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**U.S. - JAPAN COORDINATED PROGRAM  
FOR  
MASONRY BUILDING RESEARCH**

REPORT NO. 3.2 (b2)



PB93-214617

**THE TRANSVERSE RESPONSE  
OF  
CLAY MASONRY WALLS  
SUBJECTED TO STRONG MOTION  
EARTHQUAKES**

**Summary of Dynamic Test Results  
Volume 4: Walls No. 3,5, and 7 (Group 3)**

by

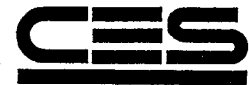
**Marcial Blondet  
Ronald L. Mayes**

**APRIL 1991**

supported by:

**NATIONAL SCIENCE FOUNDATION  
GRANT NO. CES-8518700**

**COMPUTECH ENGINEERING SERVICES, INCORPORATED**



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This report presents the results of a research project which was part of the U.S. Coordinated Program for Masonry Building Research. The program constitutes the United States part of the United States - Japan Coordinated Masonry Research Program conducted under the auspices of the Panel on Wind and Seismic Effects of the U.S.-Japan Natural Resources Development Program (UJNR).

This material is based on work supported by the National Science Foundation under the direction of Program Director, Dr. S.C. Liu.

Any opinions, findings, and conclusions or recommendations expressed in this publication are those of the authors and do not necessarily reflect the views of the National Science Foundation and/or the United States Government.



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## INTRODUCTION

This report is Volume 4 of a four volume set of reports. It includes detailed test information on Walls No. 3, 5 and 7 (Group 3), which were part of a test program on the out of plane response of nine reinforced, clay brick masonry walls that were subjected to simulated earthquake loading. The project was developed by Computech Engineering Services (CES), as part of the US/Japan Coordinated Program for Masonry Building Research (TCCMAR). Its main objective was to evaluate the influence of the amount of vertical reinforcement, vertical ledger load, height-to-thickness (H/t) ratio, rebar splicing, and extent of grouting on the out-of-plane response of the walls.

Testing was performed at the Earthquake Engineering Research Center (EERC), University of California, Berkeley. The walls were 20 and 25 feet high, with a nominal thickness of 6 inches; the vertical reinforcement consisted of 2 # 5 or 3 # 7 rebar with steel ratios of  $0.16\rho_b$  and  $0.50\rho_b$  respectively. Simulated earthquake motions were applied at the base and the top of each wall. The base motions corresponded to the seismic ground excitation; the top motions represented the response, at the diaphragm level, of a typical warehouse structure. Both stiff and flexible diaphragm conditions were considered. The seismic inputs were generated by scaling recorded ground motions in the time and frequency domains, to attain specified intensities of 0.1, 0.2, 0.4, and 0.8 EPA (Effective Peak Acceleration) for a rock site. The first three EPA levels corresponded, respectively, to the lower, medium and highest seismic zones of the United States. The 0.8 EPA motions represented events of twice the intensity specified by the SEAOC requirements for a soil type 1 site (S1), although the longer period part of these spectra are similar to the 0.4 EPA soil type 3 spectra.

Volume 1 of the series provides detailed descriptions of the experimental setup, input signal characteristics, data processing techniques, and summary data derived from the dynamic tests. Volume 2 contains the results from the first group of walls (Group 1): Walls 4 and 6. Volume 3 contains the results from Group 2: Walls 8, 9, 10, and 11. Volume 4 contains the results from Group 3: Walls 3, 5, and 7.

This volume is organized as follows: First, a set of figures with construction drawings and test setup and instrumentation schematics is presented. This is followed by a table with test sequence and peak displacement, acceleration measured at the bottom, center and top of each wall, as well as measured peak rebar strain. For each run, a summary table is given indicating: a) peak values of input and global response (i.e., displacements and accelerations at the top, center and bottom of the wall, peak deflection, peak inertia force and bending moment, and seismic coefficient); b) summary of mechanical properties, average stiffness  $EI_{eqv}$ , compared to code reference value  $EmI_g$ , and the average vibration frequency observed during the run; and c) local response, characterized by peak values of rebar strain, joint opening (near rebar), and faceshell compression strain and opening. Since these do not

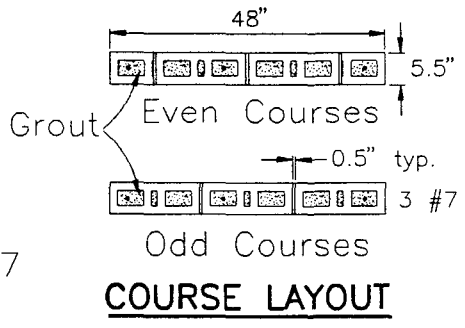
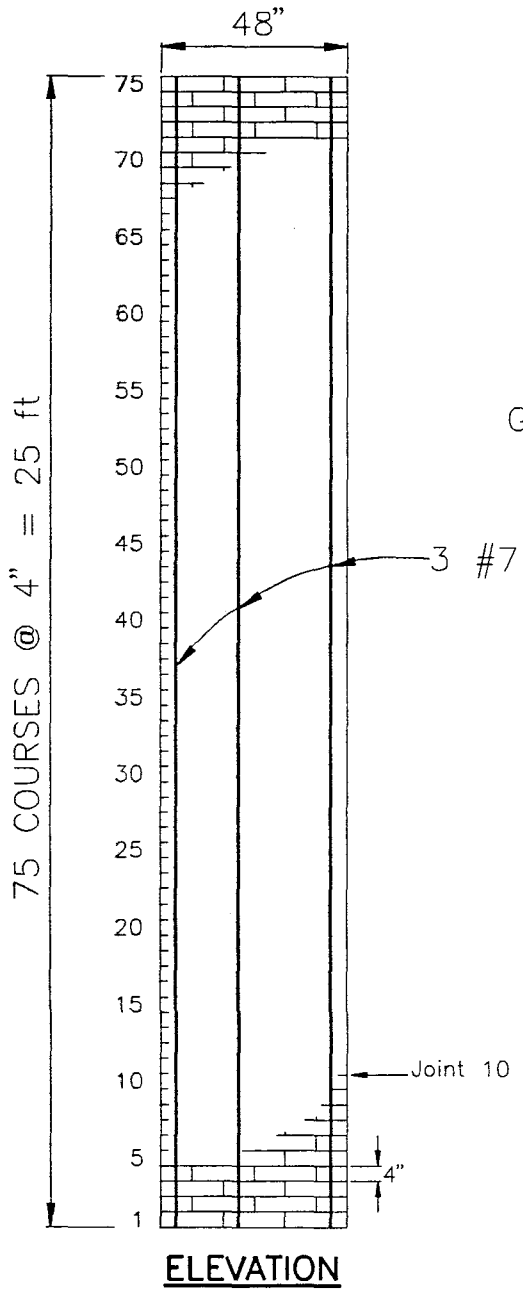


generally occur in the same joint, a joint near the center is selected, and the corresponding quantities recorded.

For each run, envelopes and representative patterns of wall displacement, relative deflection, and absolute acceleration and bending moment, followed by the distribution of rebar strain, joint opening (near the rebar location), and faceshell compressive strain and opening are given. Then, for the first run of each EPA level, or for each run where significant difference in input or response occurs, the following force deformation plots are included: total inertia force versus center deflection, center moment versus center deflection, and moment versus curvature at center joint.







Wall Height: 25 ft  
 Nominal Thickness: 6"  
 $H/t = 50$   
 Vertical Reinf.: 3 #7  
 No Splices  
 Full Grouting  
 Dead Load: 800 lb/ft

SPECIFICATIONS

WALL #3 CONSTRUCTION DRAWINGS

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TCCMAR PROJECT

WALL No 3 DYNAMIC TEST Run No 1: MS1 0.10 EPA

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Wall Weight: 6.84 kips	H/t Ratio: 50
Vert. Reinf: 3 # 7	Grouting : Full
Dead Load: 800 lb/ft	Splices : no

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	1.63 in	Acc Top	0.29 g
Disp Cent	1.62 in	Acc Cent	0.26 g
Disp Bot	1.23 in	Acc Bot	0.07 g
Peak Defl	0.46 in		
Inertia Force	1.31 kips	Eqv Load	60.0 lb/ft
Bending Mt	56.28 kip-in	Seismic C	0.22
		C/Acc Bot	3.13

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in4	EmIg	2269000 kip-in2
Avg Freq	3.39 Hz	EIeqv	1147000 kip-in2
		EmIg/EIeqv	1.98

LOCAL RESPONSE

	Peak	Joint	35
Rebar Strain	0.0001	0.0001	in/in
Strain Ductility	0.04	0.04	in
Avg Joint Opening	0.0007	0.0008	in
Faceshell Comp. Strain	0.0002	0.0001	in/in
Faceshell Opening	0.0020	0.0020	in
Curvature	0.1200	0.1100	(1/in)*10-3
EI joint		502000	kip-in2

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CES

October 9, 1989

10:17:01 am

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TCCMAR PROJECT

WALL No 3 DYNAMIC TEST Run No 2: MS2 0.10 EPA

---

Wall Weight: 6.84 kips	H/t Ratio: 50
Vert. Reinf: 3 # 7	Grouting : Full
Dead Load: 800 lb/ft	Splices : no

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	0.34 in	Acc Top	0.32 g
Disp Cent	0.73 in	Acc Cent	0.38 g
Disp Bot	0.25 in	Acc Bot	0.09 g
Peak Defl	0.69 in		
Inertia Force	1.38 kips	Eqv Load	80.0 lb/ft
Bending Mt	71.92 kip-in	Seismic C	0.28
		C/Acc Bot	3.12

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in <sup>4</sup>	EmIg	2269000 kip-in <sup>2</sup>
Avg Freq	3.00 Hz	EIeqv	977000 kip-in <sup>2</sup>
		EmIg/EIeqv	2.32

LOCAL RESPONSE

	Peak	Joint	35
Rebar Strain	0.0003	0.0002	in/in
Strain Ductility	0.12	0.08	in
Avg Joint Opening	0.0019	0.0019	in
Faceshell Comp. Strain	0.0003	0.0001	in/in
Faceshell Opening	0.0036	0.0042	in
Curvature	0.2200	0.2100	(1/in)*10 <sup>-3</sup>
EI joint		332000	kip-in <sup>2</sup>

---

TCCMAR PROJECT

WALL No 3 DYNAMIC TEST Run No 3: TAFT1 0.10 EPA

---

Wall Weight: 6.84 kips H/t Ratio: 50  
Vert. Reinf: 3 # 7 Grouting : Full  
Dead Load: 800 lb/ft Splices : no

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	1.57 in	Acc Top	0.23 g
Disp Cent	1.69 in	Acc Cent	0.26 g
Disp Bot	1.16 in	Acc Bot	0.08 g
Peak Defl	0.54 in		
Inertia Force	1.21 kips	Eqv Load	60.0 lb/ft
Bending Mt	55.15 kip-in	Seismic C	0.22
		C/Acc Bot	2.69

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in <sup>4</sup>	EmIg	2269000 kip-in <sup>2</sup>
Avg Freq	2.90 Hz	EIeqv	957000 kip-in <sup>2</sup>
		EmIg/EIeqv	2.37

LOCAL RESPONSE

Rebar Strain	Peak 0.0002	Joint 35 0.0001 in/in
Strain Ductility	0.08	0.04 in
Avg Joint Opening	0.0015	0.0015 in
Faceshell Comp. Strain	0.0003	0.0001 in/in
Faceshell Opening	0.0031	0.0031 in
Curvature	0.1800	0.1500 (1/in)*10 <sup>-3</sup>
EI joint		360000 kip-in <sup>2</sup>

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CES

October 9, 1989

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TCCMAR PROJECT

WALL No 3 DYNAMIC TEST Run No 5: TAFT2 0.20 EPA

---

Wall Weight: 6.84 kips	H/t Ratio: 50
Vert. Reinf: 3 # 7	Grouting : Full
Dead Load: 800 lb/ft	Splices : no

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	3.11 in	Acc Top	0.34 g
Disp Cent	3.14 in	Acc Cent	0.37 g
Disp Bot	2.27 in	Acc Bot	0.17 g
Peak Defl	0.87 in		
Inertia Force	1.73 kips	Egv Load	80.0 lb/ft
Bending Mt	74.53 kip-in	Seismic C	0.29
		C/Acc Bot	1.71

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in4	EmIg	2269000 kip-in2
Avg Freq	3.15 Hz	EIEgv	803000 kip-in2
		EmIg/EIEgv	2.83

LOCAL RESPONSE

	Peak	Joint	35
Rebar Strain	0.0004	0.0002	in/in
Strain Ductility	0.16	0.08	in
Avg Joint Opening	0.0026	0.0026	in
Faceshell Comp. Strain	0.0004	0.0002	in/in
Faceshell Opening	0.0055	0.0055	in
Curvature	0.2900	0.2700	(1/in)*10-3
EI joint		269000	kip-in2

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CES

October 9, 1989

10:17:09 am

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TCCMAR PROJECT

WALL No 3 DYNAMIC TEST Run No 6: ELC2 0.20 EPA

---

Wall Weight: 6.84 kips H/t Ratio: 50  
Vert. Reinf: 3 # 7 Grouting : Full  
Dead Load: 800 lb/ft Splices : no

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	1.84 in	Acc Top	0.49 g
Disp Cent	2.09 in	Acc Cent	0.42 g
Disp Bot	1.50 in	Acc Bot	0.16 g
Peak Defl	1.27 in		
Inertia Force	1.69 kips	Eqv Load	90.0 lb/ft
Bending Mt	80.80 kip-in	Seismic C	0.32
		C/Acc Bot	1.97

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in4	EmIg	2269000 kip-in2
Avg Freq	1.86 Hz	EIeqv	596000 kip-in2
		EmIg/EIeqv	3.81

LOCAL RESPONSE

	Peak	Joint	35
Rebar Strain	0.0005	0.0003	in/in
Strain Ductility	0.20	0.12	in
Avg Joint Opening	0.0034	0.0034	in
Faceshell Comp. Strain	0.0005	0.0002	in/in
Faceshell Opening	0.0076	0.0076	in
Curvature	0.4000	0.3900	(1/in)*10-3
EI joint		207000	kip-in2

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October 9, 1989

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TCCMAR PROJECT

WALL No 3 DYNAMIC TEST Run No 7: BONDC 0.40 EPA

---

Wall Weight: 6.84 kips H/t Ratio: 50  
Vert. Reinf: 3 # 7 Grouting : Full  
Dead Load: 800 lb/ft Splices : no

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	4.01 in	Acc Top	0.47 g
Disp Cent	7.00 in	Acc Cent	0.68 g
Disp Bot	2.23 in	Acc Bot	0.31 g
Peak Defl	6.00 in		
Inertia Force	3.06 kips	Eqv Load	150.0 lb/ft
Bending Mt	140.79 kip-in	Seismic C	0.55
		C/Acc Bot	1.77

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in <sup>4</sup>	EmIg	2269000 kip-in <sup>2</sup>
Avg Freq	0.87 Hz	EIeqv	220000 kip-in <sup>2</sup>
		EmIg/EIeqv	10.31

LOCAL RESPONSE

	Peak	Joint	35
Rebar Strain	0.0014	0.0010	in/in
Strain Ductility	0.56	0.40	in
Avg Joint Opening	0.0085	0.0069	in
Faceshell Comp. Strain	0.0013	0.0007	in/in
Faceshell Opening	0.0203	0.0167	in
Curvature	1.1600	0.8900	(1/in)*10 <sup>-3</sup>
EI joint		158000	kip-in <sup>2</sup>

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CES

October 9, 1989

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TCCMAR PROJECT

WALL No 3 DYNAMIC TEST Run No 8: ELC 0.40 EPA

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Wall Weight: 6.84 kips H/t Ratio: 50  
Vert. Reinf: 3 # 7 Grouting : Full  
Dead Load: 800 lb/ft Splices : no

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	5.62 in	Acc Top	0.61 g
Disp Cent	9.38 in	Acc Cent	0.82 g
Disp Bot	2.97 in	Acc Bot	0.29 g
Peak Defl	7.11 in		
Inertia Force	3.39 kips	Eqv Load	160.0 lb/ft
Bending Mt	153.53 kip-in	Seismic C	0.60
		C/Acc Bot	2.06

