Design Detail

BASF HP+™ Wall System - A Series **DD No. 1607-01**

BASF Corporation

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1. **General Notes:**

   1.1. BASF HP+™ Wall System - A Series, utilizes WALLTITE® HP+ closed cell spray polyurethane foam in 24" o.c. stud cavities with traditional 7/16" OSB sheathing for use in buildings constructed in accordance with the *IRC* for light-frame wood construction and the *IBC* for Type V light-frame construction.

   1.2. BASF HP+™ Wall System - A Series, is used to provide:

   1.2.1. Lateral load resistance (wind and seismic).

   1.2.2. Transverse load resistance (positive and negative wind pressure).

   1.2.3. Resistance to uplift and gravity loads in single top plate applications.

2. **Conditions of Use**

   2.1. BASF HP+™ Wall System - A Series, shall only be used with WALLTITE® HP+

   2.2. When not used as wall bracing, walls shall be braced by other materials in accordance with the applicable code.

   2.3. Shear, axial and transverse loads shall not exceed those shown in Table 1.

   2.4. All panel edges shall be supported by wall framing or solid blocking a minimum of 2" (51 mm) nominal thickness in the least dimension.

   2.5. Refer to the quality assurance (QC) procedures and installation manual for construction means and methods support.

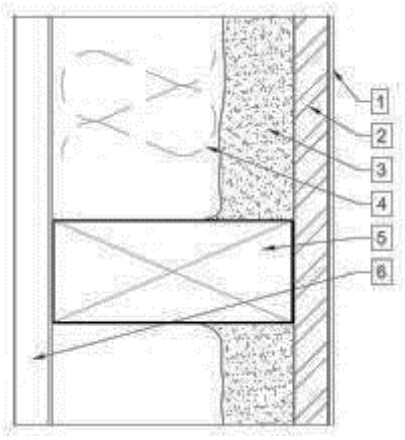
   2.6. Contact BASF for additional information regarding means and methods.

3. **Installation:**

   3.1. BASF HP+™ Wall System - A Series, shall be installed in accordance with the manufacturer's published installation instructions and this design detail. In the event of conflict between the manufacturer's installation instructions and this Design Detail, the more restrictive shall govern.

   3.2. BASF HP+™ Wall System - A Series, shall be installed in a workmanlike manner subject to industry-accepted tolerances. WALLTITE® HP+ spray foam applicator must be BASF Quality Assurance Training Program certified.

DrJ Design Detail



Assembly

1. Water Resistive Barrier
2. $^{7}/_{16}$" OSB Sheathing Grade Wood Structural Panels fastened with 8d (0.113" x $2^{3}/_{8}$") nails 6" o.c. at panel edges and 12" at intermediate framing members
3. 3/4", 1", or 1-1/2" BASF WALLTITE® HP+
4. Cavity insulation, as required
5. Minimum 2x4 wood framed wall with studs spaced 24" o.c., single or double top plate
6. Gypsum wall board fastened with #6 type W or S screws $1^{1}/_{4}$" long spaced 16" o.c. at panel edges and in the field

BASF HP+™ Wall System - A Series, – Design Values

Assembly	Axial		Lateral							Transverse[8]	
				Wind	Seismic[5]						
	Uplift[2]	Comp[2]	Nominal Shear	Allowable Unit Shear[3]	Allowable Unit Shear	Apparent Shear Stiffness, Ga	Response Modification Factor, R[6]	System Overstrength Factor, Ω0	Deflection Amplification Coefficient, Cd[7]	Positive & Negative Pressure	Components & Cladding Basic Wind Speed (Vult)
	(lb.)	(lb.)	(plf)	(plf)	(plf)	(kips/in.)	---	---	---	(psf)	(mph)
OSB Only	400[1]	1370	615	310[4]	220[4]	15[4]	6.5	3	4	100	205
OSB & 3/4" WALLTITE® HP+	650	1565	1365	685	445	15					
OSB & 1" WALLTITE® HP+	735	1630	1390	695	450	15					
OSB & 1-1/2" WALLTITE® HP+	900	1755	1390	695	450	16					

