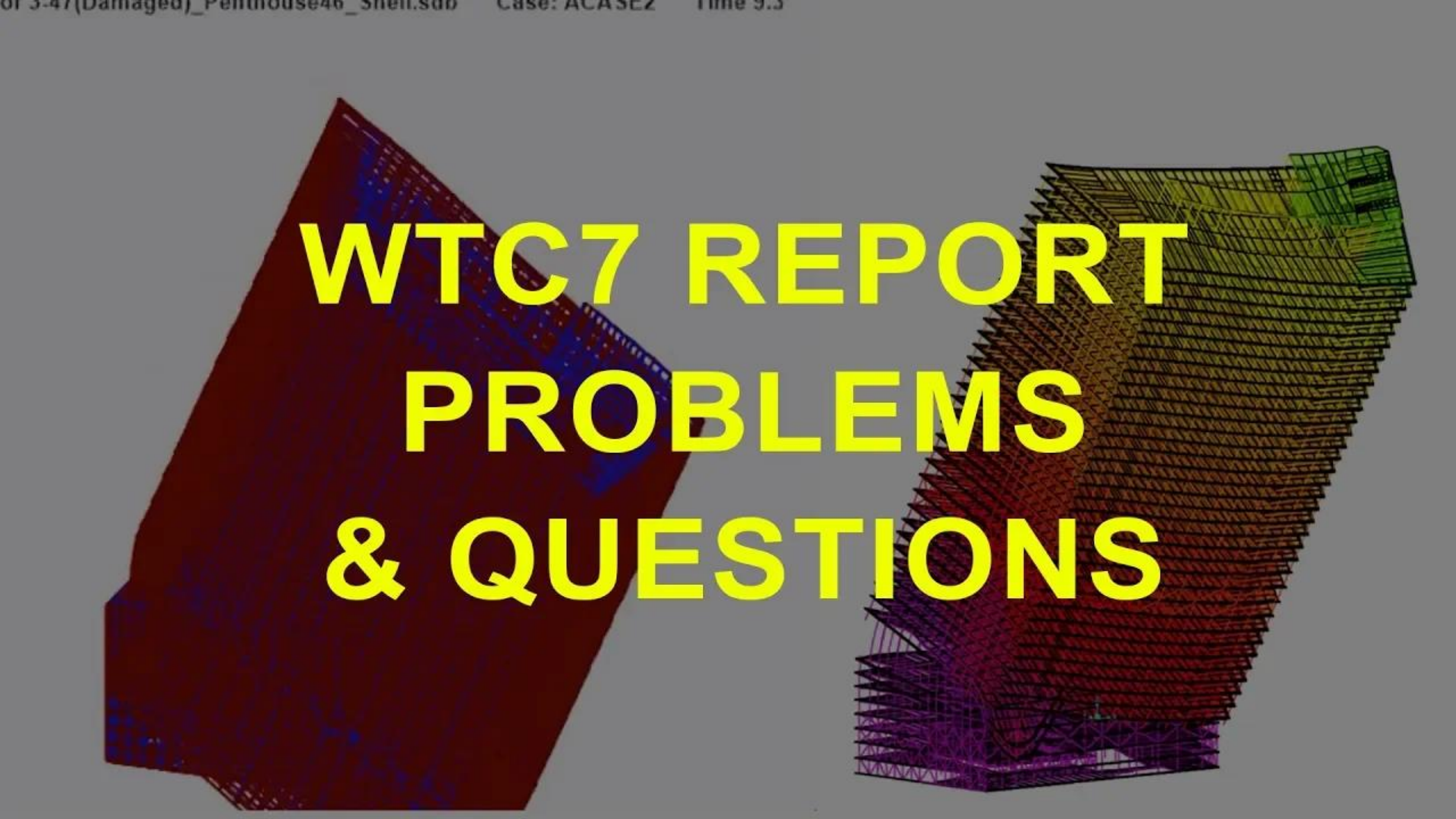
WTC7 REPORT
PROBLEMS
& QUESTIONS

1
00:00:04,789 --> 00:00:02,290
hey i'm mick west of Medibank catalog

2
00:00:06,829 --> 00:00:04,799
professor holsters report on the

3
00:00:09,339 --> 00:00:06,839
collapse of building 7 World Trade

4
00:00:11,839 --> 00:00:09,349
Center 7 came out a few days ago and

5
00:00:14,480 --> 00:00:11,849
I've been looking at it I've read the

6
00:00:16,250 --> 00:00:14,490
report I have looked at Professor horses

7
00:00:18,890 --> 00:00:16,260
presentation and I've looked at all the

8
00:00:21,560 --> 00:00:18,900
videos that architects and engineers for

9
00:00:23,929 --> 00:00:21,570
9/11 truth shared on their channel of

10
00:00:26,000 --> 00:00:23,939
the various simulations and I've got a

11
00:00:28,700 --> 00:00:26,010
few questions that I'm gonna run through

12
00:00:31,519 --> 00:00:28,710
very quickly and then I'm gonna go into

13
00:00:36,790 --> 00:00:31,529

them in more detail so my first question

14
00:00:40,340 --> 00:00:36,800
is why does thicker 4.16 not show

15
00:00:44,779 --> 00:00:40,350
dynamic analysis now figure 4.16

16
00:00:47,479 --> 00:00:44,789
is this it is supposedly a simulation of

17
00:00:49,369 --> 00:00:47,489
what NIST proposed with some columns

18
00:00:51,770 --> 00:00:49,379
being removed and it's supposed to show

19
00:00:53,330 --> 00:00:51,780
a dynamic analysis of that situation it

20
00:00:56,389 --> 00:00:53,340
doesn't appear to do that though instead

21
00:00:58,670 --> 00:00:56,399
all it appears to do is show the top

22
00:01:00,560 --> 00:00:58,680
portion of the building simply rotating

23
00:01:02,240 --> 00:01:00,570
around a pivot point through the bottom

24
00:01:06,050 --> 00:01:02,250
point of the building with no distortion

25
00:01:08,330 --> 00:01:06,060
whatsoever my second question is what is

26
00:01:10,929 --> 00:01:08,340
the justification for static linear

27
00:01:13,670 --> 00:01:10,939
analysis in figure four point one four

28
00:01:16,640 --> 00:01:13,680
four point one four and similarly for

29
00:01:19,130 --> 00:01:16,650
point one and five or this diagram here

30
00:01:21,770 --> 00:01:19,140
now you see here it says visualization

31
00:01:23,240 --> 00:01:21,780
of linear static analysis and yet we use

32
00:01:25,940 --> 00:01:23,250
something that's obviously far beyond

33
00:01:28,520 --> 00:01:25,950
the bounds of linear static analysis we

34
00:01:30,140 --> 00:01:28,530
particularly have these columns that

35
00:01:32,899 --> 00:01:30,150
have been stretched out here which isn't

36
00:01:35,870 --> 00:01:32,909
something that is really what you do in

37
00:01:40,330 --> 00:01:35,880
linear static analysis my next question

38
00:01:48,020 --> 00:01:40,340

is what is the animation in Figure 4.20

39
00:01:50,359 --> 00:01:48,030
derived from 4.20 a and B show

40
00:01:52,190 --> 00:01:50,369
essentially the showpiece of this thing

41
00:01:54,499 --> 00:01:52,200
you see is what's shown on the on the

42
00:01:58,039 --> 00:01:54,509
cover here this neat bowing in of the

43
00:01:59,630 --> 00:01:58,049
penthouse but is it actually a dynamic

44
00:02:02,270 --> 00:01:59,640
analysis because it doesn't appear to be

45
00:02:04,850 --> 00:02:02,280
one because everything kind of moves as

46
00:02:07,520 --> 00:02:04,860
if it's almost animated by hand you see

47
00:02:08,930 --> 00:02:07,530
the the penthouse falls in very neatly

48
00:02:11,570 --> 00:02:08,940
there and everything just falls away

49
00:02:13,940 --> 00:02:11,580
with no real distortion it doesn't

50
00:02:17,760 --> 00:02:13,950
really look like it's a proper now

51
00:02:20,340 --> 00:02:17,770
my next question is why do you continue

52
00:02:22,980 --> 00:02:20,350
to confuse NIST's and sis model with the

53
00:02:27,030 --> 00:02:22,990
LS diner model this is something that is

54
00:02:29,580 --> 00:02:27,040
in the report on pages 29 and 30 you say

55
00:02:31,500 --> 00:02:29,590
that the progressive collapse model was

56
00:02:33,300 --> 00:02:31,510
separated in two parts you show it here

57
00:02:35,400 --> 00:02:33,310
and you show a line in the model problem

58
00:02:38,130 --> 00:02:35,410
is this is the LS diner model this

59
00:02:40,170 --> 00:02:38,140
diagram refers to the ancestor the 16

60
00:02:41,130 --> 00:02:40,180
floor model this is the global model 16

61
00:02:43,200 --> 00:02:41,140
floor model is a completely different

62
00:02:44,460 --> 00:02:43,210
model so I don't understand why you keep

63
00:02:46,500 --> 00:02:44,470

saying this wrong if you even look at

64
00:02:49,380 --> 00:02:46,510
the diagram on your previous page it

65
00:02:51,570 --> 00:02:49,390
says here ANSYS it says will turret and

66
00:02:54,810 --> 00:02:51,580
7/16 story model this is what they did

67
00:02:56,130 --> 00:02:54,820
in the 16 story model this is not the 16

68
00:02:57,540 --> 00:02:56,140
story model this is not the answers

69
00:02:59,580 --> 00:02:57,550
model this is the alla Steiner model why

70
00:03:02,900 --> 00:02:59,590
did you get them confused my next

71
00:03:05,430 --> 00:03:02,910