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in <sup>4</sup>	EmIg	2269000 kip-in <sup>2</sup>
Avg Freq	1.02 Hz	EIeqv	202000 kip-in <sup>2</sup>
		EmIg/EIeqv	11.23

LOCAL RESPONSE

	Peak	Joint	35
Rebar Strain	0.0016	0.0012	in/in
Strain Ductility	0.64	0.48	in
Avg Joint Opening	0.0076	0.0066	in
Faceshell Comp. Strain	0.0015	0.0008	in/in
Faceshell Opening	0.0187	0.0163	in
Curvature	1.0800	0.8800	(1/in)*10 <sup>-3</sup>
EI joint		174000	kip-in <sup>2</sup>

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October 9, 1989

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TCCMAR PROJECT

WALL No 3 DYNAMIC TEST Run No 9: BONDCS 0.40 EPA

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Wall Weight: 6.84 kips H/t Ratio: 50  
Vert. Reinf: 3 # 7 Grouting : Full  
Dead Load: 800 lb/ft Splices : no

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	3.20 in	Acc Top	0.79 g
Disp Cent	4.78 in	Acc Cent	0.40 g
Disp Bot	2.21 in	Acc Bot	0.30 g
Peak Defl	3.97 in		
Inertia Force	1.64 kips	Eqv Load	80.0 lb/ft
Bending Mt	78.92 kip-in	Seismic C	0.31
		C/Acc Bot	1.03

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in4	EmIg	2269000 kip-in2
Avg Freq	1.04 Hz	EIeqv	186000 kip-in2
		EmIg/EIeqv	12.20

LOCAL RESPONSE

Rebar Strain	Peak 0.0008	Joint 35 0.0006	in/in
Strain Ductility	0.32	0.24	in
Avg Joint Opening	0.0045	0.0038	in
Faceshell Comp. Strain	0.0009	0.0003	in/in
Faceshell Opening	0.0110	0.0089	in
Curvature	0.5900	0.4700	(1/in)*10-3
EI joint		168000	kip-in2

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CES

October 9, 1989

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TCCMAR PROJECT

WALL No 3 DYNAMIC TEST Run No 10: TAFTS 0.40 EPA

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Wall Weight: 6.84 kips	H/t Ratio: 50
Vert. Reinf: 3 # 7	Grouting : Full
Dead Load: 800 lb/ft	Splices : no

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	5.67 in	Acc Top	0.74 g
Disp Cent	5.85 in	Acc Cent	0.63 g
Disp Bot	4.58 in	Acc Bot	0.33 g
Peak Defl	3.48 in		
Inertia Force	2.20 kips	Eqv Load	100.0 lb/ft
Bending Mt	92.11 kip-in	Seismic C	0.36
		C/Acc Bot	1.09

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in4	EmIg	2269000 kip-in2
Avg Freq	0.96 Hz	EIeqv	248000 kip-in2
		EmIg/EIeqv	9.15

LOCAL RESPONSE

	Peak	Joint	35
Rebar Strain	0.0009	0.0005	in/in
Strain Ductility	0.36	0.20	in
Avg Joint Opening	0.0045	0.0035	in
Faceshell Comp. Strain	0.0008	0.0003	in/in
Faceshell Opening	0.0108	0.0077	in
Curvature	0.5700	0.3900	(1/in)*10-3
EI joint		208000	kip-in2

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CES

October 9, 1989

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TCCMAR PROJECT

WALL No 3 DYNAMIC TEST Run No 11: BONDCH 0.80 EPA

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Wall Weight: 6.84 kips                      H/t Ratio: 50  
Vert. Reinf: 3 # 7                          Grouting : Full  
Dead Load: 800 lb/ft                      Splices : no

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SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	5.88 in	Acc Top	1.31 g
Disp Cent	13.98 in	Acc Cent	1.40 g
Disp Bot	2.74 in	Acc Bot	0.60 g
Peak Defl	12.88 in		
Inertia Force	5.58 kips	Eqv Load	270.0 lb/ft
Bending Mt	255.07 kip-in	Seismic C	0.99
		C/Acc Bot	1.66

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in <sup>4</sup>	EmIg	2269000 kip-in <sup>2</sup>
Avg Freq	0.84 Hz	EIeqv	186000 kip-in <sup>2</sup>
		EmIg/EIeqv	12.20

LOCAL RESPONSE

Rebar Strain	Peak 0.0035	Joint 35	0.0024 in/in
Strain Ductility	1.40		0.96 in
Avg Joint Opening	0.0128		0.0116 in
Faceshell Comp. Strain	0.0027		0.0015 in/in
Faceshell Opening	0.0345		0.0292 in
Curvature	2.0200		1.5900 (1/in)*10 <sup>-3</sup>
EI joint			160000 kip-in <sup>2</sup>

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CES

October 9, 1989

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TCCMAR PROJECT

WALL No 3 DYNAMIC TEST Run No 12: BONDCSH 0.80 EPA

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Wall Weight: 6.84 kips	H/t Ratio: 50
Vert. Reinf: 3 # 7	Grouting : Full
Dead Load: 800 lb/ft	Splices : no

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	5.18 in	Acc Top	2.08 g
Disp Cent	15.06 in	Acc Cent	2.14 g
Disp Bot	4.07 in	Acc Bot	1.01 g
Peak Defl	14.39 in		
Inertia Force	5.03 kips	Eqv Load	290.0 lb/ft
Bending Mt	269.57 kip-in	Seismic C	1.05
		C/Acc Bot	1.04

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in <sup>4</sup>	EmIg	2269000 kip-in <sup>2</sup>
Avg Freq	0.72 Hz	EIeqv	176000 kip-in <sup>2</sup>
		EmIg/EIeqv	12.89

LOCAL RESPONSE

	Peak	Joint	35
Rebar Strain	0.0056	0.0035	in/in
Strain Ductility	2.24	1.40	in
Avg Joint Opening	0.0163	0.0152	in
Faceshell Comp. Strain	0.0031	0.0018	in/in
Faceshell Opening	0.0384	0.0367	in
Curvature	2.5800	2.0400	(1/in)*10 <sup>-3</sup>
EI joint		129000	kip-in <sup>2</sup>

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CES

October 9, 1989

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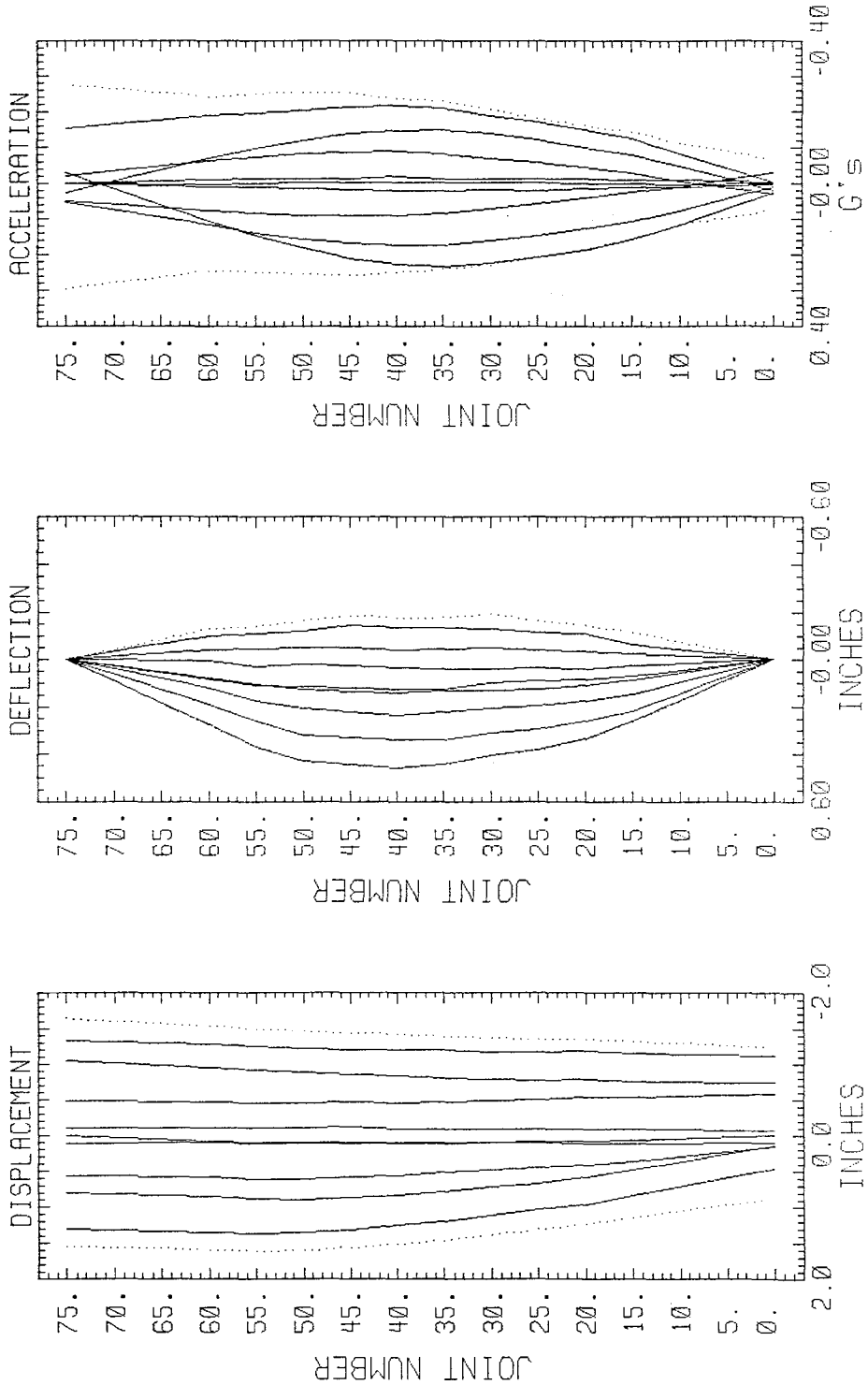
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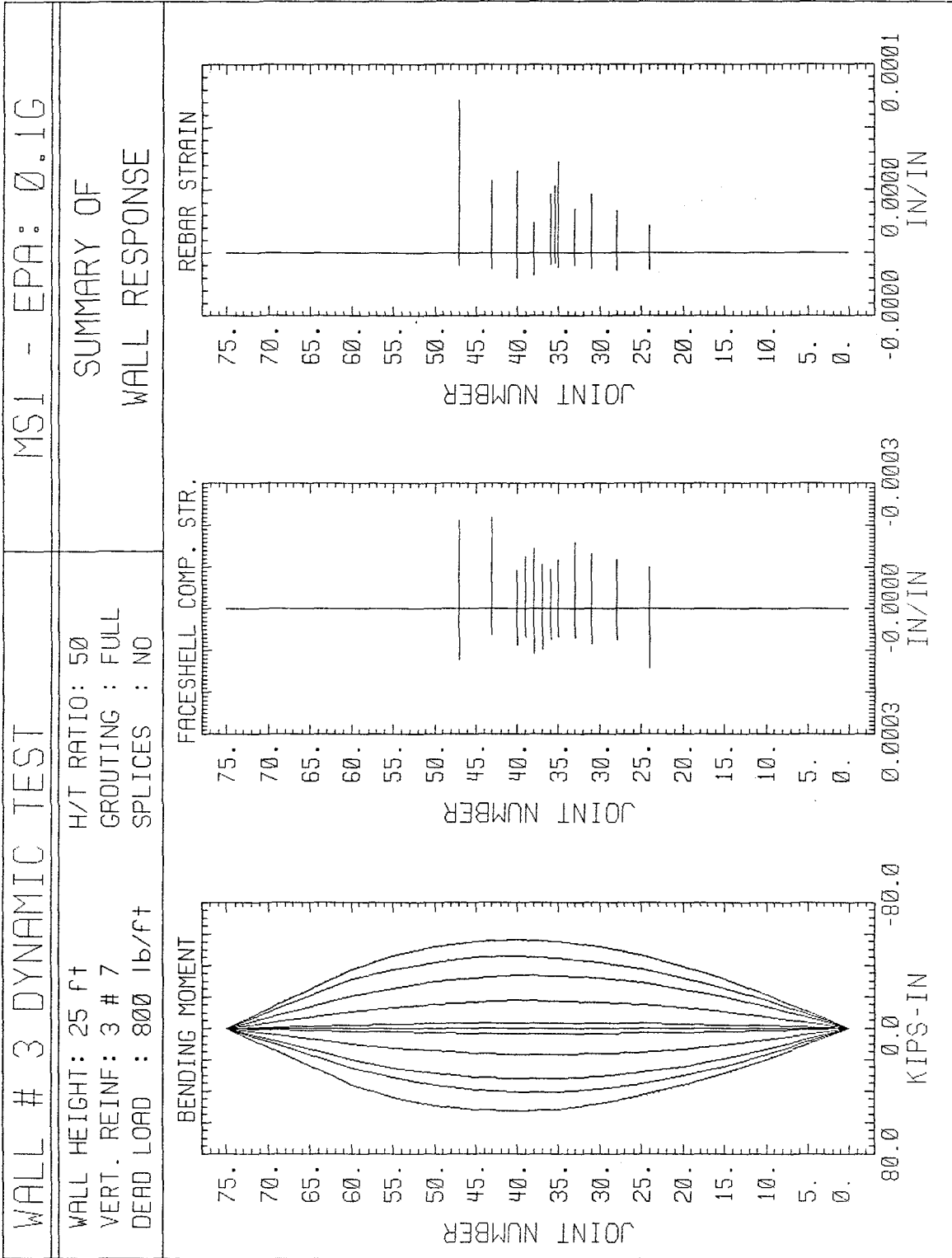
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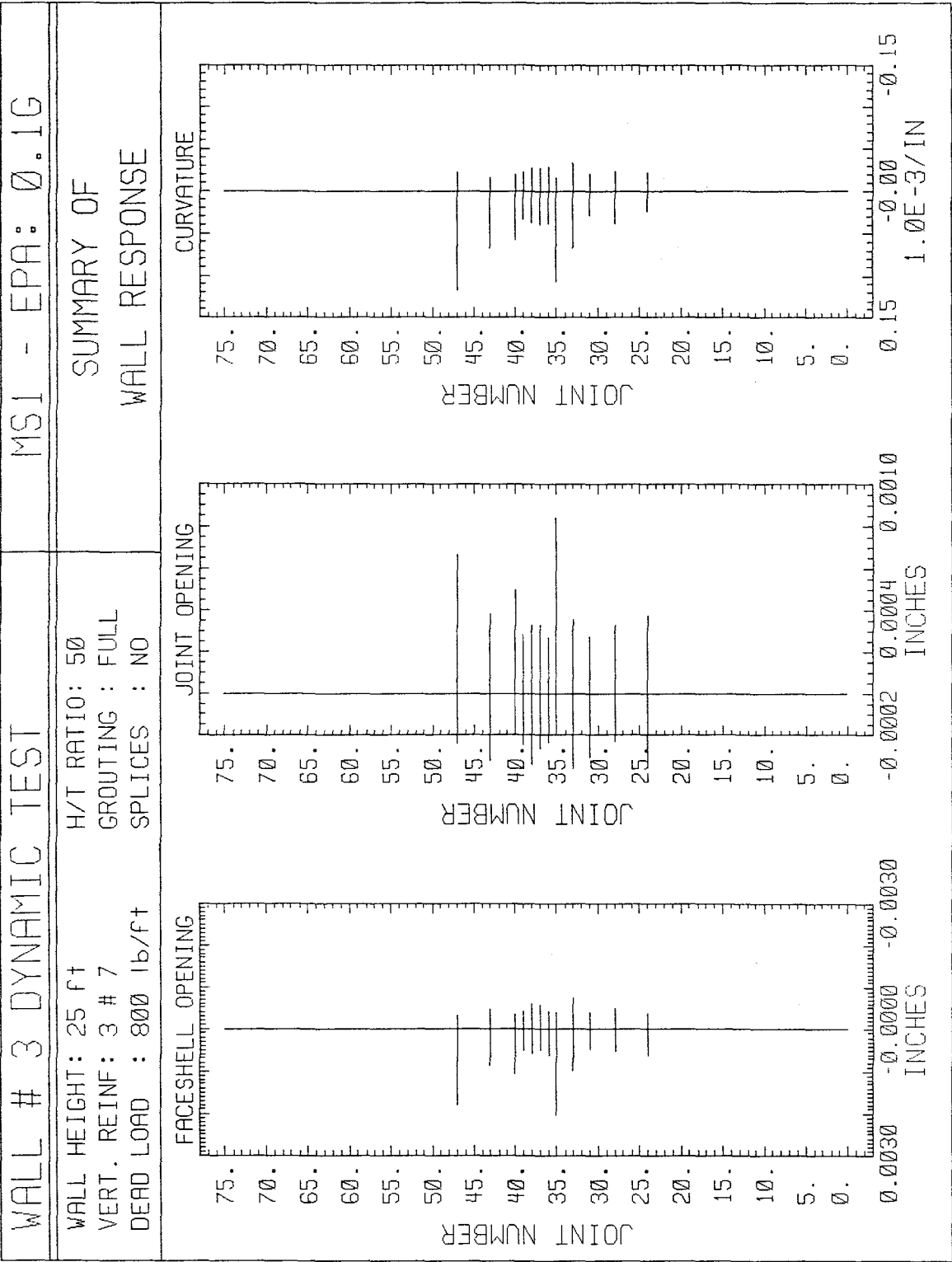
WALL # 3 DYNAMIC TEST

