

1

00:00:00,000 --> 00:00:05,500

Do not try any of the experiments you are about to see at home.

2

00:00:05,500 --> 00:00:06,500

You heard him.

3

00:00:06,500 --> 00:00:07,500

Don't do it.

4

00:00:07,500 --> 00:00:19,020

On this groundbreaking episode of Mythbusters, Adam and Jamie get down and dirty as they

5

00:00:19,020 --> 00:00:22,500

tackle two viewer tales about toilets.

6

00:00:23,000 --> 00:00:26,340

First, there's hot air.

7

00:00:26,340 --> 00:00:29,500

As the guys try to solve a classic and dry dilemma.

8

00:00:29,500 --> 00:00:30,500

Ah, yeah!

9

00:00:30,500 --> 00:00:34,500

I do this in every airport I get to.

10

00:00:34,500 --> 00:00:39,500

Then they flush out which communal cubicle is the most contaminated.

11

00:00:39,500 --> 00:00:41,500

Aw, this is nasty.

12

00:00:41,500 --> 00:00:45,500

Meanwhile, Grant Carriantori has a earthquake coming.

13

00:00:45,500 --> 00:00:47,500

Drop, cover, and hold.

14

00:00:48,500 --> 00:00:52,500

As they find out if, during the shake of a quake,

15

00:00:52,500 --> 00:00:54,500

This is terrifying!

16

00:00:54,500 --> 00:00:58,500

the best survival solution is to dive for the doorway.

17

00:00:58,500 --> 00:01:01,500

They just been flushed and they freak out the house.

18

00:01:01,500 --> 00:01:03,500

They freak out the house.

19

00:01:06,500 --> 00:01:08,500

Who are the Mythbusters?

20

00:01:08,500 --> 00:01:09,500

Adam Savage.

21

00:01:09,500 --> 00:01:10,500

Oh, that's science.

22

00:01:10,500 --> 00:01:11,500

And Jamie Heinemann.

23

00:01:11,500 --> 00:01:13,500

I'm ready.

24

00:01:14,500 --> 00:01:18,500

Between them more than 30 years of special effects experience,

25

00:01:18,500 --> 00:01:20,500

Together with Brad Imahara.

26

00:01:20,500 --> 00:01:22,500

Holy burning!

27

00:01:22,500 --> 00:01:23,500

Carri Byron.

28

00:01:23,500 --> 00:01:25,500

It always makes you feel dangerous.

29

00:01:25,500 --> 00:01:26,500

And Tori Belichi.

30

00:01:26,500 --> 00:01:28,500

There's something you don't see every day.

31

00:01:28,500 --> 00:01:33,500

They don't just tell the Myths, they put them to the test.

32

00:01:33,500 --> 00:01:45,500

First up, it's time to get down and dirty.

33

00:01:49,500 --> 00:01:51,500

Hey man, sorry about that.

34

00:01:51,500 --> 00:01:53,500

I won't ask what kept you.

35

00:01:53,500 --> 00:01:54,500

Yeah, call of nature.

36

00:01:54,500 --> 00:01:56,500

But, get this, while I was sitting there,

37

00:01:56,500 --> 00:01:59,500

I was thinking of a couple of toilet stories that we could test.

38

00:01:59,500 --> 00:02:00,500

Seriously?

39

00:02:00,500 --> 00:02:02,500

Yeah, the first one involves those blow dryer jet dryers

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00:02:02,500 --> 00:02:05,500

and public restrooms that are supposed to be super sanitary.

41

00:02:05,500 --> 00:02:06,500

Yeah.

42

00:02:06,500 --> 00:02:08,500

There's a myth going around that they are in fact less sanitary

43

00:02:08,500 --> 00:02:10,500

than a regular old paper towel.

44

00:02:10,500 --> 00:02:11,500

Huh.

45

00:02:11,500 --> 00:02:14,500

The second one involves testing which stall in a public restroom

46

00:02:14,500 --> 00:02:16,500

is in fact the cleanest.

47

00:02:16,500 --> 00:02:19,500

Great, we gotta spend time in a public restroom.

48

00:02:19,500 --> 00:02:22,500

Do you mind if we start with a hand dryer first?

49

00:02:22,500 --> 00:02:23,500

Not at all.

50

00:02:25,500 --> 00:02:29,500

There are over 12 million hand dryers in the US alone.

51

00:02:30,500 --> 00:02:34,500

So can they really be a hygiene horror show?

52

00:02:34,500 --> 00:02:37,500

Well, the theory to this myth is two-fold.

53

00:02:37,500 --> 00:02:40,500

First, dryers supposedly purge fewer pathogens

54

00:02:40,500 --> 00:02:42,500

than their paper counterparts.

55

00:02:42,500 --> 00:02:47,500

And second, they can also fan a fog of microbe miasma

56

00:02:47,500 --> 00:02:50,500

that's a contamination catastrophe.

57

00:02:50,500 --> 00:02:53,500

But will this myth be hot air?

58

00:02:54,500 --> 00:02:56,500

This story doesn't make any sense to me.

59

00:02:56,500 --> 00:02:57,500

How so?

60

00:02:57,500 --> 00:03:00,500

Well, if you're drying your hands, that implies that you've washed them.

61

00:03:00,500 --> 00:03:01,500

Absolutely.

62

00:03:01,500 --> 00:03:04,500

And if you've washed your hands, you've removed all the bacteria.

63

00:03:04,500 --> 00:03:08,500

So whether a drying method is cleaner than another is irrelevant.

64

00:03:08,500 --> 00:03:09,500

Right, I see your point.

65

00:03:09,500 --> 00:03:12,500

But only some people use the full soap and water for washing their hands.

66

00:03:12,500 --> 00:03:15,500

Some people, they just get their hands wet before drying them off.

67

00:03:15,500 --> 00:03:19,500

Why don't we test both of those and see which is the proper worst case scenario

68

00:03:19,500 --> 00:03:21,500

for testing hand towel versus dryer?

69

00:03:21,500 --> 00:03:23,500

Okay, that works.

70

00:03:23,500 --> 00:03:24,500

So how do people wash their hands?

71

00:03:24,500 --> 00:03:27,500

Well, to my way of thinking, there are three things people do in a restroom

72

00:03:27,500 --> 00:03:29,500

regarding washing their hands.

73

00:03:29,500 --> 00:03:34,500

The first is, they pretend to wash their hands.

74

00:03:34,500 --> 00:03:41,500

The second thing people do is get their hands wet, but use no soap.

75

00:03:41,500 --> 00:03:45,500

The third thing people do, and the thing we all know you should do,

76

00:03:45,500 --> 00:03:48,500

is wash their hands with soap.

77

00:03:48,500 --> 00:03:52,500

So first things first, Jamie and I are going to wash our hands using each of those techniques

78

00:03:52,500 --> 00:03:55,500

and compare the bacterial loads to see if Jamie is in fact right.

79

00:03:55,500 --> 00:03:59,500

Just washing your hands and soap and water, leave them completely clean.

80

00:03:59,500 --> 00:04:04,500

And first to go is Adam, who after each cleaning custom,

81

00:04:04,500 --> 00:04:06,500

hands over to the Heinemann.

82

00:04:06,500 --> 00:04:10,500

I'm swabbing Adam's hands with a soy-based growth medium.

83

00:04:10,500 --> 00:04:14,500

So if there's any bacteria on his hands, I'm going to find it.

84

00:04:14,500 --> 00:04:21,500

Once Jamie's also swabbed for science, it's time for some germ germination.

85

00:04:21,500 --> 00:04:25,500

Okay, Adam first.

86

00:04:25,500 --> 00:04:28,500

The process is pretty simple. We've collected our samples,

87

00:04:28,500 --> 00:04:32,500

we've spread them evenly across soy agar and impetri dish,

88

00:04:32,500 --> 00:04:35,500

and we've put them in an incubator.

89

00:04:35,500 --> 00:04:40,500

We're going to let them sit there overnight, we'll come in the morning and see what we've got.

90

00:04:40,500 --> 00:04:46,500

And sure enough, 24 hours later, let's see what kind of surprise we have.

91

00:04:46,500 --> 00:04:49,500

Alright, well, the soap wash...

92

00:04:49,500 --> 00:04:51,500

Not a frickin' nothing.

93

00:04:51,500 --> 00:04:56,500

Yep, the soap plate's great, which cannot be said of the water wash.

94

00:04:56,500 --> 00:04:58,500

How come your bacteria are bigger than mine?

95

00:04:58,500 --> 00:05:00,500

Sometimes that's just the way it works.

96

00:05:00,500 --> 00:05:01,500

And as for the no wash...

97

00:05:01,500 --> 00:05:03,500

Oh, gross!

98

00:05:03,500 --> 00:05:06,500

So the whole reason we were doing this test is because Jamie suggested

99

00:05:06,500 --> 00:05:09,500

if you wash your hands with soap and water and it eliminates all bacteria,

100

00:05:09,500 --> 00:05:11,500

who cares about the drying method?

101

00:05:11,500 --> 00:05:14,500

There's no bacteria to be more or less clean with.

102

00:05:14,500 --> 00:05:16,500

And it turns out he's right. Look at that.

103

00:05:16,500 --> 00:05:21,500

Washing our hands with soap and water yielded no bacteria that we could find on this petri dish.

104

00:05:21,500 --> 00:05:25,500

But when we only pretended to wash our hands, when we rinsed them in water but used no soap,

105

00:05:25,500 --> 00:05:27,500

check out what we found.

106

00:05:27,500 --> 00:05:29,500

Ah!

107

00:05:29,500 --> 00:05:35,500

So this is the method that we are going to use to test the cleanliness of air dryers versus paper towels.

108

00:05:35,500 --> 00:05:39,500

And the first task for that test is to wrestle a restroom.

109

00:05:40,500 --> 00:05:45,500

We're here to test whether air-powered hand dryers spread germs around the bathroom more than paper towels do.

110

00:05:45,500 --> 00:05:49,500

And so of course, to test that, we need a bathroom.

111

00:05:49,500 --> 00:05:51,500

One bathroom coming up.

112

00:05:51,500 --> 00:05:58,500

It's all hands on deck, because the guy's set up an experimental setup.

113

00:05:58,500 --> 00:06:00,500

We call this hiding the crime, see?

114

00:06:00,500 --> 00:06:04,500

Ugly seam, pretty seam. It's just that easy.

115

00:06:04,500 --> 00:06:07,500

With a sink. Perfect.

116

00:06:07,500 --> 00:06:11,500

And a room divider. A blow dryer.

117

00:06:11,500 --> 00:06:14,500

And a towel dispenser.

