

PROJECT RIO-2087C-07
ENGINEERING REPORT FOR ATTACHING JAMES HARDIE® BRAND FIBER CEMENT
LAP SIDING TO 20 GA STEEL STUDS WALL WITH ET & F FASTENERS

ET & F FASTENING SYSTEMS, INC.
29019 SOLON ROAD
SOLON, OHIO 44139

INDEX

	PAGE
INDEX	1
SUMMARY OF REFERENCE REPORTS	2
PURPOSE AND ANALYSIS OF TEST REPORTS	3
PRESSURE REQUIREMENT FOR WIND SPEED FOR BLDG HT 0 - 100 FEET (ASCE 7-05)	5
WIND SPEED TABLE FOR EXP B, C AND D FOR FLORIDA BUILDING CODE	6

PREPARED BY:

RONALD OGAWA & ASSOCIATES, INC.
5801 WARNER AVENUE, #376
HUNTINGTON BEACH, CA 92649
714-292-2602
714-847-4595 FAX



PROJECT RIO-2087C-07
ENGINEERING REPORT FOR ATTACHING JAMES HARDIE® BRAND FIBER CEMENT
LAP SIDING TO 20 GA STEEL STUDS WALL WITH ET & F FASTENERS

ET & F FASTENING SYSTEMS, INC.
29019 SOLON ROAD
SOLON, OHIO 44139

INDEX

	PAGE
INDEX	1
SUMMARY OF REFERENCE REPORTS	2
PURPOSE AND ANALYSIS OF TEST REPORTS	3
PRESSURE REQUIREMENT FOR WIND SPEED FOR BLDG HT 0 - 100 FEET (ASCE 7-05)	5
WIND SPEED TABLE FOR EXP B, C AND D FOR FLORIDA BUILDING CODE	6

PREPARED BY:

RONALD OGAWA & ASSOCIATES, INC.
5801 WARNER AVENUE, #376
HUNTINGTON BEACH, CA 92649
714-292-2602
714-847-4595 FAX



ET & F Fastening System, Inc.
 29019 Solon Road
 Solon, Ohio 44139
 RIO-2087C-07

Reference Report

Ramtech Laboratories, Inc., Report 11284/1580 (ASTM E-72)
 Racking Shear Test, 5/16-inch Thick Hardiplank Vertical Siding installed on 20 ga metal studs Spaced at 16 and 24 inches on center with ET&F Pin Fastener.

Ramtech Laboratories, Inc., Report 11149/1554 (ASTM E-330)
 Transverse Load Test, 6-1/4-inch wide Hardiplank Lap Siding installed on 20 ga metal studs Spaced at 16 and 24 inches on center with ET&F knurled Pin Fastener.

Ramtech Laboratories, Inc., Report 11149-98/1554B (ASTM E-330)
 Transverse Load Test, 8-1/4-inch wide Hardiplank Lap Siding installed on 20 ga metal studs Spaced at 16 and 24 inches on center with ET&F knurled Pin Fastener.

Ramtech Laboratories, Inc., Report 11149-98/1554A (ASTM E-330)
 Transverse Load Test, 12-inch wide Hardiplank Lap Siding installed on 20 ga metal studs Spaced at 16 and 24 inches on center with ET&F knurled Pin Fastener.

Ramtech Laboratories, Inc., Report 11149-98/1554D (ASTM E-330)
 Transverse Load Test, 5/16-inch Thick Hardiplank Vertical Siding installed on 20 ga metal studs Spaced at 16 and 24 inches on center with ET&F knurled Pin Fastener.