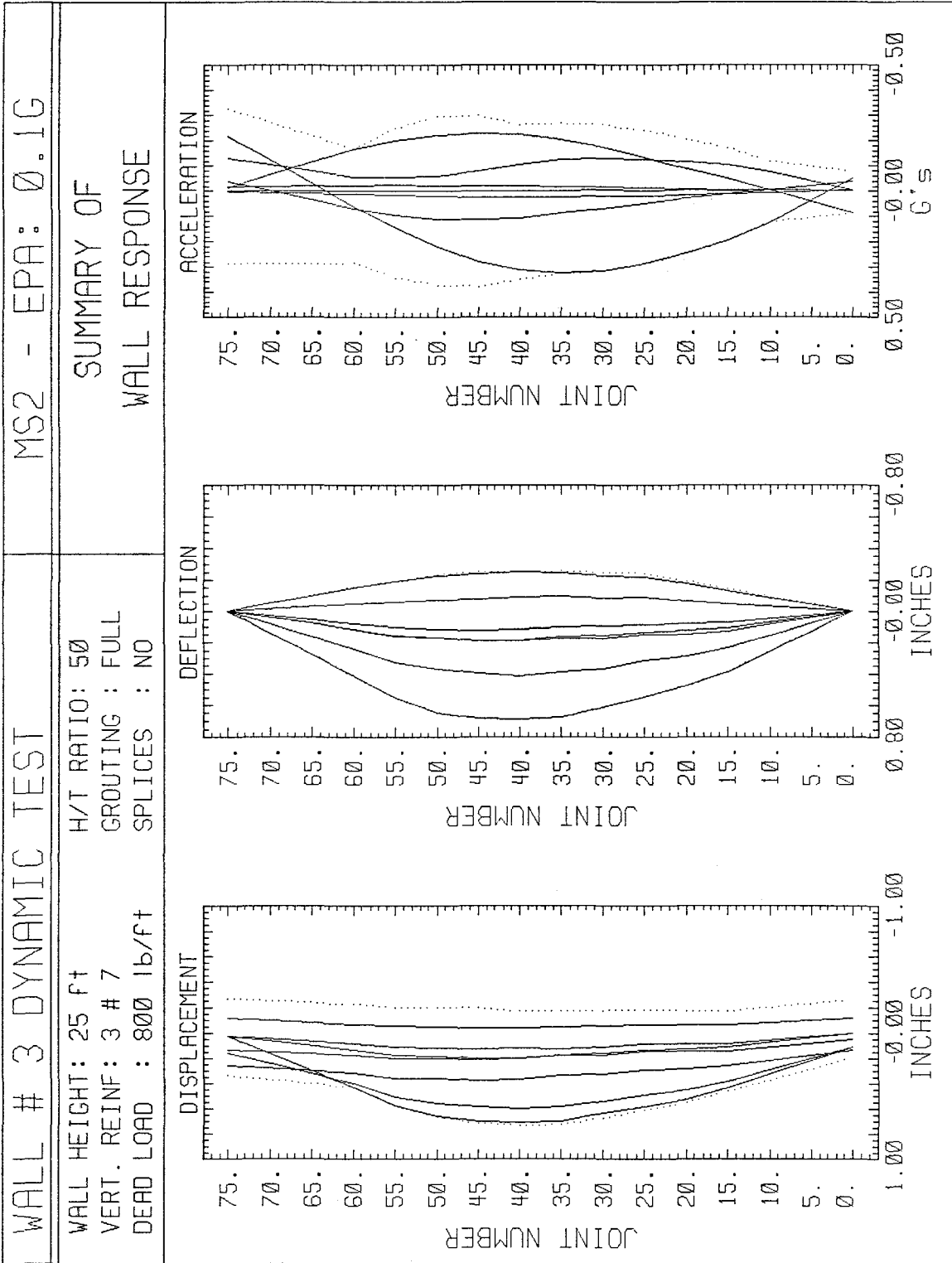
SUMMARY OF  
WALL RESPONSE

WALL HEIGHT: 25 ft  
 H/T RATIO: 50  
 VERT. REINF: 3 # 7  
 GROUTING : FULL  
 DEAD LOAD : 800 lb/ft  
 SPLICES : NO

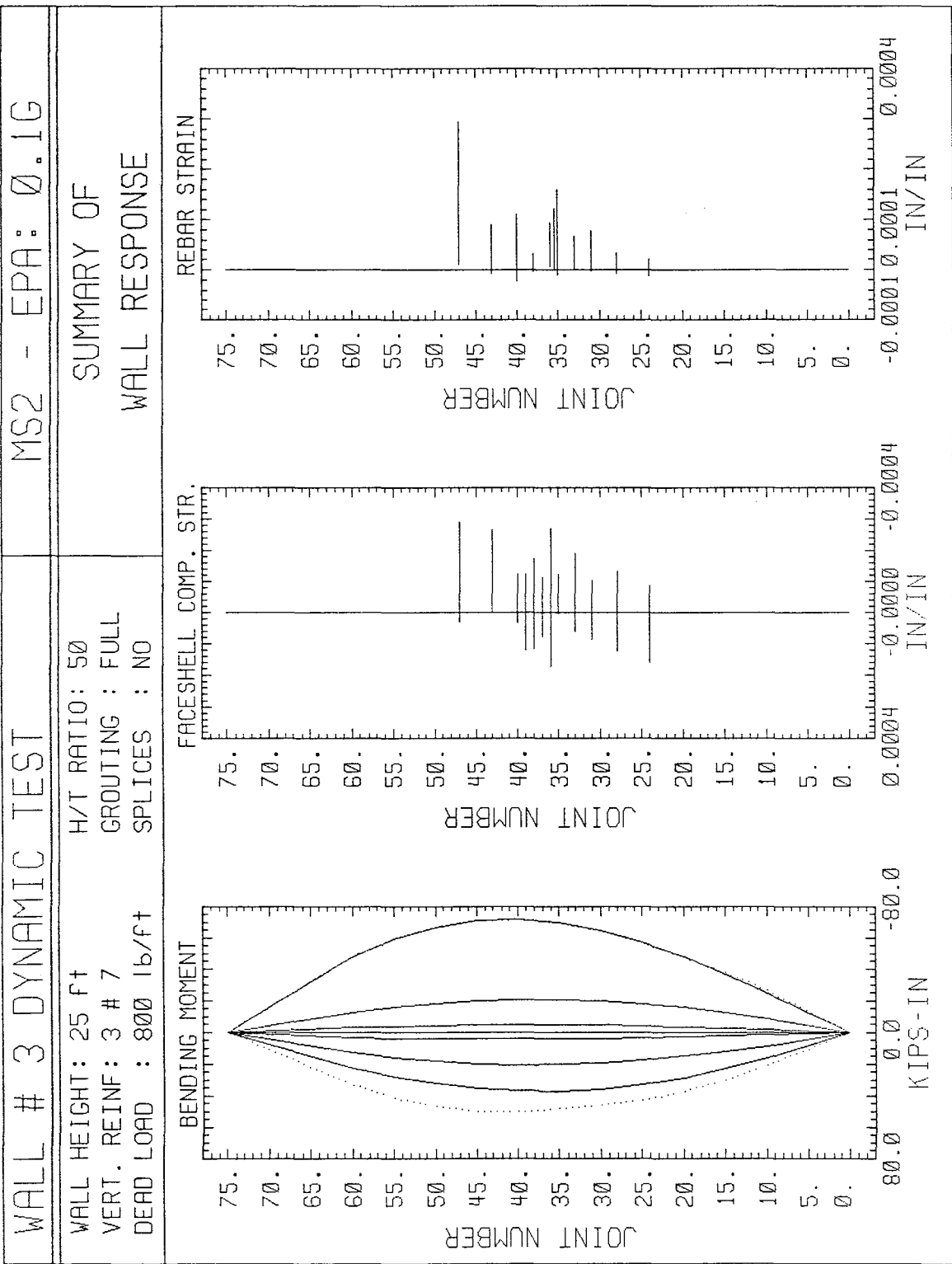


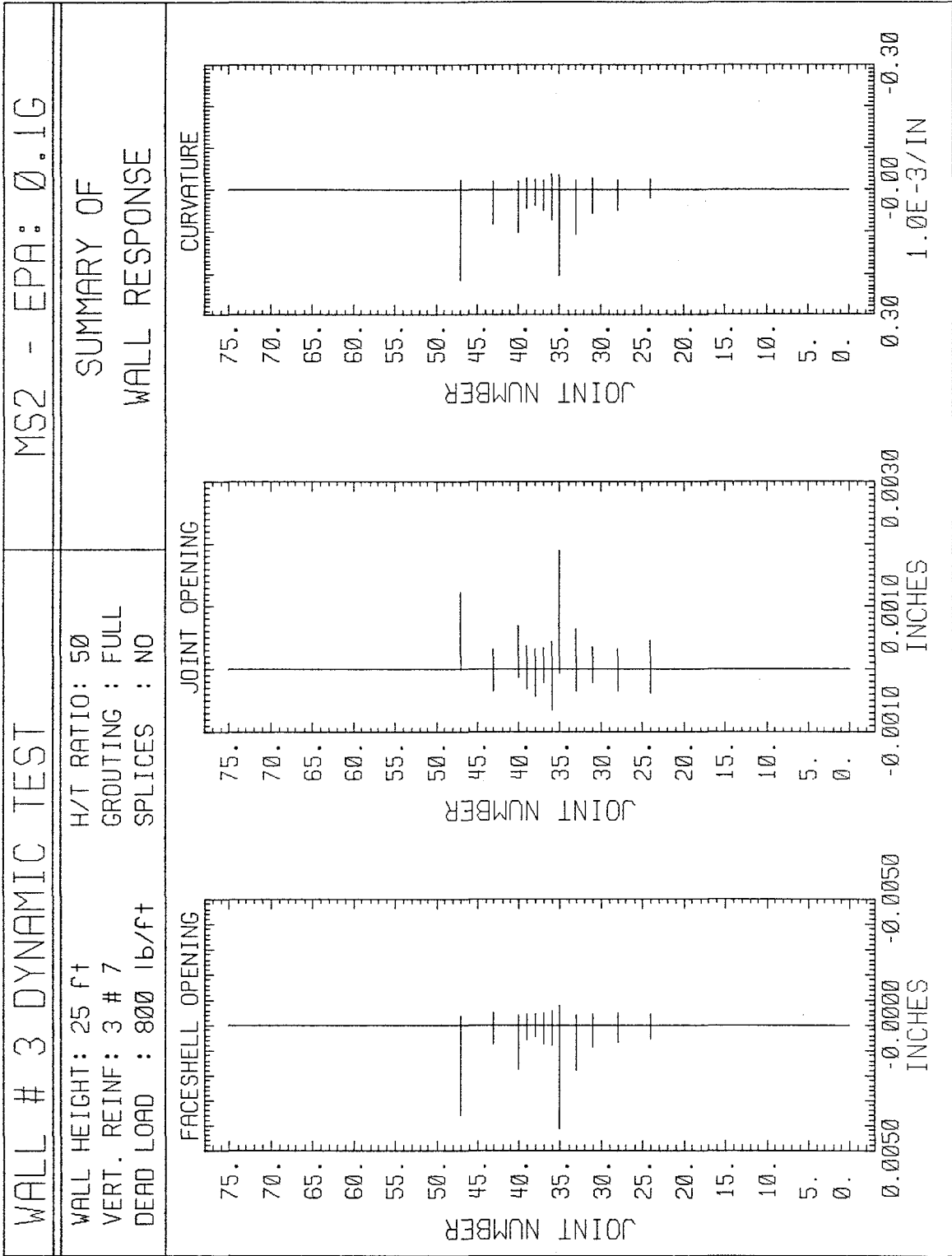












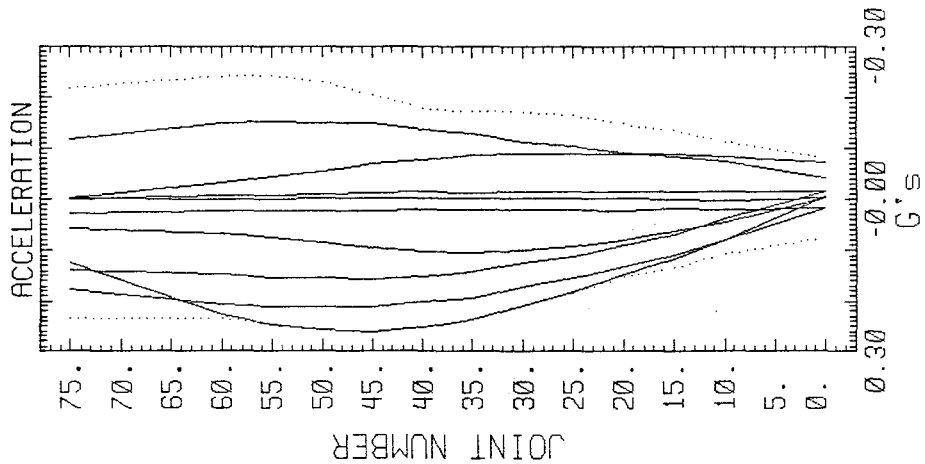