118

00:06:14,500 --> 00:06:15,500

It works.

119

00:06:15,500 --> 00:06:19,500

They're banged up bathrooms ready to lend this myth a hand.

120

00:06:19,500 --> 00:06:21,500

Ah, yeah, that was the last paper towel.

121

00:06:21,500 --> 00:06:24,500

And that looks like you're going to have to get some more.

122

00:06:24,500 --> 00:06:25,500

Those hands look pretty wet.

123

00:06:25,500 --> 00:06:28,500

I don't want to tell your business, man, that was the last paper towel.

124

00:06:28,500 --> 00:06:29,500

Yeah.

125

00:06:31,500 --> 00:06:33,500

How you doing?

126

00:06:34,500 --> 00:06:36,500

Yeah.

127

00:06:40,500 --> 00:06:43,500

Next up, a myth that's shaken, not stirred.

128

00:06:47,500 --> 00:06:49,500

Okay, so I've got a myth that's ready to rumble.

129

00:06:49,500 --> 00:06:50,500

All right, what is it?

130

00:06:50,500 --> 00:06:54,500

The myth is that the best place to be in an earthquake when it hits your house is in the doorway.

131

00:06:54,500 --> 00:06:56,500

Yeah, that's what they've been telling us since we were kids.

132

00:06:56,500 --> 00:06:59,500

But I mean, isn't the new technique to get under something and hang on?

133

00:06:59,500 --> 00:07:02,500

True, that is the current advice.

134

00:07:02,500 --> 00:07:04,500

But some fans still believe the doorway is the best place to be

135

00:07:04,500 --> 00:07:06,500

and that is what they want us to put to the test.

136

00:07:06,500 --> 00:07:09,500

All right, sounds like it's time to shake for science.

137

00:07:10,500 --> 00:07:12,500

No, not that kind of shake.

138

00:07:12,500 --> 00:07:15,500

That's not a shake.

139

00:07:20,500 --> 00:07:24,500

There's no doubt that earthquakes can literally rock your world.

140

00:07:24,500 --> 00:07:26,500

Oh my God, we're having an earthquake.

141

00:07:26,500 --> 00:07:27,500

Wait a minute, hold on, hold on.

142

00:07:27,500 --> 00:07:32,500

But when the earth moves, should you really dive for the doorway

143

00:07:32,500 --> 00:07:35,500

or will this myth be at fault?

144

00:07:37,500 --> 00:07:40,500

All right, so I love this story, but I foresee a couple of problems.

145

00:07:40,500 --> 00:07:41,500

Okay, like what?

146

00:07:41,500 --> 00:07:44,500

Well, first of all, doesn't the answer depend on the type of house you're in,

147

00:07:44,500 --> 00:07:46,500

how it was constructed, how old it is?

148

00:07:46,500 --> 00:07:49,500

True, so why don't we test this on a couple of different kinds of homes?

149

00:07:49,500 --> 00:07:52,500

First, a newer sort of wooden-style house

150

00:07:52,500 --> 00:07:54,500

and then maybe an older masonry one.

151

00:07:54,500 --> 00:07:55,500

Okay, fair enough.

152

00:07:55,500 --> 00:07:57,500

But then there's a second problem.

153

00:07:57,500 --> 00:07:59,500

We can't just sit around waiting for an earthquake to happen.

154

00:07:59,500 --> 00:08:01,500

Well, what we could do is find one of those giant shake tables

155

00:08:01,500 --> 00:08:03,500

and see if they'd let us borrow it.

156

00:08:03,500 --> 00:08:05,500

You know what? I know just the place.

157

00:08:06,500 --> 00:08:08,500

Now, we are testing the myth that during an earthquake

158

00:08:08,500 --> 00:08:11,500

it is best to stand in a door-dram in a building.

159

00:08:11,500 --> 00:08:13,500

Now, ever since I was a kid growing up in California,

160

00:08:13,500 --> 00:08:15,500

that is what they told us.

161

00:08:15,500 --> 00:08:16,500

But I don't know if that's true.

162

00:08:16,500 --> 00:08:18,500

So we are here at the California Academy of Sciences

163

00:08:18,500 --> 00:08:21,500

and they are going to let us use their earthquake shake table

164

00:08:21,500 --> 00:08:23,500

so we can get to the bottom of this myth.

165

00:08:23,500 --> 00:08:24,500

Let's hope we don't break it.

166

00:08:26,500 --> 00:08:29,500

Yeah, breaking this museum masterpiece would be bad news.

167

00:08:30,500 --> 00:08:33,500

So first, the guys go in for a trial tremor.

168

00:08:33,500 --> 00:08:35,500

All right, you guys ready for an earthquake?

169

00:08:37,500 --> 00:08:38,500

Oh my God!

170

00:08:39,500 --> 00:08:40,500

Layup!

171

00:08:41,500 --> 00:08:42,500

I want out of here!

172

00:08:42,500 --> 00:08:43,500

This is a terabyte!

173

00:08:44,500 --> 00:08:46,500

Thanks to a battery of air bladders,

174

00:08:46,500 --> 00:08:50,500

the shake table can simulate San Francisco's 1906 nightmare.

175

00:08:52,500 --> 00:08:56,500

The 15th most energetic earthquake in US history.

176

00:08:58,500 --> 00:09:00,500

But given its engineering excellence...

177

00:09:00,500 --> 00:09:02,500

Save the Volvo heads!

178

00:09:03,500 --> 00:09:05,500

Are they really going to let the mythbusters meddle with it?

179

00:09:06,500 --> 00:09:09,500

Holy, holy, we're all going to die!

180

00:09:10,500 --> 00:09:12,500

Well, since you already have a shake table,

181

00:09:12,500 --> 00:09:16,500

we were talking about making a brick-and-mortar style building

182

00:09:16,500 --> 00:09:18,500

as well as a wood structure building.

183

00:09:18,500 --> 00:09:20,500

Do you think maybe we could just use yours

184

00:09:20,500 --> 00:09:21,500

and shake them till they fall down?

185

00:09:23,500 --> 00:09:25,500

Well, it's probably a great idea,

186

00:09:25,500 --> 00:09:27,500

but this is actually a working museum,

187

00:09:27,500 --> 00:09:29,500

so maybe you have to build your own or something.

188

00:09:29,500 --> 00:09:30,500

Okay.

189

00:09:30,500 --> 00:09:33,500

So how does your shake table imitate the forces of an earthquake?

190

00:09:33,500 --> 00:09:36,500

Well, we don't do the Z-plane, which is up and down.

191

00:09:36,500 --> 00:09:39,500

We actually do the X and the Y direction.

192

00:09:39,500 --> 00:09:41,500

And we do that movement

193

00:09:41,500 --> 00:09:44,500

because that's the strongest motion in an earthquake.

194

00:09:44,500 --> 00:09:46,500

All right, well, thank you very much for all the information.

195

00:09:46,500 --> 00:09:48,500

I think we got a lot of building to do.

196

00:09:48,500 --> 00:09:49,500

That's great.

197

00:09:49,500 --> 00:09:52,500

So we have visited the California Academy of Sciences

198

00:09:52,500 --> 00:09:54,500

earthquake table, and it is awesome.

199

00:09:54,500 --> 00:09:56,500

We're all going to die!

200

00:09:56,500 --> 00:09:58,500

And basically, we're going to copy it,

201

00:09:58,500 --> 00:10:00,500

but make it our own mythbusters style.

202

00:10:00,500 --> 00:10:03,500

The first step with that is to build a model.

203

00:10:03,500 --> 00:10:05,500

And that is, with all of these cylinders,

204

00:10:05,500 --> 00:10:07,500

we're going to be pushing and pulling

205

00:10:07,500 --> 00:10:09,500

just to see what we're getting our subs into.

206

00:10:10,500 --> 00:10:12,500

With a builder's mind boggling as this...

207

00:10:12,500 --> 00:10:14,500

Okay, no, it looks like a mess right now,

208

00:10:14,500 --> 00:10:16,500

but it's totally going to make sense in a minute.

209

00:10:16,500 --> 00:10:19,500

Grant starting with a proof of concept.

210

00:10:20,500 --> 00:10:23,500

And if this two by two model shakes...

211

00:10:24,500 --> 00:10:25,500

Perfect.

212

00:10:25,500 --> 00:10:28,500

Rattles and rolls.

213

00:10:30,500 --> 00:10:32,500

The guys will cue the heavy metal

214

00:10:33,500 --> 00:10:36,500

as they attempt to build its way bigger brother.

215

00:10:39,500 --> 00:10:41,500

It's a fine adjustment tool.

216

00:10:42,500 --> 00:10:45,500

So our earthquake shake table concept model is complete.

217

00:10:45,500 --> 00:10:47,500

Now what this is is a load bearing platform

218

00:10:47,500 --> 00:10:49,500

supported by casters.

219

00:10:49,500 --> 00:10:52,500

It's got actuators in the X and Y direction to shake it.

220

00:10:52,500 --> 00:10:54,500

What we're interested in is what happens to the house

221

00:10:54,500 --> 00:10:57,500

after it's been collapsed when subjected

222

00:10:57,500 --> 00:10:59,500

to earthquake magnitude forces.

223

00:10:59,500 --> 00:11:01,500

Kind of like this.

224

00:11:01,500 --> 00:11:03,500

That's a lot of work.

225

00:11:10,500 --> 00:11:12,500

I call that about ten.

226

00:11:13,500 --> 00:11:16,500

There's no doubt that their shrimp shakers the business.

227

00:11:16,500 --> 00:11:19,500

But next, it's time to build the beast.

228

00:11:20,500 --> 00:11:21,500

Coming up next on Miss Blasters,

229

00:11:21,500 --> 00:11:23,500

where's the safest place to be in an earthquake?

230

00:11:23,500 --> 00:11:25,500

Is it the doorway or someplace else?

231

00:11:25,500 --> 00:11:27,500

I'd say someplace else.

232

00:11:28,500 --> 00:11:30,500

Maybe Arizona.

233

00:11:32,500 --> 00:11:35,500

Can the humble hand dryer really create a pathogen paradise?

234

00:11:35,500 --> 00:11:37,500

Or is this myth bathroom baloney?

235

00:11:39,500 --> 00:11:42,500

To find out, the myth busters have rustled up the recipe.

236

00:11:42,500 --> 00:11:45,500

I do this in every airport I get to.

237

00:11:45,500 --> 00:11:47,500

Ah, yeah.

238

00:11:47,500 --> 00:11:49,500

And it's almost time to get cooking.

239

00:11:49,500 --> 00:11:51,500

The myth is that drying your hands with an air blower

240

00:11:51,500 --> 00:11:54,500

is less sanitary than using a paper towel.

