
INSULATOR - MECHANICAL (Duct, Pipe & Mechanical System Insulation)	$ 20.13	1.80
PAINTER: Brush, Roller and Spray	$ 16.12	0.00
SPRINKLER FITTER (Fire		

Sprinklers).....$ 26.80 12.00

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the

wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

Exhibit 01

USDA Forest Service **EXPERIENCE QUESTIONNAIRE** Instructions: See Box 11, Remarks, if extra space is needed to answer any item below, Mark "X: in appropriate boxes.	1. Contractor Name, Address, and Telephone Number

2. Submitted to (Office Name and Address)	3. Business [ ] Company [ ] Co-partnership [ ] Corporation [ ] Individual [ ] Non-profit Organization	4. How many years do you or your firm have in the line of work contemplated by this solicitation?

5. How many years experience have you or your business had as a (a) prime contractor ____ and/or (b) sub-contractor ____?

6. List below the projects your business has completed within the last three years:

Contract Amount	Type of Project	Date Completed	Name, Address, and Telephone No. of Owner/Person to Contact for Project Information

7. List below all of your firm's contractual commitments running concurrently with the work contemplated by this solicitation:

Contract Number	Dollar Amt. of Award	Name, Address, and Telephone No. of Business/Government Agency Involved	Awarded (Units)	Percent Completed	Date Contract Complete

8a. Have you ever failed to complete any work awarded to you? [ ] Yes [ ] No
8b. Has work ever been completed by performance bond? [ ] Yes [ ] No
8c. Did you look at the project site(s) on-the-ground? [ ] Yes [ ] No
8d. If "Yes" to either item 8a. or 8b., specify location(s) and reason(s) why:

EXPERIENCE QUESTIONNAIRE CONTINUED

9. Employees and equipment that will be available for this project:
   a. (1) Minimum number of employees: _____ and (2) Maximum number of employees: _____
   b. Are employees regularly on your payroll: [ ] Yes [ ] No
   c. Specify equipment available for this contract:_____
   _____
   _____
   d. Estimate rate of progress below (such as 2.0 acres/man/day):
   (1) Minimum progress rate:_____ and (2) Maximum progress rate: _____

10. List below the experience of the principal individuals of your business: (Who will directly be involved in this contract?)

Individual's Name	Present Position	Years of Experience	Magnitude and Type of Work

11. Remarks -- Specify Box Numbers (*Attach sheets if extra space is needed to fully answer any above question*.):

NOTE: PLEASE PROVIDE ANY ADDITIONAL INFORMATION THAT WILL HELP EVALUATE YOUR ABILITY TO SUCCESSFULLY COMPLETE THIS PROJECT.

CERTIFICATION **I certify that all of the statements made by me are complete and correct to the best of my knowledge, and that any persons named as references are authorized to furnish the Forest Service with any information needed to verify my capability to perform this project.**	12a. CERTIFYING OFFICIAL'S NAME AND TITLE	
	b. SIGNATURE *(Sign in ink)*	13. DATE

PART IV--REPRESENTATIONS AND INSTRUCTIONS

SECTION K--REPRESENTATIONS, CERTIFICATIONS, ANDOTHER STATEMENTS OF OFFERORS OR RESPONDENTS

K- 1 - FAR 52.204-8 Annual Representations and Certifications (DEC 2014)

(a)(1) The North American Industry Classification System (NAICS) code for this acquisition is 238330.

(2) The small business size standard is $15.0 Million.

(3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

(b)(1) If the provision at 52.204-7, System for Award Management, is included in this solicitation, paragraph (d) of this provision applies.

(2) If the provision at 52.204-7 is not included in this solicitation, and the offeror is currently registered in the System for Award Management (SAM), and has completed the Representations and Certifications section of SAM electronically, the offeror may choose to use paragraph (d) of this provision instead of completing the corresponding individual representations and certifications in the solicitation. The offeror shall indicate which option applies by checking one of the following boxes:

[ ] (i) Paragraph (d) applies.

[ ] (ii) Paragraph (d) does not apply and the offeror has completed the individual representations and certifications in the solicitation.

(c)(1) The following representations or certifications in SAM are applicable to this solicitation as indicated:

(i) 52.203-2, Certificate of Independent Price Determination. This provision applies to solicitations when a firm-fixed-price contract or fixed-price contract with economic price adjustment is contemplated, unless—

(A) The acquisition is to be made under the simplified acquisition procedures in Part 13;

(B) The solicitation is a request for technical proposals under two-step sealed bidding procedures; or

(C) The solicitation is for utility services for which rates are set by law or regulation.

(ii) 52.203-11, Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions. This provision applies to solicitations expected to exceed $150,000.

(iii) 52.204-3, Taxpayer Identification. This provision applies to solicitations that do not include the provision at 52.204-7, System for Award Management.

(iv) 52.204-5, Women-Owned Business (Other Than Small Business). This provision applies to solicitations that—

(A) Are not set aside for small business concerns;

(B) Exceed the simplified acquisition threshold; and

(C) Are for contracts that will be performed in the United States or its outlying areas.

(v) 52.209-2, Prohibition on Contracting with Inverted Domestic Corporations—Representation.

(vi) 52.209-5, Certification Regarding Responsibility Matters. This provision applies to solicitations where the contract value is expected to exceed the simplified acquisition threshold.

(vii) 52.214-14, Place of Performance—Sealed Bidding. This provision applies to invitations for bids except those in which the place of performance is specified by the Government.

(viii) 52.215-6, Place of Performance. This provision applies to solicitations unless the place of performance is specified by the Government.

(ix) 52.219-1, Small Business Program Representations (Basic & Alternate I). This provision applies to solicitations when the contract will be performed in the United States or its outlying areas.

(A) The basic provision applies when the solicitations are issued by other than DoD, NASA, and the Coast Guard.

(B) The provision with its Alternate I applies to solicitations issued by DoD, NASA, or the Coast Guard.

(x) 52.219-2, Equal Low Bids. This provision applies to solicitations when contracting by sealed bidding and the contract will be performed in the United States or its outlying areas.

(xi) 52.222-22, Previous Contracts and Compliance Reports. This provision applies to solicitations that include the clause at 52.222-26, Equal Opportunity.

(xii) 52.222-25, Affirmative Action Compliance. This provision applies to solicitations, other than those for construction, when the solicitation includes the clause at 52.222-26, Equal Opportunity.

(xiii) 52.222-38, Compliance with Veterans' Employment Reporting Requirements. This provision applies to solicitations when it is anticipated the contract award will exceed the simplified acquisition threshold and the contract is not for acquisition of commercial items.

(xiv) 52.223-1, Biobased Product Certification. This provision applies to solicitations that require the delivery or specify the use of USDA–designated items; or include the clause at 52.223-2, Affirmative Procurement of Biobased Products Under Service and Construction Contracts.

(xv) 52.223-4, Recovered Material Certification. This provision applies to solicitations that are for, or specify the use of, EPA–designated items.

(xvi) 52.225-2, Buy American Certificate. This provision applies to solicitations containing the clause at 52.225-1.

(xvii) 52.225-4, Buy American—Free Trade Agreements—Israeli Trade Act Certificate. (Basic, Alternates I, II, and III.) This provision applies to solicitations containing the clause at 52.225-3.

(A) If the acquisition value is less than $25,000, the basic provision applies.

(B) If the acquisition value is $25,000 or more but is less than $50,000, the provision with its Alternate I applies.

(C) If the acquisition value is $50,000 or more but is less than $79,507, the provision with its Alternate II applies.

(D) If the acquisition value is $79,507 or more but is less than $100,000, the provision with its Alternate III applies.

(xviii) 52.225-6, Trade Agreements Certificate. This provision applies to solicitations containing the clause at 52.225-5.

(xix) 52.225-20, Prohibition on Conducting Restricted Business Operations in Sudan—Certification. This provision applies to all solicitations.

(xx) 52.225-25, Prohibition on Contracting with Entities Engaging in Certain Activities or Transactions Relating to Iran-Representation and Certifications. This provision applies to all solicitations.

(xxi) 52.226-2, Historically Black College or University and Minority Institution Representation. This provision applies to solicitations for research, studies, supplies, or services of the type normally acquired from higher educational institutions.

(2) The following certifications are applicable as indicated by the Contracting Officer:

[Contracting Officer check as appropriate.]

__ (i) 52.204-17, Ownership or Control of Offeror.

__ (ii) 52.222-18, Certification Regarding Knowledge of Child Labor for Listed End Products.

__ (iii) 52.222-48, Exemption from Application of the Service Contract Labor Standards to Contracts for Maintenance, Calibration, or Repair of Certain Equipment- Certification.

__ (iv) 52.222-52, Exemption from Application of the Service Contract Labor Standards to Contracts for Certain Services-Certification.

__ (v) 52.223-9, with its Alternate I, Estimate of Percentage of Recovered Material Content for EPA–Designated Products (Alternate I only).

__ (vi) 52.227-6, Royalty Information.

__ (A) Basic.

__(B) Alternate I.

__ (vii) 52.227-15, Representation of Limited Rights Data and Restricted Computer Software.

(d) The offeror has completed the annual representations and certifications electronically via the SAM website accessed through https://www.acquisition.gov. After reviewing the SAM database information, the offeror verifies by submission of the offer that the representations and certifications currently posted electronically that apply to this solicitation as indicated in paragraph (c) of this provision have been entered or updated within the last 12 months, are current, accurate, complete, and applicable to this solicitation (including the business size standard applicable to the NAICS code referenced for this solicitation), as of the date of this offer and are incorporated in this offer by reference (see FAR 4.1201); except for the changes identified below [offeror to insert changes, identifying change by clause number, title, date]. These amended representation(s) and/or certification(s) are also incorporated in this offer and are current, accurate, and complete as of the date of this offer.

FAR Clause # Title Date Change

_____ _____ _____ _____

Any changes provided by the offeror are applicable to this solicitation only, and do not result in an update to the representations and certifications posted on SAM.

K- 2 – FAR 52.204-10 Incorporation by Reference of Representations and Certifications (DEC 2014)

The Contractor's representations and certifications, including those completed electronically via the System for Award Management (SAM), are incorporated by reference into the contract.

K- 3 - AGAR 452.209-70 Representation by Corporations Regarding an Unpaid Delinquent Tax Liability or a Felony Conviction (Deviation 2012-01) (FEB 2012) Alt I (FEB 2012)

(a.) Awards made under this solicitation are subject to the provisions contained in the Consolidated Appropriations Act, 2012 (P.L. No. 112-74), Division E, Sections 433 and 434 regarding corporate felony convictions and corporate federal tax delinquencies. To comply with these provisions, all offerors must complete paragraph (1) of this representation, and all corporate offerors also must complete paragraphs (2) and (3) of this representation.

(b) The Offeror represents that –

(1) The Offeror is [ ], is not [ ] *(check one)* an entity that has filed articles of incorporation in one of the fifty states, the District of Columbia, or the various territories of the United States including American Samoa, Federated States of Micronesia, Guam, Midway Islands, Northern Mariana Islands, Puerto Rico, Republic of Palau, Republic of the Marshall Islands, U.S. Virgin Islands. (Note that this includes both for-profit and non-profit organizations.)

If the Offeror checked "is" above, the Offeror must complete paragraphs (2) and (3) of the representation. If Offeror checked "is not" above, Offeror may leave the remainder of the representation blank.

(2) (i) The Offeror has [ ], has not [ ] *(check one)* been convicted of a felony criminal violation under Federal or State law in the 24 months preceding the date of offer.

(ii) Offeror has [ ], has not [ ] *(check one)* had any officer or agent of Offeror convicted of a felony criminal violation for actions taken on behalf of Offeror under Federal law in the 24 months preceding the date of offer.

(3) The Offeror does [ ], does not [ ] *(check one)* have any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

SECTION L--INSTRUCTIONS, CONDITIONS, AND NOTICES TO OFFERORS OR RESPONDENTS

L- 1 - Inquiries

Inquiries and all correspondence concerning this solicitation should be submitted in writing to the Contracting Officer. Quoters should contact only the Contracting Officer issuing the solicitation about any aspect of this requirement prior to contract award.

All questions shall be submitted in writing to the Contracting Officer no later than July 21, 2015.

L- 2 – FAR 52.204-7 System for Award Management (JUL 2013)

(a) Definitions. As used in this provision—

"Data Universal Numbering System (DUNS) number" means the 9-digit number assigned by Dun and Bradstreet, Inc. (D&B) to identify unique business entities.

"Data Universal Numbering System +4 (DUNS+4) number" means the DUNS number assigned by D&B plus a 4-character suffix that may be assigned by a business concern. (D&B has no affiliation with this 4-character suffix.) This 4-character suffix may be assigned at the discretion of the business concern to establish additional System for Award Management records for identifying alternative Electronic Funds Transfer (EFT) accounts (see the FAR at Subpart 32.11) for the same concern.

"Registered in the System for Award Management (SAM) database" means that—

(1) The offeror has entered all mandatory information, including the DUNS number or the DUNS+4 number, the Contractor and Government Entity (CAGE) code, as well as data required by the Federal Funding Accountability and Transparency Act of 2006 (see Subpart 4.14) into the SAM database;

(2) The offeror has completed the Core, Assertions, and Representations and Certifications, and Points of Contact sections of the registration in the SAM database;

(3) The Government has validated all mandatory data fields, to include validation of the Taxpayer Identification Number (TIN) with the Internal Revenue Service (IRS). The offeror will be required to provide consent for TIN validation to the Government as a part of the SAM registration process; and

(4) The Government has marked the record "Active".

(b) (1) By submission of an offer, the offeror acknowledges the requirement that a prospective awardee shall be registered in the SAM database prior to award, during performance, and through final payment of any contract, basic agreement, basic ordering agreement, or blanket purchasing agreement resulting from this solicitation.

(2) The offeror shall enter, in the block with its name and address on the cover page of its offer, the annotation "DUNS" or "DUNS +4" followed by the DUNS or DUNS +4 number that identifies the offeror's name and address exactly as stated in the offer. The DUNS number will be used by the Contracting Officer to verify that the offeror is registered in the SAM database.

(c) If the offeror does not have a DUNS number, it should contact Dun and Bradstreet directly to obtain one.

(1) An offeror may obtain a DUNS number—

(i) Via the Internet at http://fedgov.dnb.com/webform or if the offeror does not have internet access, it may call Dun and Bradstreet at 1-866-705-5711 if located within the United States; or

(ii) If located outside the United States, by contacting the local Dun and Bradstreet office. The offeror should indicate that it is an offeror for a U.S. Government contract when contacting the local Dun and Bradstreet office.

(2) The offeror should be prepared to provide the following information:

(i) Company legal business.

(ii) Tradestyle, doing business, or other name by which your entity is commonly recognized.

(iii) Company Physical Street Address, City, State, and ZIP Code.

(iv) Company Mailing Address, City, State and ZIP Code (if separate from physical).

(v) Company Telephone Number.

(vi) Date the company was started.

(vii) Number of employees at your location.

(viii) Chief executive officer/key manager.

(ix) Line of business (industry).

(x) Company Headquarters name and address (reporting relationship within your entity).

(d) If the Offeror does not become registered in the SAM database in the time prescribed by the Contracting Officer, the Contracting Officer will proceed to award to the next otherwise successful registered Offeror.

(e) Processing time, which normally takes 48 hours, should be taken into consideration when registering. Offerors who are not registered should consider applying for registration immediately upon receipt of this solicitation.

(f) Offerors may obtain information on registration at https://www.acquisition.gov.

L- 3 – FAR 52.222-5 Construction Wage Rate Requirements – Secondary Site of the Work (MAY 2014)

(a) (1) The offeror shall notify the Government if the offeror intends to perform work at any secondary site of the work, as defined in paragraph (a)(1)(ii) of the FAR clause at 52.222-6, Construction Wage Rate Requirements, of this solicitation.

(2) If the offeror is unsure if a planned work site satisfies the criteria for a secondary site of the work, the offeror shall request a determination from the Contracting Officer.

(b) (1) If the wage determination provided by the Government for work at the primary site of the work is not applicable to the secondary site of the work, the offeror shall request a wage determination from the Contracting Officer.

(2) The due date for receipt of offers will not be extended as a result of an offeror's request for a wage determination for a secondary site of the work.

L- 4 - FAR 52.222-23 Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity for Construction (FEB 1999)

(a) The offeror's attention is called to the Equal Opportunity clause and the Affirmative Action Compliance Requirements for Construction clause of this solicitation.

(b) The goals for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered are, are as follows:

Goals for minority participation for each trade	Goals for female participation for each trade
4.0%	6.9%

These goals are applicable to all the Contractor's construction work performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, the Contractor shall apply the goals established for the geographical area where the work is actually performed. Goals are published periodically in the *Federal Register* in notice form, and these notices may be obtained from any Office of Federal Contract Compliance Programs office.

(c) The Contractor's compliance with Executive Order 11246, as amended, and the regulations in 41 CFR 60-4 shall be based on (1) its implementation of the Equal Opportunity clause, (2) specific affirmative actions obligations required by the clause entitled "Affirmative Action Compliance Requirements for Construction," and (3) its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade. The Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor, or from project to project, for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, Executive Order 11246, as amended, and the regulations in 41 CFR 60-4. Compliance with the goals will be measured against the total work hours performed.

(d) The Contractor shall provide written notification to the Deputy Assistant Secretary for Federal Contract Compliance, U. S. Department of Labor, within 10 working days following award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the--

(1) Name, address, and telephone number of the subcontractor;

(2) Employer's identification number of the subcontractor;

(3) Estimated dollar amount of the subcontract;

(4) Estimated starting and completion dates of the subcontract; and

(5) Geographical area in which the subcontract is to be performed.

(e) As used in this Notice, and in any contract resulting from this solicitation, the "covered area" is St. Anthony, Fremont County, Idaho.

L- 5 - FAR 52.225-10 Notice of Buy American Act Requirement - Construction Materials (MAY 2014)

(a) Definitions. “Commercially available off-the-shelf (COTS) item,” “construction material,” “domestic construction material,” and “foreign construction material,” as used in this provision, are defined in the clause of this solicitation entitled “Buy American—Construction Materials” (Federal Acquisition Regulation (FAR) clause 52.225-9).

(b) Requests for determinations of inapplicability. An offeror requesting a determination regarding the inapplicability of the Buy American statute should submit the request to the Contracting Officer in time to allow a determination before submission of offers. The offeror shall include the information and applicable supporting data required by paragraphs (c) and (d) of the clause at FAR 52.225-9 in the request. If an offeror has not requested a determination regarding the inapplicability of the Buy American statute before submitting its offer, or has not received a response to a previous request, the offeror shall include the information and supporting data in the offer.

(c) Evaluation of offers.

(1) The Government will evaluate an offer requesting exception to the requirements of the Buy American statute, based on claimed unreasonable cost of domestic construction material, by adding to the offered price the appropriate percentage of the cost of such foreign construction material, as specified in paragraph (b)(3)(i) of the clause at FAR 52.225-9.

(2) If evaluation results in a tie between an offeror that requested the substitution of foreign construction material based on unreasonable cost and an offeror that did not request an exception, the Contracting Officer will award to the offeror that did not request an exception based on unreasonable cost.

(d) Alternate offers.

(1) When an offer includes foreign construction material not listed by the Government in this solicitation in paragraph (b)(2) of the clause at FAR 52.225-9, the offeror also may submit an alternate offer based on use of equivalent domestic construction material.

(2) If an alternate offer is submitted, the offeror shall submit a separate Standard Form 1442 for the alternate offer, and a separate price comparison table prepared in accordance with paragraphs (c) and (d) of the clause at FAR 52.225-9 for the offer that is based on the use of any foreign construction material for which the Government has not yet determined an exception applies.

(3) If the Government determines that a particular exception requested in accordance with paragraph (c) of the clause at FAR 52.225-9 does not apply, the Government will evaluate only those offers based on use of the equivalent domestic construction material, and the offeror shall be required to

furnish such domestic construction material. An offer based on use of the foreign construction material for which an exception was requested—

(i) Will be rejected as nonresponsive if this acquisition is conducted by sealed bidding; or

(ii) May be accepted if revised during negotiations.

L- 6 - FAR 52.236-27 Site Visit (Construction) (FEB 1995) Alternate I (FEB 1995)

(a) The clauses at 52.236-2, Differing Site Conditions, and 52.236-3, Site Investigations and Conditions Affecting the Work, will be included in any contract awarded as a result of this solicitation. Accordingly, offerors or quoters are urged and expected to inspect the site where the work will be performed.

(b) An organized site visit has been scheduled for:

Tuesday, July 17, 2015 at 10:00am MST

(c) Participants will meet at:

Ashton Ranger District Office located at 46 South Highway 20 in Ashton, Idaho

L- 7 - Written Acceptance: Any Purchase Order resulting from this solicitation will require written acceptance within 10 days of receipt by the Contractor as required by Simplified Acquisition Procedures.

SECTION M--EVALUATION FACTORS FOR AWARD

M- 1 - Basis of Award

One award will be made. Offer of award will be made to the Quoter whose quote, as determined by the Contracting Officer, provides the best value to the Government, considering the following factors: price, past performance and company experience and capacity to accomplish this type of work.

The Government reserves the right to make cost/technical trade-offs that are in the best interest of the Government. The Experience Questionnaire will be used as part of this evaluation.

Member
National
Wood Flooring
Association

Installation Guidelines

NWFA Information Available
as of
November 17, 2008

National Wood Flooring Association

CONTENTS

SECTION I

GENERAL GUIDELINES

CHAPTER 1
JOBSITE CONDITIONS

Part I – Minimum Jobsite Requirements

A. Wood flooring should be one of the last jobs completed on the construction project. Limit foot traffic on finished wood flooring.

B. Evaluate the jobsite for potential problems before installation begins, and before wood flooring is delivered to the jobsite.

C. Unless a waiver or letter of protest listing exceptions exists, installation constitutes acceptance of subfloor/substrate, the jobsite itself – including the ambient temperature and relative humidity at the time of installation, and all impacting variables that may affect a wood floor.

1. Surface drainage should direct water away from the building.

2. Do not deliver wood flooring to the jobsite or install wood flooring until the building is enclosed.

3. If heating and/or air-conditioning is in operating condition, it needs to be operating. If it is not possible for the permanent heating and/or air-conditioning system to be operating before, during and after installation, a temporary heating and/or dehumidification system that mimics normal temperature and humidity conditions can enable the installation to proceed until the permanent heating and/or air-conditioning system is operating.

4. Do not deliver wood flooring to the jobsite or install wood flooring until appropriate temperature and humidity conditions have been achieved. Appropriate temperature and humidity conditions are defined as those conditions to be experienced in the building after occupancy.

5. Do not deliver wood flooring to the jobsite or install wood flooring until all concrete, masonry, plastering, drywall, texturing and painting primer coats are completed.

6. Basements and crawl spaces must be dry. If power washing is required in the basement, do so before wood flooring is installed and allow subfloor and basement to dry before installing wood flooring.

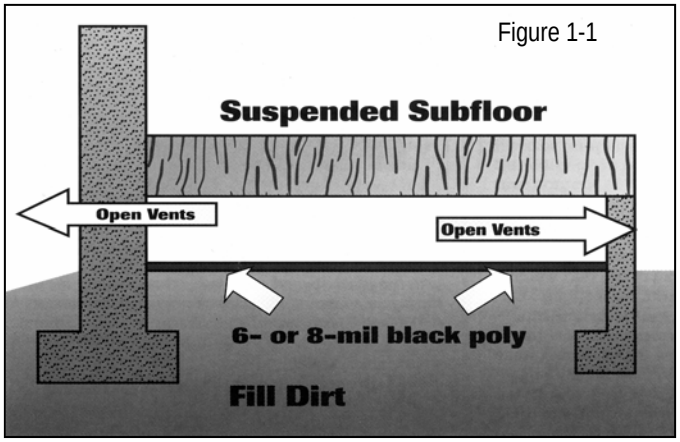
7. Crawl space should be a minimum of 18” (457mm) from ground to underside of joists.

8. Crawl space earth (or thin concrete slab) should be covered 100 percent by a vapor retarder of black polyethylene (minimum 6 mil) or any recommended puncture-resistant membrane, such as Class C, meeting ASTM D-1745. See Figure 1-1.

9. Crawl Space Conditions

   a. Where a proper ground covering is in place and when venting is required by local building codes, the crawl space should have perimeter venting equal to a minimum of 1.5 square feet per 100 square feet of crawl space square footage, unless local building codes differ from this specification. Note: Local-building codes may differ. Follow local building codes.

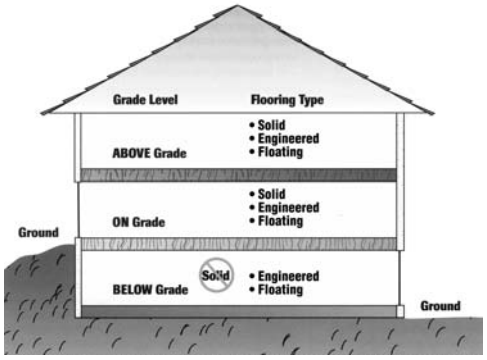
Figure 1-1



   b. For crawl spaces without ventilation openings, vapor retarder joints must overlap a minimum of 6 inches and be sealed or taped. The vapor retarder should also extend at least 6 inches up the stem wall and be attached and sealed to the stem wall. Continuously operated mechanical exhaust and perimeter wall insulation or conditioned air supply and insulation must be provided.

10. Note the grade level so that the correct type of flooring and system can be specified for the job. Engineered and floating floors can be appropriate for above-grade, on-grade and below-grade installations. Solid wood flooring can be appropriate for above-grade and on-grade installations, but not for below-grade installations. If the soil surrounding a structure is 3 inches or more above the floor of any level, consider that level below grade. This includes walk-out basements. In addition, the surrounding soil should be sloped away from the structure. See Figure 1-2.

Figure 1-2 Grade Levels



If the soil surrounding a structure is 3 inches or more above the floor of any level, consider that level below grade. This includes walk-out basements. In addition, the surrounding soil should be sloped away from the structure.

11. Subfloors (wood or concrete) should be checked by an appropriate method for establishing moisture content. Average subfloor moisture content should be within the range as specified for the product by the product manufacturer. See Chapter 3, Moisture Testing.

12. Where the minimum jobsite conditions are present, the flooring can be delivered and stored in the rooms in which it will be installed. See Chapter 2, Acclimation.

Part II - Additional Jobsite Conditions for Factory-Finished Flooring

A. All finished wall coverings and painting should be completed. Note: Base and shoe mold may be installed and finished after the flooring installation.

B. After installation, if you choose to protectively cover the floor, cover the floor completely, since some species are light-sensitive and uncovered areas may change color. However, covering a glue-down application may not allow some adhesives to properly cure. Follow the flooring and adhesive manufacturer's recommendations. Use a covering material with a vapor permeance (perm rating) of 1 perm or more (tested I accordance with ASTM E-96) to avoid trapping moisture/vapor on or within the floor. A common reinforced builder's paper is a good choice. Any covering should be taped, using a low-adhesion tape, to base or shoe moldings. Avoid taping to finished flooring. When taping paper or sheets together, tape them to each other, not to the floor.