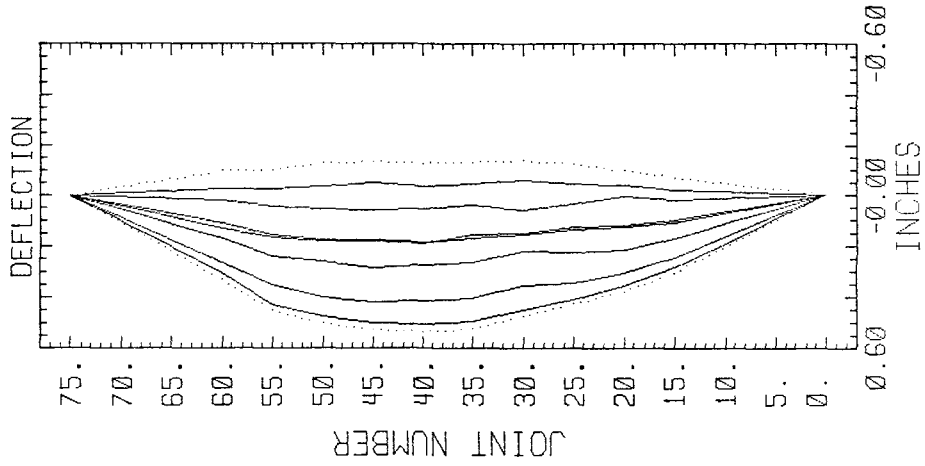
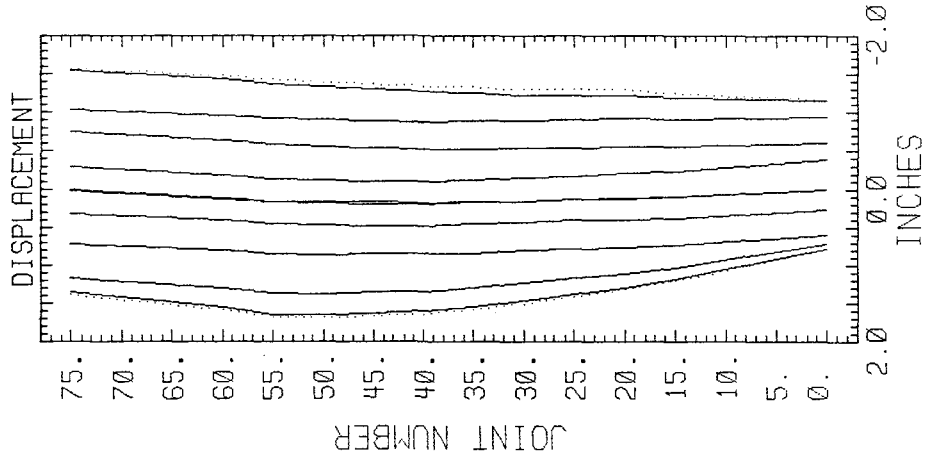
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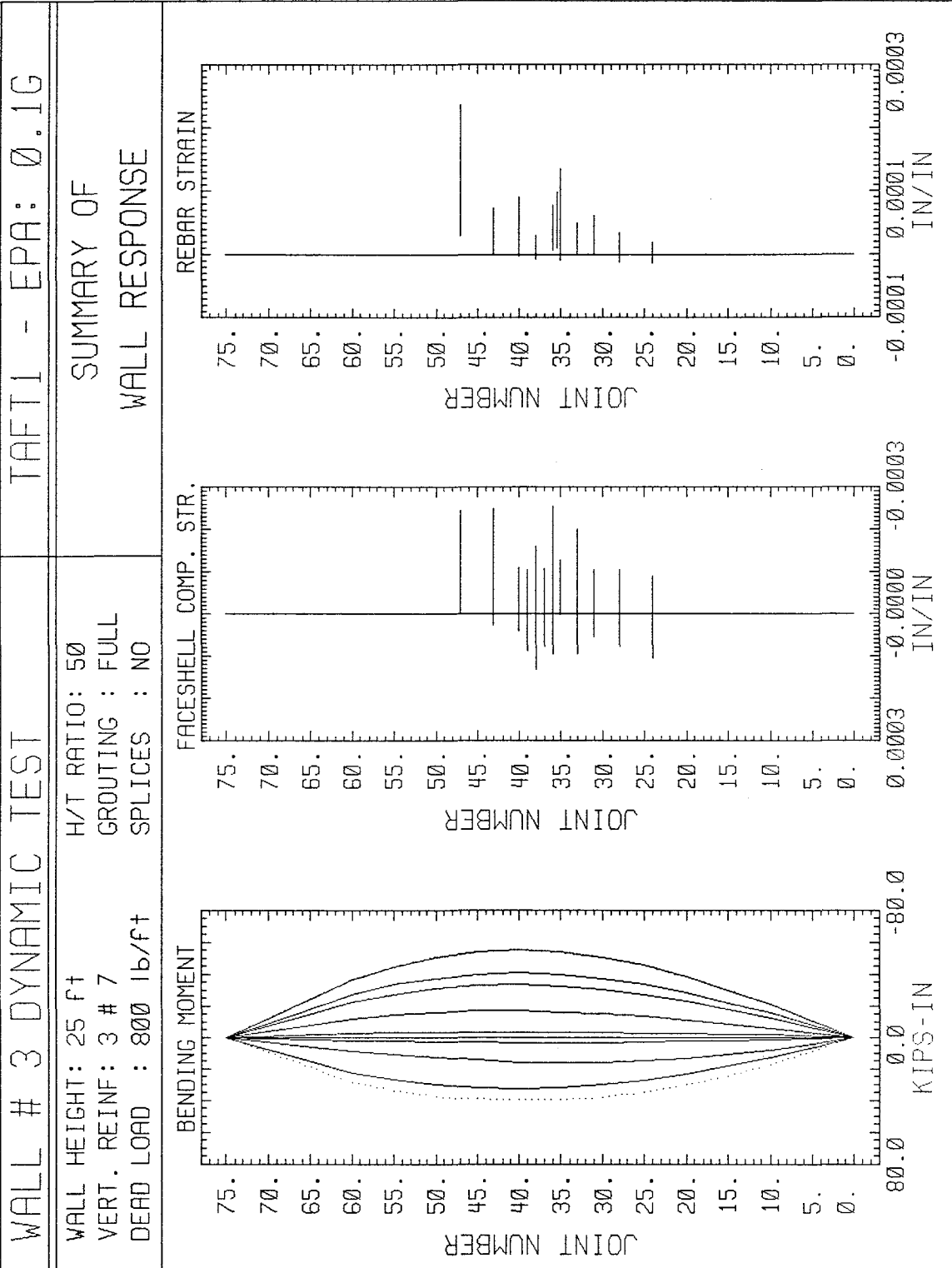
TAFT1 - EPA: 0.1G

WALL HEIGHT: 25 FT  
 VERT. REINF: 3 # 7  
 DEAD LOAD : 800 lb/ft

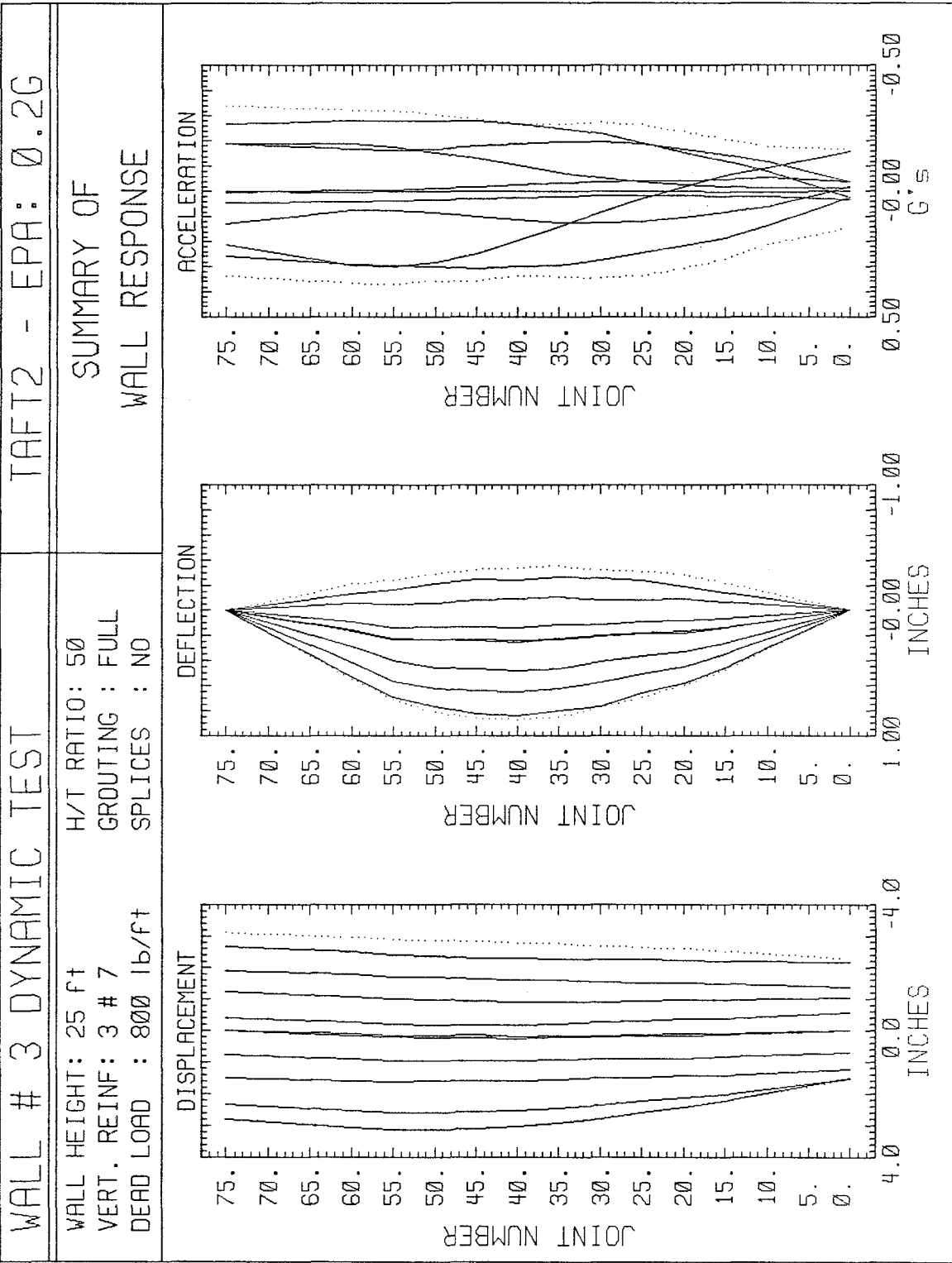
H/T RATIO: 50  
 GROUTING : FULL  
 SPLICES : NO