241

00:11:54,500 --> 00:11:56,500

It's not a good idea to use a paper towel.

242

00:11:56,500 --> 00:11:58,500

It's a good idea to use a paper towel.

243

00:11:58,500 --> 00:12:00,500

But if you're using a paper towel,

244

00:12:00,500 --> 00:12:03,500

you can get a lot of air in your hands with an air blower.

245

00:12:03,500 --> 00:12:05,500

It's less sanitary than using a paper towel.

246

00:12:05,500 --> 00:12:07,500

In order to test this,

247

00:12:07,500 --> 00:12:09,500

we'll be putting a bacterial marker on the hands

248

00:12:09,500 --> 00:12:11,500

of each of our 16 volunteers.

249

00:12:11,500 --> 00:12:13,500

And then swabbing them both before and after

250

00:12:13,500 --> 00:12:15,500

they use each of these devices.

251

00:12:15,500 --> 00:12:17,500

If the myth is true,

252

00:12:17,500 --> 00:12:19,500

we should see far more bacteria on their hands

253

00:12:19,500 --> 00:12:22,500

after air drying than after using the paper towel.

254

00:12:22,500 --> 00:12:24,500

With the volunteers to head,

255

00:12:24,500 --> 00:12:27,500

next, Janie's special brew can be un-court.

256

00:12:27,500 --> 00:12:29,500

E. coli bacteria.

257

00:12:29,500 --> 00:12:31,500

E. coli can sometimes be harmful,

258

00:12:31,500 --> 00:12:33,500

but this particular strain was designed by a lab

259

00:12:33,500 --> 00:12:35,500

that's completely harmless.

260

00:12:35,500 --> 00:12:38,500

All our participants will be immersing their hands in this stuff,

261

00:12:38,500 --> 00:12:41,500

and it'll create a consistent bacterial load

262

00:12:41,500 --> 00:12:43,500

for all our testing.

263

00:12:43,500 --> 00:12:45,500

It's all hands to the pump.

264

00:12:45,500 --> 00:12:47,500

Now, flip them.

265

00:12:47,500 --> 00:12:49,500

As Janie applies the same amount in the same way

266

00:12:49,500 --> 00:12:51,500

to get the same bacterial load.

267

00:12:51,500 --> 00:12:53,500

Excellent.

268

00:12:53,500 --> 00:12:56,500

And with that, the mother of all washing wipeouts can begin.

269

00:12:56,500 --> 00:12:58,500

First person please.

270

00:12:58,500 --> 00:13:00,500

Volunteer one steps up to get swabbed.

271

00:13:00,500 --> 00:13:02,500

Thank you.

272

00:13:02,500 --> 00:13:04,500

Then washed.

273

00:13:04,500 --> 00:13:06,500

One, one thousand, two, one thousand, three, one thousand.

274

00:13:06,500 --> 00:13:08,500

Then swabbed again.

275

00:13:08,500 --> 00:13:10,500

Left hand again if you would, sir.

276

00:13:10,500 --> 00:13:12,500

Next, he heads for some towel traction,

277

00:13:12,500 --> 00:13:16,500

which is followed by one last swab.

278

00:13:16,500 --> 00:13:18,500

Science.

279

00:13:18,500 --> 00:13:20,500

Next.

280

00:13:20,500 --> 00:13:22,500

And so the pattern repeats.

281

00:13:22,500 --> 00:13:24,500

Thank you very much.

282

00:13:24,500 --> 00:13:26,500

The first two years get sampled before washing.

283

00:13:26,500 --> 00:13:28,500

Excellent.

284

00:13:28,500 --> 00:13:30,500

After washing.

285

00:13:30,500 --> 00:13:32,500

Thank you.

286

00:13:32,500 --> 00:13:34,500

And after towel drying.

287

00:13:34,500 --> 00:13:36,500

Excellent. Thank you.

288

00:13:36,500 --> 00:13:38,500

Thank you.

289

00:13:38,500 --> 00:13:40,500

To say it's a little repetitive is an understatement.

290

00:13:40,500 --> 00:13:42,500

Thank you. Excellent.

291

00:13:42,500 --> 00:13:44,500

Thank you.

292

00:13:44,500 --> 00:13:46,500

But to really see a pathogen pattern,

293

00:13:46,500 --> 00:13:48,500

a solid sample is essential.

294

00:13:48,500 --> 00:13:50,500

Forty-eight pieces of data down.

295

00:13:50,500 --> 00:13:52,500

Nice work.

296

00:13:52,500 --> 00:13:54,500

With forty-eight swabs,

297

00:13:54,500 --> 00:13:56,500

the guys are exactly halfway through.

298

00:13:56,500 --> 00:13:58,500

So it's onwards and upwards.

299

00:13:58,500 --> 00:14:00,500

Here we go again.

300

00:14:00,500 --> 00:14:02,500

With the bacterial load reloaded,

301

00:14:02,500 --> 00:14:04,500

the entire swab mob

302

00:14:04,500 --> 00:14:06,500

hits the washroom once more.

303

00:14:06,500 --> 00:14:08,500

Very strange.

304

00:14:08,500 --> 00:14:10,500

Our test subject group seems to have developed its own ritual.

305

00:14:10,500 --> 00:14:12,500

Like last time.

306

00:14:12,500 --> 00:14:14,500

Next.

307

00:14:14,500 --> 00:14:16,500

The volunteers swab, wash, and swab.

308

00:14:16,500 --> 00:14:18,500

Before this time turning blue with the hand dryer.

309

00:14:18,500 --> 00:14:20,500

But will this different drying device

310

00:14:20,500 --> 00:14:22,500

really let microbes make hay?

311

00:14:22,500 --> 00:14:24,500

Number sixteen.

312

00:14:24,500 --> 00:14:26,500

There it is.

313

00:14:26,500 --> 00:14:28,500

Well, with the final test finally done,

314

00:14:28,500 --> 00:14:30,500

the guys have a hunch.

315

00:14:30,500 --> 00:14:32,500

You know, I am noticing something sort of interesting.

316

00:14:32,500 --> 00:14:34,500

I'm wondering if it's the same thing that I've been noticing.

317

00:14:34,500 --> 00:14:36,500

Well, I'm smelling the odor of the growth medium

318

00:14:36,500 --> 00:14:38,500

a lot more now.

319

00:14:38,500 --> 00:14:40,500

Because the air dryers aerosolizing the stuff, I think.

320

00:14:40,500 --> 00:14:42,500

And I didn't smell it.

321

00:14:42,500 --> 00:14:44,500

These things are so much better.

322

00:14:44,500 --> 00:14:46,500

I'm not sure if it's the same thing that I've been noticing.

323

00:14:46,500 --> 00:14:48,500

I didn't smell it before with the paper towels.

324

00:14:48,500 --> 00:14:50,500

I'll tell you what I've been noticing.

325

00:14:50,500 --> 00:14:52,500

I notice a lot more wet hands.

326

00:14:52,500 --> 00:14:54,500

See, it takes longer to dry your hands with the air dryer.

327

00:14:54,500 --> 00:14:56,500

But people aren't taking that extra time.

328

00:14:56,500 --> 00:14:58,500

Thus, they're coming back here

329

00:14:58,500 --> 00:15:00,500

and their hands are wetter than with the towels.

330

00:15:00,500 --> 00:15:02,500

Both the smell and the clanny hands

331

00:15:02,500 --> 00:15:04,500

suggest that the dryer is not

332

00:15:04,500 --> 00:15:06,500

eliminating pathogens from people's palms.

333

00:15:06,500 --> 00:15:08,500

But what does the data say?

334

00:15:08,500 --> 00:15:10,500

Here it is.

335

00:15:10,500 --> 00:15:12,500

All of our data gathered from 16 test subjects

336

00:15:12,500 --> 00:15:14,500

on both the air dryer and the paper towels.

337

00:15:14,500 --> 00:15:16,500

96 pieces of data in all.

338

00:15:16,500 --> 00:15:18,500

And this isn't everything that we're gathering today.

339

00:15:18,500 --> 00:15:20,500

Because we're not just concerned

340

00:15:20,500 --> 00:15:22,500

about spreading bacteria on people's hands.

341

00:15:22,500 --> 00:15:24,500

We're also going to test the immediate environment

342

00:15:24,500 --> 00:15:26,500

around where they dry them

343

00:15:26,500 --> 00:15:28,500

to see what, if any, bacteria

344

00:15:28,500 --> 00:15:30,500

will spread there as well.

345

00:15:30,500 --> 00:15:32,500

So Adam gets down and dirty

346

00:15:32,500 --> 00:15:34,500

with one final swabbing sequence.

347

00:15:34,500 --> 00:15:36,500

But there's a lot right here.

348

00:15:36,500 --> 00:15:38,500

As he collects 10 samples

349

00:15:38,500 --> 00:15:40,500

from identical points in each of his samples,

350

00:15:40,500 --> 00:15:42,500

he's going to test the amount of bacteria

351

00:15:42,500 --> 00:15:44,500

that he's collecting from his samples

352

00:15:44,500 --> 00:15:46,500

from identical points in each bathroom.

353

00:15:46,500 --> 00:15:48,500

Well, let's get these back to the shop

354

00:15:48,500 --> 00:15:50,500

and start growing some bacteria.

355

00:15:50,500 --> 00:15:52,500

I've got my incubator warm and ready to go.

356

00:15:52,500 --> 00:15:54,500

That sounded creepy. Let's go.

357

00:15:56,500 --> 00:15:58,500

24 hours later, with bacteria

358

00:15:58,500 --> 00:16:00,500

sprouting like there's no tomorrow,

359

00:16:00,500 --> 00:16:02,500

there's a lot.

360

00:16:02,500 --> 00:16:04,500

The guys count every colony

361

00:16:04,500 --> 00:16:06,500

59, 60, 61,

362

00:16:06,500 --> 00:16:08,500

lamb,

363

00:16:08,500 --> 00:16:10,500

in every sample.

364

00:16:10,500 --> 00:16:12,500

Before they're finally ready

365

00:16:12,500 --> 00:16:14,500

to wrap up the results.

366

00:16:16,500 --> 00:16:18,500

Alright. The great hand towel vs.

367

00:16:18,500 --> 00:16:20,500

air dryer debate the results are in.

368

00:16:20,500 --> 00:16:22,500

Are you ready to hear them? Sure. Pretty stunning.

369

00:16:22,500 --> 00:16:24,500

When we had our test subjects

370

00:16:24,500 --> 00:16:26,500

dried our hands with the air dryer,

371

00:16:26,500 --> 00:16:28,500

they were able to reduce the bacterial load on their hands

372

00:16:28,500 --> 00:16:30,500

by 23%. Okay.

