

TESTED RESIDENTIAL SHELTER DOORS¹ Texas Tech University – National Wind Institute (NWI)

The National Wind Institute (NWI) at Texas Tech University performs debris impact tests on storm shelters, shelter components, and building materials to evaluate their ability to resist various types of projectiles propelled at different speeds in accordance to accepted and proposed test protocols as follows:

Protocol 1	Hurricane envelope impact by a 9 lb. wood 2"x4" propelled at 34 mph, in accordance with the Florida Building Code, the International Code Council, and the Texas Dept. of Insurance windstorm Resistant Construction Guide.
Protocol 2	Hurricane shelter speed impact by a 9 lb. wood 2"x4" propelled at 0.40 x the design wind speed (mph) for horizontal impacts and 0.10 x the design wind speed (mph) for vertical impacts, in accordance to the proposed ICC 5001 – ICC/NSSA Standard for the Design and Construction of Storm Shelters.
Protocol 3	 Hurricane shelter speed impact by a 9 lb. wood 2"x4" propelled at 0.50 x the design wind speed (mph) for horizontal impacts and 0.33 x the design wind speed (mph) for vertical impacts, in accordance with FEMA 320, "Taking Shelter from the Storm," 2008 Edition and FEMA 361, "Design and Construction Guidance for Community Safe Rooms," 2008 Edition.
Protocol 4	Tornado shelter speed impact by a 15 lb. wood 2"x4" propelled at 100 mph for horizontal impacts and 67 mph for vertical impacts, in accordance with FEMA 320, "Taking Shelter from the Storm," 2008 Edition and FEMA 361, "Design and Construction Guidance for Community Safe Rooms," 2008 Edition, and the ICC-500 Standard for "The Design and Construction of Storm Shelters," 2008 Edition. ¹
Protocol 5	Department of Energy (DOE) Impact Standards

Protocols for Debris Impact Testing²

 $^{\rm 2}\,$ – All impact tests are consistent with Debris Impact requirements of ICC-500.

³ – Windows noted "ICC-500 Pressures" have been tested to ICC-500 required pressures that exceed FEMA 320/360 requirements. Shelter wall and roof components are not pressure-tested unless noted.

<u>Note:</u> Listing does not imply product endorsement or warranty by TTU, FEMA or NSSA. *Unless otherwise noted, the following listings have been tested to Protocol 4, the Tornado Standard Protocol.*

 $^{^{1}}$ – The ICC 500 – ICC/NSSA Standard for the Design and Construction of Storm Shelters is scheduled for inclusion in the 2009 editions of the International Residential Code and the International Business Code. This is a Life Safety Standard which will use an Extreme Wind Map for Hurricanes with wind speeds starting at 225 mph and with contours along the Atlantic and Gulf Coast stepping inland in 10mph increments to 160 mph.



Company	Product Tested
Alabama Safe Shelter	Date Tested: 06/11
Tommy Shaddix	Inclined below ground shelter Door – 100 mph
344 County Road 1177	Date tested: 06/11
Cullman, AL 35057	Steel below ground shelter door
Ph: (256) 338-4984	
American Home Construction	Date Tested: 02/00
Bill Stegman	Tested door for underground shelter
12640 East NW Highway #409	
Dallas, TX 75228	
Ph: (800) 771-8428	
American Tornado Master	Date Tested: 08/11
Bill Stegman	Below ground shelter doors
12640 East Northwest Hwy., Suite 409	Above ground shelter doors
Dallas, TX 75228	
Ph: (972) 686-7733	
Area Septic	Date Tested: 07/2015
Brian Evans	Above-Ground Shelter Door
28576 Hwy 29	Below-Ground Shelter Door
Elmore City, OK 73433	
Ph: (580) 788-2109 Armored Closet	Date Tested: 02/14 & 04/14 & 05/14
David Magiera	Panel Shelter and Door
6701 Potomac Pkwy.	
Arlington, TX 76017	
Aqua Marine Enterprises, Inc.	Date Tested: 11/11
3275 Highway 55 West	Above ground shelter door
Danville, AL 36619	
Ph: (800) 462-3648	
Askew Fabricators	Date Tested: 08/99
James Vaughn, VP	Tested door for underground shelter
201 Arlington Drive	
Yukon, OK 73099	
Ph: (405) 354-7591	
Airframes. Inc.	Date Tested: 07/12