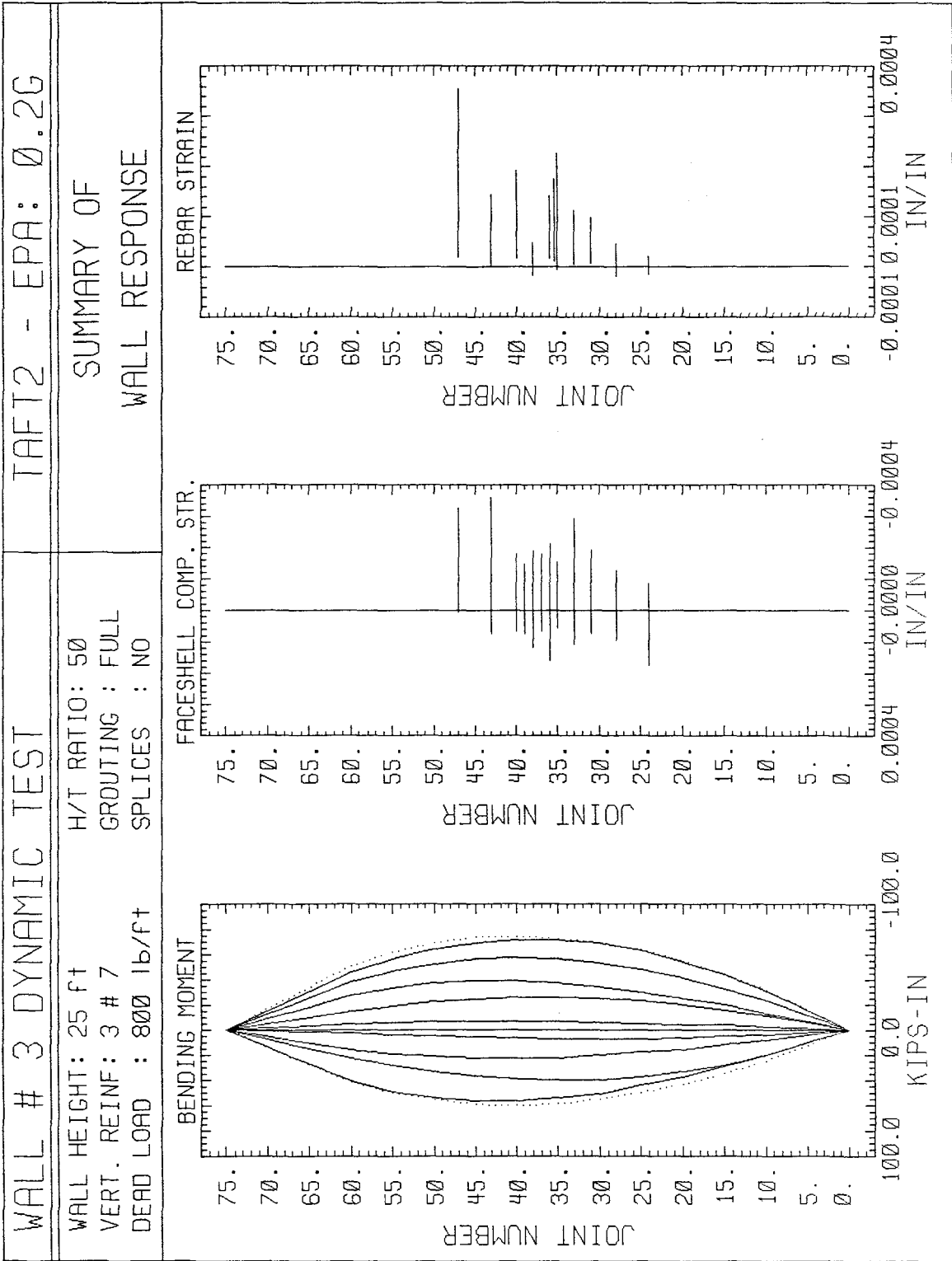
SUMMARY OF  
 WALL RESPONSE

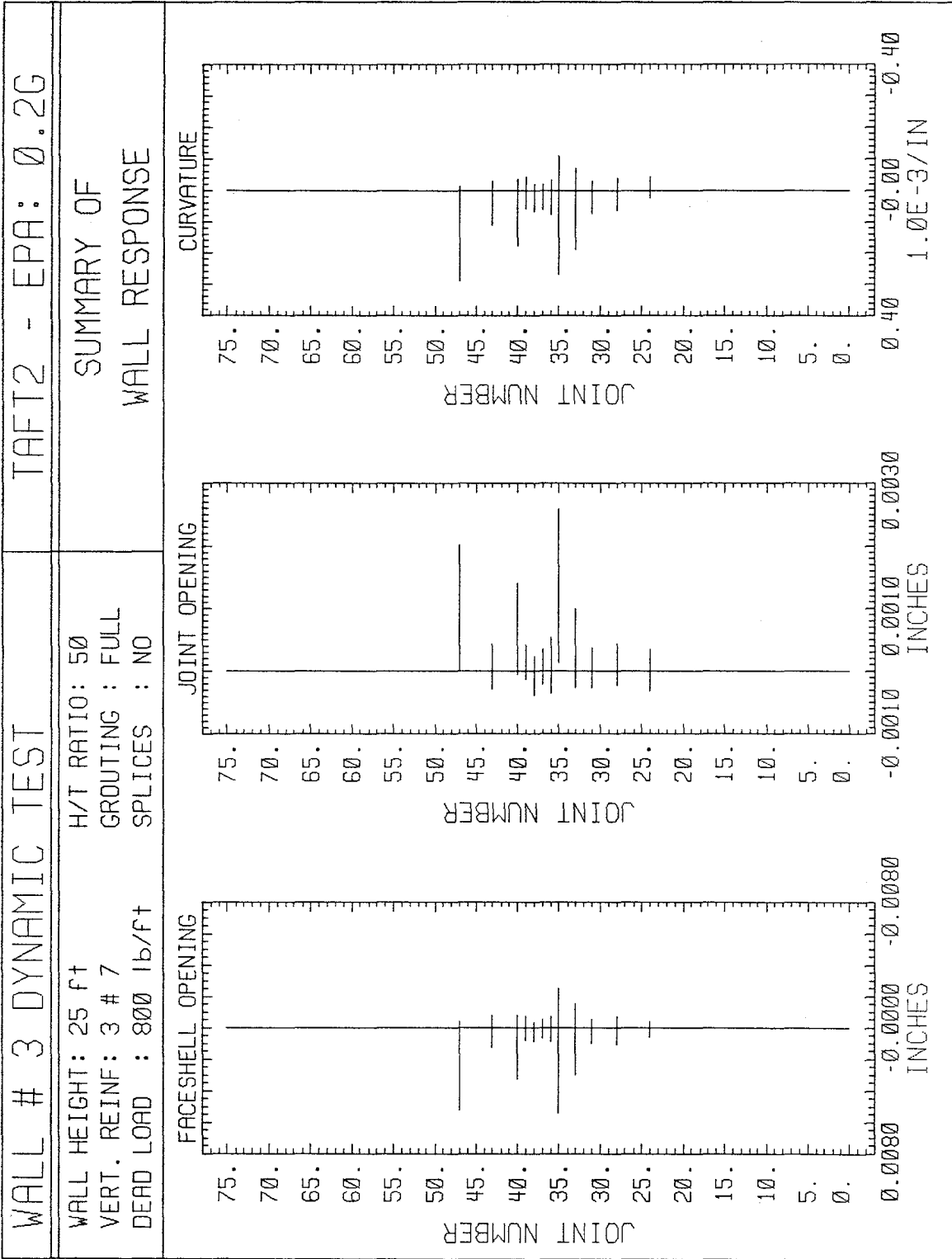




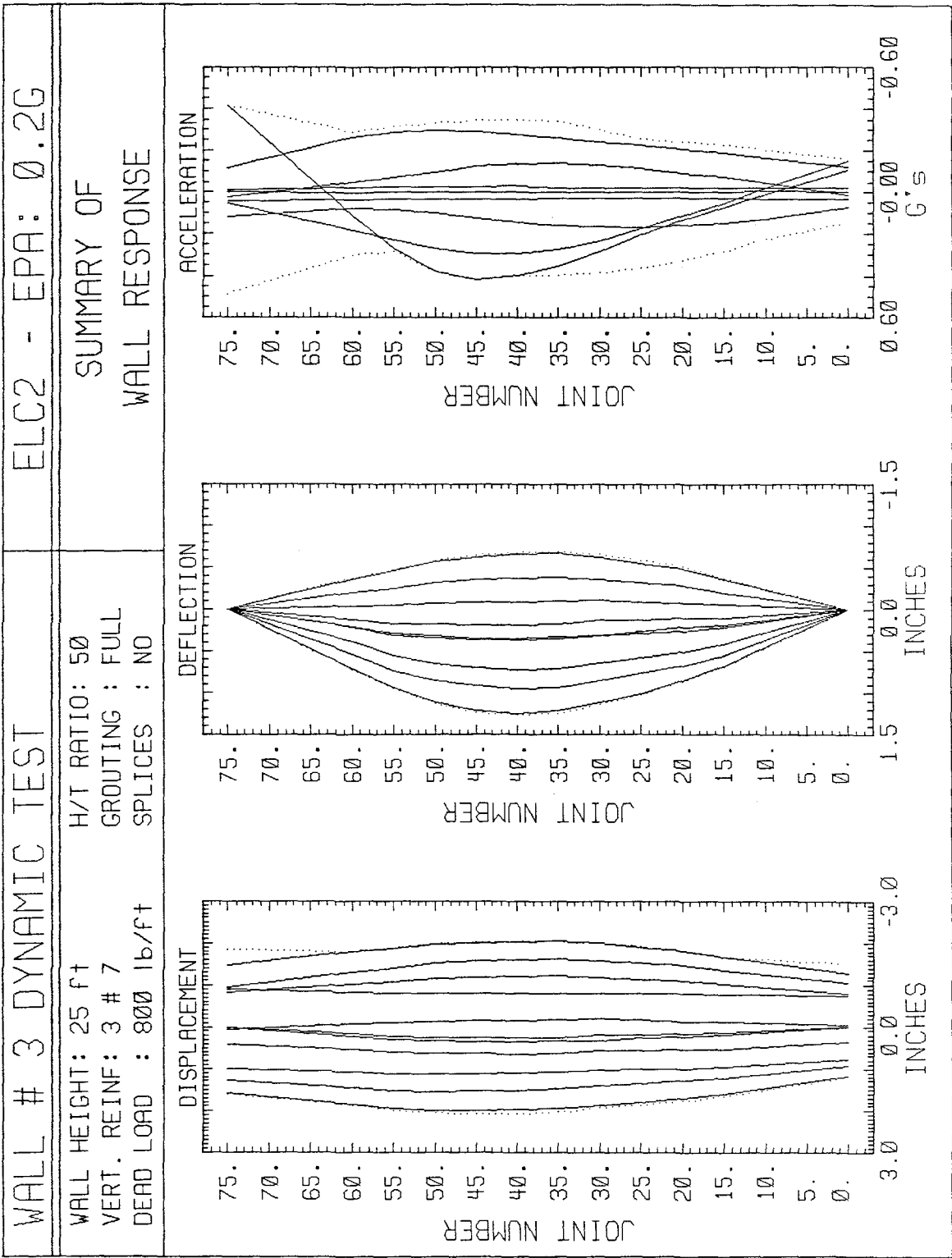
WALL # 3 DYNAMIC TEST	TAFT1 - EPA: 0.1G
WALL HEIGHT: 25 f+ VERT. REINF: 3 # 7 DEAD LOAD : 800 lb/f+	H/T RATIO: 50 GROUTING : FULL SPLICES : NO
SUMMARY OF WALL RESPONSE	
<p>Graph showing Faceshell Opening (inches) versus Joint Number. The y-axis ranges from 0 to 75. The x-axis ranges from -0.0040 to 0.0040 inches. Data points are plotted for joints 25 through 75, showing small positive and negative values.</p>	<p>Graph showing Joint Opening (inches) versus Joint Number. The y-axis ranges from 0 to 75. The x-axis ranges from -0.0005 to 0.0020 inches. Data points are plotted for joints 25 through 75, showing small positive and negative values.</p>
<p>Graph showing Curvature (1.0E-3/in) versus Joint Number. The y-axis ranges from 0 to 75. The x-axis ranges from -0.20 to 0.20. Data points are plotted for joints 25 through 75, showing small positive and negative values.</p>	