Results

Product		Pin Fastening Pattern	Type	Ult. Load	FS	Design	stud spcg
6-1/4" Hardiplank Report #11149/1554	20 ga metal studs	ET&F exposed (a.k.a. "faced nailed")	negative	317	3	106	16
			negative	173	3	58	24
8-1/4" Hardiplank Report #11149-98/1554B	20 ga metal studs	ET&F blind (a.k.a. "blind nailed")	negative	64	3	21	16
			negative	50	3	17	24
12" Hardiplank Report # 11149-98/1554A	20 ga metal studs	ET&F exposed (a.k.a. "faced nailed")	negative	151	3	50	16
			negative	81	3	27	24
Hardiplank Report #11149-98/1554D	20 ga metal studs	ET&F blind (a.k.a. "blind nailed")	negative	170	3	57	16
			negative	101	3	34	24

Reference: NER-405
 2007 Florida Building Code
 2003 International Building Code
 2003 International Residential Code

For exposed Condition (faced nailed) the ET & F pin fastener is AKN100 0150NA, .100" shank diameter, 1.5" length, -.250" head diameter. Shank is knurled. Pin Fastener is installed with ET&F Model 500 pneumatic tool furnished by ET&F.

For blind Condition (blind nailed) the ET & F pin fastener is AGS100 0150NA, .100" shank diameter, 1.5" length, -.313" nominal head diameter. Shank is knurled. Pin Fastener is installed with ET&F Model 510 pneumatic tool furnished by ET&F.

THIS ANALYSIS IS TO DETERMINE THE MAXIMUM WIND SPEED TO BE RESISTED BY AN ASSEMBLY OF HARDIEPLANK FASTENED TO COLD FORMED STEEL STUDS WITH ET&F PINS. BY PROPORTIONING THE TRIBUTARY AREA TO EACH FASTENER, THE DESIGN LOAD TO EACH FASTENER WILL BE KEPT CONSTANT. BY DOING SO, THE DESIGN LOAD FOR VARIOUS HARDIEPLANK WIDTHS AND STUD SPACINGS WILL BE DETERMINED. FOR EXAMPLE, TESTING WAS CONDUCTED IN REPORT NO. 11149-98/1554 ON 6-1/4" WIDE HARDIEPLANK LAP SIDING WITH A 16 INCH STUD SPACING. THE FOLLOWING EXAMPLE WILL DEMONSTRATE THE BASIC ANALYSIS:

DESIGN LOAD =- ULTIMATE FAILURE LOAD/FS = 317/3 PSF =106 PSF FOR 16" STUD SPCG & 58 PSF FOR 24" STUD SPCG. AREA TRIBUTARY = 6.25 X 16/144 = 0.694 SQUARE FOOT FOR 16" STUD SPCG & 1.041 SF FOR 24" STUD SPCG. FASTENER LOAD = 106 PSF X 0.694 SF = 74 POUNDS & 60 lb FOR 24"STUD SPCG
 DIVIDE FASTENER LOAD BY AREA OF RESPECTIVE HARDIPLANK WIDTH

HARDIPLANK WIDTH (inches)	TESTED CONDITION (psf)	TRIBUTARY AREA FOR 16-INCH STUD SPACING (FT ²)	DESIGN LOAD (PSF)	TRIBUTARY AREA FOR 24-INCH STUD SPACING (FT ²)	DESIGN LOAD (PSF)
4		0.444	167	0.667	90
6		0.667	111	1	60
6.25	106	0.694	107	1.042	58
7.5		0.833	89	1.25	48
8		0.889	83	1.333	45
8.25		0.917	81	1.375	44
9.5		1.056	70	1.583	38
12	50	1.333	56	2	30

ET & F Fastening System, Inc.
 29019 Solon Road
 Solon, Ohio 44139
 RIO-2087C-07

CHECK FOR RESULTS USING 12 INCH PLANK VALUES. FROM REPORT 11149-99/1554A.
 DESIGN LOAD =- ULTIMATE FAILURE LOAD/FS = 151/3 PSF =50 PSF FOR 16" STUD SPCG & 27 PSF FOR 24"
 STUD SPCG. AREA TRIBUTARY = 12 X 16/144 = 1.33 SQUARE FOOT FOR 16" STUD SPCG & 2.0 SF FOR 24"
 STUD SPCG. FASTENER LOAD = 50 PSF X 1.33 SF = 67 POUNDS & 54 lb for 24" STUD SPCG
 DIVIDE FASTENER LOAD BY AREA OF RESPECTIVE HARDIPLANK WIDTH