373

00:16:30,500 --> 00:16:32,500

But when we had the individuals

374

00:16:32,500 --> 00:16:34,500

dry their hands with the hand towel,

375

00:16:34,500 --> 00:16:36,500

they were able to reduce the bacterial load on their hands by

376

00:16:36,500 --> 00:16:38,500

brrrrrrrrrpshhh

377

00:16:38,500 --> 00:16:40,500

71%.

378

00:16:40,500 --> 00:16:42,500

Almost three times as much.

379

00:16:42,500 --> 00:16:44,500

That's amazing. But that's for the individual.

380

00:16:44,500 --> 00:16:46,500

What about for the environment?

381

00:16:46,500 --> 00:16:48,500

Well, when we swabbed the area around the air dryer,

382

00:16:48,500 --> 00:16:50,500

we found a total of 41

383

00:16:50,500 --> 00:16:52,500

colonies of bacteria.

384

00:16:52,500 --> 00:16:54,500

When we swabbed the area around the hand towel,

385

00:16:54,500 --> 00:16:56,500

we found...furry.

386

00:16:56,500 --> 00:16:58,500

Which yet again indicates that the air dryer

387

00:16:58,500 --> 00:17:00,500

is spreading more bacteria than the hand towels.

388

00:17:00,500 --> 00:17:02,500

Indeed they do. This myth is totally

389

00:17:02,500 --> 00:17:04,500

confirmed. The claims of the air dryers

390

00:17:04,500 --> 00:17:06,500

just don't hold up. It's just hot air.

391

00:17:06,500 --> 00:17:08,500

F\*\*\*

392

00:17:08,500 --> 00:17:10,500

F\*\*\*

393

00:17:10,500 --> 00:17:12,500

F\*\*\*

394

00:17:12,500 --> 00:17:14,500

F\*\*\*

395

00:17:14,500 --> 00:17:16,500

F\*\*\*

396

00:17:16,500 --> 00:17:18,500

When an earthquake quivers,

397

00:17:18,500 --> 00:17:20,500

are you better off de-camping

398

00:17:20,500 --> 00:17:22,500

in the doorway?

399

00:17:22,500 --> 00:17:24,500

The small scale is done now it is time

400

00:17:24,500 --> 00:17:26,500

to move on to the full scale shake

401

00:17:26,500 --> 00:17:28,500

table. Now the construction of this is going to

402

00:17:28,500 --> 00:17:30,500

be a bit of a challenge.

403

00:17:30,500 --> 00:17:32,500

The dimensions will be 11

404

00:17:32,500 --> 00:17:34,500

by 13 feet. We're going to be using

405

00:17:34,500 --> 00:17:36,500

square steel 2

406

00:17:36,500 --> 00:17:38,500

with half inch thick wall.

407

00:17:38,500 --> 00:17:40,500

I think we're good.

408

00:17:40,500 --> 00:17:42,500

This stuff is strong. It has to be

409

00:17:42,500 --> 00:17:44,500

strong because once we start building

410

00:17:44,500 --> 00:17:46,500

buildings on top of it and shaking them down,

411

00:17:46,500 --> 00:17:48,500

this thing has to withstand thousands

412

00:17:48,500 --> 00:17:50,500

of pounds of force.

413

00:17:50,500 --> 00:17:52,500

Their steel is clearly the real deal.

414

00:17:52,500 --> 00:17:54,500

There's about 5,000

415

00:17:54,500 --> 00:17:56,500

pounds of steel here and according to my

416

00:17:56,500 --> 00:17:58,500

back,

417

00:17:58,500 --> 00:18:00,500

that's a lot.

418

00:18:00,500 --> 00:18:02,500

And once the top sides

419

00:18:02,500 --> 00:18:04,500

are welded tight,

420

00:18:04,500 --> 00:18:06,500

cue the forklift

421

00:18:06,500 --> 00:18:08,500

Foxtrot.

422

00:18:12,500 --> 00:18:14,500

With the frame finally flipped

423

00:18:14,500 --> 00:18:16,500

out, the guys make short work

424

00:18:16,500 --> 00:18:18,500

of a long job.

425

00:18:18,500 --> 00:18:20,500

And yet still, the build has barely

426

00:18:20,500 --> 00:18:22,500

just begun.

427

00:18:22,500 --> 00:18:24,500

Did you hear that?

428

00:18:24,500 --> 00:18:26,500

That's an earthquake coming.

429

00:18:26,500 --> 00:18:28,500

We've now completed the heavy-duty

430

00:18:28,500 --> 00:18:30,500

steel structure which is going to be the base

431

00:18:30,500 --> 00:18:32,500

of our shake table. Now we need to

432

00:18:32,500 --> 00:18:34,500

build what shakes it. For that, we're building

433

00:18:34,500 --> 00:18:36,500

eight monuments. These are pneumatic

434

00:18:36,500 --> 00:18:38,500

springs or air springs. Usually

435

00:18:38,500 --> 00:18:40,500

they're used in semi-truck

436

00:18:40,500 --> 00:18:42,500

trailer beds so that it can balance loads

437

00:18:42,500 --> 00:18:44,500

or provide some extra spring.

438

00:18:44,500 --> 00:18:46,500

For us, they're going to be on the edges

439

00:18:46,500 --> 00:18:48,500

of our shake table and they're going to

440

00:18:48,500 --> 00:18:50,500

provide 10,000 pounds of force each

441

00:18:50,500 --> 00:18:52,500

with eight of them, that's 80,000

442

00:18:52,500 --> 00:18:54,500

pounds.

443

00:18:54,500 --> 00:18:56,500

That ought to shake things up.

444

00:18:56,500 --> 00:18:58,500

Now this one's finished and we've got seven more to go.

445

00:19:00,500 --> 00:19:02,500

The consents pneumatics will help shake

446

00:19:02,500 --> 00:19:04,500

the quake back and forth.

447

00:19:04,500 --> 00:19:06,500

And once they're

448

00:19:06,500 --> 00:19:08,500

secured into place

449

00:19:10,500 --> 00:19:12,500

and attached to the frame

450

00:19:12,500 --> 00:19:14,500

the

451

00:19:14,500 --> 00:19:16,500

don't you crack the loop.

452

00:19:16,500 --> 00:19:18,500

The guys have one more trick up their sleeves.

453

00:19:20,500 --> 00:19:22,500

These are the air casters.

454

00:19:22,500 --> 00:19:24,500

This is the most exciting part.

455

00:19:24,500 --> 00:19:26,500

Remember the shake table at the museum.

456

00:19:26,500 --> 00:19:28,500

Their shake table was able to move on an

457

00:19:28,500 --> 00:19:30,500

X-Y plane.

458

00:19:30,500 --> 00:19:32,500

Ours is going to be even better.

459

00:19:32,500 --> 00:19:34,500

Ours is going to be able to move on a Z plane as well.

460

00:19:34,500 --> 00:19:36,500

How?

461

00:19:36,500 --> 00:19:38,500

With these. These are Aragou air casters

462

00:19:38,500 --> 00:19:40,500

and they're able to lift 8,000

463

00:19:40,500 --> 00:19:42,500

pounds each.

464

00:19:42,500 --> 00:19:44,500

Now we're going to have six of them. Four in each corner

465

00:19:44,500 --> 00:19:46,500

and two in the middle. These are going to

466

00:19:46,500 --> 00:19:48,500

allow our shake table to not only move

467

00:19:48,500 --> 00:19:50,500

side to side, forwards and backwards

468

00:19:50,500 --> 00:19:52,500

but also up and down.

469

00:19:52,500 --> 00:19:54,500

So let's face it, it's worth doing.

470

00:19:54,500 --> 00:19:56,500

It's worth overdoing.

471

00:19:56,500 --> 00:19:58,500

And the one thing that still needs overdoing

472

00:20:00,500 --> 00:20:02,500

I've got to show them who's boss.

473

00:20:02,500 --> 00:20:04,500

is to put in place the plumbing.

474

00:20:04,500 --> 00:20:06,500

It's pretty manly work.

475

00:20:06,500 --> 00:20:08,500

Putting the man in the manifold.

476

00:20:10,500 --> 00:20:12,500

By nightfall, it's finally ready for a test.

477

00:20:14,500 --> 00:20:16,500

After hours of designing

478

00:20:16,500 --> 00:20:18,500

and days of heavy building,

479

00:20:18,500 --> 00:20:20,500

the earthquake table is finally done.

480

00:20:20,500 --> 00:20:22,500

Now behind me is a fleet of air compressors.

481

00:20:22,500 --> 00:20:24,500

Now it's important that we have a lot of air

482

00:20:24,500 --> 00:20:26,500

for this table to work and I'll show you why.

483

00:20:28,500 --> 00:20:30,500

Now compressed air will be moving through

484

00:20:30,500 --> 00:20:32,500

these hoses into this manifold

485

00:20:32,500 --> 00:20:34,500

where it will be distributed to six separate air casters.

486

00:20:34,500 --> 00:20:36,500

Now when those air casters inflate

487

00:20:36,500 --> 00:20:38,500

the whole table will lift up

488

00:20:38,500 --> 00:20:40,500

and it will actually ride on a cushion of air.

489

00:20:40,500 --> 00:20:42,500

Our second source of air

490

00:20:42,500 --> 00:20:44,500

is going to come through these hoses,

491

00:20:44,500 --> 00:20:46,500

through these pipes and to these air bladders.

492

00:20:46,500 --> 00:20:48,500

They're going to control the shake and so the table stops

493

00:20:48,500 --> 00:20:50,500

a quaken.

494

00:20:50,500 --> 00:20:52,500

Now all the valves that control

495

00:20:52,500 --> 00:20:54,500

the air bladders are going to this bank of relays.

496

00:20:54,500 --> 00:20:56,500

It's just going to this microcontroller

497

00:20:56,500 --> 00:20:58,500

and this computer.

498

00:20:58,500 --> 00:21:00,500

We can control each of those valves separately

499

00:21:00,500 --> 00:21:02,500

so that we can get exactly

500

00:21:02,500 --> 00:21:04,500

the magnitude of earthquake that we need.

501

00:21:04,500 --> 00:21:06,500

You want to see it?

502

00:21:06,500 --> 00:21:08,500

Fire up the compressors!

503

00:21:08,500 --> 00:21:10,500

It's time to put the sucker to work.

504

00:21:12,500 --> 00:21:14,500

With the air on, the guys are going to kick off.

505

00:21:14,500 --> 00:21:16,500

Charging the air casters.

506

00:21:16,500 --> 00:21:18,500

With the up-down test.