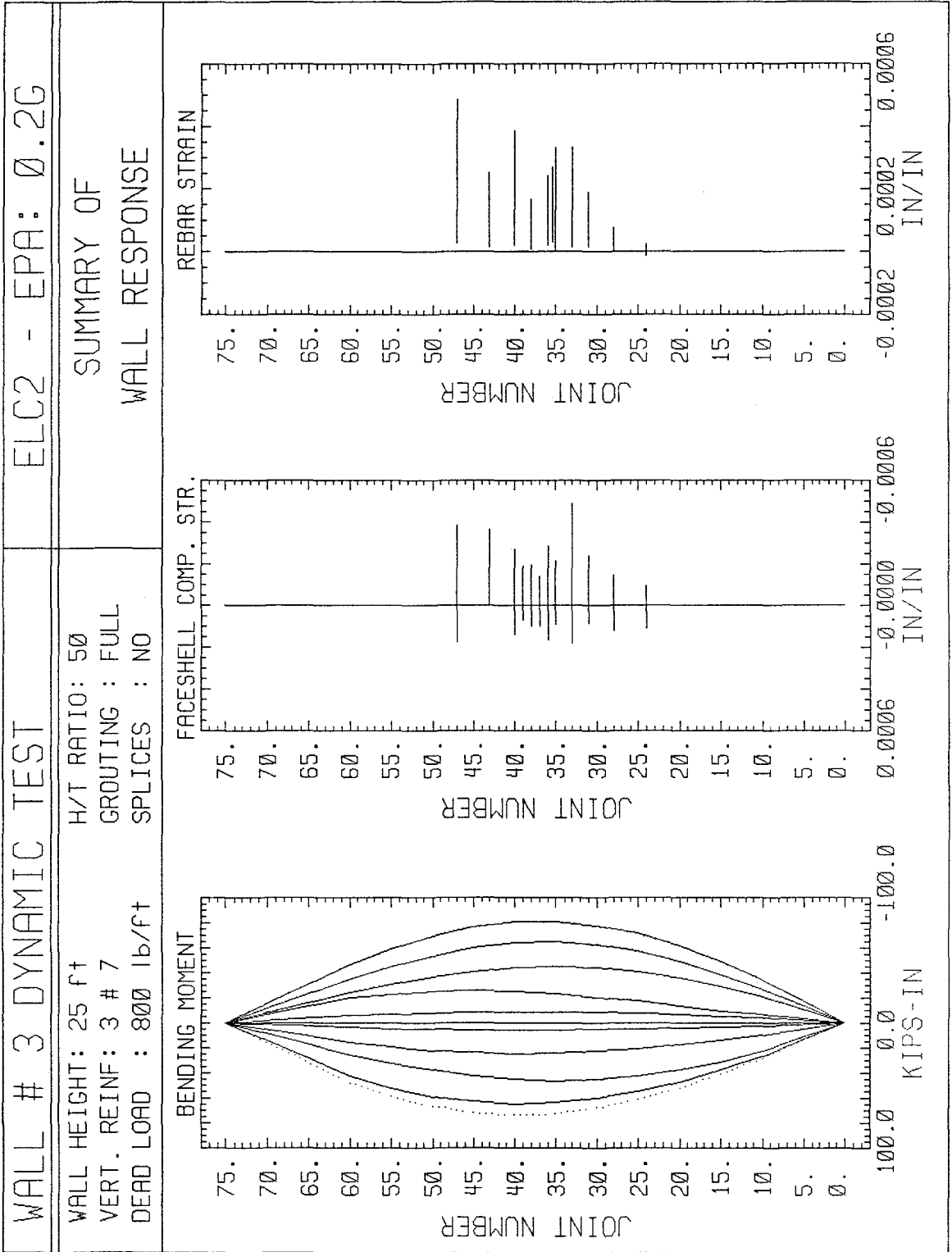


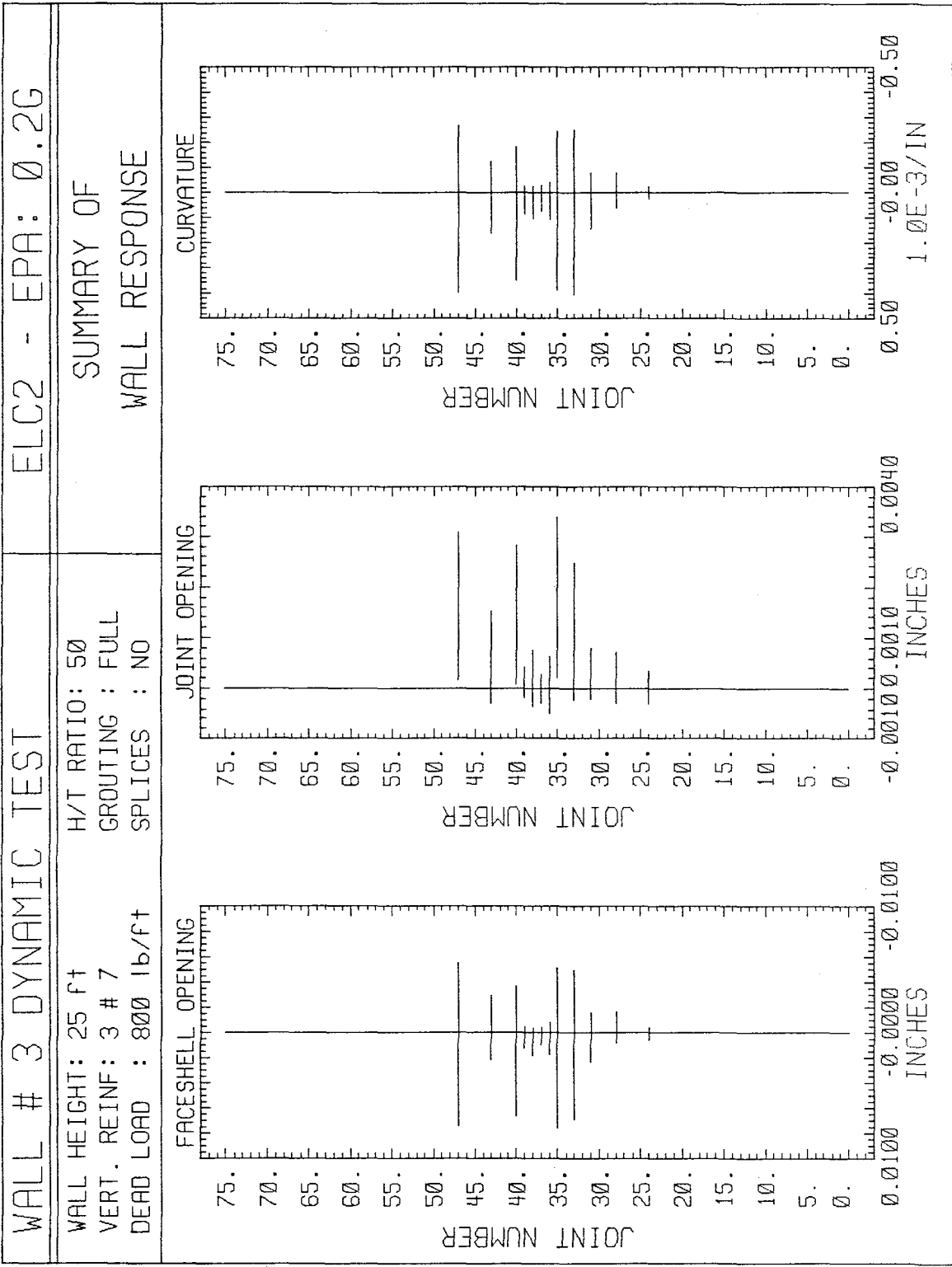


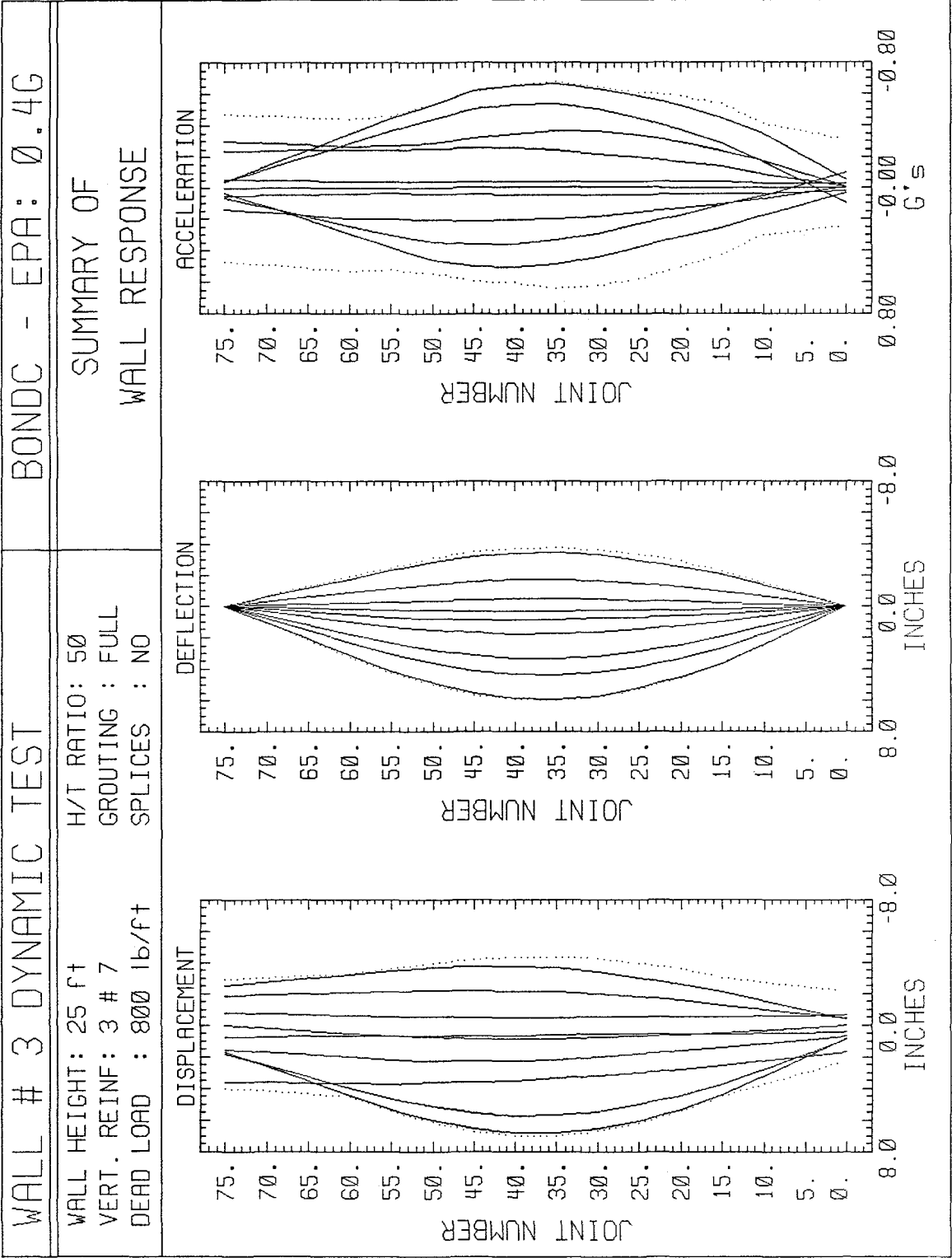


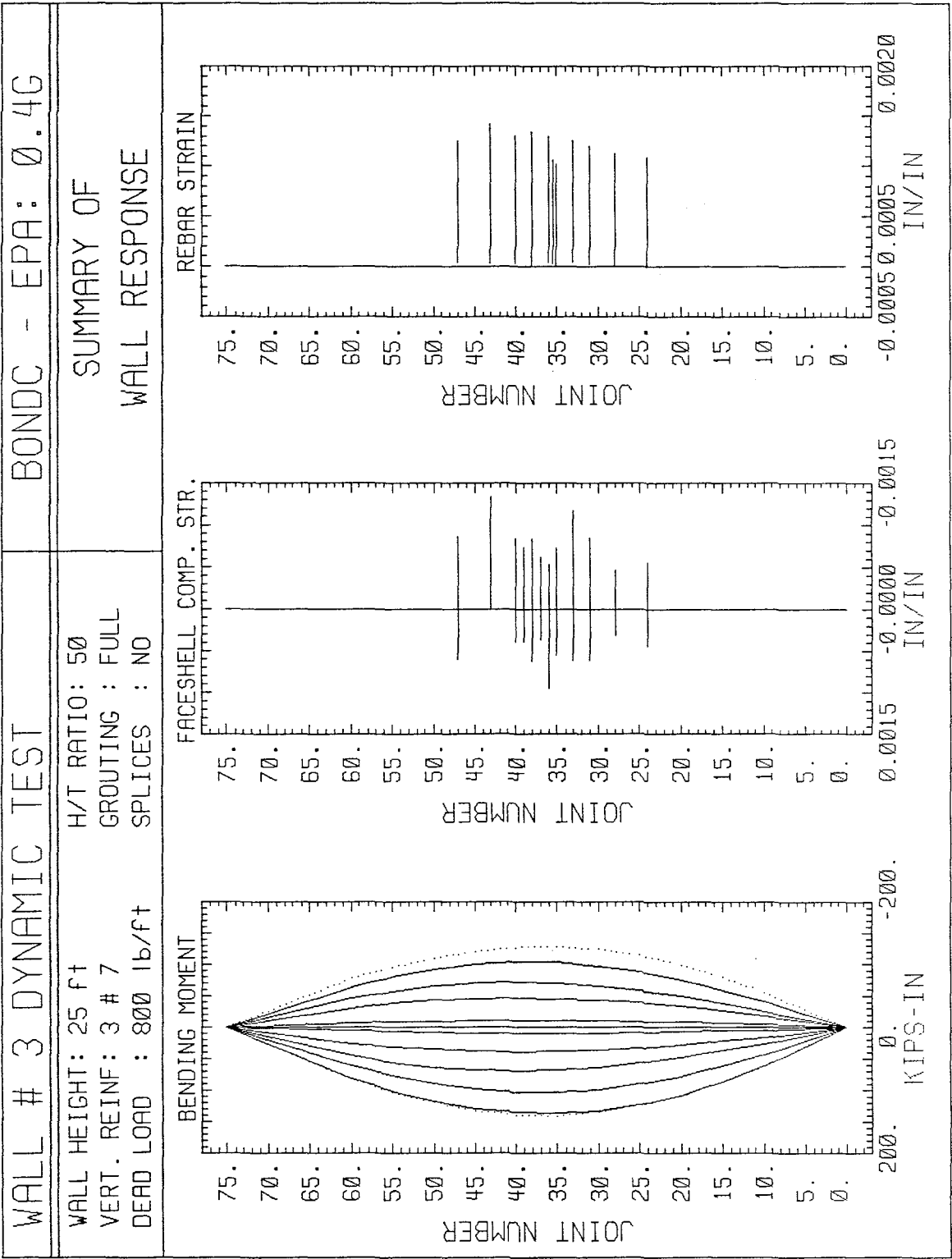


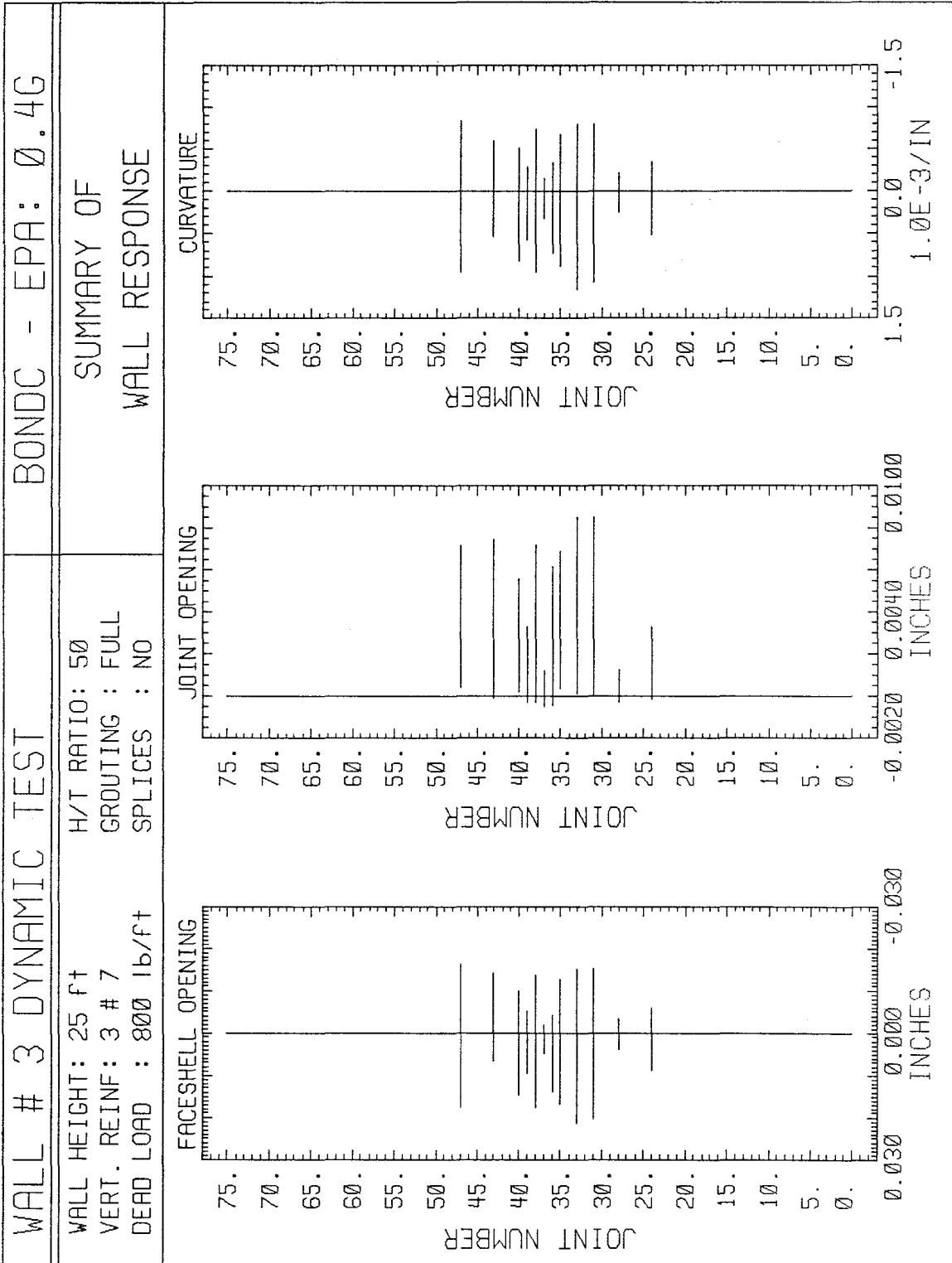


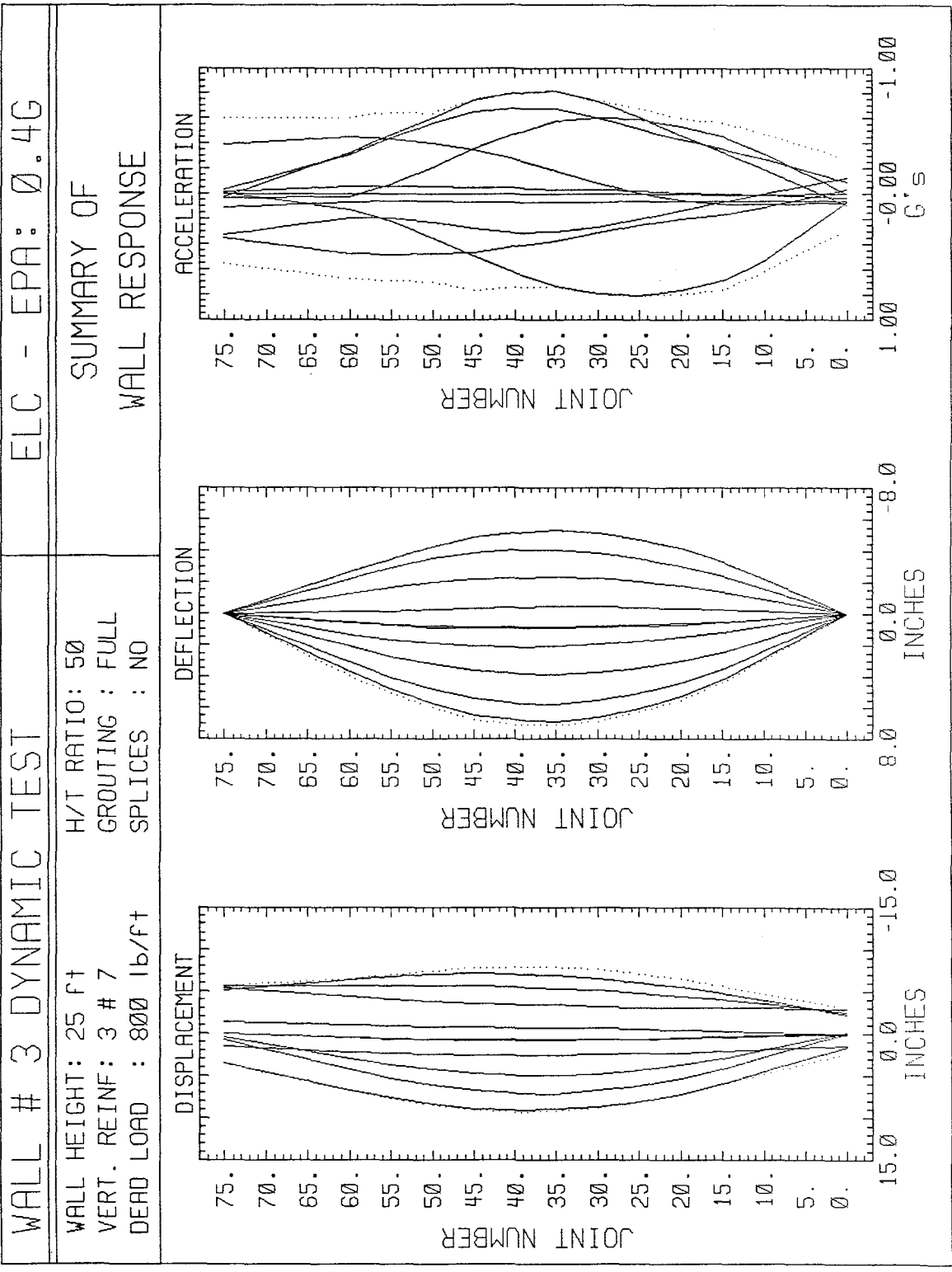


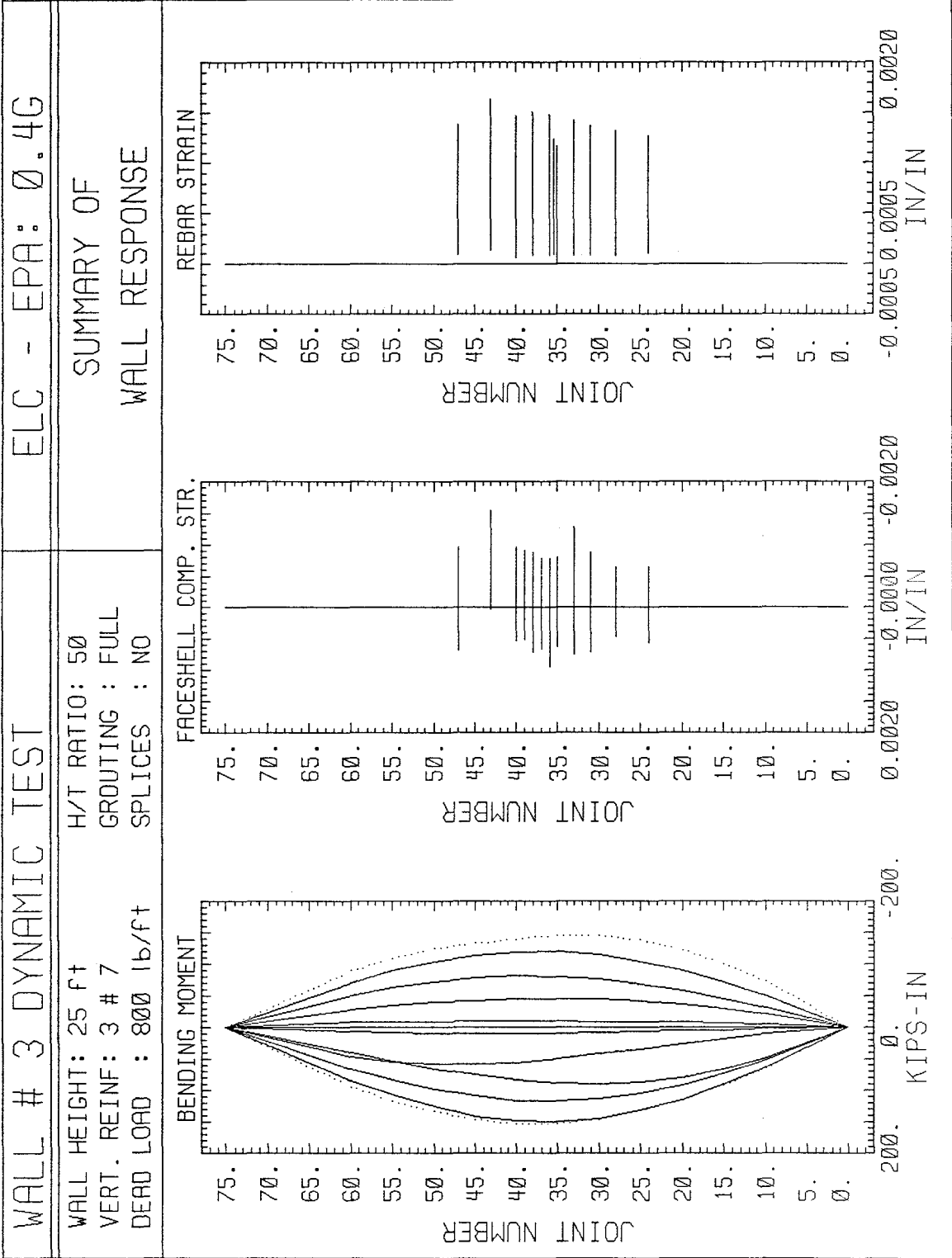














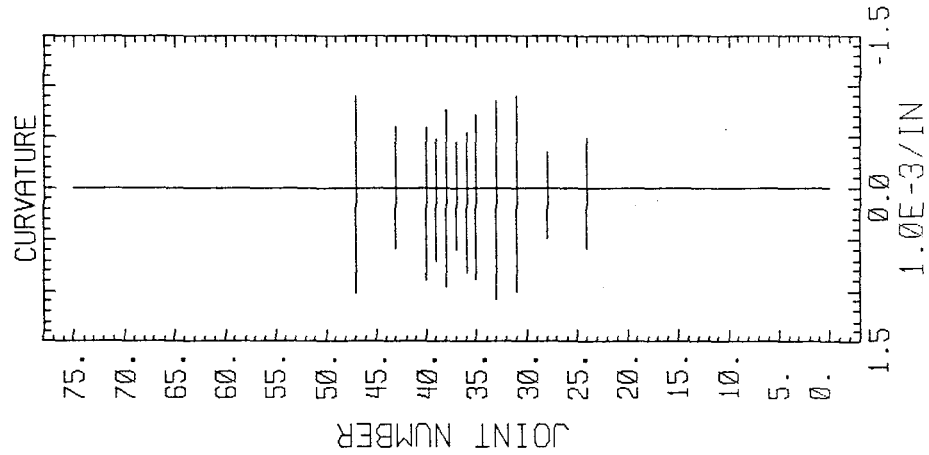
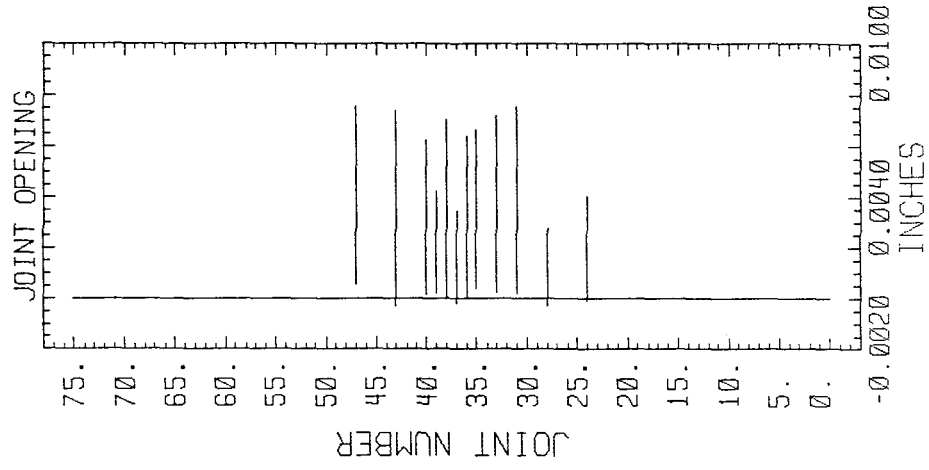