question is why focus on good a 2001

72
00:03:09,570 --> 00:03:05,440
when this did not use that in their

73
00:03:11,370 --> 00:03:09,580
global collapse NIST actually used the

74
00:03:14,970 --> 00:03:11,380
fire damage model from their their

75
00:03:17,340 --> 00:03:14,980
simulation we did not include the

76
00:03:18,710 --> 00:03:17,350
push-off of good a 2001 which is what

77
00:03:23,220 --> 00:03:18,720
you spend quite a lot of the report

78
00:03:25,410 --> 00:03:23,230
focusing on so this model here this LS

79
00:03:26,820 --> 00:03:25,420
diner model doesn't actually use the

80
00:03:32,100 --> 00:03:26,830
thing you spend most of the report in

81
00:03:34,860 --> 00:03:32,110
debunking so let's go back into this in

82
00:03:36,150 --> 00:03:34,870
a bit more a bit more detail here let's

83
00:03:37,770 --> 00:03:36,160
go back to the first question why does

84
00:03:41,520 --> 00:03:37,780
figure 4.16

85
00:03:43,230 --> 00:03:41,530
not show dynamic analysis what is

86
00:03:45,570 --> 00:03:43,240
dynamic analysis and how does it differ

87
00:03:47,670 --> 00:03:45,580
from static analysis well in static

88
00:03:49,590 --> 00:03:47,680

analysis you're essentially simulating a

89
00:03:51,300 --> 00:03:49,600
building that's not moving it's not

90
00:03:53,520 --> 00:03:51,310
collapsing and it's not like it's not

91
00:03:55,470 --> 00:03:53,530
swaying around that much you just it

92
00:03:56,970 --> 00:03:55,480
just has loads applied to it and then

93
00:03:59,030 --> 00:03:56,980
you figure out how much those loads

94
00:04:02,010 --> 00:03:59,040
cause deflection of the building and

95
00:04:04,230 --> 00:04:02,020
then you see you know will this will the

96
00:04:06,000 --> 00:04:04,240
structure support that amount of

97
00:04:07,650 --> 00:04:06,010
deflation so you're checking to see

98
00:04:11,070 --> 00:04:07,660
basically that the building won't

99
00:04:12,360 --> 00:04:11,080
collapse so in in static analysis things

100
00:04:14,640 --> 00:04:12,370
don't move

101
00:04:15,930 --> 00:04:14,650
they might deflect and deform a bit but

102
00:04:18,120 --> 00:04:15,940
you know generally they're not going to

103
00:04:21,440 --> 00:04:18,130
move now there's also the difference

104
00:04:24,120 --> 00:04:21,450
between linear and nonlinear linear

105
00:04:27,080 --> 00:04:24,130
analysis is where the response of

106
00:04:30,030 --> 00:04:27,090
connections is essentially just a simple

107
00:04:31,650 --> 00:04:30,040
linear responses like a spring if you

108
00:04:34,170 --> 00:04:31,660
put in so much force you'll get so much

109
00:04:35,700 --> 00:04:34,180
deflection if you deflect it so much

110
00:04:36,960 --> 00:04:35,710
that means that there's so much force is

111
00:04:39,450 --> 00:04:36,970
being applied is this simple linear

112
00:04:41,310 --> 00:04:39,460
response nonlinear means that it changes

113
00:04:42,930 --> 00:04:41,320

if you apply if it deflects more than a

114
00:04:45,060 --> 00:04:42,940
certain amount that changes like if you

115
00:04:46,320 --> 00:04:45,070
pull a string out long enough eventually

116
00:04:47,940 --> 00:04:46,330
it's gonna stretch out and it's not

117
00:04:49,980 --> 00:04:47,950
going to be springing anymore and say

118
00:04:51,390 --> 00:04:49,990
it's gone beyond its its linear response

119
00:04:54,960 --> 00:04:51,400
and it's now in a nonlinear response

120
00:04:57,450 --> 00:04:54,970
when a building is subjected to extreme

121
00:04:59,550 --> 00:04:57,460
loads like a sudden removal of a column

122
00:05:01,380 --> 00:04:59,560
you really want to use nonlinear because

123
00:05:03,480 --> 00:05:01,390
the connections are going to be deformed

124
00:05:05,700 --> 00:05:03,490
so much that their response isn't going

125
00:05:07,050 --> 00:05:05,710
to be linear anymore but unfortunately

126
00:05:09,180 --> 00:05:07,060
it seems that professor holster use is

127
00:05:12,090 --> 00:05:09,190
just linear but what we're talking about

128
00:05:14,300 --> 00:05:12,100
here is a dynamic model and ambach

129
00:05:18,090 --> 00:05:14,310
things move here we have things moving

130
00:05:20,790 --> 00:05:18,100
if I'm moving quite a lot the problem is

131
00:05:22,530 --> 00:05:20,800
in a proper dynamic simulation you

132
00:05:24,360 --> 00:05:22,540
shouldn't just have the top half of the

133
00:05:27,150 --> 00:05:24,370
building rotating like this you wouldn't

134
00:05:29,520 --> 00:05:27,160
just have this rotating the outside of

135
00:05:31,860 --> 00:05:29,530
the building is structural columns so

136
00:05:33,870 --> 00:05:31,870
these structural columns should actually

137
00:05:36,450 --> 00:05:33,880
be impacting the bottom structural

138
00:05:38,340 --> 00:05:36,460

columns so if this was an actual dynamic

139
00:05:40,140 --> 00:05:38,350
analysis you would expect to see a lot

140
00:05:41,940 --> 00:05:40,150
of bending down here you don't see

141
00:05:44,670 --> 00:05:41,950
anything in fact what you see is kind of

142
00:05:47,070 --> 00:05:44,680
curious is that he's removed an entire

143
00:05:50,190 --> 00:05:47,080
floor worth of columns here so we've got