DIVIDE FASTENER LOAD BY AREA OF RESPECTIVE HARDIPLANK WIDTH

HARDIPLANK WIDTH (inches)	TESTED CONDITION (psf)		TRIBUTARY AREA FOR 16-INCH STUD SPACING (FT ²)	DESIGN LOAD (PSF)	TRIBUTARY AREA FOR 24-INCH STUD SPACING (FT ²)	DESIGN LOAD (PSF)
4			0.444	151	0.667	81
6			0.667	100	1	54
6.25	106		0.694	97	1.042	52
7.5			0.833	80	1.25	43
8			0.889	75	1.333	41
8.25			0.917	73	1.375	39
9.5			1.056	63	1.583	34
12	50		1.333	50	2	27

FOR EXPOSED CONDITION, USE VALUES OBTAINED FROM 12" HARDIPLANK BECAUSE IT IS MORE CONSERVATIVE. THE DESIGN VALUE DERIVED ABOVE WILL BE USED TO DETERMINE THE RESPECTIVE WIND SPEED FOR THE VARIOUS HARDIPLANK WIDTHS FOR EXPOSED CONDITION. (ET&F FASTENER INSTALLED ON FACE OF HARDIPLANK.)

FOR CONCEALED CONDITIONS, ET&F FASTENERS INSTALLED IN A BLIND CONDITIONS. USE THE SIMILAR ANALYSIS BUT USE VALUES OBTAINED FROM REPORT 11149-98/1554B.

CHECK FOR RESULTS USING 8.25 INCH HARDIPLANK VALUES FOR BLIND CONDITIONS.
 DESIGN LOAD =- ULTIMATE FAILURE LOAD/FS = 64/3 PSF =21 PSF FOR 16" STUD SPCG & 17 PSF FOR 24" ASTUD SPCG.
 AREA TRIBUTARY = 8.25 X 16/144 = 0.916 SQUARE FOOT FOR 16" STUD SPCG & 1.375 SF FOR 24" STUD SPCG.
 FASTENER LOAD = 21 PSF X .916 SF = 19.2 POUNDS & 23 lb FOR 24" STUD SPCG
 DIVIDE FASTENER LOAD BY AREA OF RESPECTIVE HARDIPLANK WIDTH

DIVIDE FASTENER LOAD BY AREA OF RESPECTIVE HARDIPLANK WIDTH

HARDIPLANK WIDTH (inches)	TESTED CONDITION (psf)		TRIBUTARY AREA FOR 16-INCH STUD SPACING (FT ²)	DESIGN LOAD (PSF)	TRIBUTARY AREA FOR 24-INCH STUD SPACING (FT ²)	DESIGN LOAD (PSF)
4			0.444	43	0.667	34
6			0.667	29	1	23
6.25			0.694	28	1.042	22
7.5			0.833	23	1.25	18
8			0.889	22	1.333	17
8.25	64		0.917	21	1.375	17
9.5			1.056	18	1.583	15
12			1.333	14	2	12

FOR BLIND APPLICATION, THE DESIGN VALUES OBTAINED ARE REASONABLE, USE THE DESIGN VALUES CALCULATED FOR 16 AND 24 INCH SPCG FOR 20 GA STEEL STUD TO CALCULATE THE WIND SPEED

RIO-2087C-07
 ET & F Fastening System, Inc.
 29019 Solon Road
 Solon, Ohio 44139

Table 1 - Pressures (PSF) to be Resisted at Various Wind Speeds - Exposure B

Height (feet)	Factor Exp B	Factor Exp. C	Wind Spd Fastest Mile	85 70	90 75	100 80	110 90	120 100	130 110	140 120	150 130	170 150
			Factor Exp D	17.4	19.5	24.1	29.5	34.7	40.7	47.2	54.2	69.6
0-15	1	1.21	1.47	17.4	19.5	24.1	29.5	34.7	40.7	47.2	54.2	69.6
20	1	1.29	1.55	17.4	19.5	24.1	29.5	34.7	40.7	47.2	54.2	69.6
30	1	1.40	1.66	17.4	19.5	24.1	29.5	34.7	40.7	47.2	54.2	69.6
40	1.09	1.49	1.74	19.0	21.3	26.3	32.1	37.8	44.4	51.4	59.1	75.9
50	1.16	1.56	1.81	20.2	22.6	28.0	34.2	40.3	47.2	54.8	62.9	80.7
60	1.22	1.62	1.87	21.2	23.8	29.4	36.0	42.3	49.7	57.6	66.1	84.9
100	0.99			34	39	48	58	69	81	93	107	138