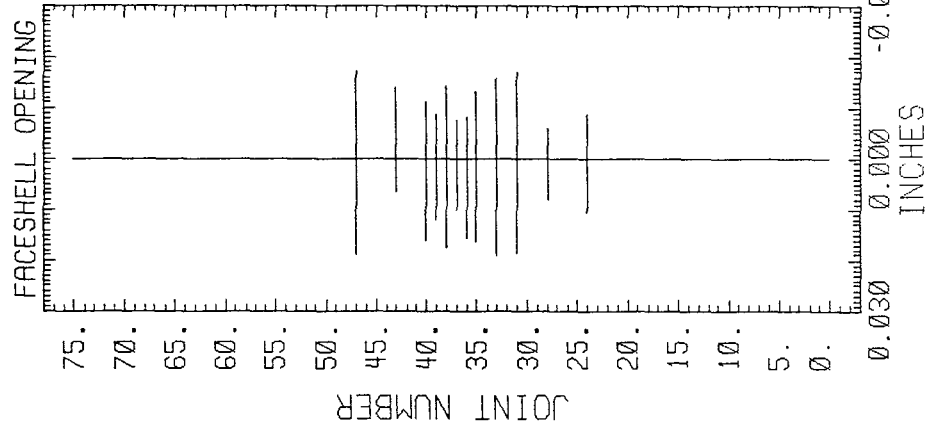
WALL # 3 DYNAMIC TEST

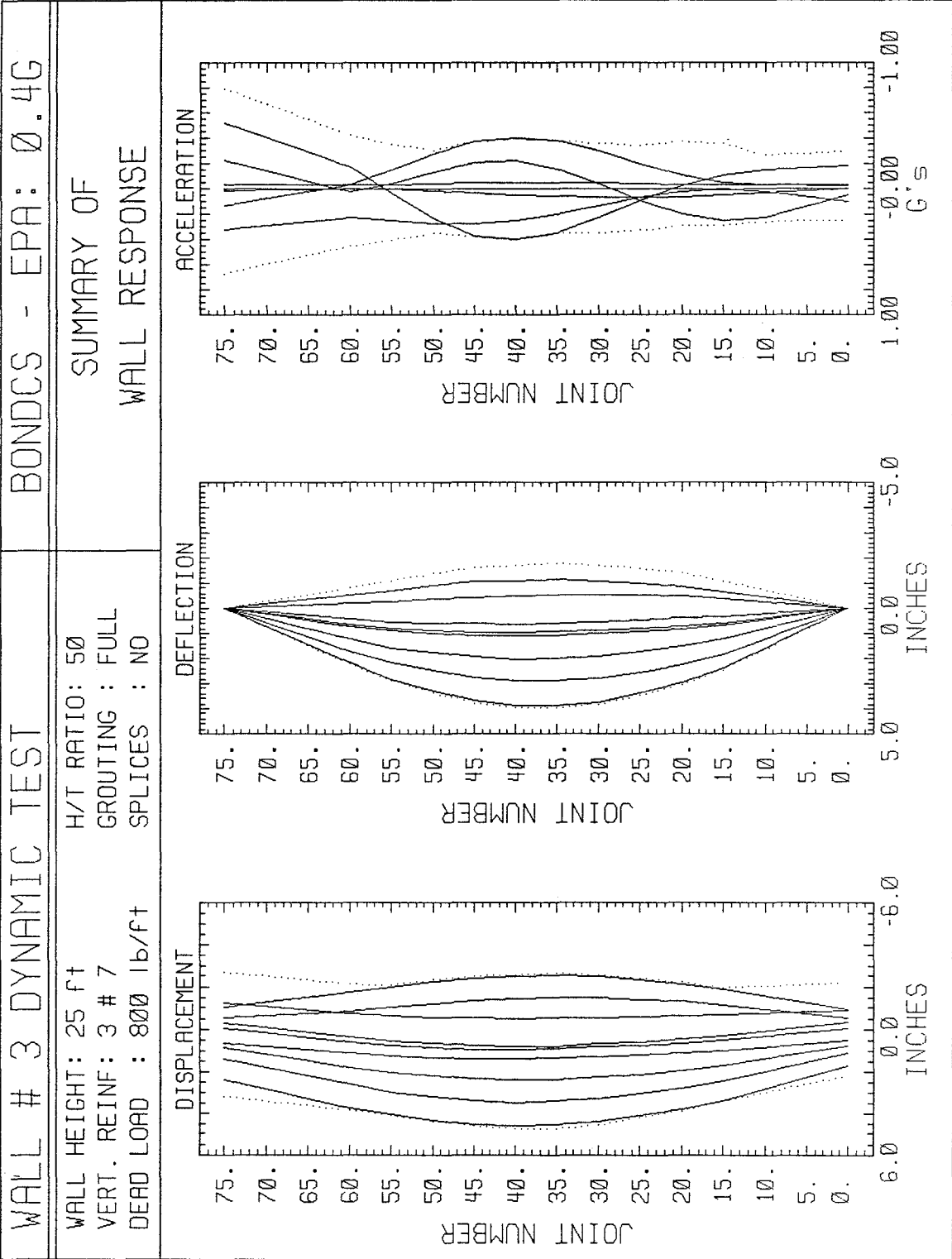
ELC - EPA: 0.4G

WALL HEIGHT: 25 FT  
 VERT. REINF: 3 # 7  
 DEAD LOAD : 800 lb/ft

H/T RATIO: 50  
 GROUTING : FULL  
 SPLICES : NO

SUMMARY OF  
 WALL RESPONSE





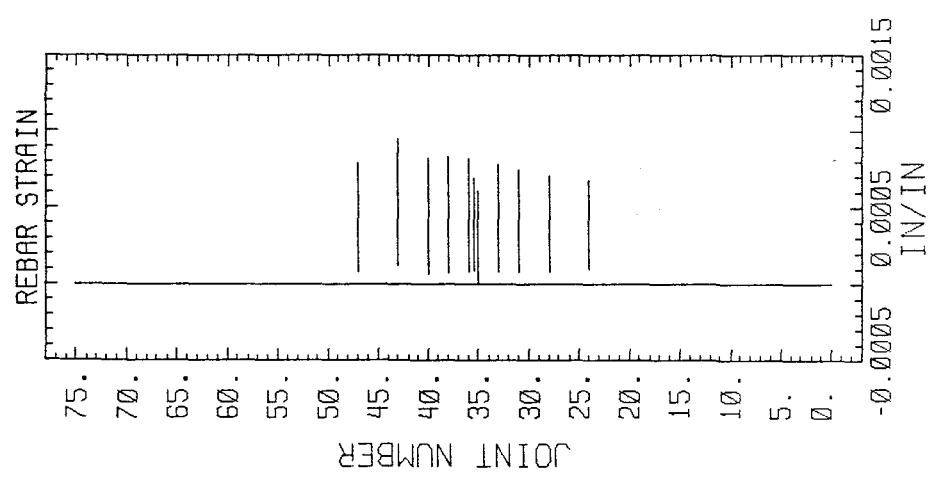
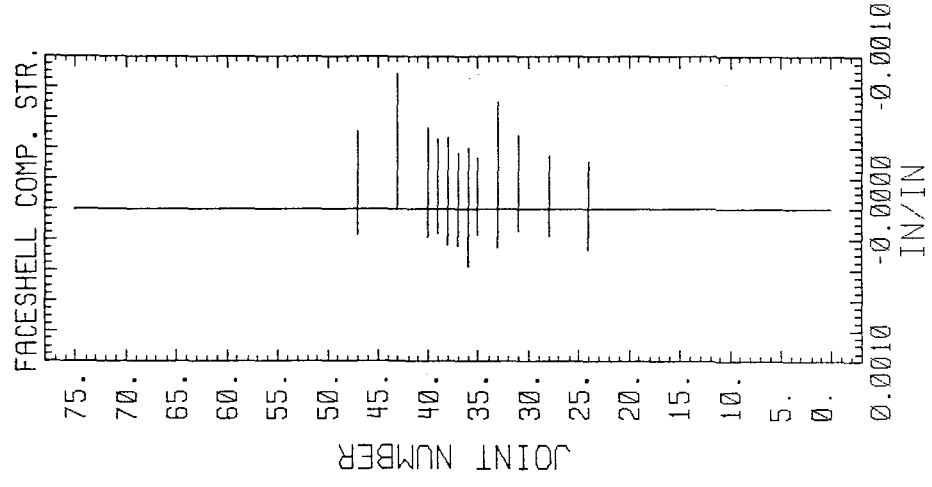
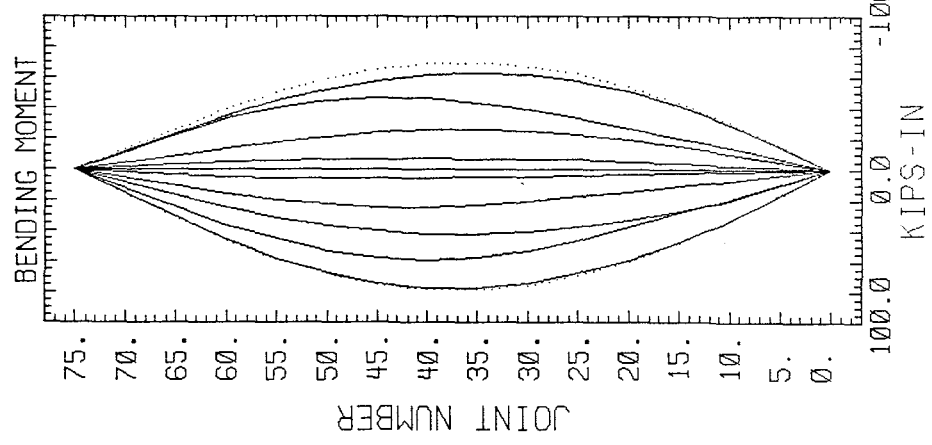
WALL # 3 DYNAMIC TEST