507

00:21:18,500 --> 00:21:20,500

Here we go in three, two, one.

508

00:21:22,500 --> 00:21:24,500

It's working!

509

00:21:24,500 --> 00:21:26,500

First impressions are good.

510

00:21:26,500 --> 00:21:28,500

Second impressions

511

00:21:28,500 --> 00:21:30,500

It's like in the earthquake!

512

00:21:30,500 --> 00:21:32,500

Are even better.

513

00:21:32,500 --> 00:21:34,500

It's working!

514

00:21:34,500 --> 00:21:36,500

Dude, alright, so that's the up and down.

515

00:21:36,500 --> 00:21:38,500

Alright, let's see what the side to side can do.

516

00:21:38,500 --> 00:21:40,500

Okay, you guys ready?

517

00:21:40,500 --> 00:21:42,500

Three, two, one!

518

00:21:42,500 --> 00:21:44,500

It's working!

519

00:21:44,500 --> 00:21:46,500

Dude, alright, so that's the up and down.

520

00:21:46,500 --> 00:21:48,500

Alright, let's see what the side to side can do.

521

00:21:48,500 --> 00:21:50,500

Okay, you guys ready?

522

00:21:50,500 --> 00:21:52,500

Three, two, one!

523

00:22:00,500 --> 00:22:02,500

It's a six point on the awesome scale!

524

00:22:04,500 --> 00:22:06,500

Hey, that's the truth.

525

00:22:06,500 --> 00:22:08,500

With the air casters controlling the up and down

526

00:22:08,500 --> 00:22:10,500

and the pneumatic cylinders

527

00:22:10,500 --> 00:22:12,500

pumping iron back and forth,

528

00:22:12,500 --> 00:22:14,500

the biggest build in Mythluster's history

529

00:22:14,500 --> 00:22:16,500

is ready to rock.

530

00:22:16,500 --> 00:22:18,500

This is an amazing success!

531

00:22:18,500 --> 00:22:20,500

Now all we need to do is build a house

532

00:22:20,500 --> 00:22:22,500

and then see if we can shake it down.

533

00:22:22,500 --> 00:22:24,500

This is awesome!

534

00:22:24,500 --> 00:22:26,500

On the up-down test of Mythluster

535

00:22:26,500 --> 00:22:28,500

find out what it's going to take

536

00:22:28,500 --> 00:22:30,500

and shake the house down!

537

00:22:30,500 --> 00:22:32,500

Oh, he's happy!

538

00:22:32,500 --> 00:22:34,500

What else?

539

00:22:34,500 --> 00:22:36,500

And Adam and Jamie cut the crap.

540

00:22:36,500 --> 00:22:38,500

Oh man, someone here didn't flush.

541

00:22:38,500 --> 00:22:40,500

That's gross.

542

00:22:46,500 --> 00:22:48,500

There's no restroom respite

543

00:22:48,500 --> 00:22:50,500

because next up

544

00:22:50,500 --> 00:22:52,500

is it all for one and one for all?

545

00:22:52,500 --> 00:22:54,500

Next up in Toilet Trouble

546

00:22:54,500 --> 00:22:56,500

we have a myth that in a bathroom

547

00:22:56,500 --> 00:22:58,500

or public restroom of multiple stalls

548

00:22:58,500 --> 00:23:00,500

the stall closest to the door

549

00:23:00,500 --> 00:23:02,500

is going to be the cleanest

550

00:23:02,500 --> 00:23:04,500

and also least used stall.

551

00:23:04,500 --> 00:23:06,500

Why would that be the case?

552

00:23:06,500 --> 00:23:08,500

I personally avoid that stall

553

00:23:08,500 --> 00:23:10,500

because I'm assuming everyone else has jumped in it

554

00:23:10,500 --> 00:23:12,500

and it's probably filthy.

555

00:23:12,500 --> 00:23:14,500

Well, I'd imagine some people also want more privacy

556

00:23:14,500 --> 00:23:16,500

so they'd go to the other end of the bathroom.

557

00:23:16,500 --> 00:23:18,500

In either case, the myth is the same

558

00:23:18,500 --> 00:23:20,500

that people for whatever reason

559

00:23:20,500 --> 00:23:22,500

are avoiding the stall closest to the door

560

00:23:22,500 --> 00:23:24,500

and thus it unexpectedly is a bastion

561

00:23:24,500 --> 00:23:26,500

of cleanliness in a public restroom.

562

00:23:26,500 --> 00:23:28,500

Well, I guess it's time to get down and dirty.

563

00:23:28,500 --> 00:23:30,500

Nice pun!

564

00:23:30,500 --> 00:23:32,500

Restroom routines waver widely.

565

00:23:32,500 --> 00:23:34,500

But is it true that we all

566

00:23:34,500 --> 00:23:36,500

tend to steer clear of stall one?

567

00:23:36,500 --> 00:23:38,500

Making it the freshest faucet of all.

568

00:23:38,500 --> 00:23:40,500

I'm going to go out on a limb and say

569

00:23:40,500 --> 00:23:42,500

I think the plan here is pretty straight.

570

00:23:42,500 --> 00:23:44,500

Can you guess what I'm thinking?

571

00:23:44,500 --> 00:23:46,500

Find a public restroom, stake it out,

572

00:23:46,500 --> 00:23:48,500

count how many people you use, what stalls?

573

00:23:48,500 --> 00:23:50,500

Yes, but we'd also use some of our

574

00:23:50,500 --> 00:23:52,500

bacteriological testing knowledge

575

00:23:52,500 --> 00:23:54,500

to measure how dirty each of the stalls

576

00:23:54,500 --> 00:23:56,500

is at the end of our test.

577

00:23:56,500 --> 00:23:58,500

Sure, why not?

578

00:23:58,500 --> 00:24:00,500

How hard could that be?

579

00:24:00,500 --> 00:24:02,500

Over the years we've been doing mythbusters

580

00:24:02,500 --> 00:24:04,500

we've been granted access to props and locations

581

00:24:04,500 --> 00:24:06,500

to do our experiments that,

582

00:24:06,500 --> 00:24:08,500

well, when we first started

583

00:24:08,500 --> 00:24:10,500

would have seemed completely impossible.

584

00:24:10,500 --> 00:24:12,500

We were even allowed to get behind

585

00:24:12,500 --> 00:24:14,500

and test the power of hurricane force winds.

586

00:24:14,500 --> 00:24:16,500

We were even allowed to sink

587

00:24:16,500 --> 00:24:18,500

a boat in the protected wildlife sanctuary

588

00:24:18,500 --> 00:24:20,500

of Monterey Bay

589

00:24:20,500 --> 00:24:22,500

and then to raise it back up again

590

00:24:22,500 --> 00:24:24,500

with 30,000 ping pong balls.

591

00:24:24,500 --> 00:24:26,500

But finding a public restroom

592

00:24:26,500 --> 00:24:28,500

with four stalls that we could

593

00:24:28,500 --> 00:24:30,500

film and test in has proven to be

594

00:24:30,500 --> 00:24:32,500

one of the biggest bears we've ever had to tackle.

595

00:24:32,500 --> 00:24:34,500

Luckily, we believe we found the bathroom

596

00:24:34,500 --> 00:24:36,500

and it's here at the Cal Maritime Academy.

597

00:24:36,500 --> 00:24:38,500

Not only is it one of the best Maritime Academies

598

00:24:38,500 --> 00:24:40,500

in the country, but they've got a bathroom

599

00:24:40,500 --> 00:24:42,500

that they're willing to let us film in

600

00:24:42,500 --> 00:24:44,500

and I think it's going to be perfect.

601

00:24:44,500 --> 00:24:46,500

It's not often a public bathroom can be perfect,

602

00:24:46,500 --> 00:24:48,500

but for this stall tall tale,

603

00:24:48,500 --> 00:24:50,500

this restroom rules.

604

00:24:50,500 --> 00:24:52,500

Now please bear with us.

605

00:24:52,500 --> 00:24:54,500

There's only so many interesting ways you can film a restroom,

606

00:24:54,500 --> 00:24:56,500

but the basic myth is this.

607

00:24:56,500 --> 00:24:58,500

That in a public restroom, stall number one,

608

00:24:58,500 --> 00:25:00,500

that is the one closest to the door,

609

00:25:00,500 --> 00:25:02,500

is both the cleanest and the least used

610

00:25:02,500 --> 00:25:04,500

because of two assumptions people make

611

00:25:04,500 --> 00:25:06,500

about human behavior.

612

00:25:06,500 --> 00:25:08,500

The first one is that people assume

613

00:25:08,500 --> 00:25:10,500

because of its proximity to the door,

614

00:25:10,500 --> 00:25:12,500

the first stall is the most used

615

00:25:12,500 --> 00:25:14,500

and therefore the dirtiest

616

00:25:14,500 --> 00:25:16,500

and therefore they pick another stall.

617

00:25:16,500 --> 00:25:18,500

The second assumption people make

618

00:25:18,500 --> 00:25:20,500

is that people will avoid the first stall

619

00:25:20,500 --> 00:25:22,500

and go all the way to the end

620

00:25:22,500 --> 00:25:24,500

because they want privacy.

621

00:25:24,500 --> 00:25:26,500

Auditory privacy.

622

00:25:26,500 --> 00:25:28,500

Either way, the net result is the same.

623

00:25:28,500 --> 00:25:30,500

Is the first stall the least used

624

00:25:30,500 --> 00:25:32,500

and therefore the cleanest?

625

00:25:32,500 --> 00:25:34,500

That's what we're going to test.

626

00:25:34,500 --> 00:25:36,500

These guys need two dollars of data

627

00:25:36,500 --> 00:25:38,500

that they'll collect over four days.

628

00:25:38,500 --> 00:25:40,500

Bathroom bacteria

629

00:25:40,500 --> 00:25:42,500

and U-Bend usage.

630

00:25:44,500 --> 00:25:46,500

A mechanical door clicker

631

00:25:46,500 --> 00:25:48,500

is a simple solution for

632

00:25:48,500 --> 00:25:50,500

logging toilet traffic.

633

00:25:50,500 --> 00:25:52,500

Perfect.

634

00:25:52,500 --> 00:25:54,500

And with all four installed

635

00:25:54,500 --> 00:25:56,500

on the stalls,

636

00:25:56,500 --> 00:25:58,500

next it's time to cut the crap.

637

00:25:58,500 --> 00:26:00,500

I went as Adam and Jamie,

638

00:26:00,500 --> 00:26:02,500

along with some mean cleaners,

639

00:26:02,500 --> 00:26:04,500

and we're going to use the

640

00:26:04,500 --> 00:26:06,500

bathroom of bacteria blitz.