144
00:05:52,200 --> 00:05:50,200
this bottom part then we got a gap then

145
00:05:53,910 --> 00:05:52,210
we have the top part and if you play the

146
00:05:55,590 --> 00:05:53,920
animation what happens is the top part

147
00:05:59,100 --> 00:05:55,600
just simply rotates and passes through

148
00:06:03,180 --> 00:05:59,110
the bottom part this very clearly is not

149
00:06:06,780 --> 00:06:03,190
a dynamic simulation of the any

150
00:06:09,030 --> 00:06:06,790
situation is supposed to be trying to

151
00:06:11,190 --> 00:06:09,040
simulate what NIST said happened now

152
00:06:14,130 --> 00:06:11,200
let's compare it to an actual dynamic

153
00:06:17,820 --> 00:06:14,140
simulation the the NIST simulation let

154
00:06:20,670 --> 00:06:17,830
me just find that is the actual

155
00:06:22,590 --> 00:06:20,680
simulation that NIST it I overlaid three

156
00:06:26,010 --> 00:06:22,600
different simulations and I flipped it

157
00:06:27,990 --> 00:06:26,020
so you can see what's going on but it's

158
00:06:30,570 --> 00:06:28,000
dynamic simulation things are moving

159
00:06:32,150 --> 00:06:30,580
floors are falling columns are bending

160
00:06:35,880 --> 00:06:32,160
things are actually moving quite a lot

161
00:06:38,700 --> 00:06:35,890
they're dynamic simulation you expect a

162
00:06:40,580 --> 00:06:38,710
lot of things to happen so here we see

163
00:06:44,540 --> 00:06:40,590

the

164
00:06:46,220 --> 00:06:44,550
collapsing and we see a lot of

165
00:06:47,930 --> 00:06:46,230
defamation of the columns on the

166
00:06:49,250 --> 00:06:47,940
interior of the building because the

167
00:06:50,480 --> 00:06:49,260
interior is collapsing it's time to

168
00:06:52,760 --> 00:06:50,490
buckle over here and this is where

169
00:06:54,770 --> 00:06:52,770
ventually the entire interior collapses

170
00:06:56,480 --> 00:06:54,780
and the outside collapses you also see

171
00:06:59,000 --> 00:06:56,490
this defamation here which you don't see

172
00:07:01,130 --> 00:06:59,010
in reality a lot of people point to that

173
00:07:03,110 --> 00:07:01,140
as being a problem but really it's just

174
00:07:05,830 --> 00:07:03,120
kind of indicative of the complex nature

175
00:07:08,240 --> 00:07:05,840
the chaotic nature essentially of

176
00:07:11,660 --> 00:07:08,250
simulations like this once you've gone

177
00:07:13,910 --> 00:07:11,670
past the initial point the actual

178
00:07:15,860 --> 00:07:13,920
outcome can vary quite a lot Hulsey

179
00:07:17,090 --> 00:07:15,870
talks about this in his talk actually

180
00:07:18,980 --> 00:07:17,100
someone asked him why there wasn't a

181
00:07:20,390 --> 00:07:18,990
kink in the top of the building and he

182
00:07:22,400 --> 00:07:20,400
explained that he tried and tried and

183
00:07:23,900 --> 00:07:22,410
tried to get this kink in his model but

184
00:07:25,310 --> 00:07:23,910
he could never actually do it so he

185
00:07:28,520 --> 00:07:25,320
didn't really understand why there

186
00:07:30,590 --> 00:07:28,530
wasn't that kink anyway this is what a

187
00:07:35,420 --> 00:07:30,600
dynamic simulation should actually look

188
00:07:37,010 --> 00:07:35,430

like this is not this is just one box

189
00:07:40,100 --> 00:07:37,020
rotating it's not simulating anything

190
00:07:44,000 --> 00:07:40,110
it's just the top box rotating and he

191
00:07:45,410 --> 00:07:44,010
does this again in Figure 4.20 this is

192
00:07:46,790 --> 00:07:45,420
figure four point two zero which is

193
00:07:48,710 --> 00:07:46,800
basically the same type of thing I think

194
00:07:50,570 --> 00:07:48,720
it's just a different this is where we

195
00:07:52,160 --> 00:07:50,580
moved all the columns simultaneously and

196
00:07:53,350 --> 00:07:52,170
he says this made the building tip over

197
00:07:57,440 --> 00:07:53,360
to one side

198
00:07:59,300 --> 00:07:57,450
which not only doesn't really make sense

199
00:08:01,550 --> 00:07:59,310
because why would the building's

200
00:08:03,260 --> 00:08:01,560
momentum move sideways when it's all

201
00:08:05,650 --> 00:08:03,270
going down near the center of gravity

202
00:08:07,550 --> 00:08:05,660
isn't going to pop out to the side and

203
00:08:10,220 --> 00:08:07,560
but you got the same thing again you've

204
00:08:11,780 --> 00:08:10,230
got this this row of columns remove the

205
00:08:13,970 --> 00:08:11,790
entire floor of columns has been removed

206
00:08:16,220 --> 00:08:13,980
bottom isn't moving at all and the top

207
00:08:17,840 --> 00:08:16,230
just simply rotates through the top

208
00:08:20,300 --> 00:08:17,850
since there might be a little distortion

209
00:08:21,890 --> 00:08:20,310
here it's kind of hard to tell but

210
00:08:25,580 --> 00:08:21,900
basically this is not a dynamic

211
00:08:29,600 --> 00:08:25,590
simulation next question what is the

212
00:08:32,180 --> 00:08:29,610
justification for static linear analysis

213
00:08:34,850 --> 00:08:32,190

in Figure 4 point 1 4 this is figure 4

214
00:08:37,070 --> 00:08:34,860
point 1 4 says visualization of linear

215
00:08:38,360 --> 00:08:37,080
static analysis on the southeast showing