Part III – Jobsite Checklist

See Appendix M

CHAPTER 2
ACCLIMATION

ALWAYS FOLLOW THE MANUFACTURERS' RECOMMENDATIONS REGARDING HOW AND WHETHER TO ACCLIMATE WOOD FLOORING.

Part I – General Acclimation Guidelines

(For a more detailed discussion of acclimation issues, See Appendix B.)

A. Storage and Conditions

1. Do not store wood flooring at the jobsite under uncontrolled climate conditions. Garages and exterior patios, for example, are not acceptable areas to store wood flooring.
2. Ideal interior climate conditions vary from region to region and jobsite to jobsite. It is your responsibility to know what your "ideal" climate conditions are and build your floor around those conditions. For a general view of moisture-content averages by region, refer to Appendix D and Appendix E.

B. Acclimation

Note: Some manufacturers do not require acclimation for certain products prior to installation. If the manufacturer recommends that the wood flooring be acclimated before installation, proceed as follows:

1. Ensure that the building is enclosed.
2. Verify that the building is maintained at normal living conditions for temperature and humidity.
3. Where building codes allow, permanent heating and/or air-conditioning systems should be operating at least five days preceding installation to promote proper acclimation. For radiant heat see Appendix H.
4. If it is not possible for the permanent heating and/or air-conditioning system to be operating before, during and after installation, a temporary heating and/or dehumidification system that mimics normal temperature and humidity conditions can enable the installation to proceed until the permanent heating and/or air-conditioning system is operating.
5. Upon delivery, check wood flooring moisture content with a moisture meter to establish a baseline for required acclimation. Check the moisture content of multiple boards. A good representative sample is typically 40 boards for every 1,000 square feet of flooring. Acclimate to manufacturer's recommendations or as necessary according to geographical location and your jobsite location.

6. Prior to installation, ensure that wood flooring is within acceptable range of moisture content with the wood subfloor. For solid strip flooring (less than 3” wide), there should be no more than 4 percent moisture content difference between properly acclimated wood flooring and subflooring materials. For wide-width solid flooring (3” or wider), there should be no more than 2 percent difference in moisture content between properly acclimated wood flooring and subflooring materials.

CHAPTER 3
MOISTURE TESTING

Part I - Moisture Testing for Wood Subfloors

A. Testing Requirements

1. Test for moisture at several locations in the room — a minimum of 20 per 1,000 square feet — and average the results. A high reading in one area indicates a problem that must be corrected. Pay special attention to exterior and plumbing walls

Part II - Acceptable Vapor Retarders Over Wood Subfloors

A. ALWAYS FOLLOW LOCAL CODES AND MANUFACTURERS INSTRUCTIONS FOR ACCEPTABLE VAPOR RETARDERS.

B. An acceptable vapor retarder is a vapor resistant material, membrane or covering with a vapor permeance (perm rating) of greater than or equal to .7 and less than or equal to 50 when tested in accordance with ASTM E-96 Method A. Installation of a vapor retarder reduces the potential for moisture or vapor related problems, but does not guarantee elimination of moisture or vapor related problems. Install a vapor retarder over wood panel or board sub-floors prior to installing nail down solid strip or plank flooring. Over-lap seams a minimum of 4 inches or more as required by manufacturer or specifier and local building codes.

C. Some examples of acceptable vapor retarders over wood subfloors include:

1. An asphalt laminated paper meeting UU-B-790a, Grade B, Type I, Style 1a.
2. Asphalt-saturated kraft paper or #15 or #30 felt paper meeting ASTM Standard D-4869 or UU-B-790, Grade D.

D. NOTE:

1. A vapor retarder has some extra benefits in that it eliminates wood-on-wood contact, wood strips slide more easily when positioned, minimizes the impact of seasonal humidity change and may reduce dust and noise levels.
2. However, by today's standards, asphalt saturated kraft or felt paper may not be an effective vapor retarder in all applications. The 2006 International Residential Code requires a vapor retarder on the warm-in-winter side of exterior floors (a floor over a vented crawl space, for example), with a vapor permeance of 1 perm or less in Zones 5 and higher.
3. Over a wood subfloor, do not use an impermeable vapor retarder material with a perm rating of .7 or less, such as 6 mil polyethylene film or other polymer materials, as it may trap moisture on or in the wood subfloor.
4. Do not use common red rosin or building paper which is not asphalt saturated. They are not vapor retarders as their perm rating is far greater than 50.

Part III - Moisture Testing for Concrete Slabs

NOTE: All tests give a result – at the time the test is done. And in general give you the ability to start or not start a job – these tests do not give a permanent condition of your substrate merely a "at the time the test was performed" indication.

A. Testing Requirements

1. Before moisture testing begins, the concrete slab must be a **MINIMUM** of 30 days old.

B. Qualitative Moisture Tests

1. Electrical Impedance Test and Electrical Resistance Test (Moisture Meter)

Follow meter manufacturer's instructions.

a. Use moisture meters designed specifically for concrete moisture testing.

b. Test within the body of the slab (electrical resistance), as well as at the surface (electrical impedance).

c. These testing methods are not recognized by any standard and should not be used for the purpose of accepting or rejecting a floor. These electronic tests are useful survey tools to broadly evaluate the relative moisture conditions of a slab and to select locations for quantitative moisture tests.

d. If the moisture meters indicate the presence of excessive moisture, as per wood flooring or meter manufacturer's recommendations, further testing is required using relative-humidity testing (ASTM F-2170), calcium chloride testing (ASTM F-1869) or calcium carbide (CM) testing (ASTM D-4944-04 and MilSpec CRD-C154-77).

2. Phenolphthalein Test

a. Perform one test per 200 square feet of surface area, with a minimum of two tests per jobsite.

b. Chip a small section of concrete off the floor and apply 3 percent phenolphthalein in alcohol solution (available at most druggists) in the area. A red color indicates that moisture is present. Always chip the concrete as this protects against the possibility that a concrete sealer was applied.

IMPORTANT: Keep phenolphthalein out of direct sunlight. The average shelf life of phenolphthalein is six months.

c. If the phenolphthalein test indicates the presence of excessive moisture, further testing is required using relative-humidity testing (ASTM F-2170), calcium chloride testing (ASTM F-1869) or calcium carbide (CM) testing (ASTM D-4944-04 and MilSpec CRD-C154-77).

C. Quantitative Moisture Tests

1. Relative Humidity Testing – ASTM F-2170 (Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using In Situ Probes)

a. Select test locations to provide information about moisture distribution across the entire concrete floor slab. For slabs on grade and below grade, include a test location within three feet of each exterior wall.

b. Perform three tests for the first 1,000 sq ft and one test for every additional 1,000 sq ft thereafter.

c. At least 48 hours before test is placed, concrete floor slabs should be at the same temperature and humidity that is expected during service conditions.

d. Use a rotary hammer-drill to drill holes in the concrete slab; 40% depth of slab is required for the holes when concrete is drying from one side and 20% when drying from both sides. **Follow manufacturer's instructions provided with test kits.**

e. Allow 72 hours to achieve moisture equilibrium within the hole before making relative humidity measurements.

f. ASTM F-710 provides installation guidelines for acceptance of hardwood flooring using relative-humidity testing. Typical limits for wood and wood-based products are 75% relative humidity. When getting readings over 75%, you must use a proper vapor retarder, based on the flooring manufacturer's recommendations, or wait for further concrete curing.

2. Calcium Chloride Test – ASTM F-1869 (Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride)

a. Select test locations to provide information about moisture distribution across the entire concrete floor slab.

b. Perform three tests per 1,000 square feet of surface area. Add one additional test for each 1000 square feet thereafter.

c. At least 48 hours before test is placed, concrete floor slabs should be at the same temperature and humidity expected during service conditions

d. The actual test area shall be clean and free of all foreign substances. Use approved OSHA work practices for removal of all existing flooring materials and debris.

e. Blast or grind a minimum area of 20 inches by 20 inches and let stand for a minimum period of 24 hours prior to setting test.

f. Follow manufacturer's instructions for properly placing tests onto concrete.

g. Tests are to be covered and left in place for 60 to 72 hours. Follow manufacturer's instructions for labeling and recording time and date of test.

h. Send the test to a certified laboratory for results and documentation, or perform the measurements as per ASTM F-1869.

i. Always following the flooring manufacturer's guidelines and specifications to determine when the concrete slab is ready for installation.

j. ASTM F-710 provides installation guidelines for acceptance of hardwood flooring using calcium-chloride testing. Typical limits for direct glue-down wood flooring is 3lbs/1000sf/24hr. When getting readings over 3 lbs and up to 7 lbs, you must use a vapor retarder. A reading over 7 lbs may not be acceptable for wood flooring installation. Follow the wood flooring manufacturer's recommendations. In the case

of a glue-down installation, the adhesive manufacturer may also have recommendations.

NOTE: For information on the tests listed above, contact your distributor or call NWFA at 800-422-4556 U.S. or 800-848-8824 Canada for the source nearest you.

3. Calcium Carbide (CM) Test – ASTM (modified) D-4944-04, MilSpec CRD-C154-77

a. The calcium carbide test, also known as the CM test or calcium carbide bomb, is more widely used in Europe than in the United States. It is a gas-pressure test in which moisture in the concrete reacts with calcium carbide crystals to create acetylene gas, and the gas pressure produced is measured to provide a moisture content reading, expressed as a percentage of moisture. Follow the directions provided by the test-kit manufacturer. A reading of over 2.5% requires use of a vapor retarder. A reading over 4% may not be acceptable for wood flooring installation. Follow the wood flooring manufacturer's recommendations. In the case of a glue-down installation, the adhesive manufacturer may also have recommendations.

Part IV - Acceptable Vapor Retarders Over Concrete

A. ALWAYS FOLLOW LOCAL CODES AND MANUFACTURERS INSTRUCTIONS FOR ACCEPTABLE VAPOR RETARDERS.

B. Test concrete for moisture. For concrete slabs with a calcium chloride reading of greater than 3 lbs, a relative humidity reading of greater than 75%, or a calcium carbide (CM) rating of greater than 2.5%, install an impermeable vapor retarder with a perm rating of less than .15 perm. Adding a vapor retarder is not required on installations over slabs with a calcium chloride reading of 3 lbs or less, a humidity reading of 75% or less, or a calcium carbide (CM) rating of 2.5% or less. However, in on-grade and below grade applications, adding a vapor retarder is always recommended.

C. The 2006 International Residential Code defines a vapor retarder as a vapor-resistant material, membrane or covering such as foil, plastic sheeting or other material recommended by the manufacturer having a permeance rating of 1 perm or less, when tested in accordance with ASTM E-96 Method A.

D. The NWFA recommends an "impermeable" vapor retarder with a perm rating of less than or equal to .15, thereby limiting the passage of moisture to near zero.

E. Some acceptable vapor retarders over concrete include:

1. A minimum 6 mil construction grade polyethylene film, with perm of .13, or other impermeable material with a perm of .15 or less is recommended. An premium polymer material meeting ASTM D-1745 for concrete with higher tensile, tear and puncture resistance is highly desirable.

2. Double felt: Two layers of #15 asphalt saturated felt paper that meets ASTM Standard D-4869, with the first layer adhered to the slab in a skim coat of appropriate adhesive, and a second layer adhered to the first layer with appropriate adhesive.

3. A chemical retarder or urethane membrane, as recommended by the adhesive or wood flooring manufacturer. These are usually in the form of a liquid-applied or trowel-applied membrane dispensed from a bucket following manufacturer recommendations.

SECTION II

SUBFLOOR GUIDELINES & SPECIFICATIONS

CHAPTER 4
WOOD SUBFLOOR GUIDELINES

NOTE: Always follow the wood flooring manufacturer's recommendation for a proper subfloor.

Part I – Wood Subfloor Specifications

A. Subfloor panels should conform to should conform to U.S. Voluntary Product Standard PS1-95, Construction and Industrial Plywood and/or US Voluntary PS 2-04 and/or Canadian performance standard CAN/CSA 0325.0-92 Construction Sheathing. Other CSA standards also apply.

B. Solid-board subflooring should be ¾" x $5^1/_2$" (1" x 6" nominal), Group 1 dense softwoods, No. 2 Common, kiln-dried to less than 15 percent moisture content.

C. Both CD EXPOSURE 1 plywood and OSB Exposure 1 subfloor panels are appropriate subflooring materials, but the proper thickness of the material will be determined by the factors noted below in **Part IV – Panel Products Subflooring, E - Acceptable Panel Subfloors.**

Part II – Subfloor Moisture

Note: the National Association of Home Builders' Green Home Building Guidelines contains the following directive under Section 5.3.8: "NAB Model Green Home Building Guidelines, Section 5.3.8: "Check moisture content of wood flooring before enclosing on both sides. Ensure moisture content of subfloor/substrate meets the appropriate industry standard for the finish flooring material to be installed."

A. For solid strip flooring (less than 3" wide), there should be no more than 4 percent moisture content difference between properly acclimated wood flooring and subflooring materials.

B. For wide-width solid flooring (3" or wider), there should be no more than 2 percent difference in moisture content between properly acclimated wood flooring and subflooring materials.

Part III – Subfloor Flatness and Integrity

A. Wood subfloors must be flat, clean, dry, structurally sound, free of squeaks and free of protruding fasteners.

1. For installations using mechanical fasteners of $1^1/_2$" and longer, the subfloor should be flat to within ¼" in 10 feet or $^3/_{16}$" in 6 feet.

2. For glue-down installations and installations using mechanical fasteners of less than $1^1/_2$", the subfloor should be flat to within $^3/_{16}$" in 10 feet or $^1/_8$" in 6 feet.

B. If peaks or valleys in the subfloor exceed the tolerances specified above, sand down the high spots and fill the low spots with a leveling compound or other material approved for use under wood flooring. However, it is the builder's or general contractor's responsibility to

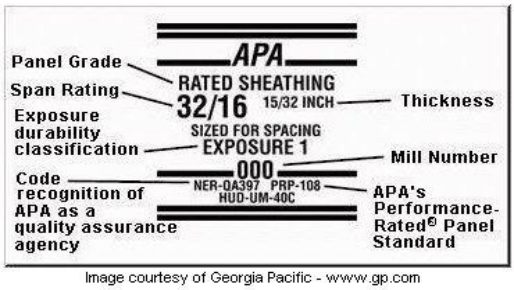


Image courtesy of Georgia Pacific - www.gp.com

When possible, check the back of the subfloor panel for American Plywood Association (APA) rating.

provide the wood-flooring contractor with a subfloor that is within the tolerances listed above.

C. Inspect the subfloor carefully. If there is movement or squeaks in the subfloor, refasten the subfloor to the joists in problem areas.

D. Protruding fasteners are easily remedied by driving those fasteners deeper into the subfloor.

Part IV - Panel Products Subflooring

A. For panel products subflooring, check for loose panels and re-nail or screw down loose panels securely.

B. Ensure that there is proper expansion space (1/8”) between the panels. If the subfloor panels are not tongue-and-grooved and if there is not sufficient expansion space, use a circular saw to create the specified space. Do not saw through joints on T&G subfloors.

C. Also check for delaminated or damaged areas and repair those areas as needed.

D. Make sure the subfloor is free of debris before beginning installation.

E. Acceptable Panel Subfloors: Truss/joist spacing will determine the minimum acceptable thickness of the panel subflooring.

1. On truss/joist spacing of 16” (406mm) o/c or less, the industry standard for single-panel subflooring is nominal 5/8” (19/32”, 15.1mm) CD Exposure 1 Plywood subfloor panels (CD EXPOSURE 1) or 23/32 OSB Exposure 1 subfloor panels, 4’ X 8' sheets.

2. On truss/joist spacing of more than 16”, up to 19.2" (488mm) o/c, the standard is nominal ¾” ($^{23}/_{32}$”, 18.3mm) T&G CD EXPOSURE 1 Plywood subfloor panels, (Exposure 1), 4’ X 8' sheets, glued and mechanically fastened, or nominal ¾” ($^{23}/_{32}$", 18.3mm) OSB Exposure 1 subfloor panels, 4’ x 8’ sheets, glued and mechanically fastened.

3. Truss/joist systems spaced over more than 19.2” (488mm) o/c up to a maximum of 24” (610mm) require nominal 7/8” T&G CD EXPOSURE 1 Plywood subfloor panels, (Exposure 1), 4’ X 8' sheets, glued and mechanically fastened, or nominal 1” OSB Exposure 1 subfloor panels, 4’ x 8’ sheets, glued and mechanically fastened — or two layers of subflooring. Or brace between truss/joists in accordance with the truss/joist

manufacturer's recommendations and with local building codes. Some truss/joist systems cannot be cross-braced and still maintain stability.

a. For double-layer subfloors, the first layer should consist of nominal ¾" ($^{23}/_{32}$", 18.3mm) CD Exposure 1 Plywood subfloor panels (CDX), 4' X 8' sheets or nominal ¾" ($^{23}/_{32}$", 18.3mm) OSB Exposure 1 subfloor panels, 4' x 8' sheets. The second layer should consist of nominal ½" ($^{15}/_{32}$", 11.9mm) CD EXPOSURE 1 plywood subfloor panels, (Exposure 1) 4' X 8' sheets. The ½" plywood should be offset by ½ panel in each direction to the existing subflooring. The panels may also be laid on a diagonal or perpendicular, with $^{1}/_{8}$" spacing between sheets. Nail on a 12" minimum grid pattern, using a ring-shanked nails or staples.

F. Fastening and Spacing Specifications

1. Follow the panel manufacturer's recommendations for spacing and fastening.
2. Typical panel spacing and fastening requirements for truss/joist systems call for approximately 1/8" (3.2mm) expansion space around the perimeter of each panel, with panels fastened every 12" (305 mm) along intermediate supports.
3. Edge swell should also be flattened. This can usually be accomplished by using an edger sander.

Part V – Solid Board Subflooring

A. Solid board subflooring should be: ¾" x $5^{1}/_{2}$" (1x6 nominal), Group 1 dense softwoods (SYP, Doug Fir, Larch, etc.), No. 2 Common, kiln-dried to less than 15% MC.

B. Solid-board subflooring should consist of boards no wider than 6 inches, installed on a 45 degree angle, with all board ends full bearing on the joists and fastened with minimum 8d rosin-coated or ring-shanked nails, or equivalent.

C. Some types of wood flooring should not be installed directly over solid-board subflooring.

1. Thin-classification solid strip flooring must have a 3/8"or better plywood underlayment installed over solid board subflooring.
2. Parquet flooring cannot be installed directly to solid-board subfloors. A parquet installation over solid-board subflooring requires 3/8" or better underlayment panels, nailed on 6" minimum grid pattern using ring-shanked nails or staples.

D. Some engineered flooring cannot be installed directly to solid-board subfloors. (See wood flooring manufacturer's recommendations.)

CHAPTER 5
CONCRETE SUBFLOOR GUIDELINES

NOTE: Always follow the wood flooring and adhesive manufacturer's recommendation for a proper subfloor.

Part I – Concrete Subfloor Specifications

A. Subfloor Must Be Flat

1. Make sure the concrete slab is flat to the wood flooring manufacturer's specification. Typically, manufacturers will specify a flatness tolerance of 1/8" to 3/16" in a 10-foot radius.
2. If the slab is out of specification, consider grinding, floating or both. Many high spots can be removed by grinding, depressions can be filled with approved patching compounds, and slabs also can be flattened using a self-leveling concrete product.
3. When sanding or grinding concrete, care must be taken to minimize the amount of silica dust produced. OSHA recommends using dust-collection devices, or applying water to the concrete before sanding. Approved respirators may also be used to minimize the amount of silica dust inhaled.

B. Subfloor Must Be Dry

1. Refer Chapter 3, Moisture Requirements and Moisture Testing.
2. Concrete moisture meters and other tests can be useful in identifying moisture problem areas. However, NWFA guidelines specify using relative-humidity testing (ASTM F-2170), calcium chloride testing (ASTM F-1869) or calcium carbide (CM) testing (ASTM D-4944-04 and MilSpec CRD-C154-77) to identify the moisture content of the slab. See Chapter 3 and Appendix C.
3. If a slab tests too high in vapor emission to glue a floor down, consider using a vapor retarder type product, installing a vapor retarder and a plywood sub-floor or using an alternative installation method.
4. Concrete slabs with a calcium chloride reading of more than 3 require use a vapor retarder with a perm rating of 1 or less. It is strongly recommended to use an impermeable vapor retarder with a perm rating of .13 or less, such as 6 mil polyethylene film.

C. Slab Must Be:

1. Minimum 3000 psi
2. Free from non-compatible sealers, waxes, and oil, paint, drywall compound etc.
    a. Check for the presence of sealers by applying drops of water to the slab, if the water beads up, there may be sealers or oils.

D. Do not attempt to glue a wood floor over a chalky or soft concrete slab.

E. Burnished, slick steel-troweled slabs may require screening with a 30-grit abrasive.

F. Specifications for Lightweight Concrete

1. Make sure the concrete is well bonded to the sub-floor. Check for hollow spots, cracks and loose areas.
2. As with on-grade concrete sub-floors make sure the concrete is clean, flat to specification and dry.
3. Over lightweight concrete (less than 3000 psi), if the flooring adhesive used has a higher shear strength than the concrete, use the **Floated Subfloor** installation method. (See Chapter 6.) If the psi of the concrete is unknown, use the **Floated Subfloor** installation method or contact the adhesive manufacturer.
4. Rule of thumb: Draw a nail across the top; if it leaves an indentation, it is probably lightweight concrete.

CHAPTER 6
INSTALLING A SUBFLOOR OVER CONCRETE

NOTE: Always follow the manufacturer's recommendation for a proper subfloor.

Part I – Direct Gluing a Subfloor Over Concrete

A. Always follow the adhesive manufacturer's recommendation for proper application, proper adhesive and correct trowel notch and spread rate.

B. If necessary, add vapor retarder recommended by the adhesive manufacturer before applying adhesive.

Part II - Floated Subfloor

A. In on-grade and below-grade applications, always add vapor retarder before applying underlayment.

B. In above-grade applications, follow the flooring manufacturer's recommendations.

C. A vapor retarder is recommended anytime solid ¾" wood flooring is installed over concrete. A vapor retarder is required for installation over concrete with a calcium chloride reading greater than 3 pounds, a relative humidity reading of greater than 75%, or a calcium carbide (CM) reading of greater than 2.5%.

D. Floated Subfloor System

1. Materials

   a. 2 layers nominal 3/8" (10mm) minimum CD Exposure 1 Plywood subfloor panels (CDX) 4' X 8' sheets.

2. Installation method:

   a. Place the first plywood layer with edges parallel to wall, without fastening. Leave ¾" space between wall and plywood.

   b. Plywood panels should be placed with $^1/_8$" gaps between sheets.

   c. Lay the second layer perpendicular or at 45 degree angle to the first.

   d. Plywood panels should be placed with $^1/_8$" gaps between sheets and a ¾" minimum expansion space at all vertical obstructions and wall lines.

   e. Staple or staple and glue (with urethane or construction adhesive) the second layer to first layer on 12" interior grid pattern (6" on the perimeter). Be careful not to penetrate the vapor retarder.

E. Alternate Subfloor System

1. Materials

   a. Use nominal ¾" (23/32", 18.3mm) CD Exposure 1 Plywood sheathing, 4'x8' sheets.

2. Installation method

a. Cut sheets to 16”X8’ or smaller panels, scored on back 3/8” deep a minimum of every 12” across width.

b. 16” planks oriented perpendicular or diagonally to direction of flooring

c. Panels staggered every 2’, and spaced 1/8” between ends, with ¾” minimum expansion space at all vertical obstructions.

Part III - Glue-Down Subfloor

A. Always follow the adhesive manufacturer’s recommendation for proper subfloor, spread rate and trowel notch.

B. If necessary, add vapor retarder before applying underlayment. A vapor retarder is recommended anytime solid ¾” wood flooring is installed over concrete.

C. Glue-Down Subfloor System:

1. Materials

a. Use nominal 5/8” ($^{19}/_{32}$, 15.1mm) CD Exposure 1 Plywood subfloor panels, (Exposure 1), 4’x8’ sheets.

2. Installation method:

a. Cut the plywood panels to 2’X8’ or 4’X4’ sections.

b. Score the back of the panels ½ the thickness on a 12”x12” grid.

c. Apply an adhesive approved for the installation of plywood, per the plywood manufacturer’s recommendations.

d. Lay sections in a staggered joint pattern in the adhesive, with 1/8” spacing between sheets, and ¾” minimum expansion space at walls and all vertical obstructions.

Part IV - Nail-Down Subfloor

A. Always follow the manufacturer’s recommendation for proper subfloor.

B. In on-grade and below-grade applications, always add vapor retarder before applying underlayment. In above-grade applications, follow the flooring manufacturer’s recommendations.

C. A vapor retarder is recommended anytime solid ¾” wood flooring is installed over concrete.

D. Nail-Down Subfloor System Over Concrete

1. Materials

a. Minimum: use nominal 5/8” ($^{19}/_{32}$, 15.1mm) CD Exposure 1 Plywood subfloor panels (CDX), 4’x8’ sheets

2. Installation method

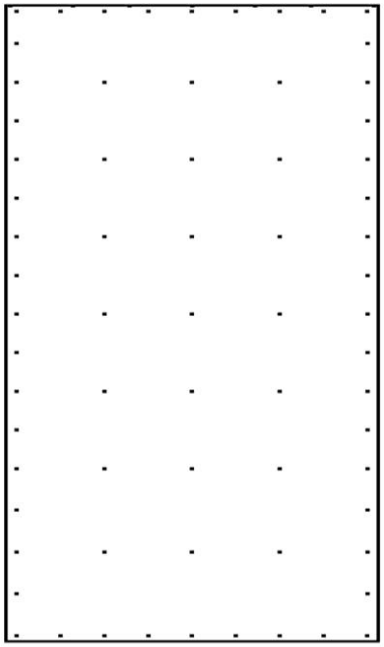
NOTE: Fasteners may be powder-driven pins, pneumatic driven nails, screws, deformed pins, or other fasteners suitable for concrete application. Check with fastener manufacturer for specification such as length, drill size, and/or shot load where applicable.

a. Stagger panel joints allowing approximately $^1/_8$" expansion space around all panels to prevent edge peaking due to compression caused by panel swell.

b. Allow ¾" minimum expansion space at all vertical obstructions.

c. Panels should be mechanically fastened. For powder load or pneumatic pressure information, contact your local supplier.

d. Fasten 2" from the edge every 6-8" along the perimeter of the sheet and one fastener or more spaced every 12" in the interior of the panel. Fasten the center first to prevent the subfloor from bowing. (See diagram at right.)



e. Areas with higher humidity may require additional fasteners.