1. OSB only - allowable axial uplift taken from testing of $^{3}/_{8}$" wood structural panel sheathing installed with strength axis parallel to the studs and fastened with 8d common nail 6" o.c. along panel edge and 12" o.c. at intermediate framing members.
2. Maximum load assumes load is concentrated at mid-span of the top plate between studs. Assumes 24" o.c. stud spacing utilizing single top plate. All stud cavities are filled to the thickness indicated with WALLTITE® HP+. All other faming connections are in accordance with the applicable building code.
3. Maximum fastener size and spacing are as shown on the assembly information above with a minimum panel edge distance of $^{3}/_{8}$". Sheathing shall have joints butted at framing members and a single row of fasteners must be applied to each panel edge into the stud below.
4. OSB only - allowable unit shear capacity taken from the American Wood Council, Wind and Seismic (SDPWS) for $^{7}/_{16}$" Sheathing Grade WSP, 8d common or galvanized box nails, and a 0.92 reduction factor for SPF framing per footnotes.
5. OSB only - seismic design coefficients taken from SDPWS and ASCE 7. All BASF seismic design coefficients follow the equivalence procedures outlined in Section 12.2.1 of ASCE 7. This product was compared to the ICC-ES AC130 wood structural panel (WSP) shear wall testing database.
6. Response modification coefficient, R, for use throughout ASCE 7. Note R reduces forces to a strength level, not an allowable stress level.
7. Deflection amplification factor C_d, for use with ASCE 7 Section 12.8.6, 12.8.7, and 12.9.2.
8. The ASD allowable uniform load capacities shown are the minimum of the ultimate average pressure divided by an ASD reduction factor of 1.5, or the yield point in accordance with ANSI/FS100. PEF = 0.9. Allowable wind speeds are based on the following: Mean roof height 30', Exposure B, 10 sq. ft. effective wind area, corner zone 5.
9. Building heights limited to 65 feet in accordance with ASCE 7, Table 12.2-1 in Seismic Design Categories D, E and F.

Table 1: BASF HP+™ Wall System – A Series Design Values

4. Prescriptive *IRC* Bracing Applications – Equivalency Factors

4.1. BASF HP+™ Wall System - A Series may be used to brace walls of buildings as an alternative to the Continuous Wall Bracing provisions of *IRC* Section R602.10.4, when installed in accordance with this Design Detail.

4.2. Required braced wall panel lengths for BASF HP+™ Wall System - A Series shall be as determined by *IRC* Table R602.10.3(1) and R602.10.3(3)[1], including all footnotes. Bracing lengths in these tables for Method CS-WSP shall be multiplied by the equivalency factor listed in Table 2.

Prescriptive wall bracing- Equivalency to IRC provisions					
Wall Assembly	Gypsum Sheathing (16:16)	Maximum Stud Spacing (in.)	Fastener	Fastener Spacing	Wind SPF Framing BASF HP+ Wall Systems Tested Equivalency Factors to *IRC* CS-WSP
BASF HP+™ Wall System – A Series	Yes	24" o.c.	8d Galv. Box Nails	6:12	0.45

For SI: 1" = 25.4 mm
1. Fastener heads shall be installed flush to the surface of the sheathing.
2. Multiply the bracing lengths in *IRC* Table R602.10.1.2(1) and R602.10.1.2(3) Method CS-WSP (continuous sheathing) as applicable, including all footnotes, by the factors shown here, to establish the required bracing length.
3. Gypsum wallboard is required on the interior side of the HP+ Wall A Series assembly

Table 2: BASF HP+™ Wall System - A Series Braced Wall Line Length Equivalency Factors

[1] *2009 IRC* Table R602.10.1.2(1) and R602.10.1.2(2)