216
00:08:41,120 --> 00:08:38,370
the building tipping to the southeast

217
00:08:44,060 --> 00:08:41,130
after the hypothetical failure of column

218
00:08:48,260 --> 00:08:44,070
76 to 81 this is I think 4 columns over

219
00:08:49,700 --> 00:08:48,270
here now this is linear static analysis

220
00:08:51,650 --> 00:08:49,710
now I've always already discussed why

221
00:08:53,440 --> 00:08:51,660
linear analysis really isn't appropriate

222
00:08:54,760 --> 00:08:53,450
you wonder nonlinear

223
00:08:57,850 --> 00:08:54,770
spawns especially if you're doing things

224
00:09:00,550 --> 00:08:57,860
like stretching out columns which you

225
00:09:03,190 --> 00:09:00,560
wouldn't really do but it's a static

226
00:09:04,900 --> 00:09:03,200
analysis and static analysis you use

227
00:09:06,910 --> 00:09:04,910
when things don't really move very much

228
00:09:08,740 --> 00:09:06,920
you know things kind of settle you you

229
00:09:10,480 --> 00:09:08,750
see things settling but when a building

230
00:09:12,280 --> 00:09:10,490
is starting to tip over then the

231
00:09:13,630 --> 00:09:12,290
momentum of the building itself will

232
00:09:15,580 --> 00:09:13,640
come into play the momentum of the

233
00:09:18,190 --> 00:09:15,590
movement of the columns impacting other

234
00:09:20,110 --> 00:09:18,200
columns will come into play this is when

235
00:09:21,670 --> 00:09:20,120
you do static analysis it's like this

236
00:09:23,950 --> 00:09:21,680
really really gradual thing you kind of

237
00:09:25,360 --> 00:09:23,960
let it settle a bit and then you would

238
00:09:26,890 --> 00:09:25,370

run the simulation again you let it

239
00:09:29,020 --> 00:09:26,900
settle a little bit more than you run

240
00:09:30,760 --> 00:09:29,030
the simulation again you ignore time and

241
00:09:32,530 --> 00:09:30,770
you ignore momentum and you ignore like

242
00:09:35,260 --> 00:09:32,540
collisions and the momentum of those

243
00:09:37,390 --> 00:09:35,270
collisions between objects so in a

244
00:09:39,310 --> 00:09:37,400
situation like this with a building

245
00:09:41,560 --> 00:09:39,320
tipping over to the side I don't think

246
00:09:43,270 --> 00:09:41,570
that static analysis is really a very

247
00:09:45,250 --> 00:09:43,280
appropriate thing and linear static

248
00:09:47,320 --> 00:09:45,260
analysis really isn't at all because you

249
00:09:48,970 --> 00:09:47,330
can expect all kinds of defamation here

250
00:09:51,010 --> 00:09:48,980
which is going to completely change the

251
00:09:54,220 --> 00:09:51,020
linear response yeah big thing here

252
00:09:56,170 --> 00:09:54,230
obviously is these columns here appear

253
00:09:58,780 --> 00:09:56,180
to have been stretched out two out of

254
00:10:00,910 --> 00:09:58,790
three times their natural length which

255
00:10:02,350 --> 00:10:00,920
of course is impossible and you can

256
00:10:04,990 --> 00:10:02,360
suggest that if she's using a kind of a

257
00:10:08,770 --> 00:10:05,000
linear spring for the columns in the

258
00:10:11,110 --> 00:10:08,780
back which is a bit a bit inappropriate

259
00:10:16,540 --> 00:10:11,120
I think and you know wrong I think in

260
00:10:18,760 --> 00:10:16,550
many yeah just basically wrong this

261
00:10:20,410 --> 00:10:18,770
actually is carries on to figure four

262
00:10:21,850 --> 00:10:20,420
point one five which is the same type of

263
00:10:23,560 --> 00:10:21,860

thing it's even more dramatic here you

264
00:10:26,040 --> 00:10:23,570
can see these columns stretching out

265
00:10:28,600 --> 00:10:26,050
here and then there's this kind of weird

266
00:10:30,430 --> 00:10:28,610
deformation here and you see a bit of

267
00:10:32,350 --> 00:10:30,440
the floors being squished down at the

268
00:10:35,200 --> 00:10:32,360
front which is what you'd expect but hey

269
00:10:37,570 --> 00:10:35,210
this is something that you do not see in

270
00:10:39,340 --> 00:10:37,580
the supposed dynamic analysis and the

271
00:10:42,610 --> 00:10:39,350
dynamic analysis you don't see these

272
00:10:44,380 --> 00:10:42,620
these floors being being crushed which

273
00:10:46,150 --> 00:10:44,390
we should cover so that's obviously not

274
00:10:47,740 --> 00:10:46,160
the dynamic analysis if you can show it

275
00:10:48,880 --> 00:10:47,750
in the static analysis then you

276
00:10:51,550 --> 00:10:48,890
certainly should be other shows in the

277
00:10:52,780 --> 00:10:51,560
dynamic analysis again here it is you

278
00:10:55,270 --> 00:10:52,790
know there's there's no real crushing

279
00:10:58,030 --> 00:10:55,280
going on it's more apparent in the the

280
00:11:00,720 --> 00:10:58,040
other animation this this just kind of

281
00:11:03,640 --> 00:11:00,730
slides off it's kind of a bizarre thing

282
00:11:06,070 --> 00:11:03,650
it wouldn't happen it's just it's just

283
00:11:07,310 --> 00:11:06,080
ridiculous I think what's happening here

284
00:11:11,290 --> 00:11:07,320
though is he's going to take

285
00:11:14,420 --> 00:11:11,300
what he thinks are the results of the

286
00:11:15,950 --> 00:11:14,430
static analysis static analysis which is