Part V - Screed System

A. Solid ¾", 25/32" and 33/32" tongue-and-groove strip flooring may be installed directly to screeds.

B. Engineered wood flooring less than ¾" (23/32") thick, thin-classification strip flooring (including ½") and solid plank flooring (4" or wider) cannot be installed directly to screeds.

C. For engineered flooring less than ¾" thick, thin-classification strip, and for solid plank (4" and wider), the screed system must be overlaid with proper subflooring. The screed system must be overlaid with nominal ¾" (23/32" 18.3mm) Exposure 1, or nominal 5/8" (19/32" 15.1mm), Exposure 1, CDX plywood subfloor panels or nominal ¾" (23/32", 18.3mm) OSB underlayment properly spaced and oriented perpendicular to screed direction. All joints must be staggered.

D. Installation method. See Appendix I, Installation Over Screeds.

SECTION III

INSTALLATION GUIDELINES

& METHODS

CHAPTER 7
PARQUET INSTALLATION

Part I - Acceptable Jobsite Conditions and Jobsite Checklist

A. Refer to Chapter 1

Part II - Acclimation Guidelines

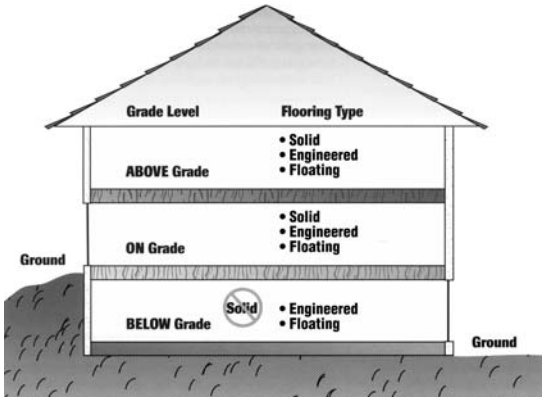
A. See Chapter 2 and Appendix B.

Part III – Appropriate Grade Levels

A. Solid parquet wood floors can be installed successfully above grade level or on grade, but are not recommended for installation below grade.

B. The entire flooring level is considered to be BELOW GRADE where soil is present along any perimeter wall and is more than 3" above the installed wood flooring level. Ground should be sloped away from the house for proper drainage. (Follow local building codes.)

Grade Level diagram



If the soil surrounding a structure is 3 inches or more above the floor of any level, consider that level below grade. This includes walk-out basements. In addition, the surrounding soil should be sloped away from the structure.

Part IV - Subfloors – Wood Joist Systems

A. See Chapter 4.

B. Parquet cannot be installed directly to solid board subfloors. For parquet installations, board subfloors must have additional underlayment.

Part V - Subfloors – Concrete Slab

A. See Chapters 5-6.

Part VI – Parquet Installation Methods

A. Follow manufacturer's recommendations.

1. The styles and types of block and parquet flooring, as well as the recommended procedures for application, vary somewhat among manufacturers. Detailed installation instructions are usually provided with the flooring or are available from the manufacturer or distributor.

B. Test wood subflooring for moisture according to moisture testing procedures. (See Chapter 3.)

C. Test concrete for moisture according to moisture testing procedures in Chapter 3. Moisture indicators should be within the adhesive and flooring manufacturers' specifications.

D. A minimum expansion space of ½" must be left around the perimeter and all vertical obstructions.

E. Some ¾" parquet is appropriate for nail-down installation, as long as the pattern continues to have an exposed side tongue in which to nail.

F. Lay blocks and/or individual pieces of parquet in adhesive.

G. Use the wood manufacturer's approved adhesive. Follow the spread rate, trowel size and installation procedure as recommended by the adhesive manufacturer.

Part VII – Parquet Layouts

A. Square Layout from the Center of the Room (See Figure 7-1)

NOTE: For instructions on using the trammel point method to square a room and find the center point, see Appendix G, Trammel Point Method.

1. Start by snapping a chalk line through the center of the room (line Y). The next line (X) must be exactly 90 degrees to line Y to form a perfect square corner. To ensure this angle, do the following:
2. From the center point (A) of line Y, measure 4 feet along line Y and mark that point (B).
3. From the same center point, measure 3 feet in the general direction of where line X will be and scribe an arc.
4. Return to the original 4-foot mark on line Y and measure 5 feet, scribing an arc that crosses (point C) the 3-foot arc you made in the previous step.
5. Verify all measurements before proceeding.
6. If correct, snap a chalk line through the conjunction of the two arcs at point C and the center point of line Y. This will be line X, at an exact 90-degree angle to line Y.

Figure 7-1

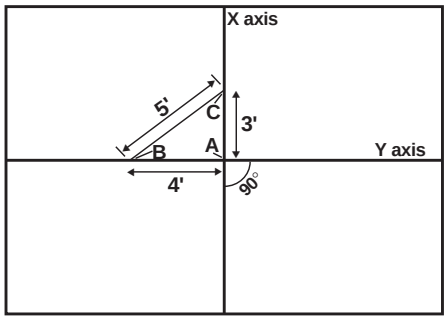


Figure 7-2: Creating 90° working lines from the wall
Start by snapping a chalk line 24½" from the starting wall, opposite the entrance doorway (Line Y). The next line (X) must be exactly 90° to Line Y to form a perfect square corner. To ensure this angle:
1. Measure 24½" along Line Y from the right-angle wall and mark it Point A. From Point A, measure 4 feet along Line Y and mark that Point B.
2. From Point A, measure 3 feet in the general direction of where line X will be and scribe an arc.
3. From Point B measure 5 feet, scribing an arc that crosses Point C.
4. Verify all measurements before proceeding.
5. If correct, snap a chalk line through Point A and the conjunction of the two arcs at point C. This will be Line X, at an exact 90° angle to Line Y

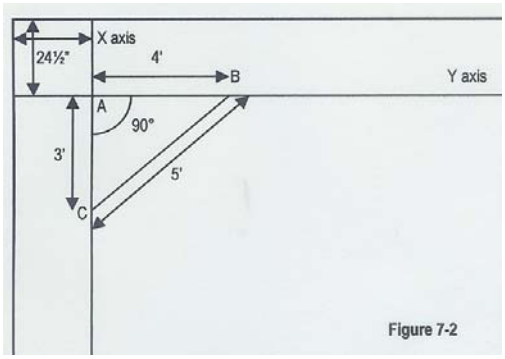


Figure 7-2

B. Square Layout from the Wall (See Figure 7-2)

Square edge block or basket weave parquet can be laid wall to wall without centering the tiles on the room. The results will not be balanced but the tiles have no edge treatment to delineate the difference in tile sizes when unbalanced. More intricate patterns generally require the flooring to be centered.

1. Wall Line Layout

   a. If the room dimensions allow, in at least two places from the corner, measure out and establish a chalk line parallel to and 24½" (62cm) away from the starting wall opposite the entrance doorway. The ½" (12.7 mm) is for expansion space.

   b. Snap a second chalk line 90 degrees to the first chalk line using the method shown in Figure 7-2, 24½" (62cm) away from the right angle wall. The ½" is for expansion space.

   c. Make any necessary adjustments to allow for walls out of square before proceeding.

C. Installation Using Wall Layout (See Figure 7-3)

1. Spread the Adhesive

   a. After both chalk lines (at 90 degrees to each other and 24½" (62cm) from the wall) have been snapped, start spreading the adhesive in the 24½" (62cm) wide area next to the starting wall.

   b. Continue spreading the adhesive along the entire length of the starting wall. Be careful not to spread adhesive beyond the 24½" (62cm) chalk line.

2. Immediately lay the floor tiles on the newly spread adhesive

3. DO NOT lay the floor tiles on dry adhesive. If the adhesive becomes too dry, scrape up the old adhesive and spread more.

4. IMPORTANT: Stand or kneel on the subfloor during the installation to avoid shifting the tiles.

5. PROPER PLACEMENT OF THE FIRST FLOOR TILE IS THE KEY TO THE ENTIRE INSTALLATION. Carefully place a 12" x 12" (30 x 30 cm) parquet tile at the intersection of the two chalk lines. (See Figure 7-3.) Do not use the edge of the tongue for aligning the tile on the chalk lines.

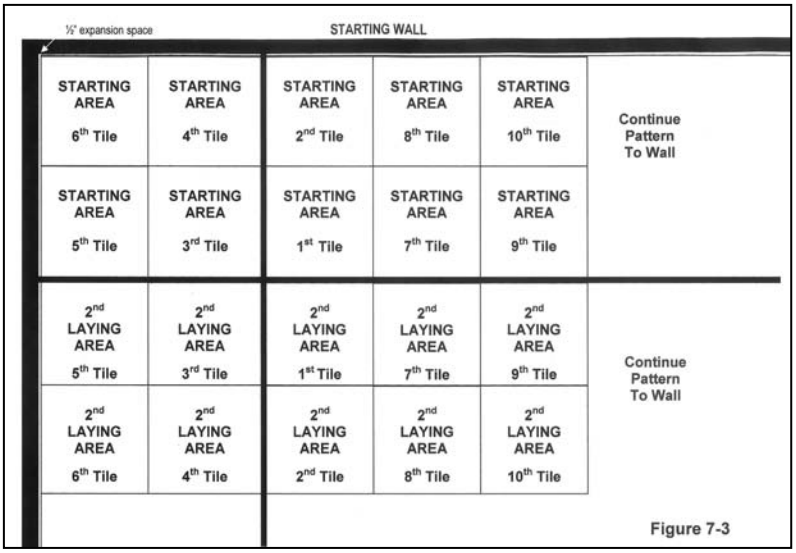


Figure 7-3
When the starting area has been completed, including cutting to the wall, proceed to the second laying area, then to laying areas 3, 4, 5, etc., repeating the installation procedure of the starting area.

6. Lay the second floor tile ahead of the first tile to fit ½" (12.7 mm) from the starting wall. Gently lock in the tongue and groove between the first and second floor tiles.

7. Re-check to be sure both floor tiles are properly lined up with the chalk line. This is to assure a square starting area.

8. Continue laying the balance of the 12" x 12" (30.48 cm) floor tiles along the starting wall area. Put each floor tile in place and gently push the floor tiles together to interlock the tongue and groove. Align each floor tile squarely.

9. Do not push the floor tiles too strenuously as this could cause the first and second floor tiles to move. Simply realign them and proceed with the installation. Avoid hammering or forcing the floor tiles together as this may destroy the squareness of the floor tile.

10. After laying the floor tiles across the first 24½"(30.48 cm) starting area, trim the last floor tiles as needed to obtain the proper ½" (12.7 mm) expansion space next to the walls. Use a small band or saber saw for final trimming. Firmly secure each floor tile when cutting with a saber saw..

11. Complete the installation

    a. When the starting area has been completed, including cutting to the wall, proceed to the second laying area. (See Figures 7-3.)

    b. Cut the last floor tiles to allow a ½" (12.7 mm) expansion space from the end wall.

    c. Proceed by laying areas 3, 4, 5, etc., repeating the installation procedure of the starting area. Trim out each laying area before proceeding to the next area.

    d. Maintain the ½" (12.7 mm) expansion space around the perimeter of the room and around all fixed objects.

    e. Allow a minimum of 24 hours drying time before moving furniture or walking on the newly laid parquet floor.

D. Diagonal Layout (See Figure 7-4)

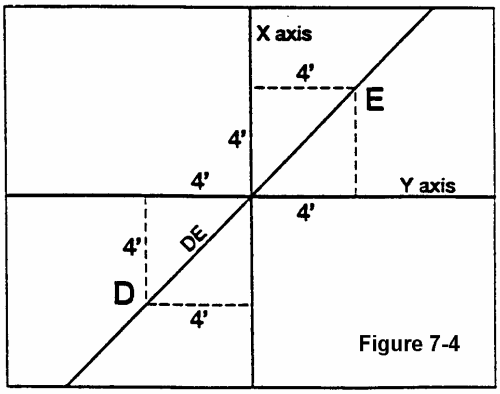


Figure 7-4

1. Establish a 45-degree working line:

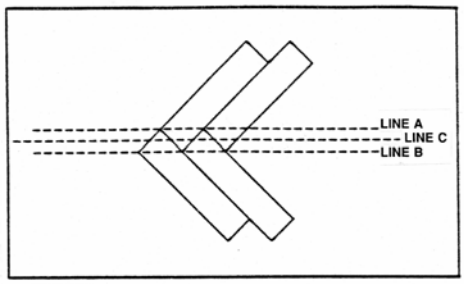
2. From the center point, measure 4 feet down in each direction on lines X and Y, which you have already determined by the method described above.

3. From each of these points, measure 4 feet and scribe an arc. The conjunction of these arcs creates points D and E.

4. Snap a chalk line between points D and E, and the center point. This line represents a 45-degree angle.

D. Herringbone Layout

Figure 7-5



1. Use reference lines throughout the area that is being installed.

2. The multiple of the width should equal the exact length of the piece. If the width of the product varies, this will cause separations at the end of the herringbone pieces.

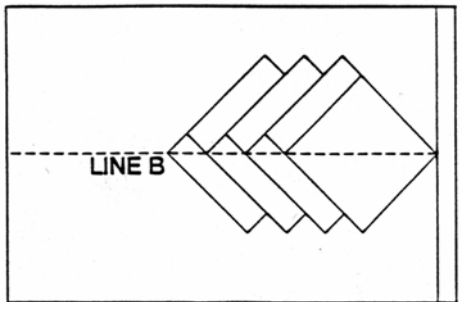
3. Herringbone parquet can be laid out parallel or at a 45-degree angle to the room. Regardless of direction, Herringbone parquet will require a centerline and two working lines (See Figure 7-5).

4. Begin by laying out a few alternating slats.

5. Snap lines A & B through the corners of the alternating slats (See Figure 7-5)

6. Measure the distance from Line A to Line B. Line C should be ½ that distance and run parallel to Lines A & B. The centerline of the room and the center of the pattern is represented by Line C.

Figure 7-6



E. Herringbone Installation

1. To begin installation on working Line B (See Figure 7-6), cut a square piece of plywood the size of the herringbone pattern. For example, if the herringbone pattern is 3 inches by 12 inches, cut a 12” x 12” square of plywood.

2. Fasten the piece of plywood at your starting point on Line B, with one corner of the square pointing in the direction of the pattern.

CHAPTER 8
ENGINEERED WOOD FLOORING INSTALLATION

Part I - Acceptable Jobsite Conditions and Jobsite Checklist

A. Refer to Chapter 1

Part II - Acclimation Guidelines

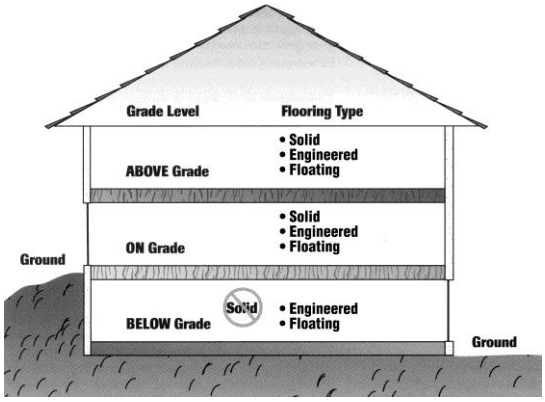
A. See Chapter 2 and Appendix B.

Part III – Appropriate Grade Levels

A. Engineered wood floors can be installed successfully on, above or below grade level. Engineered wood floors can be installed directly to concrete or wood subfloor.

B. The entire flooring level is considered to be BELOW grade where soil is present along any perimeter wall and is more than 3" above the installed wood flooring level. Ground should be sloped away from the house for proper drainage. (Check local building codes. Local building codes prevail. Follow local building codes.)

Grade Level diagram



If the soil surrounding a structure is 3 inches or more above the floor of any level, consider that level below grade. This includes walk-out basements. In addition, the surrounding soil should be sloped away from the structure.

Part IV - Subfloors – Wood Joist Systems

A. See Chapter 4.

Part V - Subfloors – Concrete Slab

A. See Chapters 5-6.

Part VI – Engineered Flooring Installation Methods

A. Engineered wood flooring can be installed directly to screeds, provided the engineered flooring is a minimum of ¾" thick. For engineered flooring less than ¾" thick, the screed system must be overlaid with proper subflooring. See Appendix I, Installation Over Screeds.

B. Note on random-width plank

1. Random-width plank is laid out with alternating courses varying by widths. Start with the widest board, then the next width, etc., and repeat the pattern.

C. Choose a Starting Wall

1. Choose a starting wall according to the most aesthetically or architecturally important elements in the room, taking into consideration fireplaces, doors, cabinets and transitions, as well as the squareness of the room. The starting wall will often be the longest unbroken wall in the room.

D. Glue-Down Engineered Strip and Plank

1. There are several different ways to start the installation of glue-down engineered wood flooring. The following has proven successful. However, where instructions differ from manufacturer recommendations, manufacturer recommendations prevail.
2. Test the substrate for moisture according to appropriate moisture testing procedures in Chapter 3. Excessive/elevated moisture should not be present. The subfloor should be within acceptable moisture content as per adhesive and wood manufacturer's recommendation before installing.
3. Expansion space should be left around the perimeter in accordance with the manufacturer's recommendation.
4. Snap a working line parallel to the starting wall, the width of the board, plus the tongue and recommended expansion space.
5. Install a starter board along the edge of the working line and begin installation. Alternatively, lay one row of plank in the adhesive along the length of the working line.
6. Follow manufacturer instruction for tongue and groove direction and placement.
7. Use an adhesive approved by the flooring manufacturer. Follow the installation procedure recommended by the adhesive manufacturer, which includes subfloor moisture content, spread rate, trowel size, open time, working time and flash time as necessary. Spread the adhesive as instructed up to and along the working line.
8. Distribute lengths, avoiding "H" patterns and other discernible patterns in adjacent runs. Stagger end joints of boards row to row a minimum of 6" for strip flooring, 8-10" for 3" to 5" plank, and 10" for plank wider than 5". (See Figures 8-1 and 8-2.)
9. If recommended by the manufacturer, use tape or tensioners to maintain a tight floor.
10. If recommended by the adhesive manufacturer, roll the floor with the proper roller.

E. Mechanically Fastened Strip and Plank

1. If necessary, add a vapor retarder.
2. Snap a working line parallel to the starting wall, allowing expansion space as specified by the manufacturer.
3. Lay one row of plank along the entire length of the working line.

Figure 8-1 Stagger End Joints

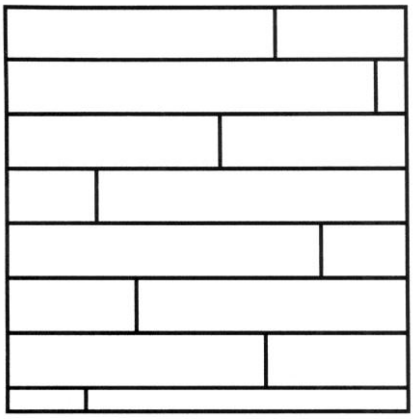
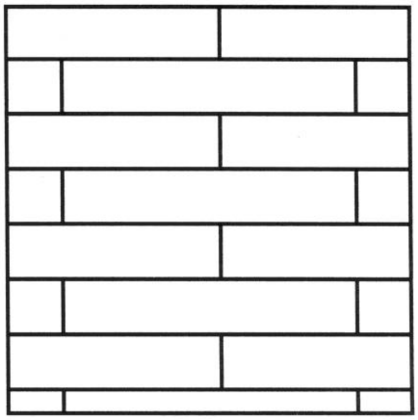


Figure 8-2 Avoid "H" Joints



4. Top-nail and blind-nail the first row (hand-nail if necessary), using appropriate fasteners. Denser species may require pre-drilling. Each succeeding row should be blind-nailed wherever possible.

   a. Typical: narrow crowned (under 3/8") 1"-1$^{1}/_{2}$" staples or 1"-1¼" hardwood flooring cleats designed for engineered flooring, spaced as recommended by the manufacturer.

   b. Typical: every 3-4" with staples, every 4-6" with cleats, and within 1-2" of end joints. Use appropriate size fastener for top nailing first row, last row and any area where blind nailer will not fit.

5. Add each additional row of flooring. Distribute lengths, avoiding "H" patterns and other discernible patterns in adjacent runs. Stagger end joints of boards row to row a minimum of 6" for strip flooring, 8-10" for 3" to 5" plank, and 10" for plank wider than 5".

6. During installation of flooring pieces, push or gently tap boards flush to the previous row. Tap against the tongue; tapping the groove may damage the edge. To prevent damage to the finish, avoid tapping the face of the board with a rubber mallet.

F. Floating Engineered Flooring

1. Subfloor flatness is critical to the success of a floating floor installation. (See Chapter 4, Wood Subfloor Guidelines, and Chapter 5, Concrete Subfloor Guidelines.)

2. Test the substrate for moisture according to appropriate moisture testing procedures in Chapter 3. Excessive/elevated moisture should not be present. The subfloor should be within acceptable moisture content as per manufacturer recommendation before installing.

4. If necessary, add vapor retarder. (See Acceptable Vapor Retarders in Chapter 3, Moisture Requirements and Moisture Testing.)

5. Expansion space should be left around the perimeter or in accordance with manufacturer's recommendation.

6. Typical: Subfloors are covered with a resilient material, foam underlayment or cork. Follow manufacturer's instructions for correct materials and thickness.
7. Typical: floating engineered flooring is edge-glued or edge-attached with a self-locking mechanism.
   a. For edge-glued products, use an adhesive approved by the manufacturer.
   b. Apply adhesive at the spread rate to the side grooves and/or ends as recommended by the manufacturer.
8. Starter boards should be aligned with the groove side and end against the starting wall. Tapping block should be used against tongue only.
9. Stagger end joints per manufacturer’s recommendation. Typical: 18”-20”.

CHAPTER 9
SOLID STRIP AND PLANK FLOORING INSTALLATION

Part I - Acceptable Jobsite Conditions and Jobsite Checklist

A. Refer to Chapter 1

Part II - Acclimation Guidelines

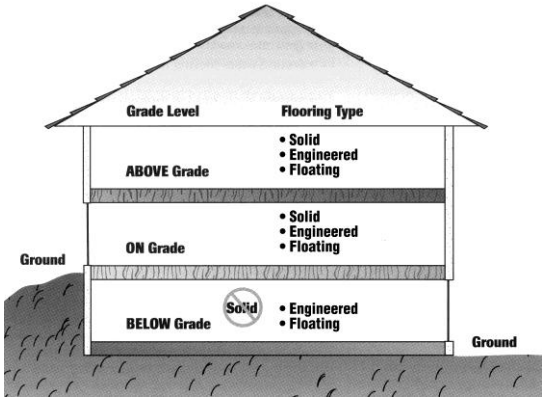
A. See Chapter 2 and Appendix B.

Part III – Appropriate Grade Levels

A. Solid strip and plank wood floors can be installed successfully above grade level or on grade, but are not recommended for installation below grade.

B. The entire flooring level is considered to be BELOW GRADE where soil is present along any perimeter wall and is more than 3" above the installed wood flooring level. Ground should be sloped away from the house for proper drainage. (Follow local building codes.)

Grade Level diagram



If the soil surrounding a structure is 3 inches or more above the floor of any level, consider that level below grade. This includes walk-out basements. In addition, the surrounding soil should be sloped away from the structure.

Part IV - Subfloors – Wood Joist Systems

A. See Chapter 4.

Part V - Subfloors – Concrete Slab

A. See Chapter 5.

B. When installing solid strip and solid plank flooring over concrete, a vapor retarder is always required over the concrete slab and below the subflooring material. A minimum 6 mil construction grade polyethylene film, with perm of .13, or other impermeable material with a perm of .15 or less is recommended.

C. Some manufacturers allow direct glue installation of ¾" solid strip and solid plank flooring. In such cases, follow manufacturer's recommendation.

Part VI – Solid Strip & Plank Installation Methods

A. Always follow the manufacturer's recommended installation procedure.

B. Unfinished and factory-finished solid strip and solid plank flooring should be installed perpendicular to the joists or on a diagonal for any single layer subfloor. (Exception: Over diagonal, solid subfloor boards, install perpendicular to joists or subfloor direction.)

C. When ¾" solid strip and solid plank flooring is laid parallel with the floor joists, follow one of these two steps:

1. Add a layer of minimum nominal ½" (15/32") CD Exposure 1 (CDX) plywood underlayment to the existing subfloor (as previously recommended)
2. Or brace between truss/joists in accordance with the truss/joist manufacturer's recommendations and with local building codes. Some truss/joist systems cannot be cross-braced and still maintain stability.

D. Before installing wood flooring, place an approved vapor retarder. Some examples of acceptable vapor retarders over wood subfloors include:

1. An asphalt laminated paper meeting UU-B-790a, Grade B, Type I, Style 1a.
2. Asphalt-saturated kraft paper or #15 or #30 felt that meets ASTM Standard D-4869 or UU-B-790, Grade D.

E. Wall Line Layout

1. Choose a starting wall according to the most aesthetically or architecturally important elements in the room, taking into consideration fireplaces, doors, cabinets and transitions, as well as the squareness of the room. The starting wall will often be the longest unbroken wall in the room.
2. Snap a working line parallel to the starting wall, allowing ¾" expansion space between the starting wall and the edge of the first strip or plank run.
3. As a general rule, a ¾" expansion space must be left around the perimeter and at all vertical obstructions.
4. Random-width plank is laid out with alternating courses varying by widths. Start with the widest board, then the next width, etc., and repeat the pattern.
5. Lay one row of strip or plank along the entire length of the working line.
6. Top-nail and blind-nail the first row (hand-nail if necessary), using appropriate fasteners. Denser species may require pre-drilling. Each succeeding row should be blind-nailed with the nailing machine wherever possible. At the finishing wall and other obstructions, it may be necessary to blind-nail by hand until top nailing is required.
7. Racking rule of thumb: Avoid "H" patterns. Stagger end joints of boards row to row a minimum of 6" for strip flooring, 8-10" for 3" to 5" plank, and 10" for plank wider than 5".See Figures 9-1 and 9-2.
8. To minimize expansion on floors wider than 20 feet, more or less spacing between rows may be needed, depending on geographical area, interior climate control and time of the year. (Appendix B, Acclimation.)