Table 2 - Pressures (PSF) to be Resisted at Various Wind Speeds - Exposure C

Height (feet)	Factor Exp B	Factor Exp. C	Wind Spd Fastest Mile	85 70	90 75	100 80	110 90	120 100	130 110	140 120	150 130	170 150
			Factor Exp D	17.4	19.5	24.1	29.5	34.7	40.7	47.2	54.2	69.6
0-15		1.21	1.47	21.1	23.6	29.2	35.7	42.0	49.2	57.1	65.6	84.2
20		1.29	1.55	22.4	25.2	31.1	38.1	44.8	52.5	60.9	69.9	89.8
30		1.40	1.66	24.4	27.3	33.7	41.3	48.6	57.0	66.1	75.9	97.4
40		1.49	1.74	25.9	29.1	35.9	44.0	51.7	60.6	70.3	80.8	103.7
50		1.56	1.81	27.1	30.4	37.6	46.0	54.1	63.5	73.6	84.6	108.6
60		1.62	1.87	28.2	31.6	39.0	47.8	56.2	65.9	76.5	87.8	112.8
100		1.26		44	49	61	74	87	103	119	137	175

Table 3 - Pressures (PSF) to be Resisted at Various Wind Speeds - Exposure D

Height (feet)	Factor Exp B	Factor Exp. C	Wind Spd Fastest Mile	85 70	90 75	100 80	110 90	120 100	130 110	140 120	150 130	170 150
			Factor Exp D	17.4	19.5	24.1	29.5	34.7	40.7	47.2	54.2	69.6
0-15		1.21	1.47	25.6	28.7	35.4	43.4	51.0	59.8	69.4	79.7	102.3
20		1.29	1.55	27.0	30.2	37.4	45.7	53.8	63.1	73.2	84.0	107.9
30		1.40	1.66	28.9	32.4	40.0	49.0	57.6	67.6	78.4	90.0	115.5
40		1.49	1.74	30.3	33.9	41.9	51.3	60.4	70.8	82.1	94.3	121.1
50		1.56	1.81	31.5	35.3	43.6	53.4	62.8	73.7	85.4	98.1	126.0
60		1.62	1.87	32.5	36.5	45.1	55.2	64.9	76.1	88.3	101.4	130.2
100			1.43	50	56	69	84	99	116	135	155	199

These tables were developed based on ASCE 7-05 and consistent with 2007 Florida Building Code

RIO-2087C-07
ET & F Fastening System, Inc.
29019 Solon Road
Solon, Ohio 44139

for H > 60 feet, the pressure developed by $q(GCp) \pm q(Gcpi) \times Kz$

$GCp = 1.8$ $q(GCp \pm Gcpi) = 2.0$
 $GCpi = 0.18$

Kz			
HT	EXP B	EXP C	EXP D
0-15	0.7	0.85	1.03
20	0.7	0.9	1.08
40	0.76	1.04	1.22
60	0.85	1.13	1.33
100	0.99	1.26	1.43

$Q = .00256KzKdV^2I$

I = IMPORTANCE FACTOR = 1
Kd = DIRECTIONAL FACTOR = 0.85
Kz = EXP. COEFFICIENT

$P = qs[CGp - CGpi]$
 $CGp = 1.4$
 $CGpi = -.18$ ENCLOSED

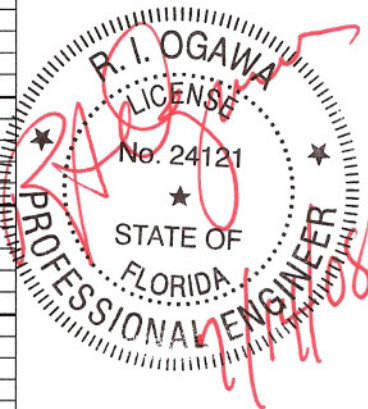
$qx = 0.00256v^2KzKzKdI$
KD = 0.85
[GCP-GCPI] = 1.58 enclosed