641

00:26:06,500 --> 00:26:08,500

For us to record the amount of bacteria

642

00:26:08,500 --> 00:26:10,500

in each stall, we need to start with a clean slate.

643

00:26:10,500 --> 00:26:12,500

That's what all this cleaning is about.

644

00:26:12,500 --> 00:26:14,500

Eliminating traces of bacteria

645

00:26:14,500 --> 00:26:16,500

so any colonies we find at the end

646

00:26:16,500 --> 00:26:18,500

of the experiment have all grown

647

00:26:18,500 --> 00:26:20,500

during the test and not before.

648

00:26:20,500 --> 00:26:22,500

That's the theory.

649

00:26:22,500 --> 00:26:24,500

And once the restroom is a pathogen-free zone,

650

00:26:24,500 --> 00:26:26,500

the experiment can begin.

651

00:26:26,500 --> 00:26:28,500

That's it. All the counters are zeroed.

652

00:26:28,500 --> 00:26:30,500

Well, everything's been swapped.

653

00:26:30,500 --> 00:26:32,500

All right.

654

00:26:32,500 --> 00:26:34,500

So, let the crapping commence.

655

00:26:34,500 --> 00:26:36,500

Ha!

656

00:26:36,500 --> 00:26:38,500

Ha!

657

00:26:38,500 --> 00:26:40,500

Okay, so by now,

658

00:26:40,500 --> 00:26:42,500

you know that we are testing the myth that standing

659

00:26:42,500 --> 00:26:44,500

in a doorway is the best place to be during an earthquake.

660

00:26:44,500 --> 00:26:46,500

Now, we learned from the California Academy of Sciences

661

00:26:46,500 --> 00:26:48,500

that the origin of this myth

662

00:26:48,500 --> 00:26:50,500

is possibly in unreinforced

663

00:26:50,500 --> 00:26:52,500

masonry buildings.

664

00:26:52,500 --> 00:26:54,500

Now, it's a common type of building around the world

665

00:26:54,500 --> 00:26:56,500

as well as in historical buildings in the United States.

666

00:26:56,500 --> 00:26:58,500

So, we found ourselves some skilled masons.

667

00:26:58,500 --> 00:27:00,500

They're going to build a structure on our shake table,

668

00:27:00,500 --> 00:27:02,500

and once it's cured, we're going to try to shake it down.

669

00:27:02,500 --> 00:27:04,500

Yep.

670

00:27:04,500 --> 00:27:06,500

For test one,

671

00:27:06,500 --> 00:27:08,500

the mythbusters don't need to be movers

672

00:27:08,500 --> 00:27:10,500

or shakers.

673

00:27:10,500 --> 00:27:12,500

Because this house is being

674

00:27:12,500 --> 00:27:14,500

time-lapsed into place by experts.

675

00:27:14,500 --> 00:27:16,500

And once the concrete's left

676

00:27:16,500 --> 00:27:18,500

to cure for three whole weeks,

677

00:27:18,500 --> 00:27:20,500

it's time to decorate.

678

00:27:20,500 --> 00:27:22,500

Ha!

679

00:27:22,500 --> 00:27:24,500

Well, I really like what you did with the place.

680

00:27:24,500 --> 00:27:26,500

I'm going to try to make sure that

681

00:27:26,500 --> 00:27:28,500

I'm not going to get a break.

682

00:27:28,500 --> 00:27:30,500

Well, I really like what you did with the place, Grant.

683

00:27:30,500 --> 00:27:32,500

You really made this a home.

684

00:27:32,500 --> 00:27:34,500

For the subsequent shakedown,

685

00:27:34,500 --> 00:27:36,500

it's important that the inside

686

00:27:36,500 --> 00:27:38,500

is as realistic as the outside.

687

00:27:38,500 --> 00:27:40,500

And that means furniture,

688

00:27:40,500 --> 00:27:42,500

knick-knacks,

689

00:27:42,500 --> 00:27:44,500

mannequins.

690

00:27:44,500 --> 00:27:46,500

I'm placing three mannequins around the room,

691

00:27:46,500 --> 00:27:48,500

one underneath the table,

692

00:27:48,500 --> 00:27:50,500

one just standing in the room,

693

00:27:50,500 --> 00:27:52,500

and one standing in the doorway.

694

00:27:52,500 --> 00:27:54,500

Now, for this myth to be confirmed,

695

00:27:54,500 --> 00:27:56,500

I'm placing a cellarometer in the head

696

00:27:56,500 --> 00:27:58,500

and I'm placing shock watches around their bodies.

697

00:27:58,500 --> 00:28:00,500

Very muscular.

698

00:28:00,500 --> 00:28:02,500

Rock hard clubs.

699

00:28:02,500 --> 00:28:04,500

So, I'm no Mason, but I did observe

700

00:28:04,500 --> 00:28:06,500

how this building was being built.

701

00:28:06,500 --> 00:28:08,500

And it conforms to how you would have built something

702

00:28:08,500 --> 00:28:10,500

in pre-code, olden days.

703

00:28:10,500 --> 00:28:12,500

Which means that there are strong points

704

00:28:12,500 --> 00:28:14,500

and weak points.

705

00:28:14,500 --> 00:28:16,500

Now, these corners are one of the strongest parts

706

00:28:16,500 --> 00:28:18,500

of the building. There's rebar going all the way

707

00:28:18,500 --> 00:28:20,500

up to the ceiling with poured concrete.

708

00:28:20,500 --> 00:28:22,500

Same thing for the door.

709

00:28:22,500 --> 00:28:24,500

So, this is the arch. That's all solid.

710

00:28:24,500 --> 00:28:26,500

So, by the end of this, my personal opinion

711

00:28:26,500 --> 00:28:28,500

is that the only thing less standing

712

00:28:28,500 --> 00:28:30,500

is going to be this wall with the front door.

713

00:28:30,500 --> 00:28:32,500

So, Grant's money is on the myth.

714

00:28:32,500 --> 00:28:34,500

But before the earth moves,

715

00:28:34,500 --> 00:28:36,500

Excuse me.

716

00:28:36,500 --> 00:28:38,500

There's one final piece of the puzzle.

717

00:28:38,500 --> 00:28:40,500

Some U.S.

718

00:28:40,500 --> 00:28:42,500

geological survey sensors

719

00:28:42,500 --> 00:28:44,500

that will record the magnitude

720

00:28:44,500 --> 00:28:46,500

of their tremor.

721

00:28:46,500 --> 00:28:48,500

Music

722

00:28:50,500 --> 00:28:52,500

Alright, we are set to shake

723

00:28:52,500 --> 00:28:54,500

the building down.

724

00:28:54,500 --> 00:28:56,500

Okay.

725

00:28:56,500 --> 00:28:58,500

5, 4, 3,

726

00:28:58,500 --> 00:29:00,500

2, 1.

727

00:29:04,500 --> 00:29:06,500

Wow.

728

00:29:06,500 --> 00:29:08,500

Wow.

729

00:29:08,500 --> 00:29:10,500

The scandal here is going crazy.

730

00:29:10,500 --> 00:29:12,500

Wow.

731

00:29:12,500 --> 00:29:14,500

That is a lot of power.

732

00:29:14,500 --> 00:29:16,500

To get go, their quake is quivering

733

00:29:16,500 --> 00:29:18,500

up, down, left,

734

00:29:18,500 --> 00:29:20,500

and right with the same power

735

00:29:20,500 --> 00:29:22,500

as San Francisco's 1906 shock.

736

00:29:24,500 --> 00:29:26,500

And yet this olden day style

737

00:29:26,500 --> 00:29:28,500

building is holding firm.

738

00:29:30,500 --> 00:29:32,500

But not for long.

739

00:29:32,500 --> 00:29:34,500

Get the window.

740

00:29:40,500 --> 00:29:42,500

After just 15 seconds,

741

00:29:42,500 --> 00:29:44,500

the sidewall is already in pieces.

742

00:29:44,500 --> 00:29:46,500

And mannequin line is also

743

00:29:46,500 --> 00:29:48,500

down for the count.

744

00:29:48,500 --> 00:29:50,500

Oh my God.

745

00:29:52,500 --> 00:29:54,500

The back wall is coming.

746

00:29:54,500 --> 00:29:56,500

That is terrifying.

747

00:29:56,500 --> 00:29:58,500

Moments later, the back wall.

748

00:29:58,500 --> 00:30:00,500

And then the other side wall

749

00:30:00,500 --> 00:30:02,500

follows soon.

750

00:30:04,500 --> 00:30:06,500

Whoa.

751

00:30:06,500 --> 00:30:08,500

This is terrifying.

752

00:30:08,500 --> 00:30:10,500

I think it's going to go.

753

00:30:10,500 --> 00:30:12,500

I think the car is going to go.

754

00:30:12,500 --> 00:30:14,500

I think we can see the car in the

755

00:30:14,500 --> 00:30:16,500

car.

756

00:30:16,500 --> 00:30:18,500

And I think it's going to come.

757

00:30:18,500 --> 00:30:20,500

I think it's going to go.

758

00:30:20,500 --> 00:30:22,500

I think there is going to be a

759

00:30:22,500 --> 00:30:24,500

carnage everywhere except

760

00:30:24,500 --> 00:30:26,500

incredibly for the doorway.

761

00:30:26,500 --> 00:30:28,500

All right.

762

00:30:28,500 --> 00:30:30,500

So far though, the doorway does seem

763

00:30:30,500 --> 00:30:32,500

to be the safest place to stand.

764

00:30:32,500 --> 00:30:34,500

Yeah, I mean, given all your other

765

00:30:34,500 --> 00:30:36,500

choices in this situation,

766

00:30:36,500 --> 00:30:38,500

I think the doorway's got it.

767

00:30:38,500 --> 00:30:40,500

And the door itself gives up.

768

00:30:40,500 --> 00:30:42,500

And with that, the conclusions

769

00:30:42,500 --> 00:30:44,500

are quick to follow.

770

00:30:44,500 --> 00:30:46,500

Well, I think it's pretty clear.

771

00:30:46,500 --> 00:30:48,500

I mean, the only wall still standing

772

00:30:48,500 --> 00:30:50,500

is the one with the door.

773

00:30:50,500 --> 00:30:52,500

And the only mannequin that didn't sustain

774

00:30:52,500 --> 00:30:54,500

any injury is the one standing in the doorway.

775

00:30:54,500 --> 00:30:56,500

Yeah, he looks all right other than

776

00:30:56,500 --> 00:30:58,500

being whacked by the door a few times.

777

00:30:58,500 --> 00:31:00,500

I mean, I think we can call this one

778

00:31:00,500 --> 00:31:02,500

plausible for this kind of construction.