Figure 9-1 Stagger End Joints

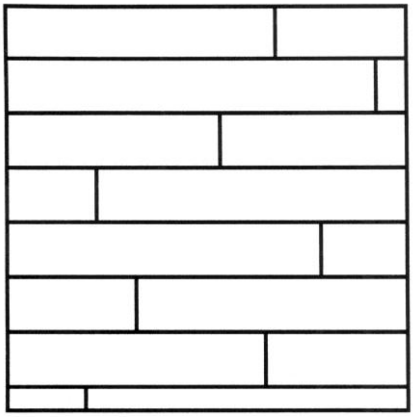
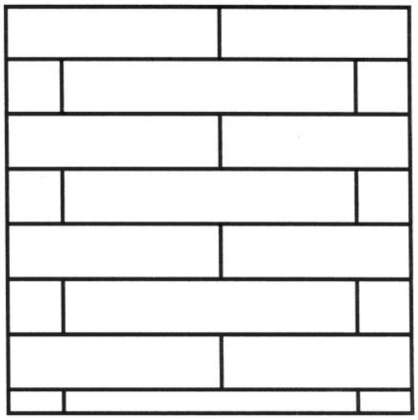


Figure 9-2 Avoid "H" Joints



9. Where spacing is required: Use a washer or removable spacer to leave additional space every few rows and/or start in center of room and work out to both sides. Do not use spacers that may cause damage on factory-finished products.

10. Nailing: Blind-nail through the tongue using 1½"-2" fasteners. Use 1½" fasteners with nominal ¾" plywood subfloor direct to concrete slab. Face-nail boards where needed using 6d-8d casing or finish nails. Fasteners should be spaced every 6"-8" on blind-nailing, or every 10"-12" on face-nailing.

11. For additional fastening, any of the following options may be used in addition to the nailing schedule. (See Appendix F, Fastener Schedule.)

12. Follow manufacturer's instructions for installing plank flooring.

13. For wide-width plank flooring (5" or wider), to assist the nailing schedule of 6"-8" and increase holding power, there are three options.

    a. Screw and plug at end joints, alternating at staggered locations and intervals along each board.

    b. Apply an approved wood flooring adhesive.

    c. Use kerfing or relief cuts every 8" to 12" parallel to the grain – using more relief cuts for wider boards. Typically, the relief cut should be 3/8" on a ¾" board.

NOTE: These options, however, will not necessarily eliminate cupping.

14. Blind-nail and face-nail, as necessary, to complete the final rows.

F. Center Line Layout

NOTE: For instructions on using the trammel point method to square a room and find the center point, see Appendix G, Trammel Point Method.

1. Find the center of your room, measuring off the two longest walls, and snap a line down the center of that room.

2. Install a starter board on the line. Fasten the starter board to the floor using wood screws.
3. Nail the first row of wood flooring against the starter board, being careful not to move the starter board when nailing. The groove of the flooring should be against the starter board.
4. Drill and hand-nail the first three rows through the tongue. DO NOT USE TOP NAILS.
5. Use a blind nailer to install the remaining rows of wood flooring. Use the nailing practices described earlier in the chapter.
6. After installing in one direction, remove the starter board and start rows going in the opposite direction.
7. Install a spline or a slip tongue in the groove of the board that was against the straight-edge. Put wood flooring adhesive down the entire length of the groove before installing the spline.
8. Install the spline using a blind nailer. To keep the spline in alignment for the next flooring board, use a scrap piece of wood flooring to run along the length of the spline as you nail.
9. Install the remaining rows in the opposite direction. Use the nailing practices described earlier in the chapter.

CHAPTER 10
INSTALLATION OVER EXISTING FLOORS

Part I – Existing Floor Requirements

A. Always follow the manufacturers recommendations for installation over existing flooring

B. Glue-down parquet applications that require the use of PVA adhesives are not recommended over existing sheet vinyl or vinyl and cork tile flooring unless an underlayment is put down first. Underlayment should be in accordance with adhesive and/or flooring manufacturer's recommendations.

C. Particleboard is not generally an acceptable underlayment, because it lacks stability. Some manufacturers approve particleboard as an acceptable underlayment, as they do not warrant against subfloor movement. In such cases, follow manufacturer's recommendation.

D. Other types of adhesives may require the use of a primer or vinyl blocker when installing over sheet vinyl or vinyl and cork tile flooring. Follow manufacturer's recommendations.

E. Nail-down applications may be successful over existing sheet vinyl or vinyl tile if fastener penetration is not significantly diminished and the subfloor meets minimum requirements. Fasteners must penetrate a proper subfloor by at least 5/8".

F. Wood flooring can be installed over existing ceramic tile, terrazzo, or marble with proper underlayment or adhesives only on manufacturer's recommendation.

G. Installing wood flooring over an existing wood floor.

1. Sand off old finish and high spots on existing wood floor and prep to clean, dry, sound, flat subfloor. Repair, re-nail or replace loose flooring products.
2. Over an existing glue-down floor, glue direct to the existing floor. Or, if the thickness of the floor will allow it, staple to the existing floor. Check with the flooring manufacturer for recommendations.
3. When installing new wood flooring parallel to an existing solid nail-down floor, add a minimum of $^{3}/_{8}$" underlayment over the existing floor to increase stability. Check with the flooring manufacturer for recommendations.
4. When installing new wood flooring at a 45- to 90-degree angle to an existing solid nail-down floor, additional underlayment is not required.

National Wood Flooring Association

SECTION IV

APPENDICES

APPENDIX A
SAFETY GUIDELINES

Safety first

Safety on the job is the foremost concern for contractors, because accidents with power tools can be critical, even disabling or deadly. No amount of experience or expertise exempts you from safety risks inherent in using the tools required to install hardwood floors. The goods news is that these risks are easily managed. Start with these general guidelines:

- Never work under the influence of alcohol, drugs or medication
- Work with others nearby, if possible.
- Do not work on a cluttered floor.
- Use proper lighting and ventilation.
- Make sure that the electrical power and wiring at the jobsite is sufficient to operate all machines safely.
- Know your insurance company's policy on coverage related to accidents or jobsite situations.
- Wear proper work clothing and shoes. Do not wear loose clothing that could get caught in a machine.
- Wear NIOSH-approved approved hearing protection and safety glasses, as well as dust and fume respirators, knee protection and gloves.
- Have an OSHA-approved first-aid kit on the job site.
- Read and fully understand the owner's manuals that are supplied with the equipment.
- Use tools only as intended.
- Use all tool and machine safety guards.
- Turn off and unplug electrical tools and machines when making adjustments and attaching accessories.
- Turn off all sources of ignition when using flammables.
- Use ground fault circuit interrupters (GFCIs) on electric tools to avoid electric shock.
- Carry and read MSDS (Material Safety Data Sheets) for all products.
- Do not exceed manufacturer's recommended working air pressure for pneumatic systems.

APPENDIX B
ACCLIMATION

ALWAYS FOLLOW MANUFACTURERS' RECOMMENDATIONS REGARDING HOW AND WHETHER TO ACCLIMATE WOOD FLOORING.

Wood flooring is a hygroscopic material subject to dimensional change as a result of variations in moisture, temperature and humidity in the surrounding environment. That has led to increasing awareness of the need to properly acclimate wood flooring before installation. Wood flooring simply needs to reach a moisture content level in equilibrium with the surrounding environment in which it will be installed, at or near normal living conditions. Always account for time of year and geographic location.

NOTE: Not properly acclimating wood flooring may cause excessive expansion, shrinkage, dimensional distortion or structural damage

The point of acclimating wood flooring before installation is to allow the moisture content of the wood to adjust to the installation site's "normal living conditions" — that is, the temperature, humidity conditions and moisture content that will typically be experienced once the structure is occupied.

For site-finished wood flooring, after installation and before sanding and finishing, allow the flooring to acclimate to the controlled environment, and to stabilize for a period of time.

The worst-case scenario is one in which wood flooring is stored at the jobsite in an uncontrolled environment — especially one that is subject to excessive moisture and humidity conditions. It does no good at all — in fact it is likely harmful — to store wood flooring at the jobsite under conditions that don't reflect those normal environmental conditions. Garages, basements and exterior patios, for example, are not acceptable areas to store wood flooring.

Wood's Comfort Zone

As a general rule, with geographic exceptions, wood flooring will perform best when the interior environment is controlled to stay within a relative humidity range of 30 to 50 percent and a temperature range of 60° to 80° Fahrenheit. (In some climates, the ideal humidity range might be higher or lower – 25 to 45 percent or 45 to 65 percent, for example.)

The chart on the following page indicates the moisture content wood will likely have at any given combination of temperature and humidity. Note that equilibrium moisture contents in the recommended temperature/humidity range (shaded area) coincide with the 6-to-9 percent range within which most hardwood flooring is manufactured. Although some movement can be expected even between 6 and 9 percent, wood can expand and shrink more dramatically outside that range. When wood is neither gaining nor losing moisture, equilibrium moisture content (EMC) has been reached.

Equilibrium Moisture Content of North American Wood Species at Various Temperatures and Relative Humidity Readings

Wood Flooring Has a Comfort Level Too: Wood flooring will perform best when the interior environment is controlled to stay within a relative humidity range of 30 to 50 percent and a temperature range of 60° to 80° Fahrenheit. Fortunately, that's about the same comfort range most humans enjoy. The charts below indicate the equilibrium moisture content of North American species of wood under various temperature and humidity conditions. **These values do not necessarily apply to imported species.** The left column indicates temperature in degrees Fahrenheit and Celsius. The bottom row indicates percent relative humidity. The values in the chart indicate the equilibrium moisture content (EMC) for any given combination of temperature and humidity. For example, at 70° Fahrenheit and 40% relative humidity, the equilibrium moisture content is 7.7%. **The shaded area indicates the generally recommended range for wood flooring — 6-9% EMC, which occurs when temperature is 60-80° Fahrenheit or 15-26° Celsius and 30-50% relative humidity.**

° F / C	EMC	EMC	EMC	EMC	EMC	EMC	EMC	EMC	EMC	EMC	EMC	EMC	EMC	EMC	EMC	EMC	EMC	EMC	EMC	EMC
30 / 1	1.4	2.6	3.7	4.6	5.5	6.3	7.1	7.9	8.7	9.5	10.4	11.3	12.4	13.5	14.9	16.5	18.5	21.0	24.3	26.9
40 / 4	1.4	2.6	3.7	4.6	5.5	6.3	7.1	7.9	8.7	9.5	10.4	11.3	12.4	13.5	14.9	16.5	18.5	21.0	24.3	26.9
50 / 10	1.4	2.6	3.7	4.6	5.5	6.3	7.1	7.9	8.7	9.5	10.4	11.3	12.4	13.5	14.9	16.5	18.5	21.0	24.3	26.9
60 / 15	1.3	2.5	3.6	4.6	5.4	6.2	7.0	7.8	8.6	9.4	10.2	11.1	12.1	13.3	14.6	16.2	18.2	20.7	24.1	26.8
70 / 21	1.3	2.5	3.5	4.5	5.4	6.2	6.9	7.7	8.5	9.2	10.1	11.0	12.0	13.1	14.4	16.0	17.9	20.5	23.9	26.6
80 / 26	1.3	2.4	3.5	4.4	5.3	6.1	6.8	7.6	8.3	9.1	9.9	10.8	11.7	12.9	14.2	15.7	17.7	20.2	23.6	26.3
90 / 32	1.2	2.3	3.4	4.3	5.1	5.9	6.7	7.4	8.1	8.9	9.7	10.5	11.5	12.6	13.9	15.4	17.3	19.8	23.3	26.0
100 / 37	1.2	2.3	3.3	4.2	5.0	5.8	6.5	7.2	7.9	8.7	9.5	10.3	11.2	12.3	13.6	15.1	17.0	19.5	22.9	25.6
% RH	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	98

Chart adapted from Wood Handbook: Wood as an Engineering Material (Agriculture Handbook 72) Forest Products Laboratory, U.S. Department of Agriculture

Coefficients of Change: How Moisture Affects Wood Flooring

At 70° Fahrenheit, a relative humidity of 25 percent gives an EMC of 5 percent, and a relative humidity of 75 percent gives an EMC of 14 percent. A 50 percent variance in relative humidity produces an EMC change of 10 percent. How that affects wood flooring depends on which species is being used. However, let's say the width variation is just 1/16 inch for a 2¼-inch board. That's a full inch over 16 boards in a floor. Over the width of a 10-foot wide floor, that amounts to more than three inches of total expansion or contraction. Protective coatings cannot prevent wood from gaining or losing moisture; they merely slow the process. Installers need to take those expected dimensional variations into account when installing the wood flooring.

Proper Installation By Calculating Coefficients of Change

Proper installation depends not only on the moisture content of the wood and the environmental conditions at the time of installation, but also on expected seasonal changes in temperature and humidity at that location — changes that may cause the wood flooring to gain or lose moisture content over time. Such changes are likely to occur even if the building occupants maintain interior environmental conditions through use of a heating and/or air-conditioning system.

For example, if a wood flooring installation takes place when relative humidity is high, the wood flooring will lose moisture content and therefore shrink during low-humidity seasons. In that case, install the flooring tightly enough to minimize the expected separations that will occur as the boards shrink during dry seasons. Conversely, if an installation takes place when humidity conditions are low, it's likely that the wood flooring will gain moisture and expand during humid seasons. In those cases, incorporate additional expansion space through use of spacers.

How much expansion space to leave will depend on the expected changes in moisture content of the wood flooring, and that will depend on the dimensional change coefficient of the species being installed and the width of the flooring.

Predicting temperature and humidity changes: Installers may have a climate history for the areas in which they typically install wood flooring, or climate data is also available form a variety of sources, including the National Weather Service (www.weather.gov) and Weather Underground (www.wunderground.com).

Calculating dimensional change: Different species of wood flooring exhibit different coefficients of change and, therefore, have different rates of dimensional stability. That is, some woods are more prone to expansion and shrinkage than others. The National Wood Flooring Association's *Technical Publication No. A200: Wood Species Used in Wood Flooring* lists dimensional change coefficients for many common wood species used in wood flooring.

To calculate the expected dimensional change in wood flooring, you will need to determine the current moisture content of the wood flooring, using a moisture meter. Then calculate the expected change in moisture content, using the equilibrium moisture content chart above and the climate data for the location in which then flooring is to be installed. Finally, you will need to know the dimensional change coefficient of the species to be installed.

With that information in hand, you will be able to perform a simple calculation that will tell how much the wood flooring is likely to expand or shrink. That calculation multiples the change in moisture content by the change coefficient, multiplied by the width of the flooring boards.

Change coefficient x moisture content change x board width = dimensional change

For example, let's say that climate data for the location indicates that the maximum moisture content for the wood flooring will be 9.1 percent (relative humidity of 50 percent and temperature of 80°). Let's also say that the wood flooring currently has a moisture content reading of 6.1 percent. That means the wood is likely to experience a change in moisture content of 3 percent (9.1% - 6.1%) from dry season to humid season. In the example, let's say that the wood flooring to be installed is 5-inch plank red oak. Red oak has a change coefficient of .00369. We now have the data we need:

Change coefficient = .00369
Moisture content change = 3%
Board width = 5 inches

The following calculation would apply: *.00369 x 3 x 5 = .055 inches*

In other words, for every 3-percentage-point increase in moisture content, a 5-inch board will expand by more than 1/20th of an inch. Over 10 boards, that will equal over ½ inch of expansion — something the installer will need to take into account, although in actual practice the installation and fastening process will tend to restrain board movement somewhat.

The Process of Acclimation

If the manufacturer recommends that the wood flooring be acclimated before installation, proceed as follows:

• First, ensure that the building is enclosed.

• Second, ensure that the building is maintained at normal living conditions for temperature and humidity. It does no good to acclimate flooring to interior conditions that are too moist or too dry, or in any way significantly outside the range of conditions likely to be found in the building after the flooring is installed. In fact, it is counterproductive.

• Where building codes allow, permanent heating and/or air-conditioning systems should be operating at least five days preceding installation to promote proper acclimation. Where building codes do not allow for operation of the permanent system, acclimation of the flooring must be completed with the temperature and humidity maintained at or near normal living conditions, which generally fall between 60° to 80° Fahrenheit and at the average yearly relative humidity for the area.

• If it is not possible for the permanent heating and/or air-conditioning system to be operating before, during and after installation, a temporary heating and dehumidification system using electric heating units, dehumidifiers and industrial fans can enable the installation to proceed until the permanent heating and/or air-conditioning system is operating.

• Upon delivery, check wood flooring moisture content with a moisture meter to establish a baseline for required acclimation. Acclimate to manufacturer's recommendations or as necessary according to geographical location. **See Appendix D, Moisture by Area – U.S., and Appendix E, Moisture by Area – Canada**.

• Acclimation can be facilitated by breaking the floor units into small lots and/or opening the packaging. A common practice is to stack the flooring, with ¾-inch to 1-inch sticks between each layer of flooring to allow air circulation on all sides of all boards.

Note: Some manufacturers do not require acclimation for certain products prior to installation.

• For solid strip flooring (less than 3 inches wide), when an industry-approved vapor retarder with a proper perm rating is installed between the flooring and the subfloor, there should be no more than 4 percent moisture content difference between properly acclimated wood flooring and subflooring materials. For wide-width (3" or wider) solid flooring, there should be a moisture content difference of no more than 2 percent between properly acclimated wood flooring and subflooring materials. For wide-width flooring, many industry professionals also suggest using an adhesive as an assist to mechanical fastening. However, the adhesive may not provide sufficient moisture protection to substitute for an industry-approved vapor retarder. Also, when an adhesive is applied over a vapor retarder, care should be taken to ensure that the adhesive and vapor retarder are compatible with one another. In most cases, adhesives are not compatible with asphaltic or paper-type vapor retarders.

APPENDIX C
MOISTURE GUIDELINES
& MOISTURE TESTING

Determining moisture content is an essential part of quality control within the flooring installation process. Flooring installers must know the moisture content of the wood flooring, as well as the subfloor.

The most accurate measurement for moisture content in wood is the oven-bake-out method. However, it is not widely used because the cost and difficulty of performing the test on-site is not practical.

Moisture Testing for Wood Flooring and Wood Subfloors

Hand-held electrical tools, called moisture meters, should be part of the toolbox of every flooring contractor, for measuring moisture in subfloors and floors.

Moisture meters have many purposes. They can determine if floor boards are dry enough for an installation to proceed. They can check subfloors and concrete for high moisture levels; they can decide when a second coat of finish can be applied; they can assess water damage.

There are two main types of meters for testing wood – probe and pinless.

• The probe type, measures electrical resistance across opposed sets of pins, which are pushed into the wood. All probes should be inserted parallel with the grain.

One advantage of probe-type meters is that those with insulated pins can measure moisture content at varying depths – you can tell whether the moisture content near the bottom of a board is higher than near the top, for example.

• The pinless, dielectric types employ signal penetration up to 1 inch or more for both hardwood and softwood. The meter can be moved across the surface to identify pockets of moisture. It is relatively unaffected by temperature. Rough surfaces have very little effect on the reading. Measurements can also be taken through coating, varnish or paint without damage to the surface. Because pinless moisture meters often measure deeper than the ¾" depth of the wood flooring, the moisture readings from the meter may include moisture in the wood subfloor, as well as in the wood flooring. Follow the meter manufacturer's recommendations to get an accurate reading from the wood floor. One effective testing method is to remove a sample board and get a reading with air space beneath it.

It is important that the meter you choose offers the following:

• A wide moisture content range from at least 6 percent to 30 percent.

• The necessary adjustment tables or conversion chart for various species.

Test for moisture at several locations in the room — a minimum of 20 per 1,000 square feet — and average the results. Pay special attention to exterior and plumbing walls. In most regions, a "dry" subfloor that is ready to work on has a moisture content of 12 percent or less. If you record excessively high readings, do not proceed with installation until the origin of the moisture is identified and moisture problems are remedied.

Moisture Testing For Concrete Slabs:

Note: Before moisture testing begins, the concrete slab must be a MINIMUM of 30 days old.

Moisture meters for concrete can be probe-type or pinless. Some meters designed to provide qualitative results – that is, the readings they provide can indicate potential moisture problems, but will not provide a definitive reading. In that case, quantitative testing is required.

The two qualitative moisture meters work on the principles of electrical impedance or electrical resistance. These testing methods are not recognized by any standard and should not be used for the purpose of accepting or rejecting a floor. These electronic tests are useful survey tools to broadly evaluate the relative moisture conditions of a slab and to select locations for quantitative moisture tests. If the moisture meters indicate the presence of excessive moisture, as per wood flooring or meter manufacturer's recommendations, further testing is required using relative-humidity testing (ASTM F-2170), calcium chloride testing (ASTM F-1869) or calcium carbide (CM) testing. (See below.)

Another qualitative test is the phenolphthalein test, which requires one test per 200 square feet of surface area, with a minimum of two tests per jobsite. Chip a small section of concrete off the floor and apply 3 percent phenolphthalein in alcohol solution (available at most druggists) in the area. A red color indicates that moisture is present. Always chip the concrete as this protects against the possibility that a concrete sealer was applied. If the phenolphthalein test indicates the presence of excessive moisture, further testing is required using relative-humidity testing (ASTM F-2170), calcium chloride testing (ASTM F-1869) or calcium carbide (CM) testing. (See below.)

Quantitative Moisture Tests on Concrete

Relative Humidity Testing - ASTM F-2170

Select test locations to provide information about moisture distribution across the entire concrete floor slab. For slabs on grade and below grade, include a test location within three feet of each exterior wall.

Perform three tests for the first 1,000 sq ft and one test for every additional 1,000 sq ft thereafter.

At least 48 hours before test is placed, concrete floor slabs should be at the same temperature and humidity that is expected during service conditions.

Use a rotary hammer-drill to drill holes in the concrete slab; 40% depth of slab is required for the holes when concrete is drying from one side and 20% when drying from both sides. **Follow manufacturer's instructions provided with test kits.**

Allow 72 hours to achieve moisture equilibrium within the hole before making relative humidity measurements.

ASTM F-710 provides installation guidelines for acceptance of hardwood flooring using relative-humidity testing. Typical limits for wood and wood-based products are 75% relative humidity. When getting readings over 75%, you must use a proper vapor retarder, based on the flooring manufacturer's recommendations, or wait for further concrete curing.

Calcium Chloride Test - ASTM F-1869

Select test locations to provide information about moisture distribution across the entire concrete floor slab.

Perform three tests per 1,000 square feet of surface area. Add one additional test for each 1000 square feet thereafter.

At least 48 hours before test is placed, concrete floor slabs should be at the same temperature and humidity expected during service conditions

The actual test area shall be clean and free of all foreign substances. Use approved OSHA work practices for removal of all existing flooring materials and debris.

Blast or grind a minimum area of 20 inches by 20 inches and let stand for a minimum period of 24 hours prior to setting test.

Follow manufacturer's instructions for properly placing tests onto concrete.

Tests are to be covered and left in place for 60 to 72 hours. Follow manufacturer's instructions for labeling and recording time and date of test.

Send the test to a certified laboratory for results and documentation, or perform the measurements as per ASTM F-1869.

Always following the flooring manufacturer's guidelines and specifications to determine when the concrete slab is ready for installation.

ASTM F-710 provides installation guidelines for acceptance of hardwood flooring using calcium-chloride testing. Typical limits for direct glue-down wood flooring is 3lbs/1000sf/24hr. When getting readings over 3 lbs and up to 7 lbs, you must use a vapor retarder. A reading over 7 lbs may not be acceptable for wood flooring installation. Follow the wood flooring manufacturer's recommendations. In the case of a glue-down installation, the adhesive manufacturer may also have recommendations.

NOTE: For information on the tests listed above, contact your distributor or call NWFA at 800-422-4556 U.S. or 800-848-8824 Canada for the source nearest you.

Calcium Carbide (CM) Test - ASTM (modified) D-4944-04, MilSpec CRD-C154-77

The calcium carbide test, also known as the CM test or calcium carbide bomb, is more widely used in Europe than in the United States. It is a gas-pressure test in which moisture in the concrete reacts with calcium carbide crystals to create acetylene gas, and the gas pressure produced is measured to provide a moisture content reading, expressed as a percentage of moisture. Follow the directions provided by the test-kit manufacturer. A reading of over 2.5% requires use of a vapor retarder. A reading over 4% may not be acceptable for wood flooring installation. Follow the wood flooring manufacturer's recommendations. In the case of a glue-down installation, the adhesive manufacturer may also have recommendations.

The testing method generally requires the collection of specific weighed quantities of concrete from the floor by chipping or drilling. A specific quantity of carbide is added, as well as two or more steel balls and the chamber is sealed. The materials are rolled or shaken to mix and to allow the steel balls to pulverize the test materials. Carbide reacts with moisture in the test materials creating acetylene gas that is measured on an attached pressure gauge.

Acceptable Vapor Retarders Over Wood Subfloors

ALWAYS FOLLOW LOCAL CODES AND MANUFACTURERS INSTRUCTIONS FOR ACCEPTABLE VAPOR RETARDERS.

An acceptable vapor retarder is a vapor resistant material, membrane or covering with a vapor permeance (perm rating) of greater than or equal to .7 and less than or equal to 50 when tested in accordance with ASTM E-96 Method A. Installation of a vapor retarder reduces the potential for moisture or vapor related problems, but does not guarantee elimination of moisture or vapor related problems. Install a vapor retarder over wood panel or board sub-floors prior to installing nail down solid strip or plank flooring. Over-lap seams a minimum of 4 inches or more as required by manufacturer or specifier and local building codes.

Some examples of acceptable vapor retarders over wood subfloors include:

1. An asphalt laminated paper meeting UU-B-790a, Grade B, Type I, Style 1a.
2. Asphalt-saturated kraft paper or #15 or #30 felt that meets ASTM Standard D-4869 or UU-B-790, Grade D.

NOTE:

1. A vapor retarder has some extra benefits in that it eliminates wood-on-wood contact, wood boards slide more easily when positioned, minimizes the impact of seasonal humidity change and may reduce dust and noise levels.
2. However, by today's standards, asphalt saturated kraft or felt paper may not be an effective vapor retarder in all applications. The 2006 International Residential Code requires a vapor retarder on the warm-in-winter side of exterior floors (a floor over a vented crawl space, for example), with a vapor permeance of 1 perm or less in Zones 5 and higher.
3. Over a wood subfloor, do not use an impermeable vapor retarder material with a perm rating of .7 or less, such as 6 mil polyethylene film or other polymer materials, as it may trap moisture on or in the wood subfloor.
4. Do not use common red rosin or building paper which is not asphalt saturated. They are not vapor retarders as their perm rating is far greater than 50.

Acceptable Vapor Retarders Over Concrete

A. ALWAYS FOLLOW LOCAL CODES AND MANUFACTURERS INSTRUCTIONS FOR ACCEPTABLE VAPOR RETARDERS.

B. Test concrete for moisture. For concrete slabs with a calcium chloride reading of greater than 3 lbs, a relative humidity reading of greater than 75%, or a calcium carbide (CM) rating of greater than 2.5%, install an impermeable vapor retarder with a perm rating of less than .15 perm. Adding a vapor retarder is not required on installations over slabs with a calcium chloride reading of 3 lbs or less, a humidity reading of 75% or less, or a calcium carbide (CM) rating of 2.5% or less. However, in on-grade and below grade applications, adding a vapor retarder is always recommended.

C. The 2006 International Residential Code defines a vapor retarder as a vapor-resistant material, membrane or covering such as foil, plastic sheeting or other material

recommended by the manufacturer having a permeance rating of 1 perm or less, when tested in accordance with ASTM E-96 Method A.

