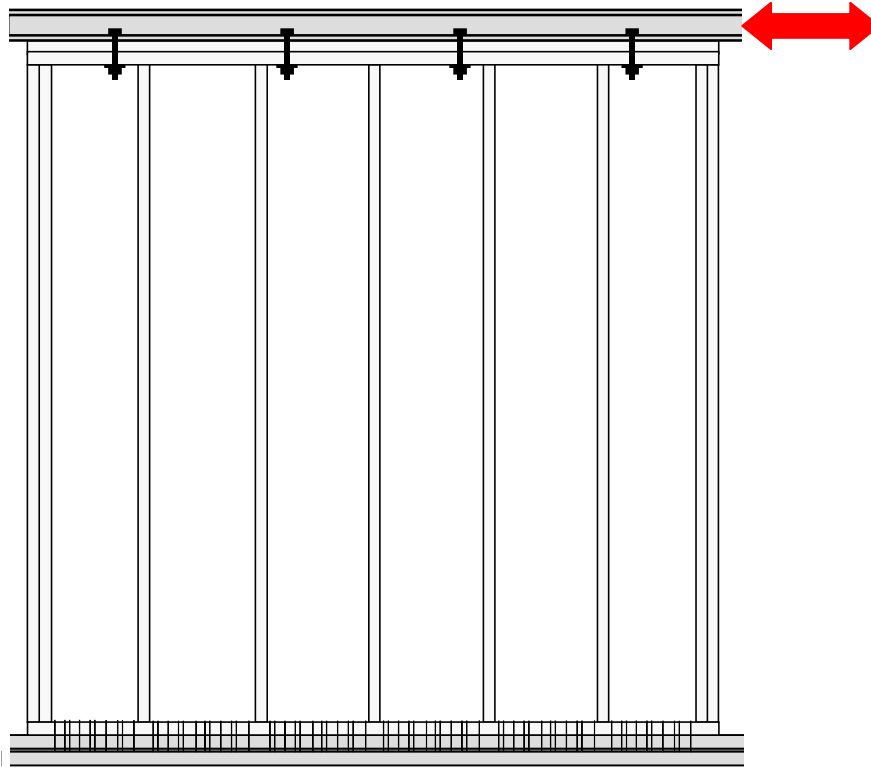


Walls 08NAc



Walls:	08NAc1	No replication
Manufactured:	June 22, 1998	
MOE data files:	8nam1s.prn	
MOE _{plates} (10 ⁶ psi)		
MOE _{studs} (10 ⁶ psi)	1.65	
Density _{plates} (kg/m ³)		
Density _{studs} (kg/m ³)	490	
Date tested:	August 15, 1998¹	
Time tested:	12:20	
LTC files:	alex_c8	
Data files:	08NAc1.dat	
Excel files:	08NAc1_data 08NAc1_UTP	
Photo files:	828-830	

Wall Nam1 was used with replaced bottom plate and sheathing attached with 3/4-in. edge distance. Bottom plate was attached to the base with 3 rows of 16d nails at 3 in. o. c. one day before the test. Rain started during the test.

Wall 08NAc1

Observations: The performance of this wall was similar to that of 08IAc3 wall, including the unsymmetrical envelopes. The peak load approximately 2.4 Kips (0.30 Kip/ft.) was reached at 0.9-in. amplitude on the negative stroke and at 1.2 in. – on the positive stroke. Rapid strength degradation started immediately after the peak load. Sheathing moved significantly relative to the bottom plate. The sheathing displacement along the studs and the top plate was less than 0.04 in.

Failure mode: The sheathing unzipped at both ends of the bottom plate (Photo 829). Left end of the bottom plate was split due to work of sheathing nails (Photo 828). Nails tore through at the edge (Photo 830). No nail fatigue was observed. The test was stopped during 2.1-in. phase when the wall separated from the bottom plate.

Table 08NAc1. Data summary.