$Qs = 0.00256 \times V^2 \times KzKzKdI$ $Qs =$ Design Pressure calculated for ET&F pin fastener at each Hardiplank width
V = Velocity in mph (3-sec gust)
Kz = Height adjustment factor
Kdt = Directional factor = 0.85
I = importance factor = 1.0

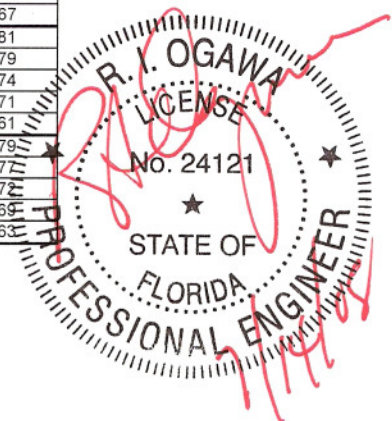
$V = (Qs / (0.00256 \times Kz \times 0.85 \times 1.0))$

TABLE 4
MAXIMUM WIND SPEED - HARDIPLANK LAP SIDING FASTENED WITH ET&F FASTENERS

Product Type	Product (in)		Fastener Type	Fastener Spacing	Frame Type	Stud Spacing (in)	Height of Building (ft)	Wind Speed (3-sec gust)		
	thick	width						Exp B	Exp C	Exp D
Hardiplank	5/16	4	ET&F pin 0.100" x 1.5" x 0.25" HD	Through Overlap	Min. No. 20 ga x 3.62"x1.375" Metal C-stud	16	0-15	250	227	206
							20	250	221	202
							40	240	206	190
							60	227	197	182
							100	187	166	156
Hardiplank	5/16	6	ET&F pin 0.100" x 1.5" x 0.25" HD	Through Overlap	Min. No. 20 ga x 3.62"x1.375" Metal C-stud	16	0-15	204	185	168
							20	204	180	164
							40	196	167	154
							60	185	160	148
							100	152	135	52
Hardiplank	5/16	6.25	ET&F pin 0.100" x 1.5" x 0.25" HD	Through Overlap	Min. No. 20 ga x 3.62"x1.375" Metal C-stud	16	0-15	201	182	166
							20	201	177	162
							40	193	165	152
							60	182	158	146
							100	150	133	125
Hardiplank	5/16	7.5	ET&F pin 0.100" x 1.5" x 0.25" HD	Through Overlap	Min. No. 20 ga x 3.62"x1.375" Metal C-stud	16	0-15	182	165	150
							20	182	161	147
							40	175	150	138
							60	165	143	132
							100	136	121	113
Hardiplank	5/16	8	ET&F pin 0.100" x 1.5" x 0.25" HD	Through Overlap	Min. No. 20 ga x 3.62"x1.375" Metal C-stud	16	0-15	177	160	146
							20	177	156	142
							40	169	145	134
							60	160	139	128
							100	132	117	110
Hardiplank	5/16	8.25	ET&F pin 0.100" x 1.5" x 0.25" HD	Through Overlap	Min. No. 20 ga x 3.62"x1.375" Metal C-stud	16	0-15	174	158	144
							20	174	154	140
							40	167	143	132
							60	158	137	126
							100	130	115	108
Hardiplank	5/16	9.5	ET&F pin 0.100" x 1.5" x 0.25" HD	Through Overlap	Min. No. 20 ga x 3.62"x1.375" Metal C-stud	16	0-15	162	147	133
							20	162	143	130
							40	155	133	123
							60	147	127	117
							100	121	107	101
Hardiplank	5/16	12	ET&F pin 0.100" x 1.5" x 0.25" HD	Through Overlap	Min. No. 20 ga x 3.62"x1.375" Metal C-stud	16	0-15	144	131	119
							20	144	127	116
							40	138	118	109
							60	131	113	105
							100	108	95	90
Hardiplank	5/16	4	ET&F pin 0.100" x 1.5" x 0.25" HD	Through Overlap	Min. No. 20 ga x 3.62"x1.375" Metal C-stud	24	0-15	183	166	151
							20	183	162	148
							40	176	151	139
							60	166	144	133
							100	145	128	120