D. The NWFA recommends an "impermeable" vapor retarder with a perm rating of less than or equal to .15, thereby limiting the passage of moisture to near zero.

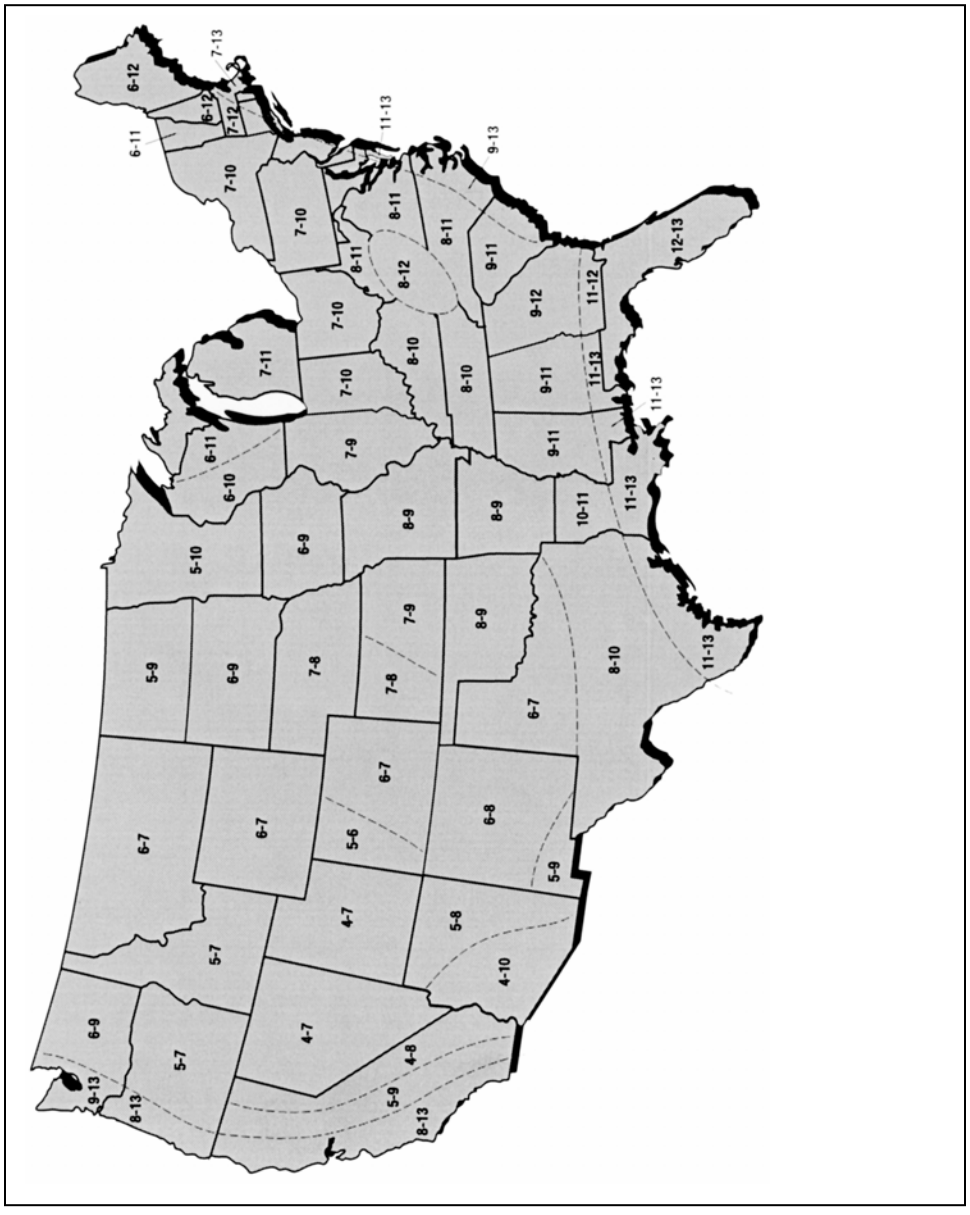
E. Some acceptable vapor retarders over concrete include:

1. A minimum 6 mil construction grade polyethylene film, with perm of .13, or other impermeable material with a perm of .15 or less is recommended. A premium polymer material meeting ASTM D-1745 for concrete with higher tensile, tear and puncture resistance is highly desirable.

2. Double felt: Two layers of #15 asphalt saturated felt paper that meets ASTM Standard D-4869, with the first layer adhered to the slab in a skim coat of appropriate adhesive, and a second layer adhered to the first layer with appropriate adhesive.

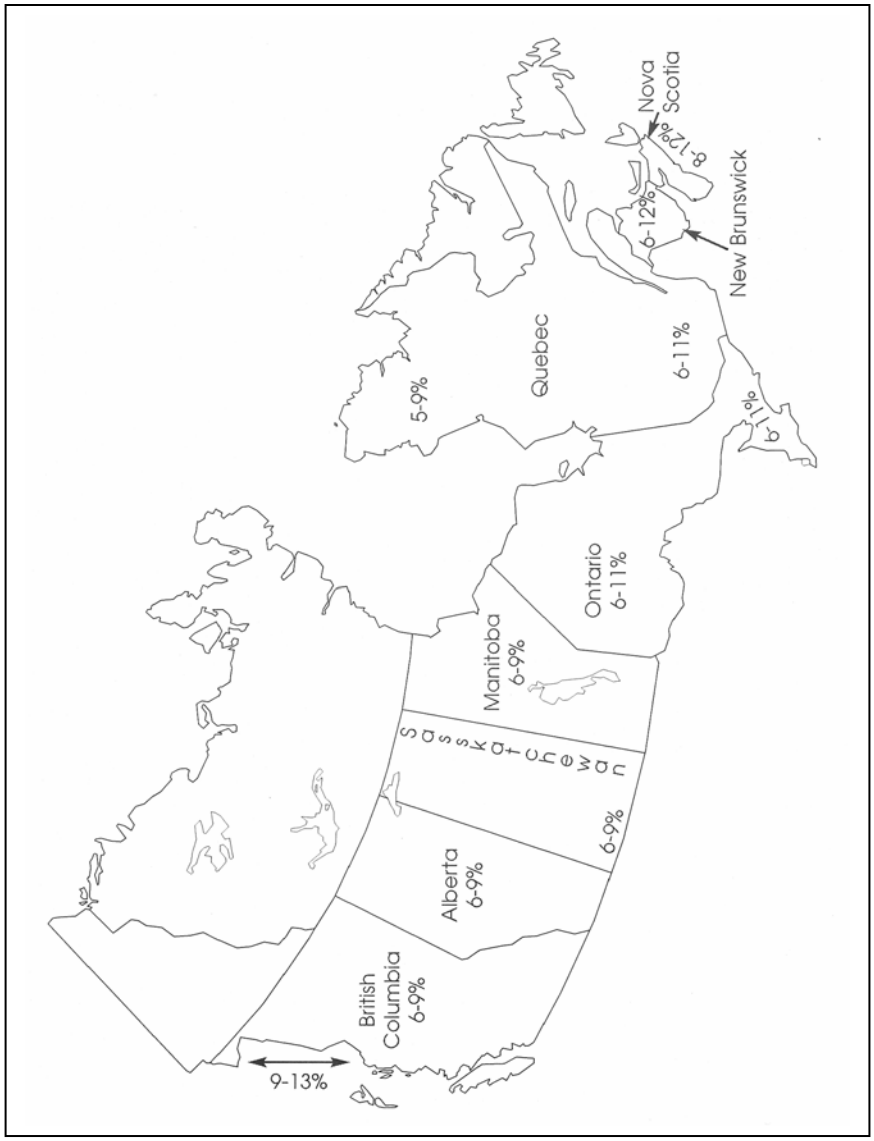
3. A chemical retarder or urethane membrane, as recommended by the adhesive or wood flooring manufacturer. These are usually in the form of a liquid-applied or trowel-applied membrane dispensed from a bucket following manufacturer recommendations.

APPENDIX D
MOISTURE CONTENT BY AREA – U.S.



NOTE: Relative humidity in the building should be maintained at between 30-50 percent year-round. A consistent interior climate environment is the key to optimum wood flooring performance.

APPENDIX E
MOISTURE CONTENT BY AREA – CANADA



NOTE: Relative humidity in the building should be maintained at between 30-50 percent year-round. A consistent interior climate environment is the key to optimum wood flooring performance.

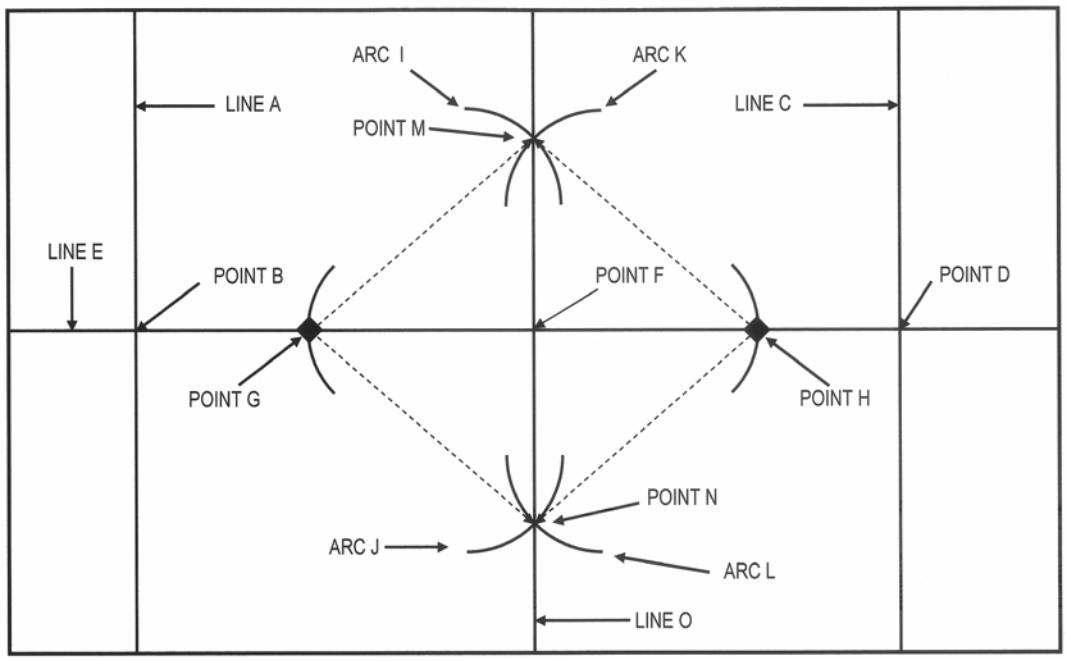
APPENDIX F
FASTENER SCHEDULE

Hardwood flooring must be installed over a proper subfloor. Tongue and grooved flooring MUST be blind nailed.

Wood Flooring Type	Fastener to be used	Fastener spacing
Solid Strip T&G ¾" x less than 3"	1 1/2"-2" fastener, or 6d-8d casing or finish nails. On slab with ¾" underlayment, use 1 1/2" fastener	Blind fastener spacing along the lengths of the strips, minimum two fasteners per piece near the ends (1-3"). In addition, every 8-10" apart for blind nailing, 10-12" for face nailing.
Solid Strip T&G ½" x 1 1/2", ½" x 2"	1 1/2" fastener	Blind fastener spacing along the lengths of the strips, minimum two fasteners per piece near the ends (1-3"). In addition, every 10" apart. ½" flooring must be installed over a minimum 5/8" thick subfloor.
Solid Strip T&G 3/8" x 1 1/2", 3/8" x 2"	1 1/4" fastener	Blind fastener spacing along the lengths of the strips, minimum two fasteners per piece near the ends (1-3"). In addition, every 8" apart.
Solid Strip T&G 5/16"	Narrow crowned (under 3/8") 1"-1 1/2" staples or 1"-1¼" hardwood flooring cleats.	Space fasteners at 3-4" intervals for staples, 4-6" for cleats, and within 1-2 inches of end joints, or as recommended by the flooring manufacturer.
Solid Plank ¾" x 3" or wider	1 1/2"-2" fastener, or 6d-8d casing or finish nails. On slab with ¾" underlayment, use 1 1/2" fastener	Blind fastener spacing along the lengths of the strips, minimum two fasteners per piece near the ends (1-3"). In addition, every 6-8" apart for blind nailing, 10-12" for face nailing. To assist the nailing schedule, options are to screw and plug the ends of each board, or to apply adhesive.
Engineered wood flooring	Narrow crowned (under 3/8") 1"-1 1/2" staples or 1"-1¼" hardwood flooring cleats designed for engineered flooring.	Space fasteners at 3-4" intervals for staples, 4-6" for cleats, and within 1-2 inches of end joints, or as recommended by the flooring manufacturer.
Subfloor over concrete	Hardened steel pins, 11/4 – 21/8	Minimum of 50% of fastener must penetrate concrete. Space fasteners one per square foot or as recommended by the fastener manufacturer.

APPENDIX G
TRAMMEL POINT METHOD

FIGURE G-1
TRAMMEL POINT METHOD TO SQUARE A ROOM AND LOCATE CENTER POINT



Trammel Points

Trammel points, which are used to scribe a circle or radius, consist of two points mounted on a beam – typically a piece of wood – and designed to slide along the beam to increase or decrease the radius. Typically, one of the points is a pencil or pen, while the other is usually a metal point used to anchor the center of the circle or the radius. The size of the radius can be adjusted by sliding the marking point along the beam to the desired length and locking it into position.

Trammel Point Method for Squaring a Room and Finding the Center

See Figure G-1

1. Measure the width of the room from top to bottom left of center (Line A).
2. Find the center of Line A and mark it (Point B).
3. Measure the width of the room from top to bottom right of center (Line C).
4. Find the center of Line C and mark it (Point D).

5. Adjust for any difference in center between Point B & Point D. For example, if Point B is one inch different than Point D, divide the difference by two to establish the new center point of Line A
6. Snap a line the length of the room from Point B through Point D. This is now Line E.
7. Find the center point of Line E and mark it Point F.
8. From Point F, use trammel point at fixed position on flat board to mark through Line E left of center, and mark it Point G.
9. From Point F, use trammel point at the same fixed position on flat board to mark through Line E right of center, and mark it Point H.
10. From Point G, use trammel point at a fixed position on flat board draw arc above Line E. Mark this Arc I.
11. From Point G, use trammel point at the same fixed position on flat board draw arc below Line E. Mark this Arc J.
12. From Point H, use trammel point at the same fixed position on flat board draw arc above Line E. Mark this Arc K.
13. From point H, use trammel point at the same fixed position on flat board draw arc below Line E. Mark this Arc L.
14. Where Arc I and Arc K intersect, mark it Point M.
15. Where Arc J and Arc L intersect, mark it Point N.
16. Snap a line from Point M through Point N, and mark it Line O.
17. Where Line O intersects Line E is the center of the room. Line E and Line O also form a 90-degree angle.

APPENDIX H
RADIANT HEAT INSTALLATIONS

With radiant heat, the heat source is directly beneath the flooring, so the flooring may dry out faster than a similar floor in a home with a conventional heating system. Wood flooring can be installed over radiant heat as long as you understand radiant heat and how it can impact wood flooring, what precautions to take, and what type of wood flooring to use.

Types of wood flooring that are best suited-for radiant heat subfloor are products that possess improved dimensional stability such as:

- Engineered wood flooring is more dimensionally stable than solid wood flooring.
- Certain species are known for their inherent dimensional stability such as North American oak, American cherry, American walnut and others. Denser species such as maple and Brazilian cherry are less stable.
- Quartersawn and rift-sawn wood flooring is more dimensionally stable in width than plain sawn wood flooring.
- Narrow boards are more dimensionally stable than wide boards.

GENERAL RADIANT HEAT INSTALLATION GUIDELINES

- To minimize the effect that rapid changes in temperature will have on the moisture content of the wood floor, NWFA recommends that an outside thermostat be installed. If one is not present, suggest to your customer that this should be considered. Unlike conventional heating systems, which switch on as needed, radiant systems work most effectively and with less trauma to the wood floor if the heating process is gradual, based on small incremental increases in relation to the outside temperature.
- Subfloors should have proper moisture tests according to the moisture testing procedures outlined in Chapter 3.
- The essential requirement in proper applications of wood flooring over radiant heated systems is to avoid penetration of the heating element. Radiant-heated subfloor systems can be concrete, wood or a combination of both. The type of subfloor as described in the previous chapters determines subfloor preparation.
- If the subfloor is concrete and it has cured, turn the heat on, regardless of season, and leave it on for at least 5-6 days to drive out residual moisture before installation of the wood flooring. Some installation systems, particularly glue-down applications, require the heat to be reduced or even turned off before installation of the flooring begins, so the adhesive does not cure excessively.
- With water-heated radiant-heat systems, a pressure test must be performed and documented by a qualified plumber or the system installer prior to beginning the installation of the wood flooring.
- If flooring materials that conduct heat at different rates are on the same circuit or heating zone, check with the HVAC mechanical engineer before proceeding.

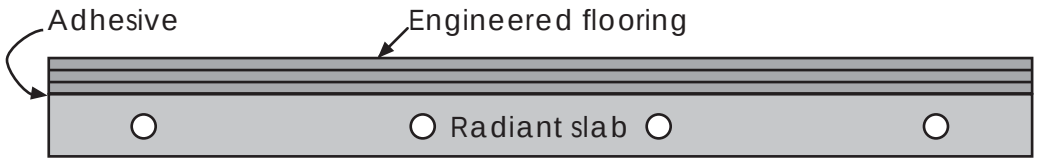
• Radiant heat is dry heat. A humidification system may be necessary to maintain wood flooring in its comfort zone.

The following installation and subfloor systems can be used successfully over radiant heat:

- 1. Glue-down, engineered or solid parquet
- 2. Floating engineered
- 3. Direct-nail, solid wood or engineered wood flooring to wood subfloor
- 4. Solid T&G floor direct-nail to sleepers
- 5. Single layer of plywood on sleepers
- 6. Double plywood floating subfloor
- 7. Loose-lay single layer of ¾" plywood cut in 16" planks staggered with ½" gap between laid perpendicular to wood direction

GLUE-DOWN, ENGINEERED OR SOLID PARQUET

NOTE: Follow manufacturer's installation instructions.



Install over approved subfloor. Refer to Chapter 7, Parquet Installation and Chapter 8, Engineered Flooring Installation.

- Use an adhesive approved by the manufacturer.
- The heating system has to be turned off before installation.
- The maximum allowable subfloor surface temperature is 85° F (29.44° C).
- Expect some heating season shrinkage.

DIRECT NAIL, SOLID WOOD OR ENGINEERED TO WOOD SUBFLOOR

NOTE: Follow manufacturer's installation instructions.

• Install over approved subfloor. Refer to Chapter 8, Engineered Flooring Installation, and Chapter 9, Solid Strip & Plank Installation.

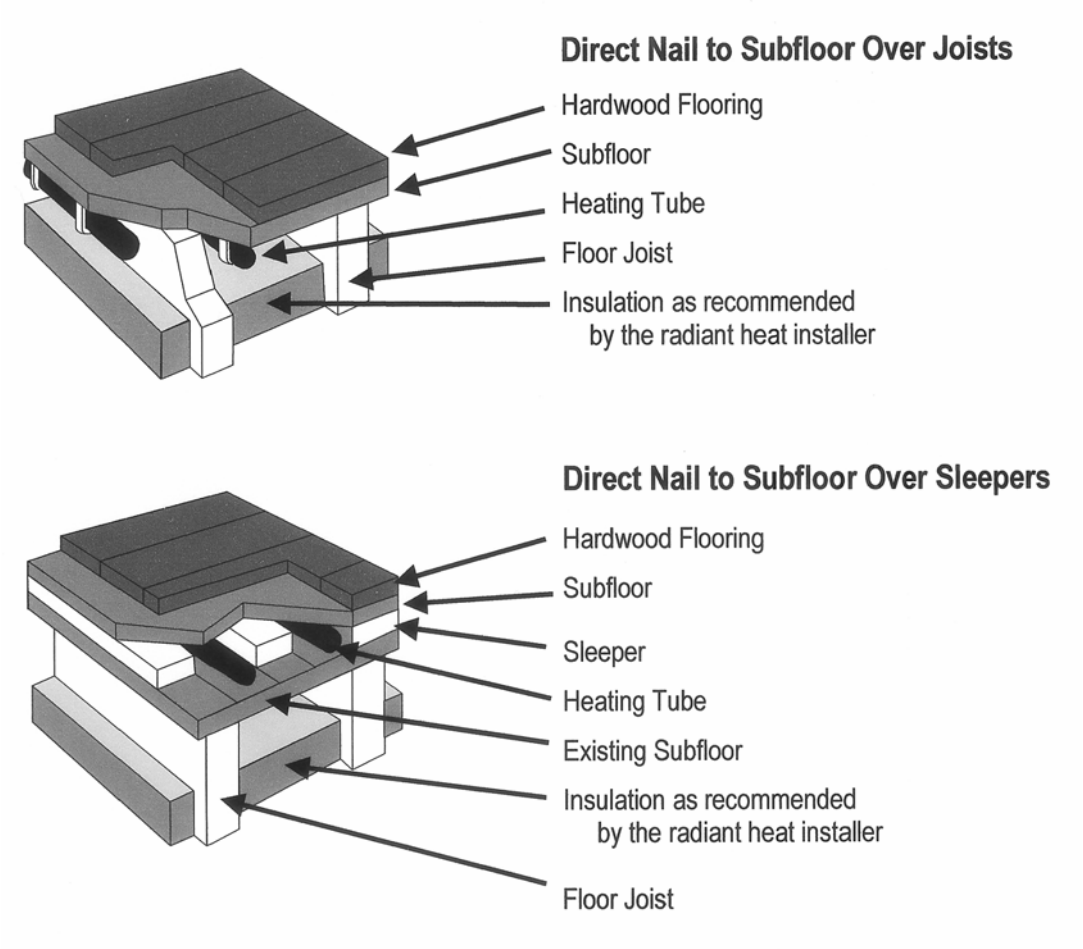
• Always check for subfloor moisture. See Chapter 3, Moisture Requirements and Moisture Testing.

• Solid wood must be properly acclimated to normal living conditions.

• All other installation procedures are the same as outlined in Chapter 8, Engineered Flooring Installation, and Chapter 9, Solid Strip & Plank Installation.

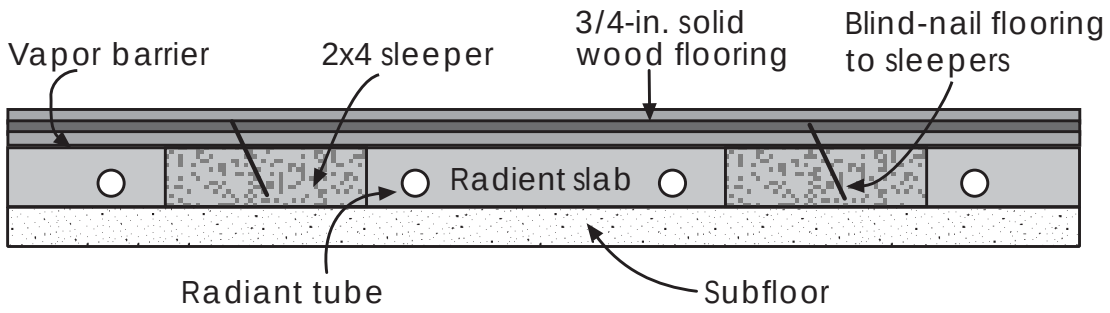
• Be sure fasteners are not so long as to penetrate heating elements.

• Maximum subfloor surface temperature-85° F (29.44° C).



SOLID T & G FLOOR DIRECT NAIL TO SLEEPERS

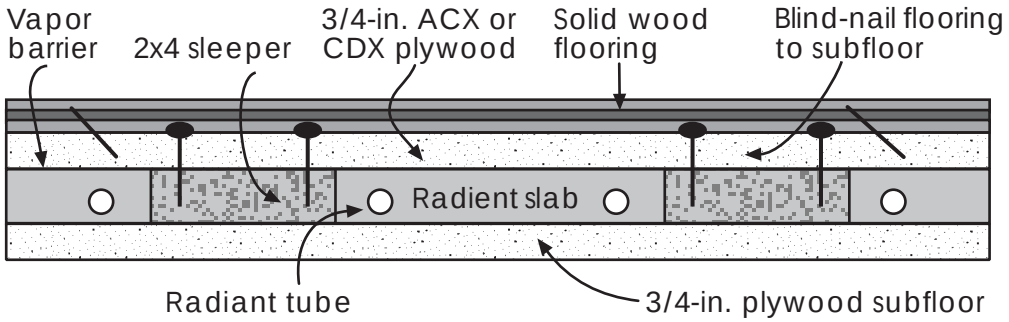
NOTE: Follow manufacturer's installation instructions.



- The use of solid wood flooring 4 inches and wider is not recommended over sleepers.
- Solid wood must be properly acclimated.
- Cannot use shorts.
- Maximum subfloor surface temperature - 85° F (29.44° C)

SINGLE LAYER OF PLYWOOD ON SLEEPERS

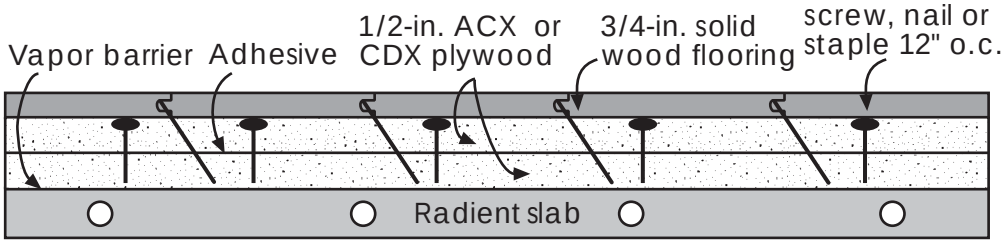
NOTE: Follow manufacturer's installation instructions.



- Solid wood must be properly acclimated.
- Maximum subfloor surface temperature-85° F (29.44° C)

DOUBLE PLYWOOD

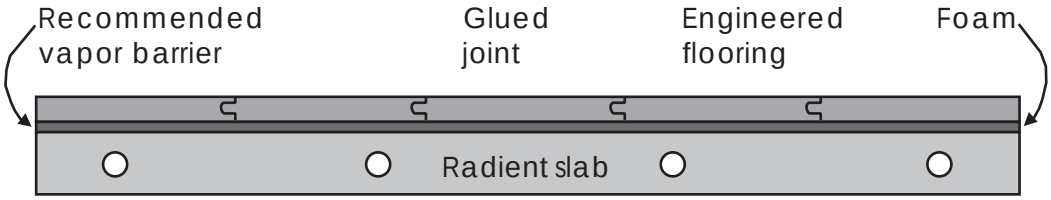
NOTE: Follow manufacturer's installation instructions.



