

Environmental Conditions

American Architectural Products Group

Importance of Acclimatization

All wood products are hygroscopic, meaning they constantly absorb and release moisture. The rate of this exchange depends entirely on environmental conditions. As wood absorbs moisture, it expands; as it releases moisture, it contracts. If left uncontrolled, this expansion and contraction can cause wood panels to bow and warp within the AAPG frame, affecting the uniformity of the reveals.

Acceptable Building Climate Conditions

The Architectural Woodwork Institute (AWI) defines a controlled environment suitable for the acclimatization and installation of wood panels as having:

- Relative Humidity: 25–55%
- Temperature Range: 55–85°F

Environmental conditions outside these limits are unacceptable and will void the warranty of AAPG wood panels.

Responsibility for Acclimatization

Responsibility for acclimatization falls, in part, on each of us: AAPG, the Installer, the General Contractor, the Architect, and the Building Owner. AAPG provides wood panels within acceptable tolerances for moisture content, with the specified wood substrate, veneer, and finish quality.

- The Installer receives, stores, and installs the panels in a controlled building environment, and is responsible for ensuring the panels are acclimatized to the building environment before installation. Any environmental conditions that do not conform to AWI specifications must be corrected prior to installation.
- The General Contractor must provide an environment that meets AWI standards for relative humidity and temperature.
- The Architect is responsible for the overall project design and for specifying appropriate HVAC equipment to maintain the necessary environmental conditions for wood stabilization.
- The Building Owner bears the responsibility for maintaining proper environmental conditions to ensure the long-term stability of wood products.

Equilibrium Moisture Content

The moisture content of wood is directly influenced by the humidity and temperature of the surrounding air. Equilibrium Moisture Content (EMC) occurs when the wood has stabilized with its environment and is no longer gaining or losing moisture. The EMC table on the following page serves as a guide to determine whether the construction area conditions are suitable for receiving and installing AAPG wood panels. The moisture content of AAPG wood panels at the time of shipment ranges from 8–13% at 70°F.

A moisture meter is used to determine the moisture content of AAPG wood panels. A minimum of 12 measurements should be taken from randomly selected panels.

NOTE: The pins on the meter will produce small holes in the panel. Measurements should only be taken on the unseen edges of the panels so as not to mar the exposed surface. Record the measurements and establish an average moisture-content percentage. A humidity and temperature reporting form is included at the end of this document for your convenience.



Equilibrium Moisture Content Table

Use the following chart to estimate the equilibrium moisture content of AAPG panels based on the temperature and relative humidity of the area where the system is to be installed. For example, at an ambient air temperature of 70°F and a relative humidity of 50%, AAPG wood panels must reach a stabilized moisture content of 9.2% prior to installation.

Relative Humidity %	Ambient Air Temperature – degrees Celsius and Fahrenheit (Celsius rounded to nearest degree)										
	-1 30	4 40	10 50	16 60	21 70	27 80	32 90	38 100	43 110	49 120	54 130
5	1.4	1.4	1.4	1.3	1.3	1.3	1.2	1.2	1.1	1.1	1.0
10	2.6	2.6	2.6	2.5	2.5	2.4	2.3	2.3	2.2	2.1	2.0
15	3.7	3.7	3.6	3.6	3.5	3.5	3.4	3.3	3.2	3.0	2.9
20	4.6	4.6	4.6	4.6	4.5	4.4	4.3	4.2	4.0	3.9	3.7
25	5.5	5.5	5.5	5.4	5.4	5.3	5.1	5.0	4.9	4.7	4.5
30	6.3	6.3	6.3	6.2	6.2	6.1	5.9	5.8	5.6	5.4	5.2
35	7.1	7.1	7.1	7.0	6.9	6.8	6.7	6.5	6.3	6.1	5.9
40	7.9	7.9	7.9	7.8	7.7	7.6	7.4	7.2	7.0	6.8	6.6
45	8.7	8.7	8.7	8.6	8.5	8.3	8.1	7.9	7.7	7.5	7.2
50	9.5	9.5	9.5	9.4	9.2	9.1	8.9	8.7	8.4	8.2	7.9
55	10.4	10.4	10.3	10.2	10.1	9.9	9.7	9.5	9.2	8.9	8.7
60	11.3	11.3	11.2	11.1	11.0	10.8	10.5	10.3	10.0	9.7	9.4
65	12.4	12.3	12.3	12.1	12.0	11.7	11.5	11.2	11.0	10.6	10.3
70	13.5	13.5	13.4	13.3	13.1	12.9	12.6	12.3	12.0	11.7	11.3
75	14.9	14.9	14.8	14.6	14.4	14.2	13.9	13.6	13.2	12.9	12.5
80	16.5	16.5	16.4	16.2	16.0	15.7	15.4	15.1	14.7	14.4	14.0
85	18.5	18.5	18.4	18.2	17.9	17.7	17.3	17.0	16.6	16.2	15.8
90	21.0	21.0	20.9	20.7	20.5	20.2	19.8	19.5	19.1	18.6	18.2
95	24.3	24.3	24.3	24.1	23.9	23.6	23.3	22.9	22.4	22.0	21.5
98	26.9	26.9	26.9	26.8	26.6	26.3	26.0	25.6	25.2	24.7	24.2

Acclimatization Reporting Form

This document must be transmitted to American Architectural Products Group prior to installation in order for the warranty to be valid.

Contractor: _____

Product Name: _____

Product Address: _____

- See the EMC Table on the previous page. Determine the target values of the interior environment and note below.
- During the acclimatization period, record temperature (°F) and relative-humidity (%) readings from a digital hygrometer. (This data establishes the acceptable moisture-content range for the installation.)
- Three to five panels should be randomly selected and monitored during the acclimatization period.
- Using a moisture meter, take three moisture-content readings along the edge of each panel and record the average of the three values.
- As the AAPG wood panels reach equilibrium, the moisture-content readings will stabilize at the proper temperature and relative-humidity values.
- DO NOT begin installation of the panels until they have reached equilibrium moisture content within the target range.

Target Temperature (°F): _____ Relative Humidity (%): _____ Moisture Content (%):