779

00:31:02,500 --> 00:31:04,500

Yeah, it's totally plausible.

780

00:31:04,500 --> 00:31:06,500

So this is a pretty fantastic result.

781

00:31:06,500 --> 00:31:08,500

It's intact. Everybody inside the house,

782

00:31:08,500 --> 00:31:10,500

totally devastated.

783

00:31:10,500 --> 00:31:12,500

The guy in the doorway, totally fine.

784

00:31:12,500 --> 00:31:14,500

But there are two caveats.

785

00:31:14,500 --> 00:31:16,500

The first one is that this is only good

786

00:31:16,500 --> 00:31:18,500

for a certain amount of time.

787

00:31:18,500 --> 00:31:20,500

If your earthquake lasts for several minutes,

788

00:31:20,500 --> 00:31:22,500

that wall's going to come down too.

789

00:31:22,500 --> 00:31:24,500

Second thing, there aren't many buildings built

790

00:31:24,500 --> 00:31:26,500

like this these days.

791

00:31:26,500 --> 00:31:28,500

Most of them have modern size encodes in mind.

792

00:31:28,500 --> 00:31:30,500

In fact, you watch them at home,

793

00:31:30,500 --> 00:31:32,500

you're probably in a modern building.

794

00:31:32,500 --> 00:31:34,500

So that's what we've got to do next.

795

00:31:34,500 --> 00:31:36,500

Let's go.

796

00:32:04,500 --> 00:32:07,500

The things that you see on this jar are very dangerous.

797

00:32:07,500 --> 00:32:09,500

Please don't drive them at home.

798

00:32:09,500 --> 00:32:12,500

We have experts to keep us safe.

799

00:32:17,500 --> 00:32:18,500

Welcome back.

800

00:32:18,500 --> 00:32:20,500

Mythbusters has been attempting to answer

801

00:32:20,500 --> 00:32:22,500

the age-old conundrum of which bathroom

802

00:32:22,500 --> 00:32:24,500

stall in a public restroom is the cleanest,

803

00:32:24,500 --> 00:32:26,500

which is the dirtiest,

804

00:32:26,500 --> 00:32:28,500

and which gets the most use.

805

00:32:28,500 --> 00:32:30,500

In order to test this,

806

00:32:30,500 --> 00:32:32,500

we have come near the bathroom behind me

807

00:32:32,500 --> 00:32:34,500

by cleaning it within an inch of its life,

808

00:32:34,500 --> 00:32:36,500

adding clicker counters on each of the four

809

00:32:36,500 --> 00:32:38,500

stall doors, and we plan to come back

810

00:32:38,500 --> 00:32:40,500

in a few days to test how much bacteria

811

00:32:40,500 --> 00:32:42,500

build up over the time the public was using it.

812

00:32:42,500 --> 00:32:44,500

But now, it's time for people to come in

813

00:32:44,500 --> 00:32:46,500

and just start using it like they normally would.

814

00:32:46,500 --> 00:32:48,500

So, come on, public.

815

00:32:48,500 --> 00:32:50,500

Time to use the bathroom.

816

00:32:50,500 --> 00:32:52,500

Although the toilet is now open for business,

817

00:32:52,500 --> 00:32:54,500

users are a little reticent,

818

00:32:54,500 --> 00:32:56,500

but they need to be worried.

819

00:32:56,500 --> 00:32:58,500

Now, normally we'd have a whole bunch of cameras

820

00:32:58,500 --> 00:33:00,500

everywhere to record the process of our

821

00:33:00,500 --> 00:33:02,500

experiment.

822

00:33:02,500 --> 00:33:04,500

But, well,

823

00:33:04,500 --> 00:33:06,500

in this particular case, it might not be

824

00:33:06,500 --> 00:33:08,500

such a good idea.

825

00:33:08,500 --> 00:33:10,500

And anyway,

826

00:33:10,500 --> 00:33:12,500

why would you want to watch what happens in here?

827

00:33:12,500 --> 00:33:14,500

I certainly wouldn't.

828

00:33:14,500 --> 00:33:16,500

Me, either.

829

00:33:16,500 --> 00:33:18,500

So, let's stick with some cryptic close-ups,

830

00:33:18,500 --> 00:33:20,500

a time-lapse montage,

831

00:33:20,500 --> 00:33:22,500

and some

832

00:33:22,500 --> 00:33:24,500

inappropriate interviews.

833

00:33:24,500 --> 00:33:26,500

Here comes another member of the public.

834

00:33:26,500 --> 00:33:28,500

Cutty, what's your name?

835

00:33:28,500 --> 00:33:30,500

My name is Brad.

836

00:33:30,500 --> 00:33:32,500

Brad, might have asked you a personal question?

837

00:33:32,500 --> 00:33:34,500

Sure, why not?

838

00:33:34,500 --> 00:33:36,500

Okay, did you use one of the stalls in there

839

00:33:36,500 --> 00:33:38,500

when you went in? I did.

840

00:33:38,500 --> 00:33:40,500

Okay, which one did you use? Which one do you normally

841

00:33:40,500 --> 00:33:42,500

and cloud to use? Number two.

842

00:33:42,500 --> 00:33:44,500

Number two? Yes, sir.

843

00:33:44,500 --> 00:33:46,500

Thank you very much, sir.

844

00:33:46,500 --> 00:33:48,500

Have a nice day.

845

00:33:48,500 --> 00:33:50,500

So, it's one point to stall two,

846

00:33:50,500 --> 00:33:52,500

and there's more to come.

847

00:33:52,500 --> 00:33:54,500

Did you, in fact, use one of the stalls in there?

848

00:33:54,500 --> 00:33:56,500

Yeah. Okay.

849

00:33:56,500 --> 00:33:58,500

What did you use? I like the one in the back.

850

00:33:58,500 --> 00:34:00,500

Corner one. In fact, throughout day one,

851

00:34:00,500 --> 00:34:02,500

nobody used stall one at all.

852

00:34:02,500 --> 00:34:04,500

I choose the third one.

853

00:34:04,500 --> 00:34:06,500

The fourth one, the big one.

854

00:34:06,500 --> 00:34:08,500

Number three.

855

00:34:08,500 --> 00:34:10,500

I used the one far on the left as you walk in.

856

00:34:12,500 --> 00:34:14,500

We are taking a break from our regularly scheduled

857

00:34:14,500 --> 00:34:16,500

programming in the men's room to visit the ladies room

858

00:34:16,500 --> 00:34:18,500

where we discovered to our astonishment

859

00:34:18,500 --> 00:34:20,500

not one or two, but three freaking couches in this joint.

860

00:34:20,500 --> 00:34:22,500

Now I know why they always go to the bathroom together.

861

00:34:22,500 --> 00:34:24,500

And why they take so long.

862

00:34:24,500 --> 00:34:26,500

You can write to us about this sexist talk later,

863

00:34:26,500 --> 00:34:28,500

but first, I'm actually kind of interested

864

00:34:28,500 --> 00:34:30,500

in the interviews we did outside the restroom.

865

00:34:30,500 --> 00:34:32,500

Yeah, it was a little creepy,

866

00:34:32,500 --> 00:34:34,500

but they all seem to value their privacy

867

00:34:34,500 --> 00:34:36,500

more than anything else.

868

00:34:36,500 --> 00:34:38,500

Yeah, and seek out the farthest stall from the door,

869

00:34:38,500 --> 00:34:40,500

like I do.

870

00:34:40,500 --> 00:34:42,500

Me, I don't care.

871

00:34:42,500 --> 00:34:44,500

You're all just like, ah, hear me.

872

00:34:44,500 --> 00:34:46,500

Ha, ha, ha.

873

00:34:46,500 --> 00:34:48,500

Day two at the gents and business is booming.

874

00:34:48,500 --> 00:34:50,500

As this myth gets flushed out

875

00:34:50,500 --> 00:34:52,500

over nothing but the gents

876

00:34:52,500 --> 00:34:54,500

and the business is booming.

877

00:34:54,500 --> 00:34:56,500

And as this myth gets flushed out

878

00:34:56,500 --> 00:34:58,500

over 96 hours,

879

00:34:58,500 --> 00:35:00,500

which, with one final farewell,

880

00:35:00,500 --> 00:35:02,500

come to a stick in.

881

00:35:02,500 --> 00:35:04,500

Well, are you ready?

882

00:35:04,500 --> 00:35:06,500

I am. It's been four days. Let's reswap this joint.

883

00:35:06,500 --> 00:35:08,500

Ha.

884

00:35:08,500 --> 00:35:10,500

Remember, there's two bits of data they need to collect.

885

00:35:10,500 --> 00:35:12,500

Oh, man, someone here didn't flush.

886

00:35:12,500 --> 00:35:14,500

That's gross.

887

00:35:14,500 --> 00:35:16,500

First is the bacterial load of each stall.

888

00:35:16,500 --> 00:35:18,500

Oh, this is nasty.

889

00:35:18,500 --> 00:35:20,500

And second is the door key.

890

00:35:20,500 --> 00:35:22,500

And second is the door clicker data,

891

00:35:22,500 --> 00:35:24,500

which is much easier on the eye.

892

00:35:24,500 --> 00:35:26,500

Ha, ha, ha.

893

00:35:26,500 --> 00:35:28,500

What'd you get?

894

00:35:28,500 --> 00:35:30,500

Well, I can tell you, but I can't tell them.

895

00:35:30,500 --> 00:35:32,500

They're going to have to wait till we get back to the shop.

896

00:35:32,500 --> 00:35:34,500

See, even if I turned around and showed it to you,

897

00:35:34,500 --> 00:35:36,500

it would still be blurred.

898

00:35:36,500 --> 00:35:38,500

That's right. It's television. Let's go.

899

00:35:38,500 --> 00:35:40,500

Well, it's been three days

900

00:35:40,500 --> 00:35:42,500

since we started our toilet experiment.

901

00:35:42,500 --> 00:35:44,500

What do we got?

902

00:35:44,500 --> 00:35:46,500

Wow, nice graphics.

903

00:35:46,500 --> 00:35:48,500

We actually got some great numbers.

904

00:35:48,500 --> 00:35:50,500

Starting with the stall farthest from the door,

905

00:35:50,500 --> 00:35:53,500

stall number four, we had a total of 24 users.

906

00:35:53,500 --> 00:35:55,500

Stall number three, 34 users.

907

00:35:55,500 --> 00:35:58,500

There's a few more for stall number two at 38,

908

00:35:58,500 --> 00:36:01,500

but stall number one had a total of 23 users.

909

00:36:01,500 --> 00:36:03,500

Well, that's the least number it uses.