287
00:11:18,260 --> 00:11:15,960
completely inappropriate and it's pushed

288
00:11:19,730 --> 00:11:18,270

far too far beyond this limits and he

289
00:11:22,280 --> 00:11:19,740
said oh he's tilted over like this in

290
00:11:24,110 --> 00:11:22,290
the the static analysis let's do a

291
00:11:27,050 --> 00:11:24,120
dynamic analysis like a kind of a

292
00:11:30,020 --> 00:11:27,060
pretend dynamic analysis and so he's

293
00:11:32,150 --> 00:11:30,030
taken this static analysis and then he's

294
00:11:35,390 --> 00:11:32,160
just made the building just gonna rotate

295
00:11:37,280 --> 00:11:35,400
around a point to match this angle which

296
00:11:41,480 --> 00:11:37,290
is complete nonsense this is obviously

297
00:11:45,230 --> 00:11:41,490
not a dynamic analysis all right next

298
00:11:47,600 --> 00:11:45,240
point why focus on good at a 2001

299
00:11:50,540 --> 00:11:47,610
collapse when this did not use that in

300
00:11:53,470 --> 00:11:50,550
their global collapse analysis now

301
00:11:57,770 --> 00:11:53,480
there's a lot of focus on this one

302
00:12:00,080 --> 00:11:57,780
connection good a 2001 to column 79 and

303
00:12:02,480 --> 00:12:00,090
mr. gestured that's the expansion of

304
00:12:04,400 --> 00:12:02,490
beams next to it pushed it off its seat

305
00:12:07,520 --> 00:12:04,410
and that was the collapse initiation

306
00:12:10,820 --> 00:12:07,530
event if sir I suggested a probable

307
00:12:13,570 --> 00:12:10,830
collapse initiation event but this

308
00:12:16,580 --> 00:12:13,580
didn't actually use that in their

309
00:12:18,530 --> 00:12:16,590
dynamic analysis that was one result of

310
00:12:20,750 --> 00:12:18,540
their static in one other stuff in there

311
00:12:23,660 --> 00:12:20,760
the Hansen alysus which is a kind of a

312
00:12:26,420 --> 00:12:23,670
more detailed local model but if you

313
00:12:28,010 --> 00:12:26,430

look at the actual results of their

314
00:12:33,140 --> 00:12:28,020
there LS diner models is the global

315
00:12:35,510 --> 00:12:33,150
model actually mark comm 79 on this and

316
00:12:39,080 --> 00:12:35,520
we can see what happened I'm marketing

317
00:12:42,860 --> 00:12:39,090
green it's actually it's on this floor

318
00:12:45,890 --> 00:12:42,870
floor 30 and con column 79 is this one

319
00:12:47,120 --> 00:12:45,900
at the back and good at a 2001 it's just

320
00:12:50,890 --> 00:12:47,130
going to behind this going to the back

321
00:12:52,670 --> 00:12:50,900
wall so if I play this you will see

322
00:12:54,620 --> 00:12:52,680
nothing's really happening with calm

323
00:12:56,240 --> 00:12:54,630
with that a 2001 it's way back there

324
00:12:57,710 --> 00:12:56,250
this girder is glad this girder has

325
00:12:59,420 --> 00:12:57,720
collapsed this goodness collapse this

326
00:13:01,520 --> 00:12:59,430
gooders collapse good as collapsed over

327
00:13:03,560 --> 00:13:01,530
here goodness collapsing over here some

328
00:13:05,990 --> 00:13:03,570
damage down here these are all kind of

329
00:13:10,280 --> 00:13:06,000
starting to go and if we continue to

330
00:13:12,620 --> 00:13:10,290
play yeah now now we see that particular

331
00:13:18,070 --> 00:13:12,630
good at a 2001 actually collapse at this

332
00:13:21,079 --> 00:13:18,080
point so good at a 2001 isn't used in

333
00:13:22,759 --> 00:13:21,089
the global model

334
00:13:26,449 --> 00:13:22,769
in terms of an initiation advantage just

335
00:13:28,399 --> 00:13:26,459
something that will fall because all the

336
00:13:29,659 --> 00:13:28,409
girders fall at some point but really

337
00:13:31,549 --> 00:13:29,669
what happened is the other girders

338
00:13:34,339 --> 00:13:31,559

around it failed first this is I don't

339
00:13:35,629 --> 00:13:34,349
know what this is 2002 maybe but that he

340
00:13:37,489 --> 00:13:35,639
has four different girders here with

341
00:13:40,129 --> 00:13:37,499
fire damage and they they collapse so

342
00:13:42,349 --> 00:13:40,139
this is miss global model so if you want

343
00:13:44,359 --> 00:13:42,359
to compare your global model to miss

344
00:13:46,609 --> 00:13:44,369
global model and you can't be talking

345
00:13:48,109 --> 00:13:46,619
about like oh well you know a 2001

346
00:13:51,769 --> 00:13:48,119
couldn't possibly have collapsed because

347
00:13:55,579 --> 00:13:51,779
it didn't in this model in this a 2001

348
00:13:58,009 --> 00:13:55,589
it missed global model there LS dinah

349
00:13:59,209 --> 00:13:58,019
model we did in fact have good

350
00:14:04,789 --> 00:13:59,219
connections which I'll come to in a

351
00:14:06,679 --> 00:14:04,799
second there it is and in a global

352
00:14:09,819 --> 00:14:06,689
context you can see it's the same type

353
00:14:12,829 --> 00:14:09,829
of thing muck floor 13 in red here and

354
00:14:15,499 --> 00:14:12,839
you will see there's all the other

355
00:14:21,859 --> 00:14:15,509
damage is not on floor 13 yet is around

356
00:14:25,279 --> 00:14:21,869
it over here and it does eventually fall

357
00:14:27,819 --> 00:14:25,289
out and again this is what an actual

358
00:14:30,709 --> 00:14:27,829