Specimen	08NAc1	Per unit length	
Nails		cyclic test	
Wall length		8.00ft.	2.438m
Date: 8-15-1998	Time: 12:20		
EEEP Parameters	units	initial	stabilized
Peak unit load, v_{peak}	Kip/ft.	0.303	0.262
	KN/m	4.426	3.826
Drift at peak load, Δ_{peak}	in.	1.055	0.757
	mm	26.79	19.24
Yield unit load, v_{yield}	Kip/ft.	0.268	0.245
	KN/m	3.909	3.573
Drift at yield load, Δ_{yield}	in.	0.266	0.373
	mm	6.76	9.48
Proportional limit, $0.4v_{peak}$	Kip/ft.	0.121	0.105
	KN/m	1.771	1.530
Drift at prop. limit, $\Delta@0.4v_{peak}$	in.	0.121	0.160
	mm	3.06	4.06
Unit load at failure or $0.8v_{peak}$	Kip/ft.	0.243	0.210
	KN/m	3.541	3.061
Drift at failure, $\Delta_{failure}$	in.	1.426	1.253
	mm	36.23	31.81
Shear modulus, G $@0.4v_{peak}$	Kip/in.	8.104	5.272
	KN/mm	1.419	0.923
Work until failure per unit length	Kip-ft./ft.	0.330	0.309
	KN-m/m	1.470	1.377
Unit load, $v_{1/300}$ $@ 0.32$ in. (8.13 mm)	Kips/ft.	0.210	0.202
	KN/m	3.061	2.951
Unit load, $v_{1/200}$ $@ 0.48$ in.(12.19 mm)	Kips/ft.	0.247	0.230
	KN/m	3.601	3.362
Unit load, $v_{1/100}$ $@ 0.96$ in. (24.38 mm)	Kips/ft.	0.298	0.256
	KN/m	4.350	3.735
Unit load, $v_{1/60}$ $@ 1.6$ in. (40.64 mm)	Kips/ft.	0.173	0.073
	KN/m	2.525	1.061
EVDR $@v_{peak}$		0.188	0.170

SEAOSC parameters		units	negative	positive	average
Yield Limit State	v_{YLS}	Kips/ft.	-0.220	0.191	0.205
		KN/m	-3.214	2.782	2.998
	Δ_{YLS}	in.	-0.305	0.299	0.302
		mm	-7.74	7.59	7.66
Strength Limit State	G'_{YLS}	Kip/in.	5.783	5.104	5.447
		KN/mm	1.013	0.894	0.954
	v_{SLS}	Kips/ft.	-0.307	0.300	0.303
KN/m		-4.478	4.374	4.426	
Δ_{SLS}	in.	-0.908	1.201	1.055	
	mm	-23.07	30.51	26.79	
G'_{SLS}	Kip/in.	2.703	1.996	2.301	
	KN/mm	0.473	0.350	0.403	

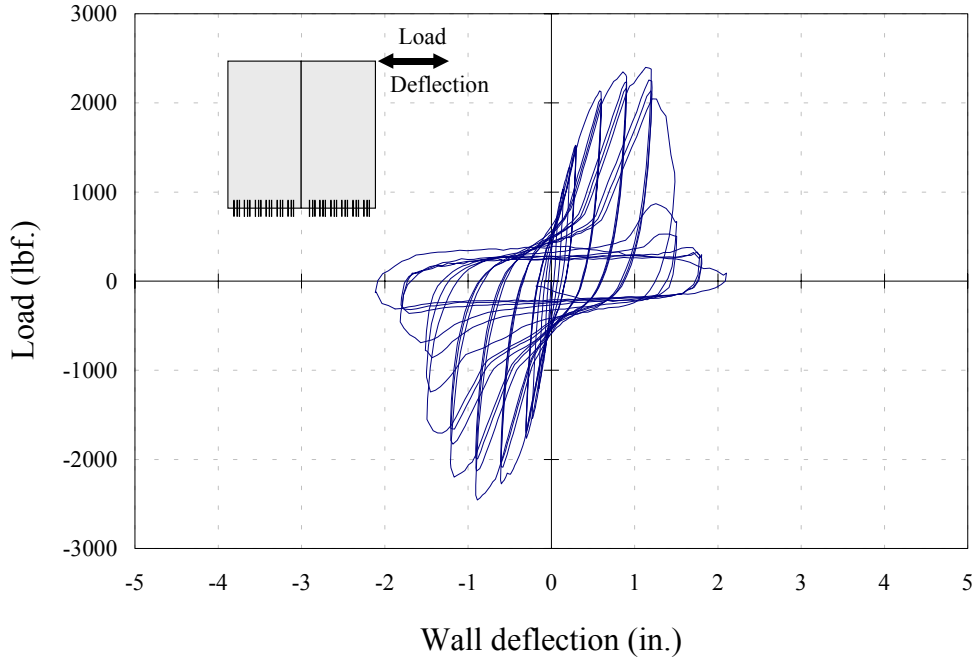


Figure 08NAc1- a. Observed load-deflection curve¹.