Product Type	Product (in)		Fastener Type	Fastener Spacing	Frame Type	Stud Spacing	Height of Building (ft)	Wind Speed (3-sec gust)		
	thick	width						Exp B	Exp C	Exp D
Hardiplank	5/16	6	ET&F pin	Through	Min. No. 20 ga	24	0-15	150	136	123
			0.100" x 1.5"	Overlap	x 3.62"x1.375"		20	150	132	121
			x 0.25" HD		Metal C-stud		40	144	123	113
							60	136	118	109
							100	112	99	93
Hardiplank	5/16	6.25	ET&F pin	Through	Min. No. 20 ga	24	0-15	147	133	121
			0.100" x 1.5"	Overlap	x 3.62"x1.375"		20	147	130	118
			x 0.25" HD		Metal C-stud		40	141	121	111
							60	133	116	107
							100	110	97	91
Hardiplank	5/16	7.5	ET&F pin	Through	Min. No. 20 ga	24	0-15	134	121	110
			0.100" x 1.5"	Overlap	x 3.62"x1.375"		20	134	118	108
			x 0.25" HD		Metal C-stud		40	128	110	101
							60	121	105	97
							100	100	89	83
Hardiplank	5/16	8	ET&F pin	Through	Min. No. 20 ga	24	0-15	131	118	108
			0.100" x 1.5"	Overlap	x 3.62"x1.375"		20	131	115	105
			x 0.25" HD		Metal C-stud		40	125	107	99
							60	118	103	95
							100	98	86	81
Hardiplank	5/16	8.25	ET&F pin	Through	Min. No. 20 ga	24	0-15	127	116	105
			0.100" x 1.5"	Overlap	x 3.62"x1.375"		20	127	112	102
			x 0.25" HD		Metal C-stud		40	122	104	96
							60	116	100	92
							100	95	84	79
Hardiplank	5/16	9.5	ET&F pin	Through	Min. No. 20 ga	24	0-15	119	108	98
			0.100" x 1.5"	Overlap	x 3.62"x1.375"		20	119	105	96
			x 0.25" HD		Metal C-stud		40	114	98	90
							60	108	94	86
							100	89	79	74
Hardiplank	5/16	12	ET&F pin	Through	Min. No. 20 ga	24	0-15	106	96	87
			0.100" x 1.5"	Overlap	x 3.62"x1.375"		20	106	93	85
			x 0.25" HD		Metal C-stud		40	102	87	80
							60	96	83	77
							100	79	70	66
Hardiplank	5/16	4	ET&F	Through	Min. No. 20 ga	16	0-15	134	121	110
			Panelfast	top edge	x 3.62"x1.375"		20	134	118	108
			0.100" x 1.5"	of plank	Metal C-stud		40	128	110	101
			x 0.313" HD				60	121	105	97
							100	100	89	83
Hardiplank	5/16	6	ET&F	Through	Min. No. 20 ga	16	0-15	110	100	90
			Panelfast	top edge	x 3.62"x1.375"		20	110	97	88
			0.100" x 1.5"	of plank	Metal C-stud		40	105	90	83
			x 0.313" HD				60	100	86	80
							100	82	73	68
Hardiplank	5/16	6.25	ET&F	Through	Min. No. 20 ga	16	0-15	108	98	89
			Panelfast	top edge	x 3.62"x1.375"		20	108	95	87
			0.100" x 1.5"	of plank	Metal C-stud		40	104	88	82
			x 0.313" HD				60	98	85	78
							100	81	71	67
Hardiplank	5/16	7.5	ET&F	Through	Min. No. 20 ga	16	0-15	98	89	81
			Panelfast	top edge	x 3.62"x1.375"		20	98	86	79
			0.100" x 1.5"	of plank	Metal C-stud		40	94	80	74
			x 0.313" HD				60	89	77	71
							100	73	65	61
Hardiplank	5/16	8	ET&F	Through	Min. No. 20 ga	16	0-15	96	87	79
			Panelfast	top edge	x 3.62"x1.375"		20	96	84	77
			0.100" x 1.5"	of plank	Metal C-stud		40	92	78	72
			x 0.313" HD				60	87	75	69
							100	75	67	63