T.	TEXAS TECH UNIVERSITY National Wind Institute ⁻ Debris Impact Facility
----	---

Jerry Parks	Steel above ground shelter door
8810 N.W. Eagle Drive	
Redmond, OR 97756	
Ph: (541) 550-0830	
Alabama Safe Shelter	Date Tested: 06/11
Tommy Shaddix	Inclined below ground shelter Door – 100 mph
344 County Road 1177	Date tested: 06/11
Cullman, AL 35057	Steel below ground shelter door
Ph: (256) 338-4984	
Amweld Building Products	Date Tested: 08/00
Al Ascaichk	
1500 Amweld Drive	
Garrettsville, OH 44231	
Armour Guard Storm Shelters	Date Tested: 11/2012
Tim Arp	Below Ground shelter doors
4101 Windsor Parkway	
Dallas, TX 75205	
Area Septics	Date Tested: 07/11
Brian Evans	Inclined below-ground shelter door
28576 Hwy 29	
Elmore City, OK 74333	
Ph: (580) 788-2109	
Atlas Saferooms	Date Tested: 09/12
Tommy McHenry	Above ground steel panel shelter and door
601 McKinley	
Joplin, MO 64801	
Backyard Tornado Shelters, Inc.	Date Tested: 08/09
Kenneth Keslink	FEMA 320 Underground shelter door
2425 Bancroft Boulevard	
Orlando, FL	
Boyce Construction	Date Tested: 06/11
3602 Thurman	Flat below ground shelter door
Amarillo, TX 79109	
Ph: (806) 359-6619	

ľ	т М Г
	L

Builders 1st Source	Date Tested: 07/11
Richard Woodward	Above ground hurricane shelter door and hardware – 170 mph
6550 Roosevelt Blvd	
Jacksonville, FL 32244	
Ph: (904) 772-6100	
Concrete Shelters, Inc., LLC	Date Tested: 05/2012
Kyle Ray	Steel below ground garage shelter door
1904 E. 137th Place	
Glenpool, OK 74033	
Ph: (918) 260-5603	
Condor Enterprises	Date Tested: 05/10
64 Harmony Road	Hurricane door, pressure only
Northwood, NH 03261	
Ph: (603) 942-5970	
Central Machine & Fabrication	Date Tested: 09/11
TY Bragg	In-bank shelter and below ground shelter doors
250 Spring Drive	Date Tested: 06/12
Montevallo, AL 35115	Above ground steel panel shelter door, Steel below ground garage shelter door
Del Zotto Products of Florida, Inc.	Date Tested: 06/03
Don Trimble	Door for below ground shelter
4405 W. Hwy 40	
Ocala, FL 34482	
Ph: (352) 351-3834	
Del Zotto Products of Texas, Inc.	Date Tested: 01/14
Art Clendenin	Above-ground shelter door
5701 N. Hwy 135	Below-ground shelter door
, Gladewater, TX 75647	
Ph: (903) 981-0400	
· · ·	
Domes International	Date Tested: 05/01
Jimmy Skinner	Tested door for underground shelter
PO Box 137	
Golden, MS 38847	
Ph: (662) 454-7399	

TEXAS TECH UNIVERSITY National Wind Institute ⁻ Debris Impact Facility	
---	--

EF-5 Shelters	Debris Impact Facility Date Tested: 09/11
Darrel Podzemny	Above Ground Shelter Steel Door
500 View Point	
Amarillo, Texas 79124	
Ph: (806) 670 4774	
Elite Storm Shelters	Date Tested: 07/13
Jay Clark	Below ground shelter door
5708 NW 163 Terrace	
Edmund, OK 73013	
Ph: (405) 513-7300	
Fain Storm Shelters	Date Tested: 06/10
2182 Hwy 70 E	Above ground shelter
Jackson, TN 38305	
Ph: (731) 424-1114	
Fiberglass Creations	Date Tested: 09/00
Kelly Hall	Tested door for underground shelter
PO Box 2047	
Henderson, TX 75653	
Ph: (903) 657-6616	
G&M Tank Co., Inc.	Date Tested: 12/12
Jeff McMahan	Below ground shelter door
P. O. Box 333	
Purcell, OK 73080	
Ph: (405) 527-5342	
Gates Excavation and Hauling, Inc.	Date Tested: 11/12
Brian Gates	Steel below ground shelter door
100154 Highway 82	
Vian, OK 74962	
Ph: (918) 773-6235	
Good Shelters, LLC	Date Tested: 07/13
Cesar Flores	In-garage floor shelter door
11117 E. 63 rd Street	
Tulsa, OK 74133	