dynamic model looks like a nonlinear

359
00:14:32,299 --> 00:14:30,719
dynamic analysis which is what what you

360
00:14:34,209 --> 00:14:32,309
should do if you want to model a falling

361
00:14:39,889 --> 00:14:34,219
building you don't just model one block

362
00:14:42,289 --> 00:14:39,899
rotating above another block okay next

363
00:14:44,689 --> 00:14:42,299

question what is the animation in Figure

364
00:14:46,039 --> 00:14:44,699
4.2 for derived from cuz it looks like

365
00:14:48,019 --> 00:14:46,049
it's done by hand now this is the one

366
00:14:50,959 --> 00:14:48,029
that's new obviously meant to match the

367
00:14:52,969 --> 00:14:50,969
famous videos we see that the penthouses

368
00:14:55,309 --> 00:14:52,979
like snapped in to and it falls into the

369
00:14:57,889 --> 00:14:55,319
building it stops right here for some

370
00:15:00,199 --> 00:14:57,899
reason and then the rest of the building

371
00:15:01,369 --> 00:15:00,209
collapses you will see this go down and

372
00:15:02,209 --> 00:15:01,379
then the rest of the building collapses

373
00:15:05,329 --> 00:15:02,219
so this is something was obviously

374
00:15:07,969 --> 00:15:05,339
intended to match the actual collapse

375
00:15:10,669 --> 00:15:07,979
and there's two versions of this 4.2 for

376
00:15:13,729 --> 00:15:10,679
a 4.2 for B and you can see better I

377
00:15:15,739 --> 00:15:13,739
think what's going on in 4.2 for B and

378
00:15:19,909 --> 00:15:15,749
this can is where we get to the problems

379
00:15:21,919 --> 00:15:19,919
with this notice the way the penthouse

380
00:15:23,989 --> 00:15:21,929
has collapsed here I'm just going to pan

381
00:15:25,549 --> 00:15:23,999
back and forth a little bit here it

382
00:15:30,469 --> 00:15:25,559
snaps into in the middle and then it

383
00:15:31,909 --> 00:15:30,479
very very neatly pivots around what

384
00:15:34,009 --> 00:15:31,919
seems to be at this point here and this

385
00:15:34,910 --> 00:15:34,019
point here is going to let rotating so

386
00:15:36,439 --> 00:15:34,920
this means the

387
00:15:40,059 --> 00:15:36,449
bottom corner here actually kind of

388
00:15:42,379 --> 00:15:40,069

lifts up it's really kind of bizarre and

389
00:15:44,169 --> 00:15:42,389
then when he gets to a certain amount of

390
00:15:47,660 --> 00:15:44,179
pivot it all starts to fall

391
00:15:48,799 --> 00:15:47,670
simultaneously and then it gets to about

392
00:15:50,749 --> 00:15:48,809
here and then it's that's that kind of

393
00:15:52,689 --> 00:15:50,759
close-up on itself and it looks like it

394
00:15:54,769 --> 00:15:52,699
wrapped around something and then stops

395
00:15:55,849 --> 00:15:54,779
it's all very strange

396
00:15:58,549 --> 00:15:55,859
I suppose it's supposed to be wrapping

397
00:16:00,199 --> 00:15:58,559
around the the girders across the

398
00:16:02,629 --> 00:16:00,209
columns but they're all gone what's it

399
00:16:04,369 --> 00:16:02,639
actually wrapping around doesn't make

400
00:16:06,579 --> 00:16:04,379
any sense but anyway that more of the

401
00:16:09,439 --> 00:16:06,589
point is that you have got this

402
00:16:12,949 --> 00:16:09,449
remarkably smooth rotation here with

403
00:16:14,929 --> 00:16:12,959
zero defamation these it's like it's

404
00:16:15,530 --> 00:16:14,939
almost like they'd split this into two

405
00:16:18,769 --> 00:16:15,540
halves

406
00:16:21,919 --> 00:16:18,779
they've manually rotated each one out

407
00:16:24,409 --> 00:16:21,929
and then they manually made it fall down

408
00:16:26,319 --> 00:16:24,419
to here with nothing else going on

409
00:16:29,139 --> 00:16:26,329
nothing's really being damaged here and

410
00:16:32,329 --> 00:16:29,149
then they manually made it stop here and

411
00:16:34,669 --> 00:16:32,339
then after that we got another strange

412
00:16:36,919 --> 00:16:34,679
thing which is this just kind of neatly

413
00:16:39,470 --> 00:16:36,929

falls into the building looking nothing

414
00:16:40,699 --> 00:16:39,480
like what actually happened which loads

415
00:16:44,720 --> 00:16:40,709
of deformation going on in the real

416
00:16:48,229 --> 00:16:44,730
thing here's a another comparison of the

417
00:16:50,539 --> 00:16:48,239
NIST model with this and this is the

418
00:16:52,400 --> 00:16:50,549
real view taken from some distance away

419
00:16:54,049 --> 00:16:52,410
so it's a little hard to see but so I'll

420
00:16:57,259 --> 00:16:54,059
just run through it real quick we'll see

421
00:16:58,669 --> 00:16:57,269
the interior damage going on in the the

422
00:16:59,210 --> 00:16:58,679
NIST model which will eventually lead to

423
00:17:00,650 --> 00:16:59,220
collapse

424
00:17:03,289 --> 00:17:00,660
you know things happening here yet hope

425
00:17:07,220 --> 00:17:03,299
so now now we've got the falling in of

426
00:17:08,419 --> 00:17:07,230
the two penthouses and you saw that in

427
00:17:10,909 --> 00:17:08,429
the middle one and then everything

428
00:17:13,809 --> 00:17:10,919
collapses let's just look at it a little

429
00:17:18,019 --> 00:17:13,819
bit more detail here we've got the

430
00:17:20,360 --> 00:17:18,029