- Solid wood must be properly acclimated.
- Maximum subfloor surface temperature - 85° F (29.44° C)

FLOATING ENGINEERED

NOTE: Follow manufacturer's installation instructions.



- Install over approved subfloor. Refer to Chapter 8, Engineered Flooring Installation.
- A 6 mil or better polyethylene vapor retarder should be installed over concrete subfloors. In some cases, this may be part of the flooring underlayment.
- A foam or resilient underlayment recommended by the flooring manufacturer must be installed prior to application of the wood flooring.
- Use an adhesive approved by the manufacturer for side and/or end joints.
- Maximum subfloor surface temperature-85° F (29.44° C).

APPENDIX I
INSTALLATION ON SCREEDS

• NOTE: Solid ¾" and 33/32" tongue-and-groove strip flooring may be installed directly to screeds.

• NOTE: Engineered wood flooring less than ¾" thick, thin-classification strip flooring (including ½") and solid plank flooring (4" or wider) cannot be installed directly to screeds.

• For engineered flooring less than ¾" thick, thin-classification strip, and for solid plank (4" and wider), the screed system must be overlaid with proper subflooring. The screed system must be overlaid with 23/32" (18.3mm) Exposure 1 plywood subfloor panels, or 19/32" (15.1mm), Exposure 1 plywood subfloor panels or 23/32" (18.3mm) OSB Exposure 1 underlayment properly spaced and oriented perpendicular to screed direction, and across two or more spans.

Installation method:

NOTE: THE FOLLOWING METHOD DOES NOT APPLY TO SCREED SYSTEMS OVER RADIANT HEAT

• Abrade or scrape the concrete slab to ensure it is clean of paint, sheetrock mud and general construction residue and dry of moisture.

• Check slab for flatness with 6' minimum straight edge.

• Fill low areas or dips in slab with concrete underlayment compound.

• Break out or grind down concentrated high areas of slab.

• Pour hot tar (where building codes allow) or a urethane adhesive to cover the slab completely.

• Install short lengths (approximately 24") of 2x4 or 1x4 screeds in the hot tar or urethane adhesive, perpendicular to the direction of the flooring. Screeds should be placed on approximately 6" to 7" centers, to provide approximately 50% coverage. Screed joints should be staggered, easily accomplished by alternating full and half pieces on the starter wall. NOTE: Treated screeds are preferred only if they are kiln dried after treatment (KDAT). Otherwise, yellow pine, fir or other kiln dried framing species is acceptable. With treated screeds, stainless-steel fasteners are required.

• Allow adequate time for the tar or adhesive to properly cure.

• Check screeds for flatness with 6' minimum straight edge.

• Sand or plane the high areas of the screeds. Shim the low areas of the screeds with your preferred shimming material. Masonite or thin layers of plywood work well. Sand or plane shims to feather out transitions.

• Cover screeds with an impermeable vapor retarder, such as 6-mil poly membrane.

• Rack out flooring.

APPENDIX J
SOUND CONTROL

When installing wood floors (hard surface flooring) in multi-family dwellings it is necessary to take into consideration both the UBC and NBC requirements. The UBC Uniform Building Code and the BOCA National Building Code both have requirements regarding sound control for multi-family dwellings. Areas of the country that do not follow either of these code standards may have local building code regulations with their own sound control requirements. The BOCA National Building Code, 1996 has the following section for sound control:

1214.2 Air-borne noise: Walls, partitions and floor/ceiling assemblies separating dwelling units from each other or from public service areas shall have a sound trans-mission class (STC) of not less than 45 for air-borne noise when tested in accordance with ASTM E-90 listed in Chapter 35. This requirement shall not apply to dwelling unit entrance doors; however, such doors shall be tight fitting to the frame and sill. 1214.3 Structure borne sound: Floor/ceiling assemblies between dwelling units or between a dwelling unit and a public service area within the structure shall have an impact insulation class (IIC) rating of not less than 45 when tested in accordance with ASTM E-492 listed in Chapter 35.

Condominium associations may have a set of protective covenants with even more stringent regulations than the Uniform or National Building Code. The STC Sound Transmission Class is a laboratory measurement of the ability of a specific construction assembly (such as partition, window, door, etc) to reduce airborne sounds including voice, television and alarm clocks.

The IIC Impact Insulation Class is a laboratory measurement of the ability of a floor/ceiling assembly to reduce impact sound such as footfalls, movement of furniture etc.

The F-IIC rating is a field measurement done in situ after a floor installation is completed. The higher the value of any of the quantities above, the greater the airborne or impact isolation provided by the assembly.

In any building a sound rated flooring system, when properly installed, will significantly improve the IIC/FIIC when compared with a non-rated hard surface floor system. The sound rated flooring products do not have a significant effect on the STC measurement.

Sound Control Product Types

There are a wide variety of materials that are marketed for their noise control properties. Some are systems, and others are specific materials. Noise transfer from floor to ceiling is dependent upon the entire floor ceiling assembly.

When comparing the performances in sound control products, only products with testing from a certified laboratory should be considered. Copies of the test should be requested so that variables can be closely compared. Variables, such as type of floor (i.e. wood or ceramic, laminate, marble), concrete thickness, with or without suspended ceiling, wood frame structure can greatly affect the performance or lack there of, of the product. Comparing products with similar variables make it easier to see which product performs better.

Sound control materials sold with F-IIC ratings (field tests) may not be accurate if all floor and ceiling construction is not included in the test.

Installation

Product installation varies by product and manufacturer. One basic key to peak performance is to avoid hard surface transference points. This would mean that the floor should not come in direct contact with the wall or the molding. A small gap should be left between the molding and the floor as well as the floor and the wall. Leaving a gap would prevent sound from traveling across the floor to the wall or molding and down behind the wall where there is no sound control.

Nails are also considered a hard surface transference point. When installing a nail down wood floor nails should not penetrate through the floor and into the sound control material and sub floor below. Doing so would greatly diminish the performance of the sound control material.

APPENDIX K
TRIM & THRESHOLDS

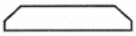
Baseboard

Baseshoe

Quarter Round

Reducer

Threshold/Saddle



Baby Threshold

MOLDINGS USED WITH HARDWOOD FLOORS

Wood floors require expansion space at the wall and all vertical obstructions. Moldings are used to cover the expansion area, to hide cut ends, to adjust height differences or transitions between floors and to aesthetically finish the area. Profiles are many and vary through the industry. Here are some examples of standard profiles.

• BASEBOARD -- from 3/8" and thicker, from 1 1/2" and higher used to protect the wall and cover expansion space.

• BASE SHOE -- from 3/8" to 5/8" thick, from 1/2" to 1" high; used instead of baseboard or with baseboard to on vertical surfaces/bases to complete expansion coverage; flexible enough to conform to irregular surfaces.

• QUARTER ROUND -- one quarter of a full round; from 1/2" to 1"; used as an alternative to base shoe in some area.

• REDUCER -- from 5/16" to 3/4" thick, 1" to 3 1/2"+ wide; used to make transition in thickness from wood floor down to thinner surface, generally through door openings. Also used to cover expansion space around vertical surfaces such as fireplace hearths when mounted directly to surface of flooring.

• THRESHOLD -- from 5/16" to 3/4" thick, many widths; used to make the transition at doorways, between interior rooms and to the outside. Can be custom milled to any size.

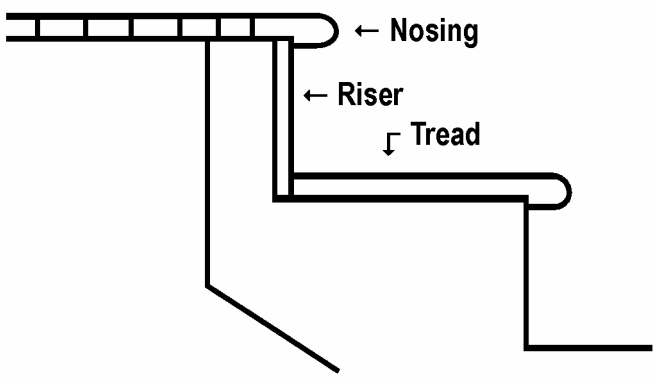
• BABY THRESHOLD – often variable in thickness– used to cover expansion space in perimeter areas where vertical molding cannot be used, and to transition to thicker material, such as carpet. Example: Stone, brick wall and hearths as well as floor to ceiling glass and sliding doors. May also be used at existing door thresholds.

• T-MOLDINGS -- 5/8" thick by 2" wide, beveled down on both sides with a T-configuration used for transition from one hard surface floor to another.

• CUSTOM MOLDINGS - Moldings created for unusual circumstances may be manufactured to job site requirements to complement the wood floor and allow for proper transition and coverage of expansion space.

T-Moldings

STAIRS/STEPS



• STAIR RISER -- 3/4" thick, various heights and lengths, used to create the vertical "rise" in the step.

• STAIR TREAD -- 3/4" to 1 1/16" thick, various widths and lengths. It is the actual step surface.

• NOSING -- also called stair nosing, bull nose, stairwell trim, landing tread. Thickness same as flooring. Used to create finished edge on top step, around stairwell, sunken living room, etc.

APPENDIX L
SAMPLE SPECIFICATION

For format purposes only

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes:

1. Solid strip wood flooring

1.2 SUBMITTALS

A. Product Data: For each type of product indicated

B. Shop Drawings: Show installation details, including location and layout of each type of wood and accessory.

C. Samples: For each type of wood and accessory, with stain color and finish required, approximately 12 inches long and of same thickness and material indicated for the work. Include sample sets showing full range of normal color and texture variations expected.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed wood flooring work similar in material, design and extent to that indicated for this project, and whose work has resulted in wood flooring installations with a record of successful in-service performance.

B. Source Limitations: Obtain each type of material and product from one source with resources to provide materials and products of consistent quality in appearance and physical properties.

1.4 DELIVERY, STORAGE AND HANDLING

A. Deliver wood materials in unopened cartons or bundles.

B. Protect wood from exposure to moisture. Do not deliver wood flooring until after concrete, masonry, plaster, ceramic tile and similar wet-work is completed and dry.

C. Store wood materials in dry, warm, well-ventilated, weather-tight location

1.5 PROJECT CONDITIONS

A. Conditioning: Maintain relative humidity planned for building occupants, and an ambient temperature between 65° and 75° Fahrenheit in spaces to receive wood flooring for at least seven days before installation, during installation and for at least seven days after installation. After post-installation period, maintain relative humidity and ambient temperature planned for building occupants.

1. For unfinished products, open sealed packages to allow wood flooring to acclimatize.

2. Do not install wood flooring until it adjusts to the relative humidity of and is at the same temperature as the space where it is to be installed.

3. Close spaces to traffic during flooring installation and for time period after installation recommended in writing by flooring and finish manufacturers.

B. Install factory-finished wood flooring after other finish operations, including painting, have been completed.

1.6 WARRANTY

A. Warranty: Provide manufacturer's standard warranty in which manufacturer agrees to replace materials defective in quality and workmanship.

1.7 EXTRA MATERIALS

A. Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Wood Flooring: Equal to 1 percent of amount installed for each type and finish indicated.

PART 2 - PRODUCTS

2.1 WOOD FLOORING

A. Wood Material: As indicated in Interior Drawings & Specifications.

B. Finish System: Water-borne urethane floor finish as approved by flooring manufacturer and as required to achieve desired finish to match customer's sample.

2.1 ACCESSORY MATERIALS

A. Wood Flooring Adhesive: Adhesive recommended by flooring and adhesive manufacturer for application indicated.

B. Fasteners: As recommended by manufacturer, but not less than that recommended by the National Wood Flooring Association's "Installation Guidelines and Methods."

C. Vapor retarder: As required by subfloor conditions and local building codes.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas and conditions, with installer present, for compliance with requirements, installation, tolerances and other conditions affecting performance of wood flooring. Proceed with installation only after unsatisfactory conditions have been corrected.

B. Concrete Slabs: Verify that concrete slabs comply with requirements specified by flooring manufacturer or, if none, by test methods specified in the National Wood Flooring Association's "Installation Guidelines and Methods."

3.2 INSTALLATION

A. General: Comply with flooring manufacturer's written instructions and recommendations by the National Wood Flooring Association's "Installation Guidelines and Methods," as applicable to flooring type.

B. Pattern: Lay wood flooring in pattern indicated in drawings or, if not indicated, as directed by Interior Designer, Architect or Owner.

C. Flooring: Install using one of the following methods, as approved by Interior Designer, Architect or Owner:

1. Blind nail flooring to substrate according to methods specified in the National Wood Flooring Association's "Installation Guidelines and Methods.

2. Glue flooring to substrate as recommended by wood flooring manufacturer.

3. Expansion Space: Provide expansion space at walls and other obstructions and terminations of wood flooring of not less than ½ inch, unless otherwise indicated on drawings

a. Unless fully concealed by trim, fill expansion space with flush cork expansion strip.

3.3 SANDING AND FINISHING

A. Apply finish according to finish manufacturer's written instructions. Apply the number of coats recommended by finish manufacturer for application indicated.

B. For water-based finishes, use finishing methods recommended by finish manufacturer to minimize grain raise.

3.4 PROTECTION

A. Fully cover installed flooring to protect it from damage or deterioration, before and after finishing, and during remainder of construction period. Use building paper or other suitable covering. Do not use plastic sheet or film that could cause condensation. Do not tape covering to finished flooring.

1. Do not cover site-finished floors until finish reaches full-cure, but not less than seven days after applying last coat.

APPENDIX M
JOBSITE CHECKLIST

(Also see Chapter 1, Jobsite Conditions)

One primary rule will eliminate many potential problem-causing jobsite conditions: Wood flooring should be one of the last jobs completed on any construction project. In particular, the jobsite should be enclosed and climate-controlled before wood flooring is delivered or installed. In addition, other trades working on the jobsite can damage the wood flooring installation, so many problems can be minimized by limiting the amount of traffic at the jobsite after the wood flooring is installed.

Certainly the jobsite should be carefully evaluated for potential problems before installation begins, but a thorough site evaluation should also be done even before wood flooring is delivered to the jobsite.

The reprintable Jobsite Checklist on the following pages can be used on the jobsite.

JOBSITE CHECKLIST

I. GENERAL INFORMATION

Owner's Name _____ Date _____

Address _____

Home phone _____

Husband's work phone _____ Wife's work phone _____

Cellular/car phone _____ Pager _____

Jobsite address _____

Jobsite visit appointment date _____ Time _____

II. TYPE OF JOB

Residential _____ Commercial _____

New _____ Remodel _____

III. RESIDENTIAL USE INFORMATION

Traffic High _____ Average _____ Low _____

Any special or unique use _____

Project rooms/areas _____

Project budget _____

IV. COMMERCIAL USE INFORMATION

Retail store Restaurant _____ Office _____

Bar _____ Other _____

Traffic High _____ Average _____ Low _____

High-rise Yes _____ No _____

Freight elevator Yes _____ No _____

Passenger elevator Yes _____ No _____

Hours of access _____

Power access _____

Maintenance _____

Maintenance company _____

Phone _____

Proximity of parking _____

Cost of parking _____

V. INTERIOR

Relative humidity in air-space:

Hygrometer ___% Sling psychrometer ___%

HVAC units operable Yes _____ No _____

If, no, date to be operating _____

Type of heat: _____

Radiant _____ Baseboard _____ Radiator _____

Forced Air _____ Electric _____ Gas _____

Wood-burning stove Heat ducts _____

Overhead _____ Under floor _____

Insulated Yes _____ No _____

Humidity controls Yes _____ No _____

Thermostat setting

First unit _____F Second Unit _____F

Air conditioning Yes _____ No _____

Large window/sliding glass doors facing:

East _____ South _____ West _____

Drapes Yes _____ No _____

Tinted glass Yes _____ No _____

Double-glazed/
storm windows Yes _____ No _____

KITCHEN:

Instant hot water Yes _____ No _____

Refrigerator Yes _____ No _____

Icemaker Yes _____ No _____

Food freezer Yes _____ No _____

Dishwasher Yes _____ No _____

Other _____

MUD ROOM/LAUNDRY ROOM:

Clothes dryer
vented outside Yes _____ No _____

Plumbing leaks _____

Ceiling stains _____

BATHROOM

Bathroom exhaust Yes _____ No _____

Heated exhaust Yes _____ No _____

BASEMENT

Walls cracked Yes _____ No _____

Paint peeling Yes _____ No _____

Floor stained Yes _____ No _____

Damp Yes _____ No _____

Vented Yes _____ No _____

Rusty nails Yes _____ No _____

National Wood Flooring Association

Sump pump Yes _____ No _____

Condensation on cold-water lines Yes _____ No _____

Musty smell Yes _____ No _____

Heated Yes _____ No _____

Air-conditioned Yes _____ No _____

Relative humidity in air-space:

Hygrometer___% Sling psychrometer___%

VI. EXTERIOR

Building is over

Basement ___ Crawl space ___ Slab ___

Relation of lot to street

Above ___ Level ___ Below ___

Lot cut and fill Yes _____ No _____

Relation of lot to neighbor

Above ___ Level ___ Below ___

Lot drainage away from foundation Yes _____ No _____

Shaded Lot Yes _____ No _____

Gutters/downspouts Yes _____ No _____

Directed away Yes _____ No _____

Roof overhang Yes _____ No _____

Foundation perimeter

Waterproof Yes _____ No _____

Soil damp Yes _____ No _____

Window wells-dry Yes _____ No _____

Planterbox Yes _____ No _____

Shrubs/flowers Yes _____ No _____

Comments _____

Yard established Yes _____ No _____

Recent Yes _____ No _____

Sprinklers/irrigation Yes _____ No _____

Excess Watering Yes _____ No _____

Entry is:
Step up _____ Level _____ Down _____

Swimming pool Yes _____ No _____

In-ground _____ Above-ground _____

Distance from pool to foundation _____ feet

Drains in pool deck and/or patio Yes _____ No _____

Is street curb drain active Yes _____ No _____

CRAWL SPACE:

Distance from soil to subfloor _____

Condensation Yes _____ No _____

Musty Smell Yes _____ No _____

Concrete Slab Yes _____ No _____

Moisture barrier beneath concrete Yes _____ No _____

Dirt floor Yes _____ No _____

6- or 8- mil black poly cover over dirt Yes _____ No _____

15sf open vent per 1,000sf floor area Yes _____ No _____

Vents open Yes _____ No _____

Cross-ventilation Yes _____ No _____

VII. SUBFLOOR INFORMATION

(Reference NWFA Installation Guidelines. Section 2. Chapter 2-7 for approved subfloor.)

Existing Wood type:

3/4-inch CDX plywood _____

5/8-inch CDX plywood _____

23/32-inch OSB underlayment grade _____

Solid board _____

Other _____

Renail Yes _____ No _____

Sand Yes _____ No _____

Damage Yes _____ No _____

Pet stains Yes _____ No _____

Rot Yes _____ No _____

Other subfloor repair _____

Average moisture content in flooring _____%

Average moisture content in subfloor _____%

Average moisture content in sleepers _____%

Average moisture content in joists _____%

In areas or seasons of extreme moisture conditions, check moisture content in:

Adjacent baseboard _____%

Door trim _____%

Wood threshold _____%

Paint/finish lines exposed Yes _____ No _____

Trim pieces dislodged Yes _____ No _____

SLAB:

Relate elevation of slab surface to exterior soil line +/- _____ inches

Slab tested for moisture before install Yes _____ No _____

What test _____

Results _____

New slab _____ Date poured _____

Existing slab _____ Age _____

Float/grind slab Yes _____ No _____

Install wood subfloor Yes _____ No _____

Moisture membrane Yes _____ No _____

VI. FLOORING TYPES

Unfinished _____ Prefinished _____

Species _____

Size of flooring desired _____

Solid Engineered ____ Floating floor ____

Strip ____ Plank _____ Parquet _____

INSTALLATION:

Glued _____ Stapled _____ Nailed _____

Stain color _____

Sealer _____

Finish _____

Number of coats _____

Trim and moldings _____

Special layout Yes _____ No _____

If yes, type _____

IX. SPECIAL REQUIREMENTS

NEW CONSTRUCTION:

Power 110 _____ 220 _____

Distance to pole _____

Booster Yes No

Time schedule for installation _____

Other trades _____

Wet work completion _____

REMODEL:

Move furniture Yes _____ No _____

Special Needs

Piano ___ Antiques ___ Appliances ___

Toilet ___ Other _____

(Note: Gas and water lines must be disconnected by customer or qualified personnel.)

Company responsible _____

Phone _____

Existing floor covering

Carpet ___ Sheet vinyl ___

Vinyl tile ___ Ceramic tile ___

Wood ___ Other _____

Do existing wall moldings need to be removed Yes ___ No ___

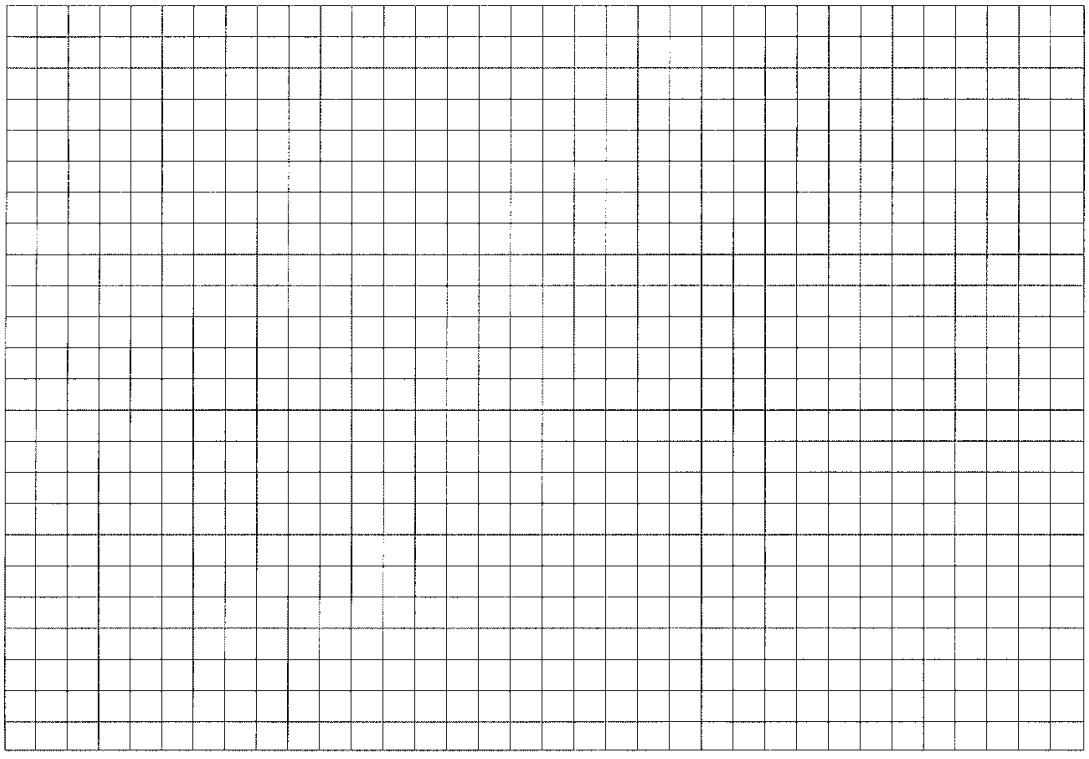
Does the existing floor covering need to be removed Yes _____ No _____

Note: If it appears that floor covering could contain asbestos, check with the dealer/contractor company for proper abatement procedures.

Who is responsible for removal of existing floor covering? _____

Who is responsible for trash disposal? _____

Use graph paper like that below to sketch the dimensions of the installation to scale.



SECTION V

GLOSSARY OF

WOOD FLOORING TERMS

GLOSSARY OF WOOD FLOORING TERMS

Abrasion Resistance That property of a surface that resists being worn away by a rubbing or friction process. Abrasion resistance isn't necessarily related to hardness, as believed by some, but is more closely comparable to, or can be correlated with, toughness.

Acclimation The act of allowing wood moisture content to become at equilibrium with the environment in which it will perform. (See EMC, Equilibrium Moisture Content)

Acid Chemical substance rated below 7 on the PH scale.

Air-Dried Dried by exposure to air in a yard or shed without artificial heat. (Not kiln dried)

Alkalinity A measurement of an alkaline rating about 7 on the PH scale.

Annual Growth Ring The layer of wood growth formed on a tree during a single growing season.

Asphalt Saturated Felt Paper A #15 asphalt felt paper that meets ASTM Standard D-4869 or asphalt laminated paper that meets federal specification UU-B-790a Grade B, Type I, Style 1a, or asphalt saturated paper that meets federal specification UU-B-790a, Grade D, Type I, Style 2. Commonly used as a vapor retarder.

ASTM (American Society for Testing and Materials) develops and publishes voluntary technical standards for a wide range of materials, products, systems, and services. ASTM uses a consensus process involving technical committees that draw their members from around the world. ASTM International has no role in requiring or enforcing compliance with its standards, but in many instances its standards have been adopted by rules-making industry and governmental bodies.

ASTM F-2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using In Situ Probes.

ASTM F-1869 Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.

ASTM (modified) D-4944-043. Calcium Carbide (CM) Test.

Base Shoe A molding designed to be attached to baseboard molding to cover expansion space. It is the alternative to a quarter-round in profile.

Bastard Sawn See Rift Sawn.

Beveled Edge The chamfered or beveled edge of wood flooring, plank, block and parquet.

Board Foot A unit of measurement of lumber represented by a board 1 foot long, 12 inches wide and 1 inch thick or its cubic equivalent. In practice, the board foot calculation for lumber 1 inch or more in thickness is based on its nominal thickness and width and the actual length. Lumber with a nominal thickness of less than 1 inch is calculated as 1 inch.

Borders Simple or intricate designs which frame and customize a flooring installation.

Bow The distortion of lumber in which there is a deviation, in a direction perpendicular to the flat face, from a straight line from end to end of the piece.

Burl A swirl or twist of the grain of the wood that usually occurs near a knot, but doesn't contain a knot, commonly found in the stump of a tree and where limbs branch out from the tree.

Chatter Marks Slight, closely spaced indentations causing a ripple effect on the surface of a wood floor.

Check A lengthwise separation of the wood that usually extends across the rings of annual growth.

Checking (finish) Similar to alligatoring, except that the finish is broken into smaller segments. Crowfoot checking is the name given to the defect when the breaks in the film form a definite three-prong pattern with the breaks running outward from a central point of intersection. When the checks are generally arranged in parallel lines, the defect is known as line checking. Irregular checks without a definite pattern are known as irregular checking.

Cleat A barbed fastener commonly used as a mechanical device to fasten hardwood flooring.

Color Change Visual changes in the color of the wood species caused by exposure to light, deprivation of light and air, or some chemical reaction.