-	Debris Impact Facility
Granger Plastics	Date Tested: 03/07
Jim Cravens	Aluminum below ground shelter
1600 M.A.D.E. Industrial Drive	Date Tested: 06/11
Middletown, OH 45044	Flat below ground shelter doors: foam-filled –
Ph: (513) 424-1955	67 mph; polycarbonate filled – 100 mph
Greenville Products Group, Inc.	Date Tested: 08/02
Clarence Otto	Tested door for underground
1301 East Commerce Street	
Greenville, AL 36037	
Ph: (334) 382-9000	
Ground Zero Shelters, Inc.	Date Tested: 09/07
Richard Crow	Steel below ground shelter door
4600 Independence	Date Tested: 08/09
Perry, OK 73077	Below ground shelter door
Ph: (405) 880-1351	
Harbor Homes	Date Tested: 06/11
Lucas Stewart	Flat below ground shelter door
1207 Sunset Drive	Date Tested: 02/2012
Thomasville, GA 31792	Above ground shelter door
Ph: (229) 226-0911	
Hausner Precast	Date Tested: 01/02
PO Box 1307	Tested door for underground shelter
Durant, OK 74702	Date tested: 08/11
Ph: (888) 924-6988	Steel below ground door shelter
Hausner Precast	Date Tested: 08/11
Ric Rhodd	Gauge door, Door Stiffeners for below ground plate steel doors
PO Box 32	
Drumright, OK 74030	
Ph: (918) 352-3479	
HI Tech TILT	Date Tested: 08/11
Rick Bush	Above ground shelter
PO Box 21415	
Keizer, OR 97307-1415	
Ph: (503) 390-0487	

T
1

KAT Industries	Data Tastad: 10/12
	Date Tested: 10/12
Clint Algood	Steel above ground shelter door
5209 SW 23rd	
Oklahoma City, OK 73128	
Ph: (405) 702-1387	
KBK Industries, LLC	Date Tested: 06/09
Kevin Baalmann	FEMA 320 – underground shelter door
	FEIVIA 520 – underground sheller door
RR2 Box 3 East Hwy 96	
Ruth Center, KS 67575	
LB Steel LLC	Date Tested: 04/12
Mike Furlan	Above ground shelter door
15700 Lathrop Avenue	
Harvey, IL 60426	
Ph: (708) 331-2600	
Lee's Storm Shelters	Date Tested: 09/12
Allen Lee	Above ground shelter door
20578 Eqypt Road	
Aberdeen, MS 39730	
Ph: (662) 369-8935	
MBS Manufacturing	Date Tested: 06/13
Bob Smith	Shelter door (above ground)
26319 E. Hwy 51	
Broken Arrow, OK 74041	
Ph: (918) 486-6226	
Mesa Fiber Glass	Date Tested: 04/01
Eugene Ardelt, Eric Crowe	Tested door for underground shelter
6471 E. 49th Drive	
Commerce City, CO 90039	
Molds of Bethlehem	Date Tested: 06/11
Latt Moretz	Inclined below ground shelter door – 100 mph
36 Bethlehem Mfg. Lane	Steel below ground shelter door
Hickory, NC 28601	Steel below ground shelter door
MBS Manufacturing, Inc.	Date Tested: 06/13
Bob Smith	Shelter door – above ground
bob Jilitii	