Product Type	Product (in)		Fastener Type	Fastener Spacing	Frame Type	Stud Spacing	Height of Building (ft)	Wind Speed (3-sec gust)		
	thick	width						Exp B	Exp C	Exp D
Hardiplank	5/16	8.25	ET&F	Through	Min. No. 20 ga	16	0-15	117	107	97
			Panelfast	top edge	x 3.62"x1.375"		20	117	104	95
			0.100" x 1.5"	of plank	Metal C-stud		40	113	96	89
			x 0.313" HD				60	107	92	85
							100	99	88	82
Hardiplank	5/16	9.25	ET&F	Through	Min. No. 20 ga	16	0-15	109	99	90
			Panelfast	top edge	x 3.62"x1.375"		20	109	96	88
			0.100" x 1.5"	of plank	Metal C-stud		40	104	89	82
			x 0.313" HD				60	99	86	79
							100	91	81	76
Hardiplank	5/16	4	ET&F	Through	Min. No. 20 ga	24	0-15	149	136	123
			Panelfast	top edge	x 3.62"x1.375"		20	149	132	120
			0.100" x 1.5"	of plank	Metal C-stud		40	143	123	113
			x 0.313" HD				60	136	118	108
							100	126	111	105
Hardiplank	5/16	6	ET&F	Through	Min. No. 20 ga	24	0-15	123	112	101
			Panelfast	top edge	x 3.62"x1.375"		20	123	108	99
			0.100" x 1.5"	of plank	Metal C-stud		40	118	101	93
			x 0.313" HD				60	112	97	89
							100	103	92	86
Hardiplank	5/16	6.25	ET&F	Through	Min. No. 20 ga	24	0-15	120	109	99
			Panelfast	top edge	x 3.62"x1.375"		20	120	106	97
			0.100" x 1.5"	of plank	Metal C-stud		40	115	99	91
			x 0.313" HD				60	109	95	87
							100	101	90	84
Hardiplank	5/16	7.5	ET&F	Through	Min. No. 20 ga	24	0-15	109	99	90
			Panelfast	top edge	x 3.62"x1.375"		20	109	96	88
			0.100" x 1.5"	of plank	Metal C-stud		40	104	89	82
			x 0.313" HD				60	99	86	79
							100	91	81	76
Hardiplank	5/16	8	ET&F	Through	Min. No. 20 ga	24	0-15	106	96	87
			Panelfast	top edge	x 3.62"x1.375"		20	106	93	85
			0.100" x 1.5"	of plank	Metal C-stud		40	101	87	80
			x 0.313" HD				60	96	83	77
							100	89	79	74
Hardiplank	5/16	8.25	ET&F	Through	Min. No. 20 ga	24	0-15	106	96	87
			Panelfast	top edge	x 3.62"x1.375"		20	106	93	85
			0.100" x 1.5"	of plank	Metal C-stud		40	101	87	80
			x 0.313" HD				60	96	83	77
							100	89	79	74
Hardiplank	5/16	9.25	ET&F	Through	Min. No. 20 ga	24	0-15	99	90	82
			Panelfast	top edge	x 3.62"x1.375"		20	99	88	80
			0.100" x 1.5"	of plank	Metal C-stud		40	95	81	75
			x 0.313" HD				60	90	78	72
							100	83	74	69