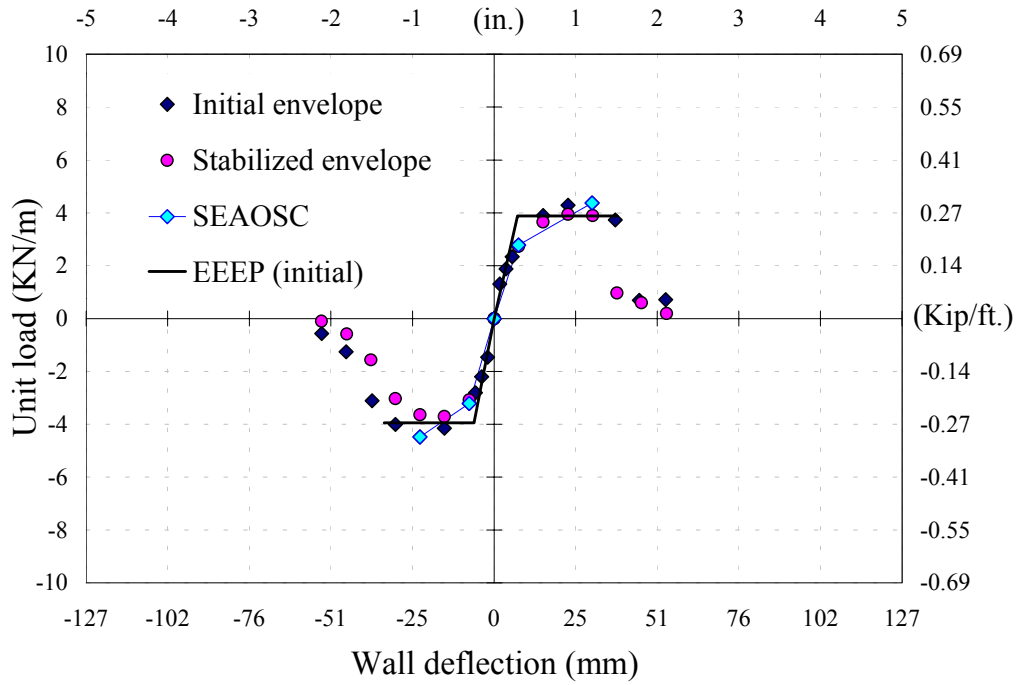


Figure 08NAc1- b. Envelopes, SEAOSC, and EEEP curves².

¹ The scale of the graph varies between test series.

² The scale of the graph is uniform between test series for comparison purposes.

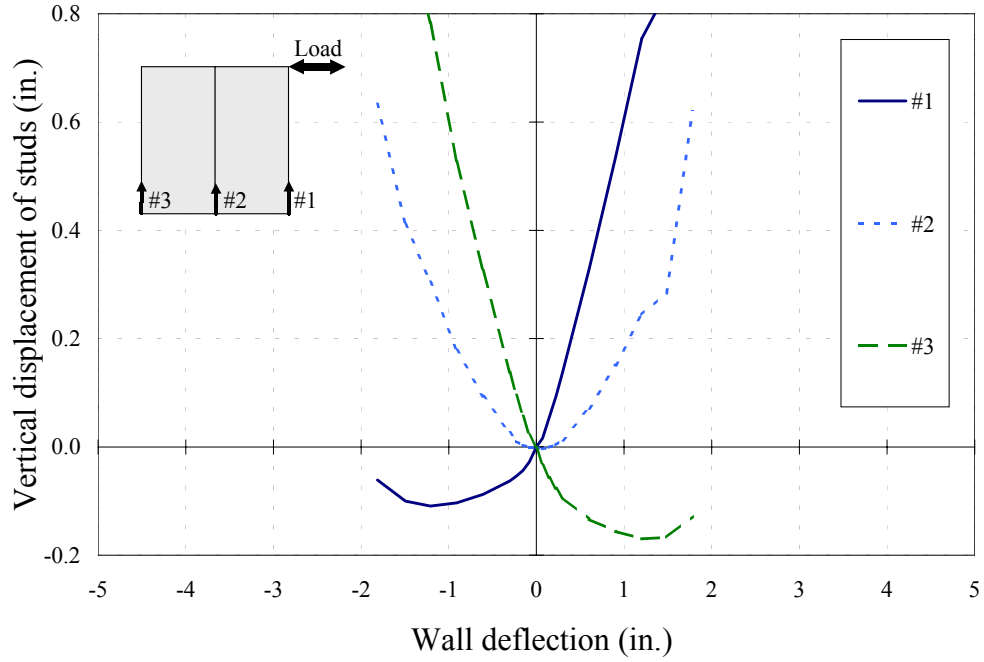


Figure 08NAc1- c. Vertical displacement of studs (initial envelope).