26319 E. Highway 51	
Broken Arrow, OK 74014	
Ph: (918) 486-6226	
Missouri Storm Shelters	Date Tested: 03/07
Jeff Olsen	Steel below ground shelter
4983 Hwy 60	
Rogersville, MO 65742	
Ph: (866) 511-1551	
National Storm Shelter, LLC	Date Tested: 05/10
Jeff Turner	Door for below ground shelter
603 Swan Drive	
Smyrna, TN 37167-2050	
Ph: (615) 223-6500	
· · · ·	
Native Storm Shelter	Date Tested: 03/2015
Shawn Metcalf	In-garage Shelter Below-ground Shelter 3' X 6' Rolling Door
3167 Platter Road Platter, OK 74753	Assembly
Ph: 405-514-5836	
Oklahoma Strong Storm Shelter	Date Test: 07/13
Chris Hobbs	Below ground shelter door
2137 Edinburg Drive	
Yukon, OK 73099	
Oldcastle Precast, Inc.	Date Tested: 02/02
4727 North Royal Atlanta Drive	Steel 2'x3' shelter door w view window
Suite A	
Tucker, GA 30084	
Ph: (770) 270-5000	
Panhandle Shelters/DMIC	Date Tested: 05/12
Wiley Davis	Below ground shelter door
P.O. Box 204	
Memphis, TX 79245	
Ph: (800) 487-1477	
Precon Precast, LLC.	Date Teste: 05/15
Mr. Frank Phillips	Below ground shelter door
•	In-Ground Floor Shelter
6865 FM 730 South	



Ph: (817) 401-0588	
Preferred Shelters, LLC	Date Tested: 12/13
Tyler Doolittle	In-garage/below ground shelter door
2501 SW 15 th	
Oklahoma City, OK 73108	
Ph: (405) 488-4140	
Protection Shelters, LLC	Date Tested: 03/11
Dale Zogleman	Steel door for above-ground concrete shelter
18900 W. 87th South	
Viola, KS 67149	
Ph: (316) 722-4499	
Quality Concrete	Date Tested: 02/02
David Gordon	Steel below ground shelter door
917 Bois d'Arc Street	
Commerce, TX 75428	
Ph: (800) 826-3055	
Remagen Corporation	Date Tested: 10/09
James E. Waller, P.E.	FEMA 361/ICC-500 door
707 North Bluff Circle	
Monteagle, TN 37356	
Ph: (931) 692-3961	
SafePorch Storm Shelter	Date Tested: 08/13
Mark Pile	Aluminum plate shelter door
P. O. Box 40	
Lowell, AR 72745	
Ph: (479) 659-8830	
Safe House Tornado	Date Tested: 06/12
Shelters/Calcon Inc.	
John Callis	Steel in-ground shelter door
10636 Hwy 72 W. Suite 801	
Bentonville, AR 72712	
Ph: (479) 273-5558	
Safe-T-Shelter/Applied Solar	Date Tested: 06/01
Technology	
3275 Highway 55 West	Tested door for underground shelter
Danville, AL 35619	



	Debris impact l'acinty
Ph: (800) 462-3648	
Safe Sheds, Inc.	Date Tested: 08/09
Don Guyaran	Steel door – above ground safe room
7029 Parrill Road	
Alma, IL 62807	
Ph: (888) 556-1531	
Safe-T-Vault Company	Date Tested: 08/05
Hamilton Bartlett	28x68 plate steel door
850 Maury Road Unit 29	
Orlando, FL 32804-3651	
Ph: (407) 927-1352	
Security Tornado Shelters	Date Tested: 09/12
Danny Roach	Steel below ground shelter door
940 W. Front	
Blossom, TX 75416	
Ph: (903) 902-7427	
S-E-T Supply	Date Tested: 08/13
Alberto Velasquez	Below-ground shelter door
21420 SE 103 rd Street	
Newalla, OK 74857	
Ph: (405) 209-2584	
Severe Weather Pod, LLC.	Date Tested: 02/09
Joe Zinser	Fiberglass shelter door for underground shelters
6101 Long Prairie Road	
PMB 744-185	
Flower Mound, TX 75028	
Ph: (972) 679-9134	
S. I. Precast	Date Tested: 09/04
Gregg Best	Tested door for underground shelter
10965 Granada Lane	
Overland Park, KS 66211	
Ph: (913) 345-2121	
Southern Illinois Storm Shelters,	Date Tested: 09/04
Inc.	



Debris Impact Facility
Fiberglass door for underground shelter
Date Tested: 08/11
Above ground steel panel shelter door
Date Tested: 11/03
Door for below ground shelter
Date Tested: 05/12
Below ground shelter door
Date Tested: 05/13
Exterior below ground shelter door unit
Date Tested: 02/09
Doors for above and below ground shelters, Porch shelter door
Date Tested: 09/09
FEMA 361 steel shelter door
Date Tested: 09/11
In ground Garage Shelter Steel Doors
Date Tested: 01/04
Concrete steps with above ground shelter
-

