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Legacy report on the 1997 Uniform Building Code™

DIVISION: 06—WOOD AND PLASTICS
Section: 06090—Wood and Plastic Fastenings

EXTERIOR/PERIMETER SILL AND INTERIOR PLATE ANCHORAGE

ITW RAMSET
700 HIGH GROVE BOULEVARD
GLENDALE HEIGHTS, ILLINOIS 60139

1.0 SUBJECT

Ramset 1524 SDB, 1524 SDC and 1524 SDP Exterior/Perimeter Sill and Interior Plate Anchorage.

2.0 DESCRIPTION

2.1 General:

The Ramset fasteners are power-actuated fasteners used for attachment of exterior and interior wall wood sill plates to normal-weight concrete foundations. Ramset fastener dimensions and spacing are as indicated in Table 1. The 1524 SDB fastener, manufactured from steel conforming to ASTM A 108 Grade 1060/1062 and austempered to a Rockwell "C" hardness of 52 to 55, is a 0.146-inch-diameter-by-2 7/8-inch-long (3.7 mm by 73 mm) pin with a proprietary black finish. The pin is assembled with a pre-mounted 0.062-inch-thick (1.6 mm) by 0.790-inch-square (20 mm) steel washer with truncated corners. The zinc-coated steel washer is manufactured from hot- or cold-rolled steel conforming to ASTM A 108 Grade 1010. A plastic guidance tip is mounted on the pin to provide alignment and guidance inside the power-actuated tool.

The 1524 SDC fastener, manufactured from steel conforming to ASTM A 108 Grade 1062 and austempered to a Rockwell "C" hardness of 52 to 55, is a 0.152-inch-diameter-by-2 7/8-inch-long (3.9 mm by 73 mm) pin with a zinc-chromate finish. The pin is assembled with a pre-mounted 0.848-inch-diameter-by-0.066-inch-thick (21.5 mm by 1.7 mm) round steel washer. The zinc-and-yellow-chromate-coated washer is manufactured from hot- or cold-rolled steel conforming to ASTM A 108 Grade 1008 to 1020. A plastic guidance tip is mounted on the pin to provide alignment and guidance inside the power-actuated tool. The spacings shown in Table 1 provide lateral resistance equivalent to that of nominal plate anchorage using 1/2-inch (12.7 mm) anchor bolts spaced 6 feet (1829 mm) on center.

The 1524 SDP fastener, manufactured from steel conforming to ASTM A 108 Grade 1060/1062 and austempered to a Rockwell "C" hardness of 52 to 55, is a

0.146-inch-diameter-by-2 7/8-inch-long (3.7 mm by 73 mm) pin with a zinc-chromate finish. The pin is assembled with a pre-mounted 0.062-inch-thick-by-0.790-inch-square (1.6 mm by 20 mm) steel washer with truncated corners. The zinc-coated steel washer is manufactured from hot- or cold-rolled steel conforming to ASTM A 108 Grade 1010. A plastic guidance tip is mounted on the pin to provide alignment and guidance inside the power-actuated tool.

2.2 Identification:

Each fastener is identified with either an "R", an "R" enclosed by a circle, an elongated "S", or a "kidney" shape stamped into the head. Each steel washer is stamped with a circled "rocking R" and a "3". Packages bear the company name of ITW Ramset, along with the fastener size and type, and the evaluation report number (ER-1147).

3.0 EVIDENCE SUBMITTED

Data in accordance with the Acceptance Criteria for Power-driven Fasteners in Concrete, Steel and Masonry Elements (AC70), dated September 1995, and a quality control manual.

4.0 FINDINGS

That the ITW Ramset 1524 SDB, 1524 SDC and 1524 SDP Exterior/Perimeter Sill and Interior Plate Anchorage power-driven fastening system described in this report is an alternate to the construction specified in the 1997 Uniform Building Code™, subject to the following conditions:

- 4.1 The fasteners are installed in accordance with this report and the manufacturer's instructions.
4.2 The exterior sill fasteners are centered on sills of either a nominal 2-by-6 or nominal 2-by-4 size.
4.3 The spacing of the Ramset fasteners shall be in accordance with Table 1.
4.4 Fasteners for shear walls are limited to walls having a unit shear of 100 pounds per foot (14.6 N/mm) or less.
4.5 The pins are not used to attach plates to the perimeter of normal-weight concrete slabs where:
4.5.1 A cold joint is made between the slab and foundation below the plate.
4.5.2 The plate is installed on slabs supported by foundation walls formed of concrete block.

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4.6 The pins are installed in normal-weight concrete only after the concrete has attained a minimum compressive strength of 2,000 pounds per square inch (13.78 MPa).

4.7 The fasteners are installed in concrete having a thickness at least three times the fastener penetration.

4.8 Installations are limited to areas with basic wind speeds up to 80 mph (128.8 km/h) in Seismic Zone 0, 1 or 2.

This report is subject to re-examination in one year.

TABLE 1—SPACING REQUIREMENTS FOR SILL PLATE ANCHORAGE

CATALOG NUMBER	SHANK LENGTH (inches)	HEAD DIAMETER (inch)	SHANK DIAMETER (inch)	MAXIMUM SPACING IN FEET ^{1,4,6}		
				Interior Shear Walls ^{3,5}	Interior Nonshear Walls ²	Exterior Shear and Nonshear Walls ^{3,5}
1524 SDB	2.875	0.300	0.146	1.5	3	1.5
1524 SDC	2.875	0.300	0.152	1.5	3	1.5
1524 SDP	2.875	0.300	0.146	1.5	3	1.5

For **SI**: 1 inch = 25.4 mm, 1 psi = 6.89 kPa, 1 pound per foot = 14.6 N/m.

¹Spacings are based on the attachment of nominal 2-inch-thick wood with a specific gravity of 0.5 or greater to normal-weight concrete floor slabs or footings in accordance with Section 2320.6 of the code for maximum two-story buildings. For other species of lumber, the required spacing of fasteners requires special calculations complying with Section 2318 of the code.

²Walls shall have fasteners placed 6 inches from ends of sill plates, with maximum spacing between, as shown in this table.

³Walls shall have two pins, placed 6 inches and 10 inches, respectively, from each end of sill plates, with maximum spacing between, as shown in this table.

⁴Fasteners shall not be installed until the normal-weight concrete has reached a minimum compressive strength of 2,000 psi.

⁵Bearing walls have bracing in accordance with Section 2320.11.3 of the code. Interior and nonbearing partitions are not assumed to be braced.

⁶Fasteners shall not be used to attach shear walls having a unit shear exceeding 100 pounds per foot to other building elements.