
EXECUTIVE SUMMARY TO SEISMIC TEST REPORT FOR ITW BUILDEX SAMMYS® SEISMIC RESTRAINT ANCHORS

The seismic testing series described and reported herein was created and performed at Southwest Research Institute® for ITW Buildex in response to their request to verify the performance of six specific fastener models in seismic *restraint* applications as outlined for use in NFPA 13:9.3, “*Standard for the Installation of Sprinkler Systems*”. The six models being tested include the Sammys Swivel X-Press 20 (Model # SXP 20, Part # 8294922), Sammys Swivel X-Press 2.0 (Model # SXP 2.0, Part # 8272957), Swivel X-Press 35 (Model # SXP 35, Part # 8295922), Swivel X-Press 3.5 (Model # SXP 3.5, Part # 8271957), Swivel Tek 50 (Model # SH-TEK 50, Part # 8268957), and Swivel Tek 5.0 (Model # SH-TEK 5.0, Part # 8270957). Each model was tested for performance in specific applications to common structural materials used throughout the United States. These materials included 16 gauge purlin, typical open webbed bar joists with a chord angles of 3/16” thickness and 22 gauge metal decking typically used for roof assemblies.

Several tests were performed using vertical and horizontal seismic shake tables constructed such that each structural application would withstand the anticipated vertical and lateral forces ensuring that load transfer would be simulated as accurately as possible. Each test was performed using 2” schedule 40 water-filled pipe as the test baseline. 2” schedule 40 pipe represents the largest pipe size currently required to be *restrained* in NFPA 13. Each application was tested using both 3/8” all-thread rod and 1/2” all-thread as the restraint bracing material. Using an $l/r = 400$ (*new to the 2010 edition of NFPA 13 for restraint only*), the longest lengths allowed for the restraint bracing would be 1 foot, 10 inches for the 3/8” size and 3 feet, 6 inches for the 1/2” size. The test assemblies were not restricted at either pipe ends which would be the case with cross mains in a standard application. Finally, the calculated force used for all of the testing was equal to that found in a Zone 4 and an 8.4 Richter scale seismic event.

Success for each test was determined to be the ability of the six models to withstand the resultant forces, including pull out, shear or deformity in any way. As described herein, in each test, the SXP 20, SXP 35, SXP 2.0, SXP 3.5, SH-TEK 50, and the SH-TEK 5.0 anchors showed no signs of stress, deformity or failure in anyway. In every test, deformity and some failure of the restraint brace material (all-thread) as well as the 3/8” tab pipe ring hangers used as attachments to the pipe itself was experienced.

In summary, the testing performed confirmed the SXP 20, SXP 35 SXP 2.0, SXP 3.5, SH-TEK 50 and the SH-TEK 5.0 Sammy Anchors being sufficient for use as fasteners for seismic *restraint* as described and required in NFPA 13:9.3 when installed in any of the three construction types used in this test and in accordance with the manufacturers’ installation recommendations.

For additional details and information, please see report number 18.18116.03.101.FR1, Issue 2.

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