tipping in of the penthouse now notice

431
00:17:22,370 --> 00:17:20,370
again we've got this kind of strange

432
00:17:25,939 --> 00:17:22,380
rotation this change outward rotation in

433
00:17:28,820 --> 00:17:25,949
the whole C model in the NIST model it

434
00:17:30,259 --> 00:17:28,830
kind of crumples in couples inwards so

435
00:17:32,419 --> 00:17:30,269
the tops of the building the tops of

436
00:17:35,539 --> 00:17:32,429
this penthouse move inwards the bottoms

437
00:17:37,940 --> 00:17:35,549
do not move and this matches reasonably

438
00:17:39,289 --> 00:17:37,950

well what we actually see in the

439
00:17:41,269 --> 00:17:39,299
real-world model if you look at the

440
00:17:44,149 --> 00:17:41,279
real-world model here you'll see that

441
00:17:46,140 --> 00:17:44,159
it's tilting inwards and it kind of it's

442
00:17:49,050 --> 00:17:46,150
crumpled berry irregularly like we have

443
00:17:50,910 --> 00:17:49,060
here and in contrast the Holte model

444
00:17:52,950 --> 00:17:50,920
it's got this very strange regularity

445
00:17:56,160 --> 00:17:52,960
and we got this very strange outward

446
00:17:57,420 --> 00:17:56,170
tilting of the bottom of the model like

447
00:17:58,500 --> 00:17:57,430
it's pivoting around the top for either

448
00:18:01,050 --> 00:17:58,510
thing around the bottom which you would

449
00:18:03,750 --> 00:18:01,060
expect so it doesn't really seem to be

450
00:18:06,810 --> 00:18:03,760
based on an actual physical thing it's

451
00:18:09,480 --> 00:18:06,820
almost as if they've taken some angles

452
00:18:12,420 --> 00:18:09,490
from there their static analysis and

453
00:18:14,730 --> 00:18:12,430
then manually animated something to make

454
00:18:15,840 --> 00:18:14,740
it look like what's happening but they

455
00:18:20,100 --> 00:18:15,850
kind of got it wrong and that they

456
00:18:23,010 --> 00:18:20,110
rotate it the penthouse pieces around a

457
00:18:26,820 --> 00:18:23,020
different rotation point here it is like

458
00:18:28,080 --> 00:18:26,830
in more detail you can see you can see

459
00:18:31,830 --> 00:18:28,090
what actually happens so let's just play

460
00:18:33,870 --> 00:18:31,840
this okay so notice this is all crumpled

461
00:18:35,070 --> 00:18:33,880
air and it looks quite not always it's

462
00:18:37,080 --> 00:18:35,080
not realistic because it's just a

463
00:18:38,670 --> 00:18:37,090

wireframe but it's lots of distortion

464
00:18:40,500 --> 00:18:38,680
which is what you will expect from these

465
00:18:42,270 --> 00:18:40,510
columns being removed it's not going to

466
00:18:45,000 --> 00:18:42,280
neatly just crack in half and lower

467
00:18:47,130 --> 00:18:45,010
itself into the building which is kind

468
00:18:48,660 --> 00:18:47,140
of what it does here in the whole see

469
00:18:50,790 --> 00:18:48,670
model as ice focus on the whole see

470
00:18:54,090 --> 00:18:50,800
model for a second I'm gonna go back and

471
00:18:57,330 --> 00:18:54,100
forth there you see this this weird kind

472
00:19:00,810 --> 00:18:57,340
of just rotating and spreading outwards

473
00:19:02,970 --> 00:19:00,820
with no drop and then all of a sudden it

474
00:19:06,050 --> 00:19:02,980
starts to just very neatly just fall

475
00:19:08,580 --> 00:19:06,060
into the building without moving at all

476
00:19:10,640 --> 00:19:08,590
there's if you compare that to the NIST

477
00:19:12,720 --> 00:19:10,650
model you see a lot more actual

478
00:19:15,810 --> 00:19:12,730
distortion which I think much more

479
00:19:16,980 --> 00:19:15,820
closely matches the actual reality of

480
00:19:19,110 --> 00:19:16,990
the situation you can see especially

481
00:19:21,690 --> 00:19:19,120
this side here tilting in and this kind

482
00:19:24,390 --> 00:19:21,700
of irregular nature you can see this a

483
00:19:28,590 --> 00:19:24,400
bit more in the other videos but this

484
00:19:30,270 --> 00:19:28,600
just seems kind of ridiculous you know

485
00:19:34,410 --> 00:19:30,280
what is actually supposed to be going on

486
00:19:35,670 --> 00:19:34,420
there and if I sit back here there's

487
00:19:38,550 --> 00:19:35,680
another interesting thing we can look at

488
00:19:40,260 --> 00:19:38,560

real quick hopefully you can make this

489
00:19:42,570 --> 00:19:40,270
out there if you watch this you'll see

490
00:19:44,370 --> 00:19:42,580
when the penthouse falls into the

491
00:19:46,410 --> 00:19:44,380
building you can see the building

492
00:19:48,630 --> 00:19:46,420
windows all kind of ripple outwards as

493
00:19:51,750 --> 00:19:48,640
the penthouse falls in and what you'll

494
00:19:53,040 --> 00:19:51,760
notice is that the rippling area just

495
00:19:54,900 --> 00:19:53,050
move forward a little bit

496
00:19:57,510 --> 00:19:54,910
it goes in iRacing you can see it's a

497
00:19:58,710 --> 00:19:57,520
bit brighter here you'll see that move

498
00:20:00,120 --> 00:19:58,720
all the way down

499
00:20:02,580 --> 00:20:00,130
whereas in horses model

500
00:20:05,160 --> 00:20:02,590
the penthouse kind of stops here so let

501
00:20:06,810 --> 00:20:05,170
me just play that it's going down down