TEXAS TECH UNIVERSITY National Wind Institute ⁻ Debris Impact Facility	
---	--

Storm Safe Shelter	Date Tested: 11/11/11
Erick Heald	In-ground garage shelter steel doors
6101 Camille Avenue	
Valley Brook, OK 73149	
Ph: (405) 946-1461	
Storm Track Shelters	Date Tested: 04/06
5000 Viewpoint	24"x46" and 33"x60" steel doors for below ground shelters
Amarillo, TX 79124	
Ph: (806) 373-2640	
Storm Guard Shelters	Date Tested: 08/11
Brad Steinmann	3'x6'1/4" plate steel door
366 Molino Road	32'x6'1/4" plate steel door for in-ground garage shelter
Fayetteville, TN 37334	33"x66"x1/4" plate for door assembly
Ph: (256) 323-7985	
Survive-a-Storm Shelters, Harbor	Date Tested: 03/13
Homes	
Lucas Stewart	Above ground steel shelter with door, Above ground community shelter end-wall with door
1207 Sunset Drive	Date Tested: 11/13
Thomasville, GA 31792	Above ground shelter door
Target Metal Systems, Inc.	Date Tested: 07/11
Bert Greene	Above ground shelter and shelter door
60 Rockbridge Road	
Lilburn, GA 30047	
Ph: (770) 921-1702	
Texas Precast, LLC	Date Tested: 02/12
George Harris	Above ground shelter door
3135 Ranger Highway	
Weatherford, TX 76088-8419	
Ph: (817) 201-9313	
Tornado Alley Armor	Date Tested: 08/11
7122 S. Sheridan #2144	30"x70"x10 gauge steel door for plate steel shelter
Tulsa, OK 74133	
Ph: (855) 552-7667	
TornadoSafe Shelters	Date Tested:



Debris Impact Facility		
Darrin Humphery	01/14	
7800 S. Western Ave.	In-garage floor shelter door	
Oklahoma City, OK 73139 Ph: (405) 570-5049	01/16/2015 In-garage floor shelter door	
FII. (405) 570-5045	in-galage hoor shelter door	
Tornado Twister Shelter	Date Tested: 03/07	
Oscar Scott, P.E.	Steel above ground shelter door	
4604 Greenwich Place		
Amarillo, TX 79119		
Ph: (806) 463-1033		
Twister Safe LLC	Date Tested: 11/12	
Jeremy Davis	Above ground shelter door – in-swinging door	
9479 Gateway Dr.		
Neosho, MO 64850		
United Solution Builders	Date Tested: 02/13	
Steve Mitchell	Above ground 3/16 in steel plate shelter with door	
3611 Asbury Cemetery Road		
Eberfield IN 47613		
Ph: (812) 454-9523		
U.S. Storm Shelters, LLC	Date Tested: 06/12	
Ron West	Above ground steel-channel shelter with door	
443 PR 4215		
Decatur, TX 76234		
Ph: (817) 938-1383		
United States Stove Company	Date Tested: 02/2015 & 03/2015	
Brandon Barry	Above ground Shelter Door	
227 Industrial Park Road		
South Pittsburg, TN 37380 Ph: (423) 837-2100		
Vaughn Concrete Products	Date Tested: 05/10	
10021 Amarillo Blvd East	Steel below ground shelter door	
Amarillo, TX 79108	Date Tested: 05/07 and 06/07	
Ph: (806) 374-3747	Steel above ground shelter doors	
Valley Storm Shelters, LLC	Date Tested: 08/25	
31310 US Hwy. 72	Door for 5'x8'x6' tall x ¼" plate steel shelter	
Hollywood, AL 35752	27 1/2"x70 1/2"x 1/4" plate for door assembly	

T	TEXAS TECH Nation Debris Ir
.	Debris If

Phone: (256) 652-6818	
Vault Shelters	Date Tested: 07/13
Shane Malone and Danny Jester	In-ground/Yard steel shelter door
5100 Eldorado Park Suite 102 #327	
McKinney, TX 75070	
Ph: 972-562-7997	
Webster Dirtworks	Date Tested: 05/06
13513 East 1200 Norton	40"x32" steel door for below ground shelter
Odon, IN 47562	
Ph: (812) 444-9728	
Wells Septic	Date Tested: 08/2011
Chris Wells	Partially below ground steel shelter doors
3488 Parkwood Drive	
Anniston, AL 36201	
Ph: (205) 338-8590	