Compression Set Caused when wood strips or parquet slats absorb excess moisture and expand so much that the cells along the edges of adjoining pieces in the floor are crushed. This causes them to lose resiliency and creates cracks when the floor returns to its normal moisture content.

Coniferous See Softwoods.

Crook The distortion of a board in which there is a deviation, in a direction perpendicular to the edge, from a straight line from end to end of the piece.

Cross Directed Laying of material perpendicular to the material below it.

Crowning A convex or crowned condition or appearance of individual strips with the center of the strip higher than the edges. The opposite of cupping.

Cupping A concave or dished appearance of individual strips with the edges raised above the center. The opposite of crowning.

Deciduous See Hardwoods.

Deformed fasteners Fastener in which the sides are not smooth and the head shape may be irregular. Examples are ring-shank and screw-shank nails.

Delamination The separation of layers in an engineered wood floor, through failure within the adhesive or between plies. Also between layers of stain and/or coating.

Diffuse-Porous Woods Certain hardwoods in which the pores tend to be uniform in size and distribution throughout each annual ring or to decrease in size slightly and gradually toward the outer border of the annual growth ring. Hard maple is an example.

Dimensional Stability The ability to maintain the original intended dimensions when influenced by a foreign substance. Wood is hygroscopic (readily takes up moisture) and isn't dimensionally stable with changes in moisture content below the fiber saturation point. Engineered wood flooring, however, is more dimensionally stable than solid wood.

Distressed A heavy artificial texture in which the floor has been scraped, scratched or gouged to give it a time-worn antique look.

Drywall Interior covering material (such as gypsum board, hardboard or plywood) that is applied in large sheets or panels.

Durability The ability of the wood species or finish to withstand the conditions or destructive agents with which it comes in contact in actual usage, without an appreciable change in appearance or other important properties.

Eased Edge See Beveled Edge.

End Joint The place where two pieces of flooring are joined together end to end.

End Lifting A swelling of the top layer of engineered wood flooring, occurring at an end joint.

End-Matched In tongue-and-groove strip and plank flooring, the individual pieces have a tongue milled on one end and a groove milled on the opposite end, so that when the individual strips or planks are butted together, the tongue of one piece fits into the groove of the next piece. See Side-Matched and Tongue-and-Grooved.

Engineered An assembly made by bonding layers of veneer or lumber with an adhesive so that most adjacent layers have their grains going in perpendicular directions to increase dimensional stability.

Equilibrium Moisture Content (EMC) The moisture content at which wood neither gains nor loses moisture when surrounded by air at a given relative humidity and temperature.

Fading The loss of color due to exposure to light, heat or other destructive agents.

Feature Strip A strip of wood used at a threshold or to border a room or to otherwise serve as an accent. Usually of a contrasting color or species.

Fiberboard A broad generic term inclusive of sheet materials of widely varying densities manufactured of refined or partially refined wood or other vegetable fibers. Bonding agents and other materials may be added to increase strength, resistance to moisture, fire or decay, or to improve some other property.

Fiber Saturation Point The stage in drying or wetting wood at which the cell walls are saturated with water and the cell cavities are free from water. It's usually taken as approximately 30 percent moisture content, based on over-dry weight.

Figure Inherent markings, designs or configurations on the surface of the wood produced by the annual growth rings, rays, knots and deviations from regular grain.

Filler In woodworking, any substance used to fill the holes and irregularities in planed or sanded surfaces to decrease the porosity of the surface before applying finish coatings. Wood filler used for cracks, knotholes and worm holes is often a commercial putty, plastic wood or other material mixed to the consistency of putty. A wood filler also may be mixed on the job using sanding dust from the final sanding, or other suitable material, mixed with a product appropriate for this use.

Fillets The small components that comprise finger-block parquet. Also called fingers or slats. Fillet may also refer to the top layer of some engineered wood flooring.

Fingers See Fillets.

Finger-block Parquet made from small strips of wood assembled together. See Fillets.

Fire Resistance the property of a material or assembly to withstand fire or given protection from it. Certain species naturally provide greater fire resistance than others. Classes are I-II-III or A-B-C with Class I or A being the most fire resistant.

Fire Retardant A chemical or preparation of chemicals used to reduce flammability or to retard the spread of a fire over a surface.

Flag A heavy dark mineral streak shaped like a banner.

Flag Worm Hole One or more worm holes surrounded by a mineral streak.

Flame Spread The propagation of a flame away from the source of ignition across the surface of a liquid or solid, or through the volume of a gaseous mixture. NOTE: Most wood species are Class C Flame Spread unless the wood floor has been treated and marked as to flame spread.

Flecks The wide irregular, conspicuous figure in quartersawn oak flooring. See **Medullary Rays.**

Floating Floor A floor that does not need to be nailed or glued to the subfloor. Typically, the flooring panels are connected together by adhesive or mechanical connectors.

Flow The characteristic of a coating that allows it to level or spread into a smooth film of uniform thickness before hardening.

Graininess The objectionable appearance of small, grain-like particles in a finishing material or in the dried film thereof.

Hardened Steel Pin Specialty fasteners designed to penetrate and hold concrete, steel and other substrates. Steel pins are typically installed with powder, pneumatic or gas-powered tools."

Hardness That property of the wood species or dried film of finishing material that causes it to withstand denting or being marked when pressure is exerted on its surface by an outside object or force.

Hardwood Generally, one of the botanical groups of deciduous trees that have broad leaves, in contrast to the conifers or softwoods. The term has no reference to the actual hardness of the wood.

Heartwood The wood extending from the pith to the sapwood, the cells of which no longer participate in the life processes of a tree. It is usually darker than sapwood. See Pith and Sapwood.

Heavy Streaks Spots and streaks of sufficient size and density to severely mar the appearance of wood.

Honeycombing Checks often not visible at the surface that occur in the interior of a piece of wood, usually along the wood rays.

Humidity The amount of water vapor in the air. See Relative Humidity.

Hygrometer An instrument for measuring the degree of humidity or relative humidity of the atmosphere.

Hygroscopic A substance that can absorb and retain moisture, or lose or throw off moisture. Wood and wood products are hygroscopic. They expand with absorption of moisture and their dimensions become smaller when moisture is lost or thrown off.

In Situ A Latin term that means "in place" or "on site," the term applies to testing done on site, or on materials in their original location, as opposed to testing done in a laboratory. Some sound-

control testing is done in the field or “in situ,” and moisture testing of concrete slabs is often done using “in situ” probes.

Intensity The intensity of a color is its purity or degree of hue as seen by the eye.

Jointed Flooring Strip flooring, generally birch, beech, hard maple or pecan, manufactured with square edges, not side-matched, but usually end-matched. It is used principally for factory floors where the square edges make replacement of strips easier.

Joist One of a series of parallel beams used to support floor or ceiling loads and supported in turn by larger beams, girders or bearing walls.

Kiln (often pronounced "kill") A chamber having controlled air flow, temperature and relative humidity for drying lumber, veneer and other wood products.

Kiln-Dried Dried in a kiln with the use of artificial heat.

Knot The portion of a branch or limb that has been surrounded by subsequent growth of the stem. The shape of the knot as it appears on a cut surface depends on the angle of the cut relative to the long axis of the knot. In hardwood strip flooring, small and pin knots aren't more than one-half inch in diameter. A sound knot is a knot cut approximately parallel to its long axis so that the exposed section is definitely elongated.

Manufacturing Defects Includes all defects or blemishes that are produced in manufacturing, such as chipped grain, torn grain, skips in dressing, hit-and-miss (a series of surfaced areas with skips between them), variation in machining, machine burn, and mismatching.

Mechanic A flooring installer, sander or finisher.

Medullary Rays Strips of cells extending radially within a tree and varying in height from a few cells in some species to four or more inches in oak. The rays serve primarily to store food and transport it horizontally in the tree. On quartersawn oak, the rays form a conspicuous figure sometimes referred to as flecks. See Flecks.

Mineral Spirits A solvent product used as a thinner and/or cleaner.

Mineral Streak Wood containing an accumulations of mineral matter introduced by sap flow, causing an unnatural color ranging from greenish brown to black.

Mixed Media A wood floor that is predominately of wood, but also incorporates other materials, such as slate, stone, ceramic, marble or metal.

Moisture Content the amount of moisture in wood expressed as a percentage of the weight of oven-dried wood. National Oak Flooring Manufacturers Association hardwood flooring is manufactured at 6 to 9 percent moisture content, with a 5 percent allowance for pieces up to 12 percent moisture content. Five percent of the flooring may be outside of this range.

Muratic Acid A diluted acid used to neutralize alkalinity of concrete subfloors.

Nailing Shoe (or Nailing Plate) An attachment to a blind-nailing machine that broadens the impact area. Often required for fastening factory-finished flooring.

Nominal Size As applied to timber or lumber, the size by which it is known and sold in the market; often different from actual size.

Nosing A hardwood molding used to cover the outside corner of a step, milled to meet the hardwood floor in the horizontal plane, to meet the riser in the vertical plane. It is usually used on landings.

OSB Oriented Strand Board commonly used as an underlayment or subfloor material. Strands tend to be oriented with their length aligned with the panel length (typically). OSB is therefore stiffer and stronger when installed with the long axis across supports.

Overwood/Underwood A flooring condition in which there is a perceived misalignment of the flooring surface, with some wood pieces raised above adjacent pieces leaving a slightly uneven surface. Also called lippage.

Parquet A patterned floor.

Particleboard A generic term for a material manufactured from wood particles or other ligno-cellulosic material and a synthetic resin or other suitable binder. Flakeboard is a particle panel product composed of flakes. Oriented strand board is a type of particle panel product composed of strand-type flakes that are purposely aligned in directions that make a panel stronger, stiffer and with improved dimensional properties in the alignment directions than a panel of random flake orientation. Waferboard is a particle panel product made of wafer-type flakes. It is usually manufactured to possess equal properties in all directions parallel to the plane of the panel.

Photo-sensitive The property of some wood species which causes them to lighten or darken when exposed to light. See color change.

Pin-Worm Hole In hardwood flooring, a small round hole not more than 1/16-inch (1.5626MM) in diameter, made by a small wood-boring insect.

Pith The small, soft core occurring near the center of a tree trunk, branch, twig or log. First growth.

Plain Sawn The annual growth rings make an angle of less than 45° with the surface of the piece. This exposes the pores of the springwood and dense summerwood of the annual growth ring in ring-porous woods to produce a pronounced grain pattern.

Planer Bite A deeper than intended groove cut into the surface of a piece of wood by planer knives.

Plank Solid or Engineered/ boards 3" and wider designed to be installed in parallel rows.

Plywood Board or panel made of cross-directional veneers and/or layers of wood for dimensional stability.

Plugs Used to cover countersunk screws when installing wood flooring or for decorative purposes in wood flooring.

Prefinished Factory-finished flooring that only requires installation.

Quartersawn The annual growth rings of wood form an angle of 45° to 90° with the surface of the piece. In quartersawn strips, the medullary rays or pith rays in ring-porous woods are exposed as flecks that are reflective and produce a distinctive grain pattern.

Raised Grain A roughened or fuzzy condition of the face of the flooring in which the dense summerwood is raised above the softer springwood but not torn or separated.

Rays, Wood See Medullary Rays.

Reducer Strip A teardrop-shaped molding accessory for hardwood flooring, normally used at doorways, but sometimes at fireplaces and as a room divider. It is grooved on one edge and tapered or feathered on the other edge.

Relative Humidity Ratio of the amount of water vapor present in the air to that which the air would hold at saturation at the same temperature. It is usually considered on the basis of the weight of the vapor, but for accuracy should be considered on the basis of vapor pressures.

Rift Sawn Lumber (primarily hardwoods) in which the annual rings make angles of 30° to 60° with the surface of the piece. Also known as bastard sawn.

Ring-Porous Woods A group of hardwoods in which the pores are comparatively large at the beginning of each annual growth ring and decrease in size, more or less abruptly, toward the outer portion of the annual growth ring. The large pores are springwood and the smaller pores are summerwood.

Ring Shank Nail Headed nail for underlayment installation with rings on the shaft (shank) to improve the holding characteristics.

S4S (Surface-4-Sides) Flooring that isn't tongue-and-grooved. May also refer to square-edge strip flooring that is face-nailed when installed.

Sapwood The wood near the outside of a tree. It is usually lighter in color than heartwood.

Sawn See Plain Sawn, Quartersawn and Rift Sawn.

Screed A wood member laid perpendicular to the finished floor, providing a nailing surface.

Usually a 2-by-4 inch (50MM by 100MM) piece of wood laid flat side down and attached to a concrete subfloor to provide a nailing surface for tongue-and-groove strip flooring or a wood subfloor.

Shake A separation along the grain, the greater part of which occurs between the annual growth rings.

Sheathing The structural covering, usually sheets of plywood, placed over exterior studding, or rafters or subfloor of a structure.

Side-Matched In tongue-and-groove strip and plank flooring, the individual pieces have a tongue milled on one side and a groove milled on the opposite side, so that when the individual strips or planks are placed side by side, the tongue of one piece fits into the groove of the next piece. See End-Matched and Tongue-and Groove.

Slats See Fillets.

Sleeper Another name for screeds.

Slip-Tongue/Spline A small strip of wood or metal used to reverse or change direction in installing standard tongue-and-groove strip flooring.

Softwoods General term used to describe lumber produced from needle and/or cone-bearing trees (conifers).

Solid Board Group 1 A designation of a certain species based on density, strength and stiffness.

Split Separations of wood fiber running parallel to the grain.

Square Edge Flooring that abuts without a broken plane.

Squares Parquet flooring units, usually composed of an equal number of slats.

Streaks See Mineral Streaks.

Strip Flooring Solid or engineered boards, less than 3 inches in width, to be installed in parallel rows, produced in various thicknesses and widths. The strips are side-matched and end-matched (tongue-and-grooved). They are for nail-down installation directly to wood or plywood subfloors, or over wood screeds on concrete slab construction. Some types can also be glued directly to a concrete subfloor.

Surface The outside or exterior boundary of any substance. One is said to surface the work when it is rubbed or sanded to a smooth, level plane.

Tongue-and-Groove In strip, plank and parquet flooring, a tongue is milled on one edge and a groove cut on the opposite edge. As the flooring is installed, the tongue of each strip or unit is engaged with the groove of the adjacent strip or unit. See End-Matched and Side-Matched.

Trim The finish materials in a building at the floor of rooms, (baseboard, base shoe, quarter round for example).

Trowel Fill Method to fill an entire floor or large area.

Truss Engineered or solid floor joist system.

Unfinished A product that must have stain and/or a finish applied after installation.

Vapor Impermeable Membrane A material or covering having a permeance rating of .15 perms or less when tested in accordance with the desiccant method, Procedure A of ASTM E-96. A vapor impermeable membrane limits the passage of moisture to near 0, or almost none.

Vapor Permeable Membrane A material or covering having a permeance rating of 5 perms or greater when tested in accordance with the desiccant method, Procedure A of ASTM E-96. A vapor permeable membrane permits the passage of moisture.

Vapor Retarder A vapor-resistant material, membrane or covering such as foil, plastic sheeting or covering having a permeance rating of 1 perm or less, when tested in accordance with the desiccant method, Procedure A of ASTM E-96. Vapor retarders limit the amount of moisture vapor that passes through a material, or floor, wall or ceiling assembly.

Warping Any distortion of a piece of flooring from its true plane that may occur in seasoning.

Working Pressure The pneumatic pressure range specified in pounds per square inch (PSI) to optimally run an air tool. (See tool manufacturer's guidelines.) Note that these air pressures should be metered at the tool

Section C - Description/Specifications/Statement of Work

GENERAL SPECIFICATIONS

SQUIRREL MEADOWS CABIN FLOORING REPLACEMENT PROJECT

1.1 SCOPE OF CONTRACT

A. This project includes all labor and materials and equipment to replace plank flooring in a remote rental cabin on the Caribou-Targhee National Forest. Construction work include the following:

1. Provide and install new 1 X 4 Douglas-Fir wood floor. Sand, stain and varnish the flooring. Provide and install new base floor trim.

1.2 PROJECT LOCATION

A. The work will be conducted at Squirrel Meadows Guard Station a historic cabin on the Ashton Ranger District. The site is accessed from HWY 47 East (through Ashton) to Hwy 32 and turn right (south) and travel 1 mile to the Ashton-Flagg Ranch Road (#261). Turn left (east) and travel 22 miles to Road #032, turn right (south) and travel to the Cabin. The structure is located approximately 24 miles east of the town of Ashton, Idaho over the Wyoming border.

1.3 SITE INFORMATION AND LIMITATIONS

A. The following site conditions are considered incidental to the contract and the contractor will not be paid directly for any of the following items:

1. The construction site will be closed during construction. The Contractor will be responsible for signing and limiting access to materials and construction areas for the public.
2. Use of Site: Verify locations for materials storage and construction with COR. Do not disturb portions of site beyond areas in which the COR specifies.
3. There is no electrical service for the site. Contractor will be responsible for providing generator power if needed.
4. Water is available at the site for construction purposes, but is accessed with a hand pump.

1.4 TEMPORARY ACCESS

A. Parking: Use designated areas for construction personnel or as approved by the Contracting Officer. All other parking is prohibited.

1.5 WASTE MANAGEMENT AND DISPOSAL

A. Waste Management Plan: Submit 2 copies of plan within 14 days of date established for the Notice to Proceed.

B. The Contractor shall provide and maintain appropriate waste disposal containers or bins at the project site for the duration of the project construction. Verify with Contracting Officer for placement of disposal containers and bins on the project site.

C. Waste material and debris shall be picked up and deposited in the waste disposal bins on a daily basis. Containers must be emptied on a weekly basis unless more frequent empting is needed. Construction materials and debris shall not be allowed to become airborne or migrate into adjacent properties.

D. Burning or burying of construction waste material on site will not be permitted. Material shall be disposed of in accordance with the Waste Material Disposal specification.

1.6 TRAFFIC CONTROL AND CONSTRUCTION SIGNING

A. No work that endangers, interferes, or conflicts with traffic or access to work sites shall be performed until a plan for satisfactory warning and handling of traffic has been submitted by the contractor and approved by the COR. Construction signing for traffic control shall conform to the Manual of Uniform Traffic Control Devices (MUTCD). Contractor shall not be paid directly for this item, rather it will be considered incidental to other items of work listed in the Schedule of Items.

1.7 WORK CAMPS, STAGING AND STORAGE AREAS

A. Areas for staging operations and storage of materials shall be approved by the CO. The Contractor must request in writing for approval from the CO to stage trailers (work) on site.

B. Overnight camping will be allowed on site.

C. The contractor shall acknowledge they have taken the necessary steps to determine the nature and location of work, and have investigated and satisfied themselves as to the general and local conditions that can affect the work or its cost. Any failure of the contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from the responsibility of estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expenses to the government.

1.8 START DATE

A. AUGUST 1, 2015

CONTRACT TIME

B. Base Bid: 30 Calendar Days

SPECIFICATIONS

C. The following specifications are attached. Some sections in the schedule of items refer to other sections not listed and are subsidiary to, or are included in payment for other pay items in this contract. These items are considered incidental and no additional compensation will be made:

Section 00001- Section C - Description/Specifications/Statement of Work
Section 000050- Project Description
Section 011250 – Measurement and Payment
Section 011900 - Mobilization
Section 013300- Submittals
Section 013591- Historic Treatment Procedures
Section 024100 – Waste Material Disposal

Section 096400 – Wood Flooring

END OF SECTION C
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SQUIRREL MEADOWS CABIN FLOORING REPLACEMENT PROJECT

SECTION 000050 - PROJECT DESCRIPTION

PART 1 - GENERAL

1.1 SUMMARY

A. This project includes all labor, equipment and materials associated with installation of a new wood floor for the Squirrel Meadows cabin. Install 1 X 4 Douglas-Fir tongue and groove flooring and new wood trim. Flooring and trim shall be stained and varnished as described in the specifications. Provide labor and incidental connectors, transitions, thresholds and adhesive to provide a complete flooring installation.

1.2 MEASUREMENT AND PAYMENT

A. Squirrel Meadows Flooring Replacement – Measurement and Payment shall be Lump Sum Quantity (LSQ) as shown in the Schedule of Items for the replacement of the flooring. Costs shall include all labor, fees and materials associated with installing the floor

1.3 LUMP SUM QUANTITIES (LSQ) –

A. These quantities denote one complete unit of work as required by or described in the contract, including necessary materials, equipment, and labor to complete the job. They shall not be measured.

1.4 RELATED WORK

A. The work shall be in accordance with the contract drawings.

B. The work shall be in accordance with the all specifications included in the package.

END OF SECTION

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SECTION 011250 - MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Measurement and payment for contract work will be made only for and under those pay items included in the Schedule of Items. All other work, labor, materials, equipment, and incidentals necessary to successfully complete the project will be considered as included in the payment for items shown. This section defines the method of measurements and basis of payment for work items listed in the Schedule of Items.

B. When more than one class, size, type, thickness, etc. is specified in the Schedule of Items for any pay item, suffixes will be added to the item number to differentiate between the pay items.

1.2 DETERMINATION OF QUANTITIES

A. The following measurements and calculations shall be used to determine contract quantities for payment.

1. For individual construction items, longitudinal and lateral measurements for area computations shall be made horizontally or corrected to horizontal measurement unless otherwise specified. Measurements for geotextiles, netting and erosion control blankets shall be along slope lines.
2. For excavation or embankment volumes, the average end area method shall be used to compute volumes. However, if in the judgment of the Contracting Officer (CO), the average end area method is impractical, measurement shall be made by volume in hauling vehicles or by other three-dimensional methods.
3. For Structures, they shall be measured according to neat lines shown on the drawings or as altered by the CO, in writing, to fit field conditions.
4. For items that are measured by the linear foot, such as pipe culverts, fencing, guardrail, piping, utilities, and underdrains, measurements shall be made parallel to the base or foundation upon which the structures are placed.
5. For aggregates weighed for payment, the tonnage shall not be adjusted for moisture content, unless otherwise provided for.
6. For standard manufactured items (such as fence, wire, plates, rolled shapes, pipe conduits) identified by gauge, weight, section dimensions, and so forth, such identifications shall be considered the nominal weights or dimensions. Unless controlled by tolerances in cited specifications, manufacturer's tolerances shall be accepted.

B. Earthwork Tolerances - Adjustments of horizontal or vertical alignment, within the tolerances specified in this contract, or shifts of balance points up to 100 feet shall be

made by the contractor as necessary to produce the designed sections and to balance earthwork. Such adjustments shall not be considered as "Changes."

1.3 UNITS OF MEASUREMENT

A. Payment shall be by units defined and determined according to U.S. Standard measure and by the following:

1. Acre: Make longitudinal and transverse measurements for area computations horizontally.
2. 50lb Bag: Measurement will be for the actual number of 50lb bags of standard bentonite grout.
3. 94lb Bag: Measurement will be for the actual number of 94lb bags of standard cement or grout.
4. Cubic Yard (CY): A measurement computed by one of the following methods:

    a. Excavation, Embankment, or Borrow. The measurement computed by the average end area method from measurements made longitudinally along a centerline or reference line.
    b. Material in Place or Stockpile. The measurement computed using the dimensions of the in-place material.
    c. Material in the Delivery Vehicle. The measurement computed using measurements of material in the hauling vehicles at the point of delivery. Vehicles shall be loaded to at least their water level capacity. Leveling of the loads may be required when vehicles arrive at the delivery point.

5. Each (EA): One complete unit, which may consist of one or more parts.
6. Gallons (GAL): The quantity shall be measured by any of the following methods:

    a. Measured volume in container.
    b. Metered volume by approved metering system.
    c. Commercially package volume.

7. Hour (HR): Measurement will be for the actual number of hours (or fraction thereof) ordered by the Contracting Officer and performed by the contractor.
8. Linear Foot (LF): Measurement of work along its length from point-to-point; parallel to the base or foundation. Do not measure overlaps.
9. Lump Sum (LS): One complete unit.
10. Mile: Measured horizontally along the centerline of each roadway, approach, or ramp.
11. Pound (LB): For sacked or packaged material, measurement will be the net weight as packed by the manufacturer.
12. Square Foot (SF): Measured on a plane parallel to the surface being measured.
13. Square Yard (SY): Measured on a plane parallel to the surface being measured.
14. Ton: Measured as a short ton consisting of 2,000 pounds.

1.4 METHOD OF MEASUREMENT

A. One of the following methods of measurement for determining final payment is designated on the Schedule of Items for each pay item:

1. ACTUAL QUANTITIES (AQ) - These quantities are determined from actual measurements of completed work.
2. DESIGNED QUANTITIES (DQ) - These quantities denote the final number or units to be paid for under the terms of the contract. They are based upon the original design data available prior to advertising the project. Original design data include the preliminary survey information, design assumptions, calculations, drawings, and the presentation in the contract. Changes in the number of units shown in the Schedule of Items may be authorized under any of the following conditions:

    a. As a result of changes in the work authorized by the CO.
    b. As a result of the CO determining that errors exist in the original design that cause a pay item quantity to change by 15 percent or more.
    c. As a result of the Contractor submitting to the CO a written request showing evidence of errors in the original design that cause a pay item quantity to change by 15 percent or more. The evidence must be verifiable and consist of calculations, drawings, or other data that show how the designed quantity is believed to be in error.

3. LUMP SUM QUANTITIES (LSQ) - These quantities denote one complete unit of work as required by or described in the contract, including necessary materials, equipment, and labor to complete the job. They shall not be measured.
4. STAKED QUANTITIES (SQ) - These quantities are determined from staked measurements prior to construction.
5. VEHICLE QUANTITIES (VQ) - These quantities are measured or weighed in hauling vehicles.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

END OF SECTION 011250
June 2015

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SQUIRREL MEADOWS CABIN FLOORING REPLACEMENT PROJECT

SECTION 011900 - MOBILIZATION

PART 1 - GENERAL

1.1 SUMMARY

A. This item is intended to compensate the Contractor for operations including, but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to the project site; for payment of premiums for bonds and insurance for the project; and for any other work and operations which must be performed or costs that must be incurred incident to the initiation of meaningful work at the site and for which payment is not otherwise provided for under the contract.

1.2 MEASUREMENT AND PAYMENT

A. The measurement shall be lump sum for mobilization. Payment shall be as follows:

1. Bond premiums will be reimbursed after receipt of the evidence of payment.
2. 50% of the lump sum, not to exceed 5% of the original contract amount, will be paid following completion of 5% of the original contract amount not including mobilization and bond premiums.
3. Payment of the remaining portion of the lump sum, up to 10% of the original contract amount, will be paid following completion of 10% of the original contract amount not including mobilization and bond premiums.
4. Any portion of the lump sum in excess of 10% of the original contract amount will be paid after final acceptance.
5. Progress payments for mobilization and preparatory work shall be subject to retainage.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 011900
JUNE 2015

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SQUIRREL MEADOWS CABIN FLOORING REPLACEMENT PROJECT

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals. See Table 013300-1 for a summary of required submittals.