910

00:36:03,500 --> 00:36:05,500

How does that correlate with bacterial count?

911

00:36:05,500 --> 00:36:07,500

Here is where it actually gets really interesting.

912

00:36:07,500 --> 00:36:10,500

We counted the number of colonies from all of our swabs.

913

00:36:10,500 --> 00:36:13,500

Starting again at number four, the number was 231.

914

00:36:13,500 --> 00:36:15,500

Moving in closer.

915

00:36:15,500 --> 00:36:17,500

20, 267.

916

00:36:17,500 --> 00:36:20,500

Stall number one, 162.

917

00:36:20,500 --> 00:36:22,500

It's not only the least used,

918

00:36:22,500 --> 00:36:24,500

but it is by far the cleanest of all four stalls.

919

00:36:24,500 --> 00:36:26,500

Wow, that's definitive.

920

00:36:26,500 --> 00:36:28,500

Yeah, this one is completely confirmed.

921

00:36:28,500 --> 00:36:30,500

Looks like in future I'll be using stall number one.

922

00:36:30,500 --> 00:36:32,500

I'm still going to stick with stall number four.

923

00:36:32,500 --> 00:36:45,500

In earthquake emergency,

924

00:36:45,500 --> 00:36:50,500

the door just scored.

925

00:36:50,500 --> 00:36:53,500

So as spectacular as that result was,

926

00:36:53,500 --> 00:36:57,500

does it mean that diving for the doorway is the best thing to do?

927

00:36:57,500 --> 00:36:59,500

Well, not necessarily.

928

00:36:59,500 --> 00:37:02,500

You see, simply houses just aren't built this way in the U.S. anymore.

929

00:37:02,500 --> 00:37:05,500

I mean, they used to be, which may be where the myth came from,

930

00:37:05,500 --> 00:37:07,500

but with modern building codes,

931

00:37:07,500 --> 00:37:10,500

is the doorway still the best place to be?

932

00:37:10,500 --> 00:37:13,500

Time to build something a little more up to date.

933

00:37:13,500 --> 00:37:18,500

So this is our wood frame house built to modern building codes.

934

00:37:18,500 --> 00:37:20,500

It's got studs every 16 inches.

935

00:37:20,500 --> 00:37:22,500

It's lagged into the floor.

936

00:37:22,500 --> 00:37:24,500

The roof trusses have hurricane ties.

937

00:37:24,500 --> 00:37:28,500

Now, one reason why a wood frame house might fare better than a masonry house

938

00:37:28,500 --> 00:37:30,500

is when a brick wall flexes,

939

00:37:30,500 --> 00:37:34,500

the mortar simply pops out and the wall crumbles and fails.

940

00:37:34,500 --> 00:37:38,500

With wood frame house, it can flex equally in both directions

941

00:37:38,500 --> 00:37:41,500

so it can absorb some of that energy and probably fare better.

942

00:37:41,500 --> 00:37:45,500

Now, the doorway might be the strongest part of a masonry house,

943

00:37:45,500 --> 00:37:49,500

but my money is on the wood frame house being equally strong all around.

944

00:37:49,500 --> 00:37:51,500

That's the theory.

945

00:37:51,500 --> 00:37:53,500

And once the roof and walls are up,

946

00:37:53,500 --> 00:37:57,500

that just leaves the finishing touches.

947

00:37:57,500 --> 00:38:00,500

Hi everybody. Welcome to our house.

948

00:38:00,500 --> 00:38:06,500

The windows and the all-important door.

949

00:38:06,500 --> 00:38:08,500

Good night.

950

00:38:08,500 --> 00:38:11,500

Next comes the furniture.

951

00:38:11,500 --> 00:38:13,500

Ooh, be careful with that.

952

00:38:13,500 --> 00:38:15,500

It's been in the family for years.

953

00:38:15,500 --> 00:38:18,500

Then in go the USGS sensors,

954

00:38:18,500 --> 00:38:23,500

whose owner is Adamon that this myth is at fault.

955

00:38:23,500 --> 00:38:25,500

Okay, Dave, what do you think about the myth

956

00:38:25,500 --> 00:38:29,500

that the doorway is the safest place to stand in an earthquake?

957

00:38:29,500 --> 00:38:34,500

I wouldn't do it. The USGS advocates that you drop, cover, and hold on,

958

00:38:34,500 --> 00:38:38,500

which means drop under a sturdy table or a desk and hold on to it

959

00:38:38,500 --> 00:38:41,500

so that you don't separate from the table.

960

00:38:44,500 --> 00:38:50,500

This is an 8.0 magnitude earthquake with a wooden frame two-code house.

961

00:38:50,500 --> 00:38:52,500

Start the sequence.

962

00:38:52,500 --> 00:38:56,500

Three, two, one.

963

00:38:59,500 --> 00:39:02,500

Immediately the table roars into life.

964

00:39:02,500 --> 00:39:04,500

Look at the chandeliers.

965

00:39:04,500 --> 00:39:07,500

Chandeliers freeing around the room.

966

00:39:07,500 --> 00:39:11,500

And it's not long before the bookcase takes out mannequin one.

967

00:39:11,500 --> 00:39:15,500

Oh my God, everything is falling over.

968

00:39:15,500 --> 00:39:18,500

While the inside may be imploding,

969

00:39:18,500 --> 00:39:21,500

the guy under the table is injury free,

970

00:39:21,500 --> 00:39:24,500

which cannot be said of the doorman.

971

00:39:24,500 --> 00:39:26,500

That dude got spanked.

972

00:39:26,500 --> 00:39:28,500

Yeah, the door is spanked with the butt.

973

00:39:28,500 --> 00:39:31,500

A full two minutes of spanking later,

974

00:39:31,500 --> 00:39:34,500

and the house stays standing strong.

975

00:39:34,500 --> 00:39:36,500

The construction's way too good.

976

00:39:36,500 --> 00:39:39,500

So the guys decide to come up for it.

977

00:39:39,500 --> 00:39:42,500

Okay, shut it down, shut it down.

978

00:39:44,500 --> 00:39:47,500

So we shook our house at an 8.0

979

00:39:47,500 --> 00:39:49,500

and you can see it's still standing.

980

00:39:49,500 --> 00:39:51,500

It's built to modern building codes,

981

00:39:51,500 --> 00:39:53,500

which have seismic concerns in mind.

982

00:39:53,500 --> 00:39:56,500

Now inside of the house, it's a different story.

983

00:39:56,500 --> 00:39:58,500

There's stuff everywhere.

984

00:39:58,500 --> 00:40:01,500

But the important thing is that the guy under the table

985

00:40:01,500 --> 00:40:04,500

did just as well as the guy standing in the doorway.

986

00:40:04,500 --> 00:40:06,500

And in some ways, actually better.

987

00:40:06,500 --> 00:40:08,500

See, the table provided shielding,

988

00:40:08,500 --> 00:40:10,500

whereas the guy in the doorway,

989

00:40:10,500 --> 00:40:14,500

he got spanked several times with the door as it swung around.

990

00:40:14,500 --> 00:40:16,500

But we're not done yet.

991

00:40:16,500 --> 00:40:18,500

Let's shake it one more time.

992

00:40:18,500 --> 00:40:20,500

So unlike the masonry house,

993

00:40:20,500 --> 00:40:23,500

this modern marvel is made of sterner stuff,

994

00:40:23,500 --> 00:40:26,500

which means the duck, cover, and hold technique

995

00:40:26,500 --> 00:40:28,500

is so far the safest.

996

00:40:30,500 --> 00:40:34,500

But what will happen when they crack the machine to the max?

997

00:40:34,500 --> 00:40:39,500

This is Quake Villa with a two-code wooden structure house.

998

00:40:39,500 --> 00:40:42,500

Three, two, one.

999

00:40:43,500 --> 00:40:46,500

With the air pressure firing at all cylinders,

1000

00:40:46,500 --> 00:40:49,500

the earthquake hits a 9.5,

1001

00:40:49,500 --> 00:40:53,500

making it the strongest quake ever recorded.

1002

00:40:56,500 --> 00:40:58,500

Yet the house still stands,

1003

00:40:58,500 --> 00:41:01,500

which is more than can be said for the doormat.

1004

00:41:05,500 --> 00:41:07,500

Unable to maintain stability,

1005

00:41:07,500 --> 00:41:10,500

he's hit the deck and is out for the count.

1006

00:41:10,500 --> 00:41:12,500

That's not good.

1007

00:41:12,500 --> 00:41:16,500

Which means the only merry mannequin is the crouching tiger.

1008

00:41:19,500 --> 00:41:21,500

But perhaps the biggest surprise

1009

00:41:21,500 --> 00:41:26,500

is that the built-to-code building appears to be unbreakable.

1010

00:41:26,500 --> 00:41:30,500

So as you can see, the modern building codes are that way for a reason.

1011

00:41:30,500 --> 00:41:33,500

This house, which we built in a day and a half,

1012

00:41:33,500 --> 00:41:36,500

stood up to a 9.5 earthquake,

1013

00:41:36,500 --> 00:41:40,500

enough to bring down an unreinforced masonry house.

1014

00:41:42,500 --> 00:41:44,500

It's a feat of engineering for sure.

1015

00:41:44,500 --> 00:41:49,500

But with two different results for their two different houses,

1016

00:41:49,500 --> 00:41:52,500

the guys head home to the wrap-up.

1017

00:41:52,500 --> 00:41:54,500

Okay, so how are we going to call this one?

1018

00:41:54,500 --> 00:41:57,500

Well, given that the myth is that diving for the doorway

1019

00:41:57,500 --> 00:41:59,500

is the best thing to do in all cases,

1020

00:41:59,500 --> 00:42:01,500

I think we're going to have to call this one busted,

1021

00:42:01,500 --> 00:42:03,500

because that's not always the case.

1022

00:42:03,500 --> 00:42:07,500

Exactly. I mean, maybe if we're in an old, unreinforced masonry building,

1023

00:42:07,500 --> 00:42:09,500

which are very rare in the United States,

1024

00:42:09,500 --> 00:42:11,500

getting to the doorway is a good idea.

1025

00:42:11,500 --> 00:42:13,500

But a better idea is getting out of the building altogether.

1026

00:42:13,500 --> 00:42:15,500

Exactly.

1027

00:42:15,500 --> 00:42:17,500

And as far as modern buildings built to code,

1028

00:42:17,500 --> 00:42:19,500

they're probably not going to collapse anyway.

1029

00:42:19,500 --> 00:42:23,500

Which means the current advice of drop cover and hold on is your best bet.

1030

00:42:23,500 --> 00:42:25,500

That's what I'll be doing.