502
00:20:09,390 --> 00:20:06,820
down down down brightness goes all the

503
00:20:11,070 --> 00:20:09,400
way down to here I'm gonna go back and

504
00:20:12,930 --> 00:20:11,080
forth a little bit here you see it going

505
00:20:14,520 --> 00:20:12,940
all the way down and this is something

506
00:20:17,060 --> 00:20:14,530
you can there's threads on Meadowbrook

507
00:20:21,750 --> 00:20:17,070
that share this in a bit more detail

508
00:20:24,000 --> 00:20:21,760
okay so why do you confuse NIST's and

509
00:20:26,250 --> 00:20:24,010
see smaller with the LS diner model this

510
00:20:28,350 --> 00:20:26,260
it makes a big deal of this and he talks

511
00:20:31,440 --> 00:20:28,360
about it in the presentation

512
00:20:33,780 --> 00:20:31,450
professor Halsey and he says that he

513
00:20:35,730 --> 00:20:33,790

thinks that NIST had different stiffness

514
00:20:38,400 --> 00:20:35,740
on one side of the building or the other

515
00:20:41,460 --> 00:20:38,410
because of this here but yeah as as I

516
00:20:45,480 --> 00:20:41,470
noticed as I noted before and as

517
00:20:48,390 --> 00:20:45,490
actually says in the model is the

518
00:20:50,130 --> 00:20:48,400
ancestor it's a 16 story model it's not

519
00:20:51,360 --> 00:20:50,140
the global model you know he's

520
00:20:52,980 --> 00:20:51,370
objections he don't really make any

521
00:20:54,540 --> 00:20:52,990
sense and it's a bit worrying because it

522
00:20:57,300 --> 00:20:54,550
kind of shows that he doesn't really

523
00:21:00,000 --> 00:20:57,310
understand the NIST model and he's been

524
00:21:02,330 --> 00:21:00,010
ignoring all of the criticism of his

525
00:21:04,980 --> 00:21:02,340
report for like the last two plus years

526
00:21:08,670 --> 00:21:04,990
this is something that was pointed out I

527
00:21:10,590 --> 00:21:08,680
believe around two years ago when he did

528
00:21:12,570 --> 00:21:10,600
his original presentation when he

529
00:21:15,120 --> 00:21:12,580
concluded that fire could not have

530
00:21:18,440 --> 00:21:15,130
caused the collapse he used this exact

531
00:21:21,030 --> 00:21:18,450
same thing and said that the mist model

532
00:21:22,440 --> 00:21:21,040
used stiffnesses differently on one side

533
00:21:23,760 --> 00:21:22,450
than the other when it was only the 16

534
00:21:25,440 --> 00:21:23,770
story model I don't need because they

535
00:21:27,780 --> 00:21:25,450
were only modeling the local connections

536
00:21:28,710 --> 00:21:27,790
around this area because they wanted to

537
00:21:30,390 --> 00:21:28,720
see what would happen around these

538
00:21:32,340 --> 00:21:30,400

connections it wasn't a global response

539
00:21:36,030 --> 00:21:32,350
model so it's a bit worrying that he

540
00:21:37,830 --> 00:21:36,040
doesn't actually understand that but you

541
00:21:42,090 --> 00:21:37,840
know really I think the big issues here

542
00:21:46,260 --> 00:21:42,100
are why do we have this ridiculous usage

543
00:21:48,090 --> 00:21:46,270
of static linear analysis for something

544
00:21:51,500 --> 00:21:48,100
that's obviously very dynamic and

545
00:21:54,090 --> 00:21:51,510
nonlinear and why do you have these

546
00:21:58,470 --> 00:21:54,100
rather ridiculous things that are being

547
00:22:01,460 --> 00:21:58,480
passed off as being dynamic analysis

548
00:22:04,140 --> 00:22:01,470
when they're clearly nothing of the sort

549
00:22:06,660 --> 00:22:04,150
now this is just my first pass at this

550
00:22:08,010 --> 00:22:06,670
and I probably got some things wrong

551
00:22:09,930 --> 00:22:08,020
there's probably some things I don't

552
00:22:12,399 --> 00:22:09,940
understand maybe there's reasons for

553
00:22:14,980 --> 00:22:12,409
this ridiculous animation may

554
00:22:17,049 --> 00:22:14,990
I don't know I can't think of any

555
00:22:19,090 --> 00:22:17,059
reasons but the Sun technical reasons

556
00:22:21,610 --> 00:22:19,100
why he couldn't actually show the LS

557
00:22:24,490 --> 00:22:21,620
Deena and I met Nadia via the sap2000

558
00:22:26,799 --> 00:22:24,500
animation but there's no reason for that

559
00:22:29,230 --> 00:22:26,809
except mm got buttons you can press and

560
00:22:32,649 --> 00:22:29,240
he will pop out in animation obviously

561
00:22:34,779 --> 00:22:32,659
if you did a dynamic analysis then you

562
00:22:36,490 --> 00:22:34,789
have the positions of all the members

563
00:22:38,590 --> 00:22:36,500

and you could render out something which

564
00:22:40,690 --> 00:22:38,600
shows where what happened to it that's

565
00:22:42,340 --> 00:22:40,700
not what's going on here this is just

566
00:22:44,169 --> 00:22:42,350
the top half rotating around the bottom

567
00:22:49,389 --> 00:22:44,179
half and frankly it looks quite

568
00:22:51,789 --> 00:22:49,399
ridiculous anyway I anticipate making

569
00:22:54,070 --> 00:22:51,799
another video with corrections to this

570
00:22:57,340 --> 00:22:54,080
video so if you think I got something

571
00:23:00,279 --> 00:22:57,350
wrong please put it in detail in the

572
00:23:02,799 --> 00:23:00,289
comments below or email me make up my