B. See other specification section within this package for additional requirements on submittal.

1.2 SUBMITTAL PROCEDURES

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. The Contracting Officer (CO) reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

B. Processing Time: Allow enough time for submittal review, including time for re-submittals, as follows. Time for review shall commence on CO's receipt of submittal.

1. Initial Review: Allow 14 days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. CO will advise Contractor when a submittal being processed must be delayed for coordination.
2. If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Allow 14 days for processing each re-submittal.
4. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.

C. Identification: Place a permanent label or title block on each submittal for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space on label or beside title block to record Contractor's review and approval markings and action taken by CO.
3. Include the following information on label for processing and recording action taken:

a. Project name.
b. Date.
c. Name and address of Contractor.
d. Name of manufacturer.
e. Unique identifier, including revision number.
f. Number and title of appropriate Specification Section.
g. Drawing number and detail references, as appropriate.
h. If more than one item is shown on submittal sheet, identify item.

D. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals.

E. Additional Copies: Unless additional copies are required for final submittal, and unless CO observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.

F. Use for Construction: Use only final submittals with mark indicating action taken by CO in connection with construction.

1.3 MEASUREMENT AND PAYMENT

A. No separate measurement and/or payment will be made for this section. Payment shall be included with work shown in the schedule of items.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS – (Submittals requiring CO approval)

A. General: Prepare and submit Action Submittals required by individual Specification Sections.

1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. CO will return one copy. Mark up and retain one returned copy as a Project Record Document.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

a. Manufacturer's written recommendations.
b. Manufacturer's product specifications.
c. Manufacturer's installation instructions.
d. Manufacturer's catalog cuts.
e. Wiring diagrams showing factory-installed wiring.
f. Compliance with recognized trade association standards.

g. Compliance with recognized testing agency standards.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Include the following information, as applicable:

a. Dimensions.
b. Identification of products.
c. Fabrication and installation drawings.
d. Roughing-in and setting diagrams.
e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
f. Notation of dimensions established by field measurement.

D. Contractor's Construction Schedule: The contractor shall submit a Construction Schedule, for approval by CO, in accordance with the contract provisions within 5 day of commencement of work.

E. Samples: Prepare physical units of materials or products, including the following:

1. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

2.2 INFORMATIONAL SUBMITTALS – (Submittals NOT requiring CO approval)

A. General: Prepare and submit Informational Submittals required by other Specification Sections.

1. Number of Copies: Submit three copies of each submittal, unless otherwise indicated. CO will not return copies.
2. Certificates and Certifications: Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
3. Test and Inspection Reports: Comply with requirements in Section 014100 "Quality Control."

B. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.

C. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.

D. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment.

E. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.

PART 3 - EXECUTION

3.1 GENERAL

A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to CO.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

C. CO will not review submittals that do not bear Contractor's approval stamp and will return them without action.

D. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

E. Substitutions – Whenever materials, products, and equipment are listed by name or brand in the specifications and/or on the drawings, it is used as a measure of quality, utility, or standard. If the Contractor prefers to use any other brand or manufacturer of same quality, appearance and utility to that specified, he shall request substitution as provided below, not less than 30 days before the planned installation of the item. The Contracting Officer will approve or disapprove the request for substitution.

F. Requests for substitutions will only be considered if contractor submits the following:

1. Complete technical data including drawings, complete performance specifications, test data, samples and performance tests of the article proposed for substitution. Submit additional information if required by Contracting Officer. All items in the above information shall be circled, tagged, or marked in some way to indicate all deviations or differences which the proposed item differs from the originally specified item.
2. Similar data as above for item originally specified. All items shall be marked to identify where/how the proposed substitution will differ.
3. A statement by the Contractor that the proposed substitution is in full compliance with the contract documents, applicable codes, and laws.
4. The Contractor shall be responsible for any effect upon related work in the project for any substitution and shall pay any additional costs generated by any substitutions.

3.2 SUBMITTAL SCHEDULE – Submittals shall be made as required by and called for in the drawings and specifications. The following table is a summary of the required

submittals for the project - the table is to assist the Contractor and may not be all inclusive – additional submittals may be required by specific specifications:

TABLE 013000-1

Spec. Section	Section Title	Subsection	Required Submittal
096400	Wood Flooring	1.2A	Product Data
096400	Wood Flooring	1.2B	Shop Drawings
096400	Wood Flooring	1.2C	Samples

END OF SECTION 013300
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SECTION 013591 - HISTORIC TREATMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes special procedures for historic treatment on Project including, but not limited to, the following:

1. Temporary protection of historic materials during construction.
2. Protection during application of chemicals.
3. Protection during use of heat-generating equipment.
4. Historic treatment procedures.

1.2 DEFINITIONS

A. "Stabilize": To apply measures designed to reestablish a weather-resistant enclosure and the structural reinforcement of an item or portion of the building while maintaining the essential form as it exists at present.

B. "Protect and Maintain": To remove deteriorating corrosion, reapply protective coatings, and install protective measures such as temporary guards; to provide the least degree of intervention.

C. "Repair": To stabilize, consolidate, or conserve; to retain existing materials and features while employing as little new material as possible. Repair includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials. Within restoration, repair also includes limited replacement in kind, rehabilitation, and reconstruction, with compatible substitute materials for deteriorated or missing parts of features when there are surviving prototypes.

D. "Replace": To duplicate and replace entire features with new material in kind. Replacement includes the following conditions:

1. Replacement with New Materials: Includes replacement with new material when original material is not available as patterns for creating new duplicated elements.

E. "Remove": To detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.

F. "Existing to Remain" or "Retain": Existing items of construction that are not to be removed and that are not otherwise indicated to be removed and salvaged, or removed and reinstalled.

G. "Material in Kind": Material that matches existing materials, as much as possible, in species, cut, color, grain, and finish.

1.3 STORAGE AND PROTECTION OF HISTORIC MATERIALS

A. Existing Historic Materials to Remain: Protect construction indicated to remain against damage and soiling during historic treatment. When permitted by the Contracting Officer's Representative items may be removed to a suitable, protected storage location during historic treatment and cleaned and reinstalled in their original locations after historic treatment operations are complete.

1.4 MEASUREMENT AND PAYMENT

A. No separate payment will be made for the work included under this section; rather payment shall be considered to be included in the items of work listed in the Schedule of Items.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PROTECTION, GENERAL

A. Comply with manufacturer's written instructions for precautions and effects of products and procedures on adjacent building materials, components, and vegetation.

B. Ensure that supervisory personnel are present when work begins and during its progress.

C. Temporary Protection of Historic Materials during Construction:

1. Protect existing materials during installation of temporary protections and construction. Do not deface or remove existing materials.
2. Attachments of temporary protection to existing construction shall be approved by Contracting Officer's Representative prior to installation.

D. Protect landscape work adjacent to or within work areas.

3.2 PROTECTION DURING APPLICATION OF CHEMICALS

A. Cover adjacent surfaces with materials that are proven to resist chemical cleaners selected for Project unless chemicals being used will not damage adjacent surfaces. Use covering materials that contain only waterproof, UV-resistant adhesives. Apply masking agents to comply with manufacturer's written instructions. Do not apply liquid masking agent to painted or porous surfaces. When no longer needed, promptly remove masking to prevent adhesive staining.

3.3 PROTECTION DURING USE OF HEAT-GENERATING EQUIPMENT

A. Comply with the following procedures while performing work with heat-generating equipment, including welding, cutting, soldering, brazing, paint removal with heat, and other operations where open flames or implements utilizing heat are used:

1. Obtain the Contracting Officer’s approval for operations involving use of open-flame.

3.4 HISTORIC TREATMENT PROCEDURES

A. Prohibit smoking by personnel performing work on or near historic structures.

B. Obtain Contracting Officer’s review and written approval in the form of a Constructive Change Directive or Supplemental Instruction before making changes or additions to construction or removing historic materials.

C. Notify Contracting Officer of visible changes in the integrity of material or components whether due to environmental causes including biological attack, UV degradation, freezing, or thawing; or due to structural defects including cracks, movement, or distortion.

1. Do not proceed with the work in question until directed by Contracting Officer.

D. Where Work requires existing features to be removed, cleaned, and reused, perform these operations without damage to the material itself, to adjacent materials, or to the substrate.

E. When cleaning, match samples of existing materials that have been cleaned and identified for acceptable cleaning levels. Avoid over-cleaning to prevent damage to existing materials during cleaning.

END OF SECTION 013951
JUNE 2015

USDA FOREST SERVICE, R-4
SQUIRREL MEADOWS CABIN FLOORING REPLACEMENT PROJECT

SECTION 024100 - WASTE MATERIAL DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the loading, handling, hauling, and placing of excess excavation material, unsuitable excavation material, clearing and grubbing debris, and construction and demolition debris.

1.2 MEASUREMENT AND PAYMENT

A. There will be no separate measurement or payment for work in this Section. Waste material disposal is considered incidental to other items of work shown in the Schedule of Items.

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION

3.1 WASTE MATERIAL TO BE HAULED TO A LANDFILL

A. All demolition materials, garbage, and other refuse generated shall be removed from the project site and legally disposed off Government property in an approved landfill.

B. All stumps, slash and other clearing and grubbing debris shall be hauled to a landfill.

C. The contractor is responsible for all costs and permits associated with landfill disposal.

D. The Government is not responsible for waste material upon its departure from the project site.

END OF SECTION 024100
JUNE 2015

USDA FOREST SERVICE, R-4
SQUIRREL MEADOWS CABIN FLOORING REPLACEMENT PROJECT

SECTION 096400 - WOOD FLOORING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Field-finished wood flooring.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For each type of floor assembly and accessory. Include plans, sections, and attachment details. Include expansion provisions and trim details.

C. Samples: For each exposed product and for each color and texture specified.

1.3 MEASUREMENT AND PAYMENT

A. No separate payment will be made for the work included under this section; rather payment shall be considered to be included in the items of work listed in the Schedule of Items.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Softwood Flooring: Comply with WCLIB No. 17 grading rules for species, grade, and cut.

2.2 FIELD-FINISHED WOOD FLOORING

A. Solid-Wood Flooring: Kiln dried to 6 to 9 percent maximum moisture content; tongue and groove and end matched; with backs channeled.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

a. Bear Creek Lumber, Winthrop Washington.
b. Beyers Lumber.
c. Carlisle Wide Plank Floors.
d. Oregon Lumber Company.

2. Grade and Species: Grade C & BTR - Flooring Douglas fir.

3. Cut: Quarter/rift sawn, Vertical grain.
4. Thickness: 3/4 inch.
5. Face Width: 3-1/8 inches.
6. Lengths: Random-length strips complying with applicable grading rules.

B. Urethane Finish System: Complete water-based system of compatible components that is recommended by finish manufacturer for application indicated.

1. Basis of Design Product: "Dura Seal" sealers, fillers, penetrating stains, and satin gloss, waterbased polyurethane finish.
2. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

a. Basic Coatings, Inc.
b. BonaKemi USA Inc.
c. Dura Seal.
d. Hillyard, Inc.
e. PoloPlaz Coatings.

3. Stain: Penetrating and nonfading type.

a. Color: As selected by Contracting Officer's Representative from manufacturer's full range.

4. Floor Sealer: Pliable, penetrating type.
5. Finish Coats: Formulated for multicoat application on wood flooring.

C. Wood Filler: Compatible with finish system components and recommended by filler and finish manufacturers for use indicated. If required to match approved Samples, provide pigmented filler.

2.3 ACCESSORY MATERIALS

A. Fasteners: As recommended by manufacturer, but not less than that recommended in NWFA's "Installation Guidelines."

B. Thresholds: To match wood flooring. Tapered on each side.

C. Reducer Strips: To match wood flooring. 2 inches wide, tapered, and in thickness required to match height of flooring.

D. Molding: 1" Douglas fir Quarter Round Molding along exterior walls. Stained and Varnished. ½" X 2-½" Base Trim along separating interior wall. Stained and Varnished.

PART 3 - EXECUTION

3.1 PREPARATION

A. Broom or vacuum clean substrates to be covered immediately before product installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation,

or dust. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with flooring manufacturer's written installation instructions, but not less than applicable recommendations in NWFA's "Installation Guidelines."

B. Provide expansion space at walls and other obstructions and terminations of flooring of not less than 3/4 inch.

C. Solid-Wood Flooring: Blind nail or staple flooring to floor joists.

3.3 FIELD FINISHING

A. Machine-sand flooring to remove offsets, ridges, cups, and sanding-machine marks that are noticeable after finishing. Vacuum and tack with a clean cloth immediately before applying finish.

1. Comply with applicable recommendations in NWFA's "Installation Guidelines."

B. Fill and repair wood flooring defects.

C. Apply floor-finish materials in number of coats recommended by finish manufacturer for application indicated, but not less than one coat of floor sealer and three finish coats.

1. Apply stains to achieve an even color distribution matching approved Samples.
2. For water-based finishes, use finishing methods recommended by finish manufacturer to minimize grain raise.

D. Cover wood flooring before finishing.

E. Do not cover wood flooring after finishing until finish reaches full cure, and not before seven days after applying last finish coat.

3.4 PROTECTION

A. Protect installed wood flooring during remainder of construction period with covering of heavy kraft paper or other suitable material. Do not use plastic sheet or film that might cause condensation.

1. Do not move heavy and sharp objects directly over kraft-paper-covered wood flooring. Protect flooring with plywood or hardboard panels to prevent damage from storing or moving objects over flooring.

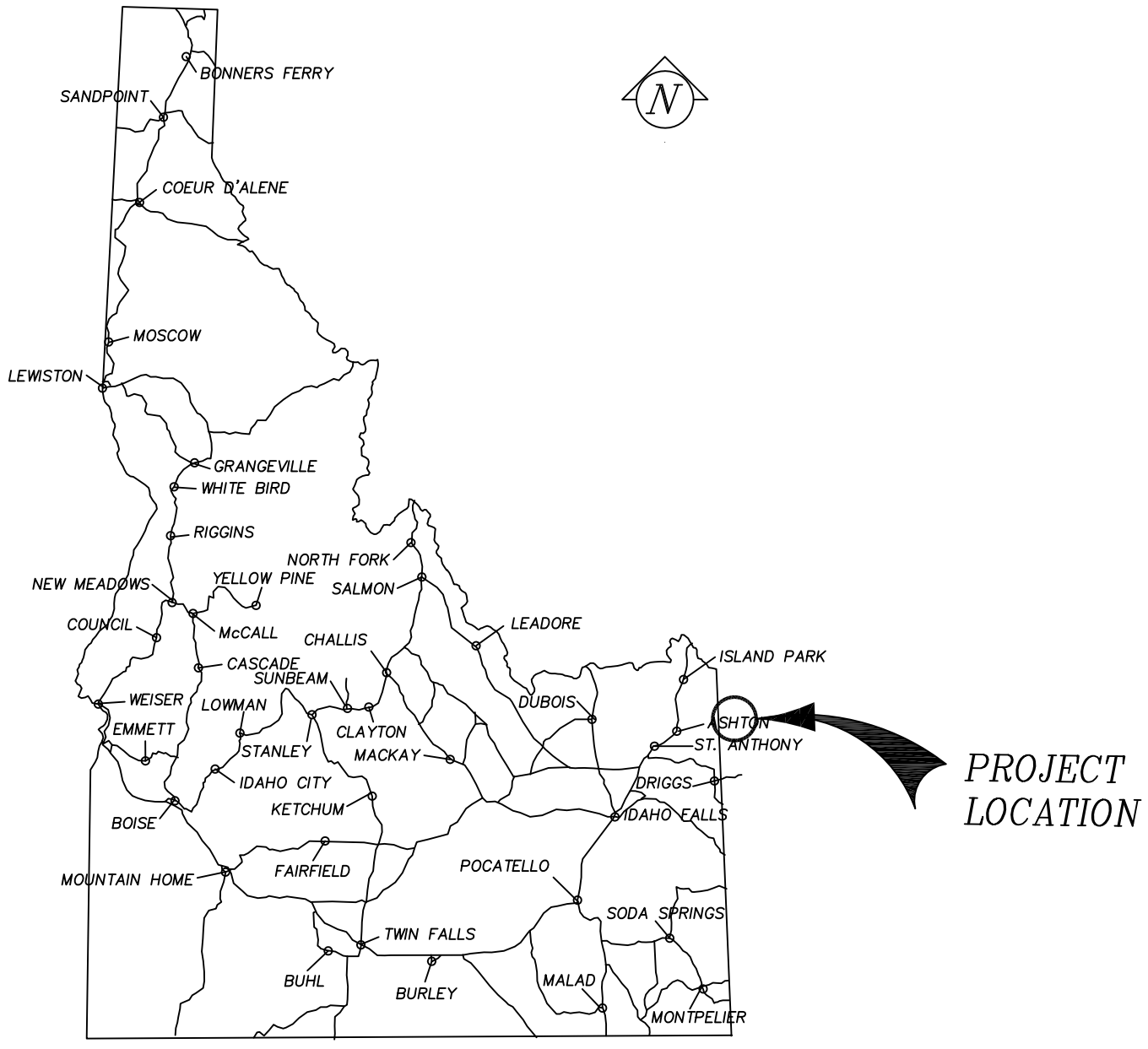
END OF SECTION 096400
JUNE 2015

Drawings

SQUIRREL MEADOWS
CABIN FLOOR REPLACEMENT

CARIBOU–TARGHEE NATIONAL FORESTS

IDAHO FALLS, IDAHO



IDAHO

LIST OF DRAWINGS

1. COVER SHEET AND MAP
2. VICINITY MAP, PROJECT DESCRIPTION AND SCHEDULE OF ITEMS
3. CABIN FLOOR PLAN

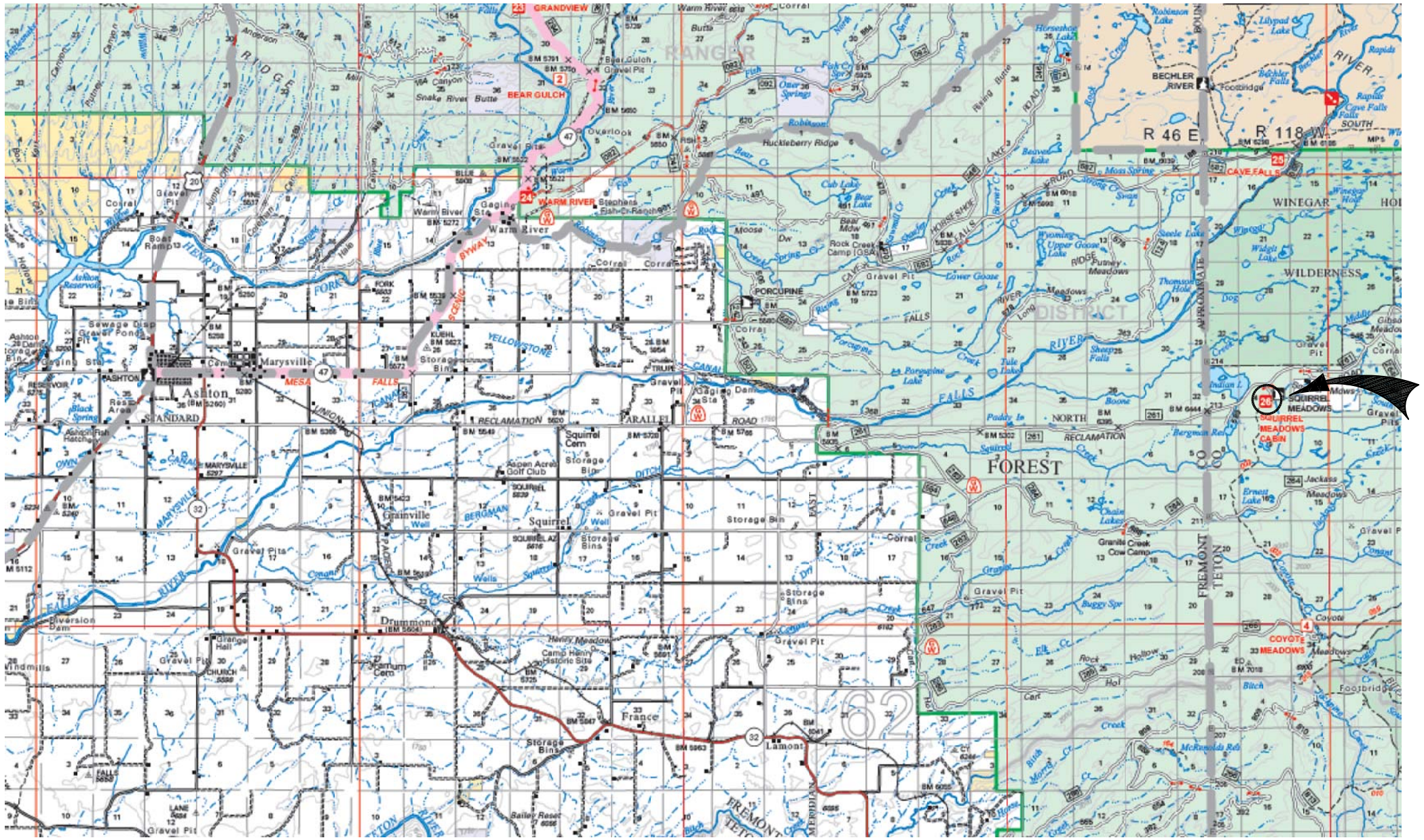
RECOMMENDED BY

DISTRICT RANGER _____ DATE _____

APPROVED

FOREST ENGINEER _____ DATE _____

VICINITY MAP



SCHEDULE OF ITEMS

Squirrel Meadows Flooring Replacement Project

ITEM NUMBER	DESCRIPTION	METHOD OF MEAS	UNIT	QUANTITY
011900	Mobilization	LSQ	EA	1
096400	Replace, Sand, and Finish Flooring in Cabin	LSQ	EA	1

PROJECT DESCRIPTION

THE PROJECT WILL CONSIST OF:

- REPLACING, SANDING, AND FINISHING THE WOOD FLOOR IN THE SQUIRREL MEADOW CABIN

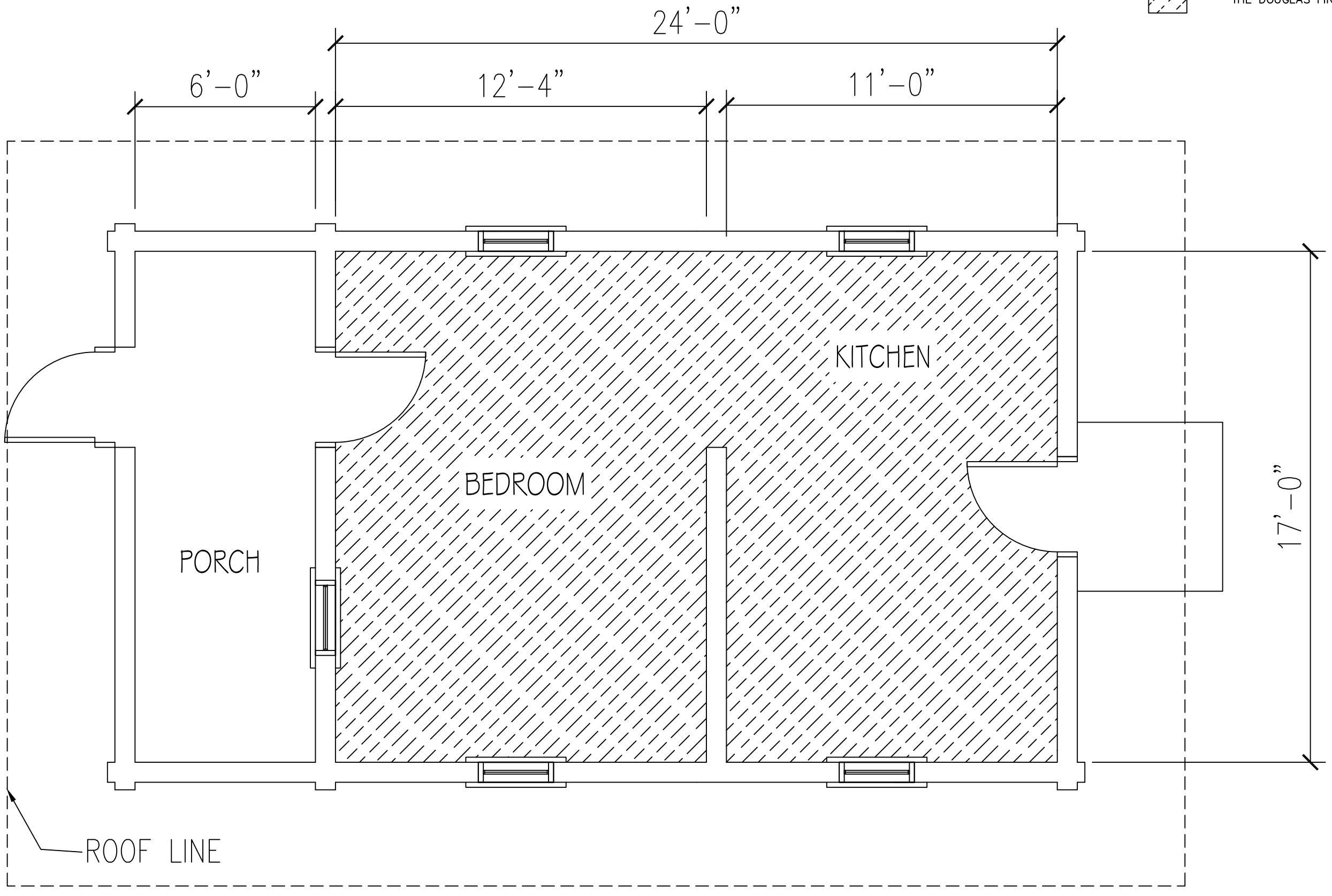
U. S. Department of Agriculture
FOREST SERVICE
Intermountain Region 4 Engineering
REGIONAL_OFFICE

DESIGN BY: S.HILL-WORTHEN
CHECK: S.TAOW
DRAWING BY: S.TAOW
CHECK: S.HILL-WORTHEN
APPROVED: FOREST_ENGINEER DATE

SQUIRREL_MEADOWS_CABIN
FLOORING_REPLACEMENT_PROJECT
VICINITY_MAP
SCHEDULE_OF_ITEMS_PROJECT_DESCRIPTION

PROJECT No.
DRAWING V1
SHEET 2 OF 3

REPLACE, SAND, AND FINISH
THE DOUGLAS FIR FLOOR



U. S. Department of Agriculture
FOREST SERVICE
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DESIGN	BY: S.HILL-WORTHEN	
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APPROVED: FOREST ENGINEER		DATE

SQUIRREL_MEADOWS_CABIN
FLOORING_REPLACEMENT_PROJECT

CABIN_FLOOR_PLAN

PROJECT No.

DRAWING
P1

SHEET
3 OF 3