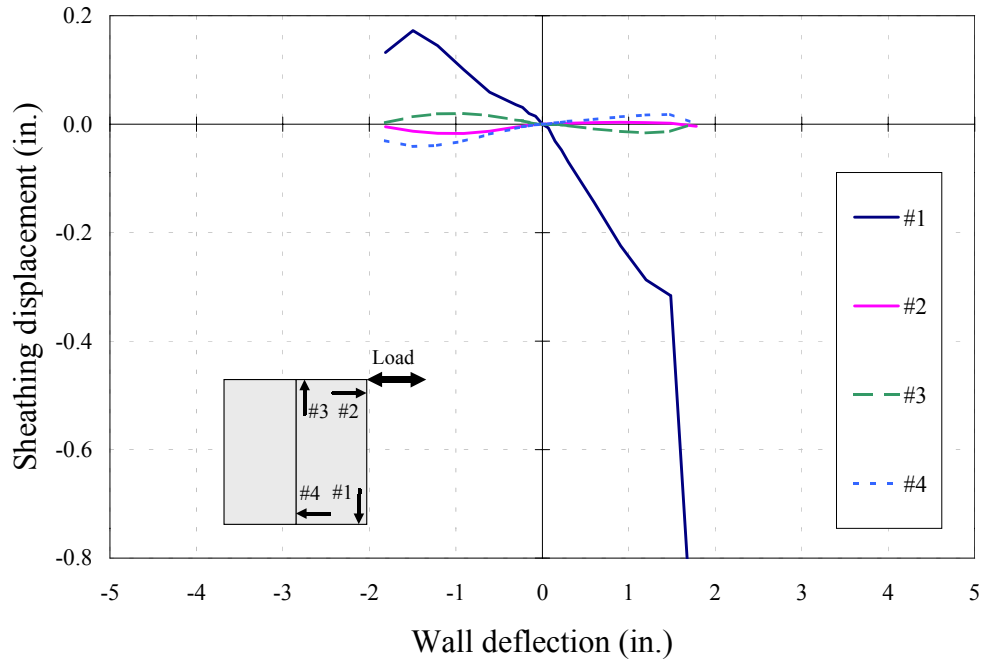


Figure 08NAc1- d. Sheathing displacement (initial envelope).

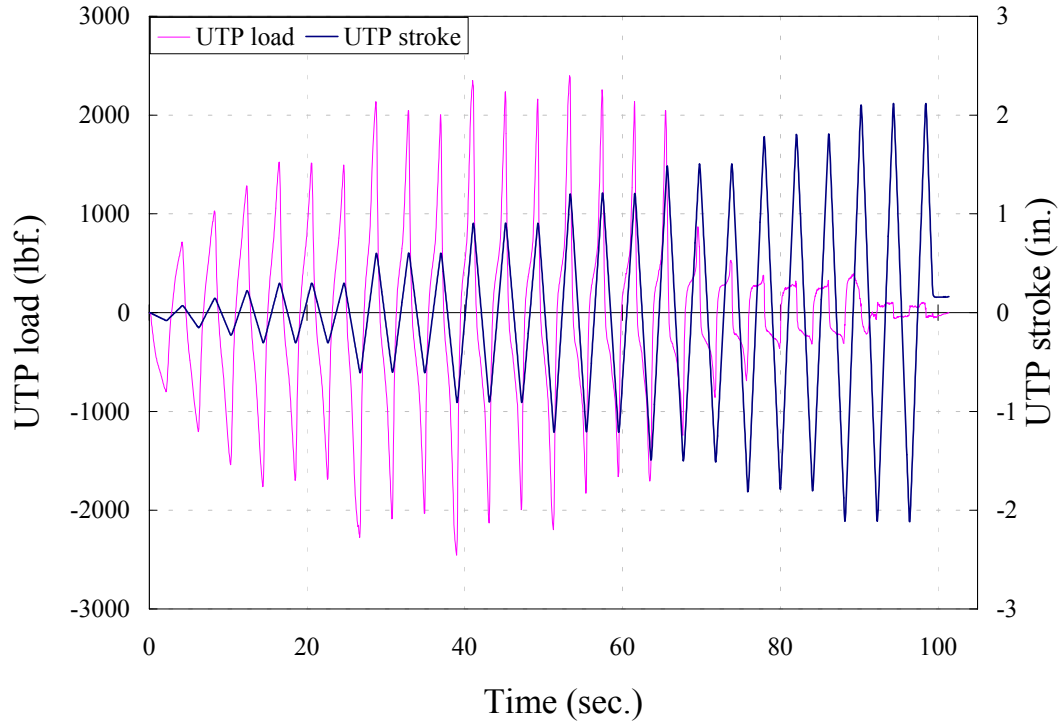


Figure 08NAc1- f. Load- and displacement-time record.