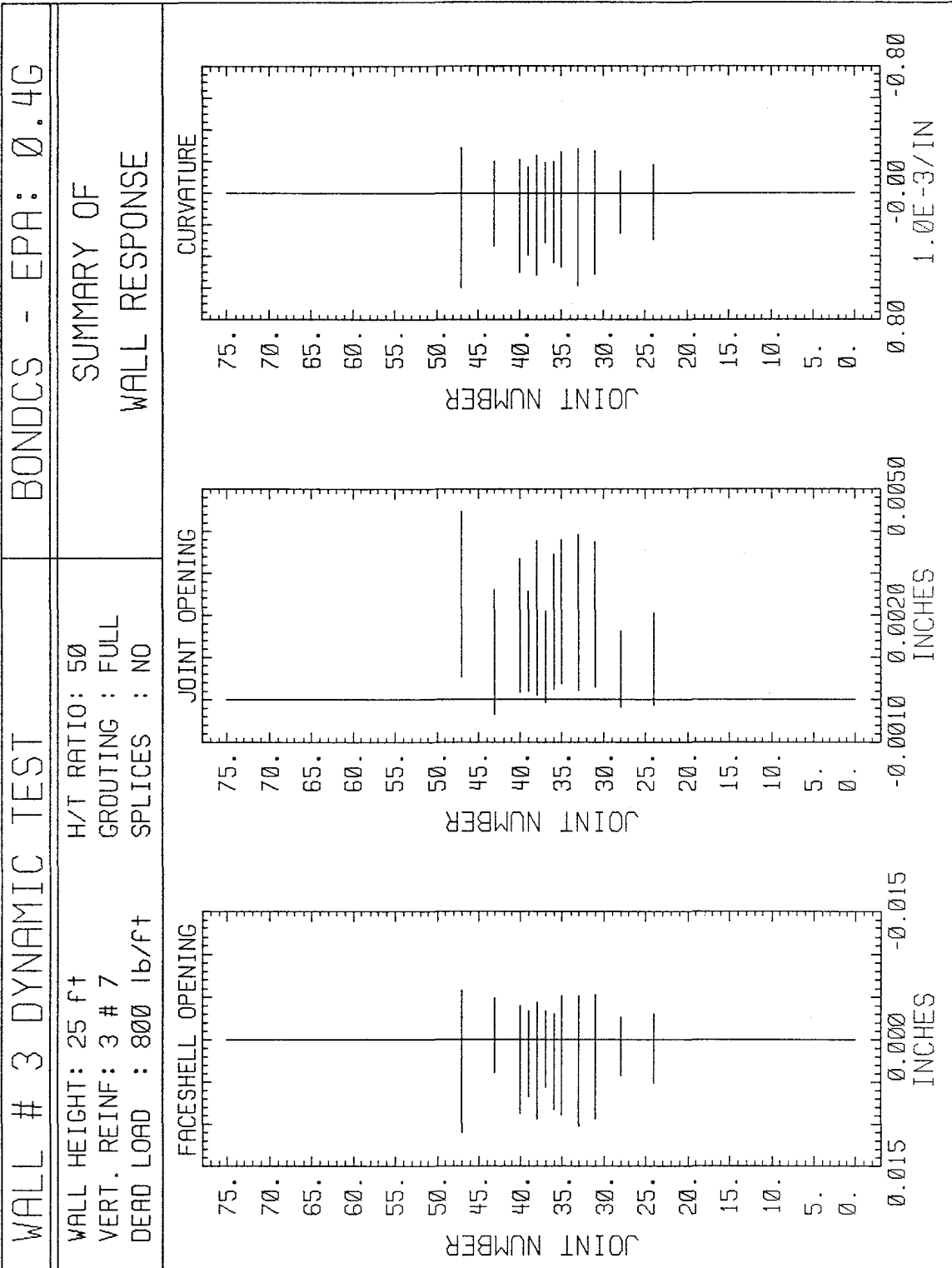
BONDACS - EPA: 0.4G

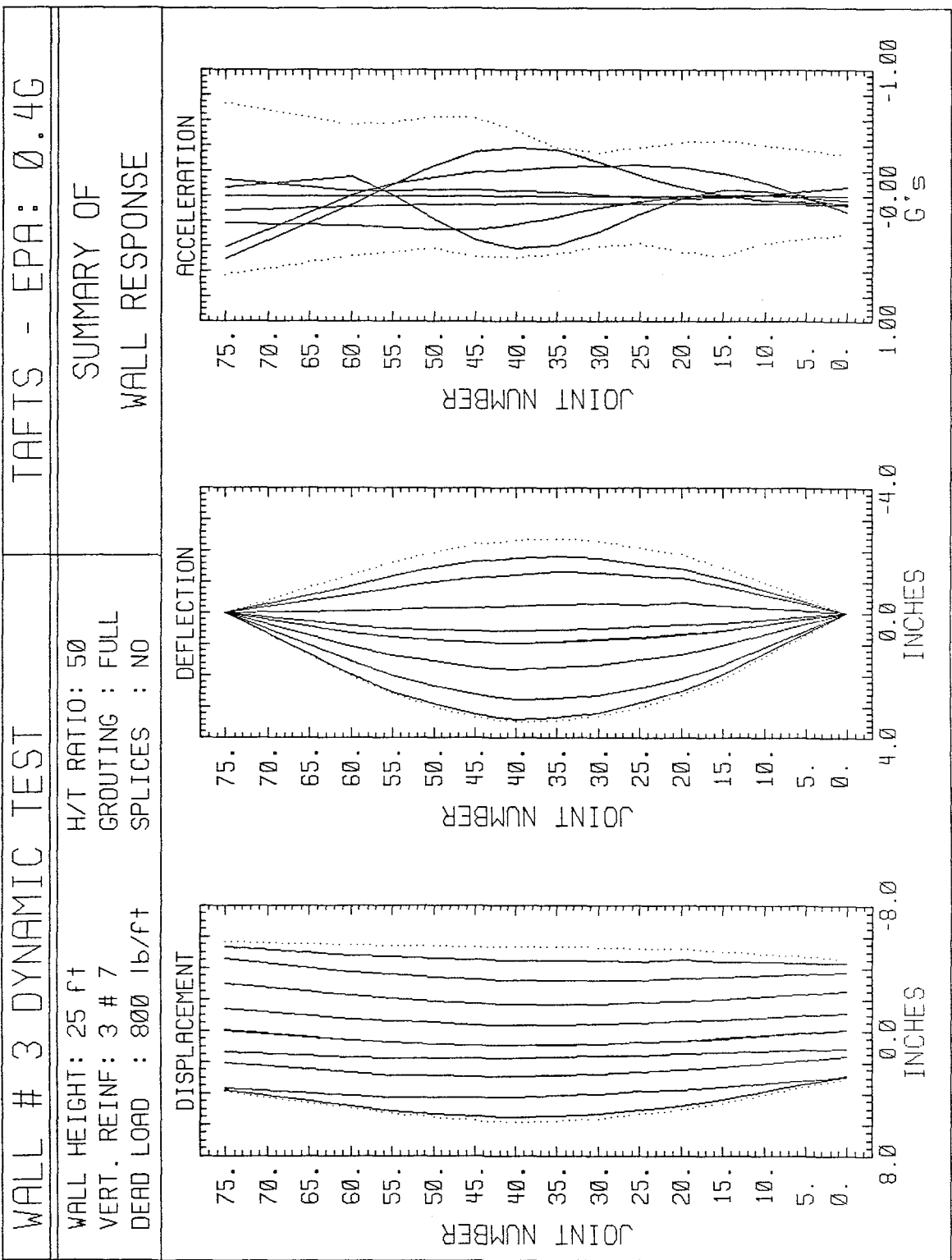
WALL HEIGHT: 25 ft  
 VERT. REINF: 3 # 7  
 DEAD LOAD : 800 lb/ft

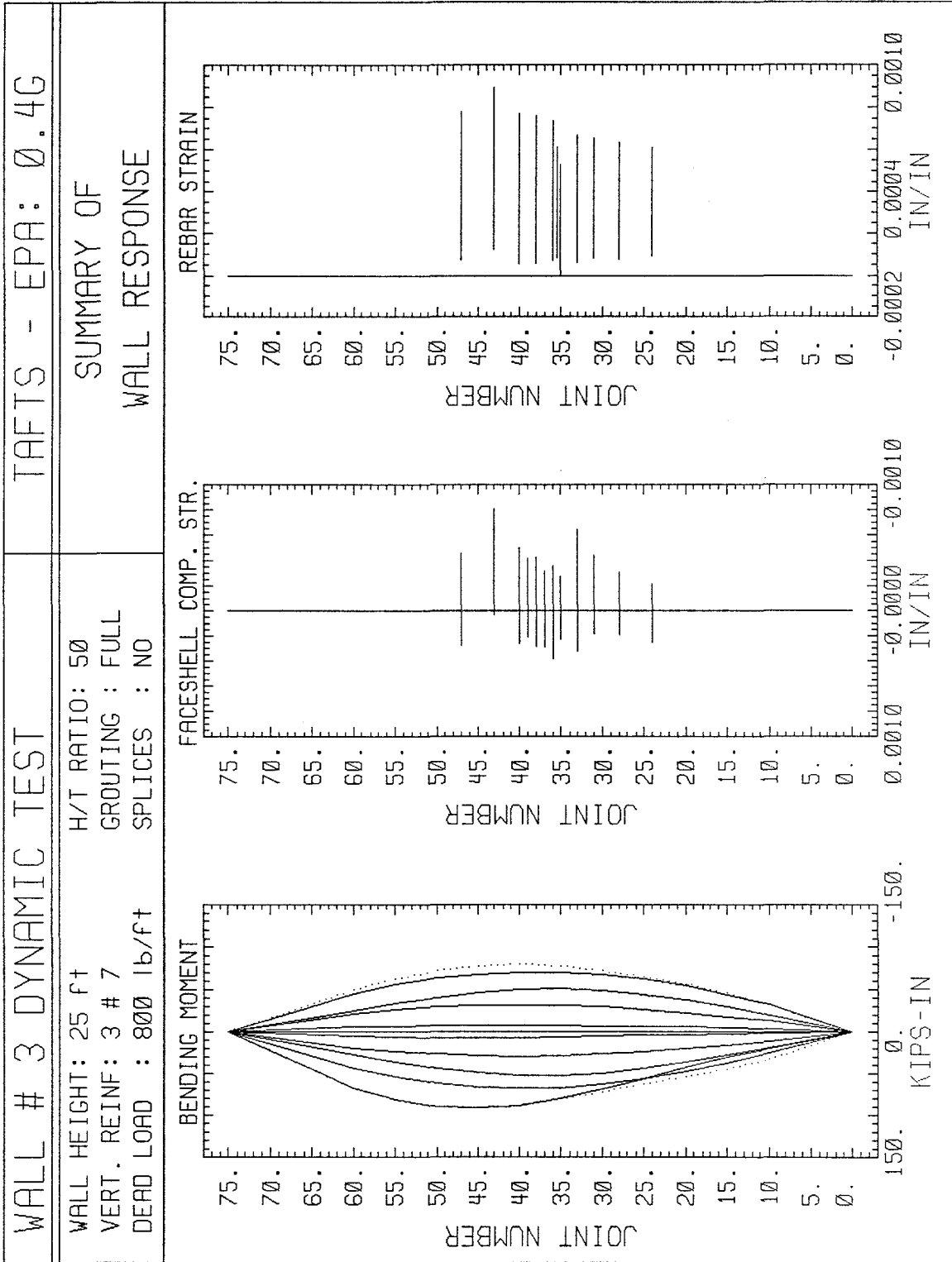
H/T RATIO: 50  
 GROUTING : FULL  
 SPLICES : NO

SUMMARY OF WALL RESPONSE









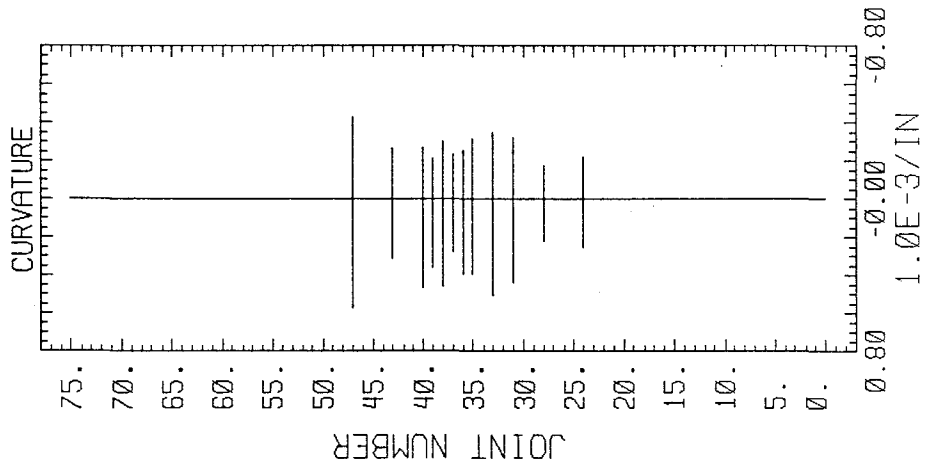
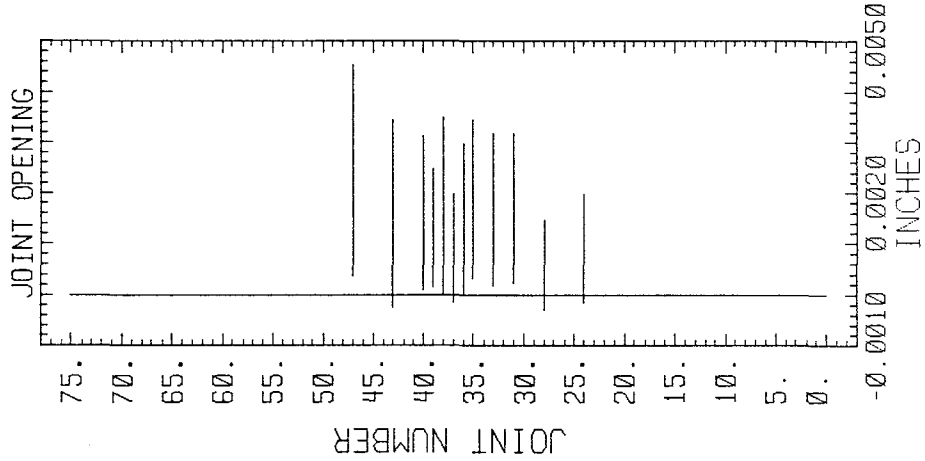
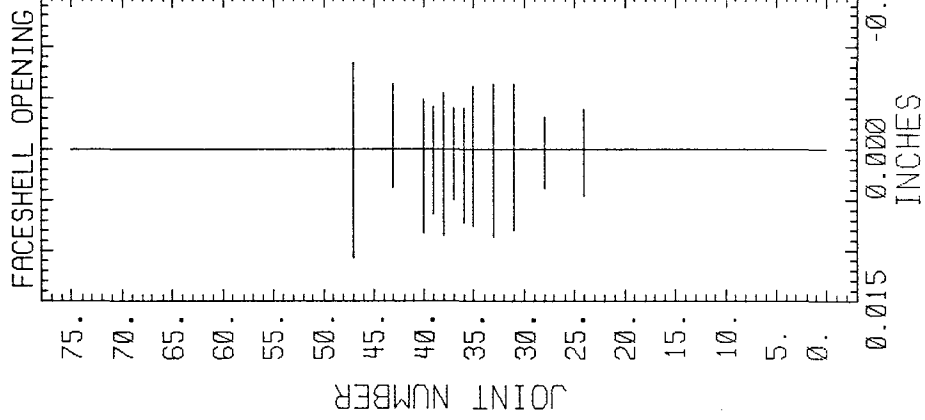
WALL # 3 DYNAMIC TEST

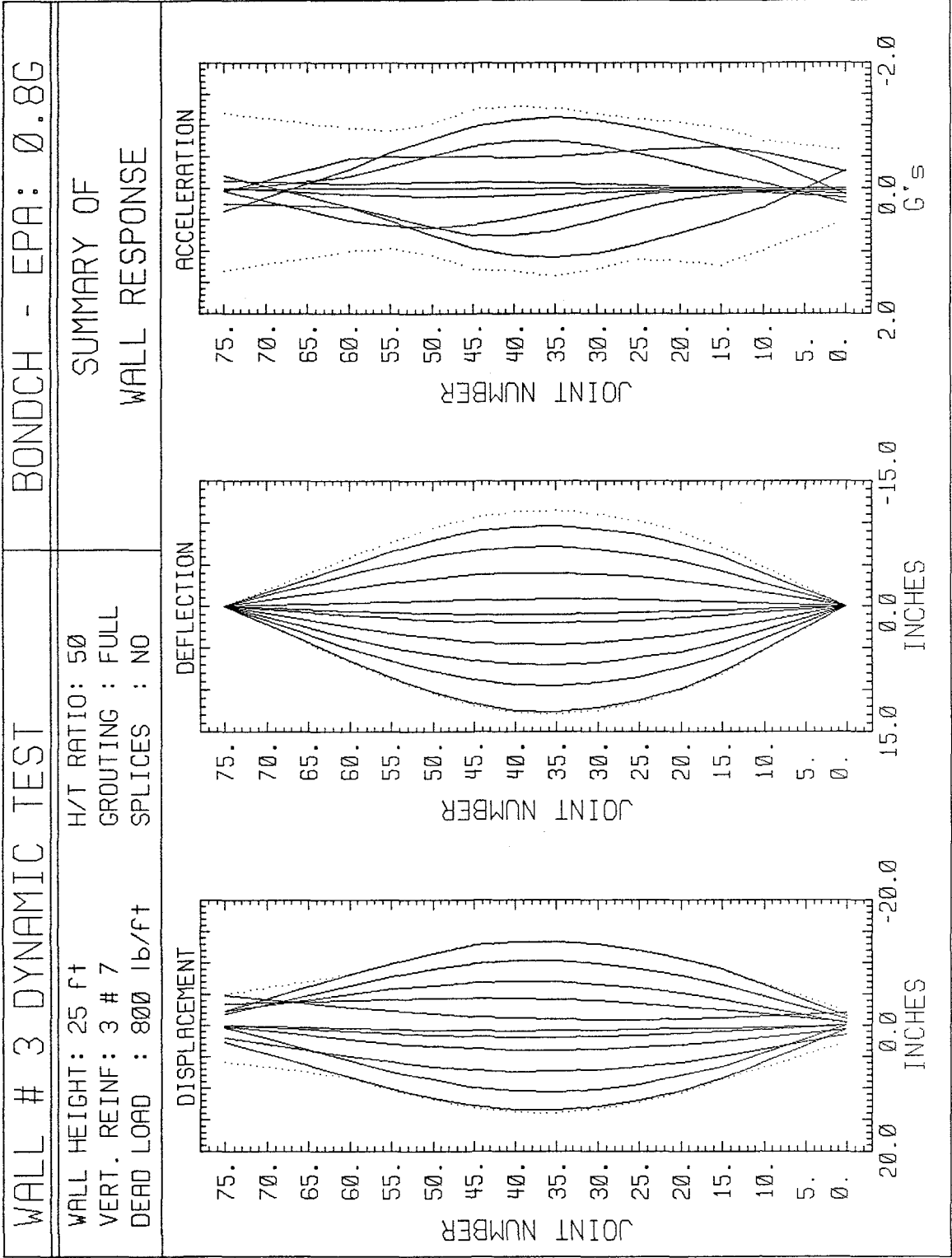
TAFTS - EPA: 0.4G

WALL HEIGHT: 25 ft+  
 VERT. REINF: 3 # 7  
 DEAD LOAD : 800 lb/ft+

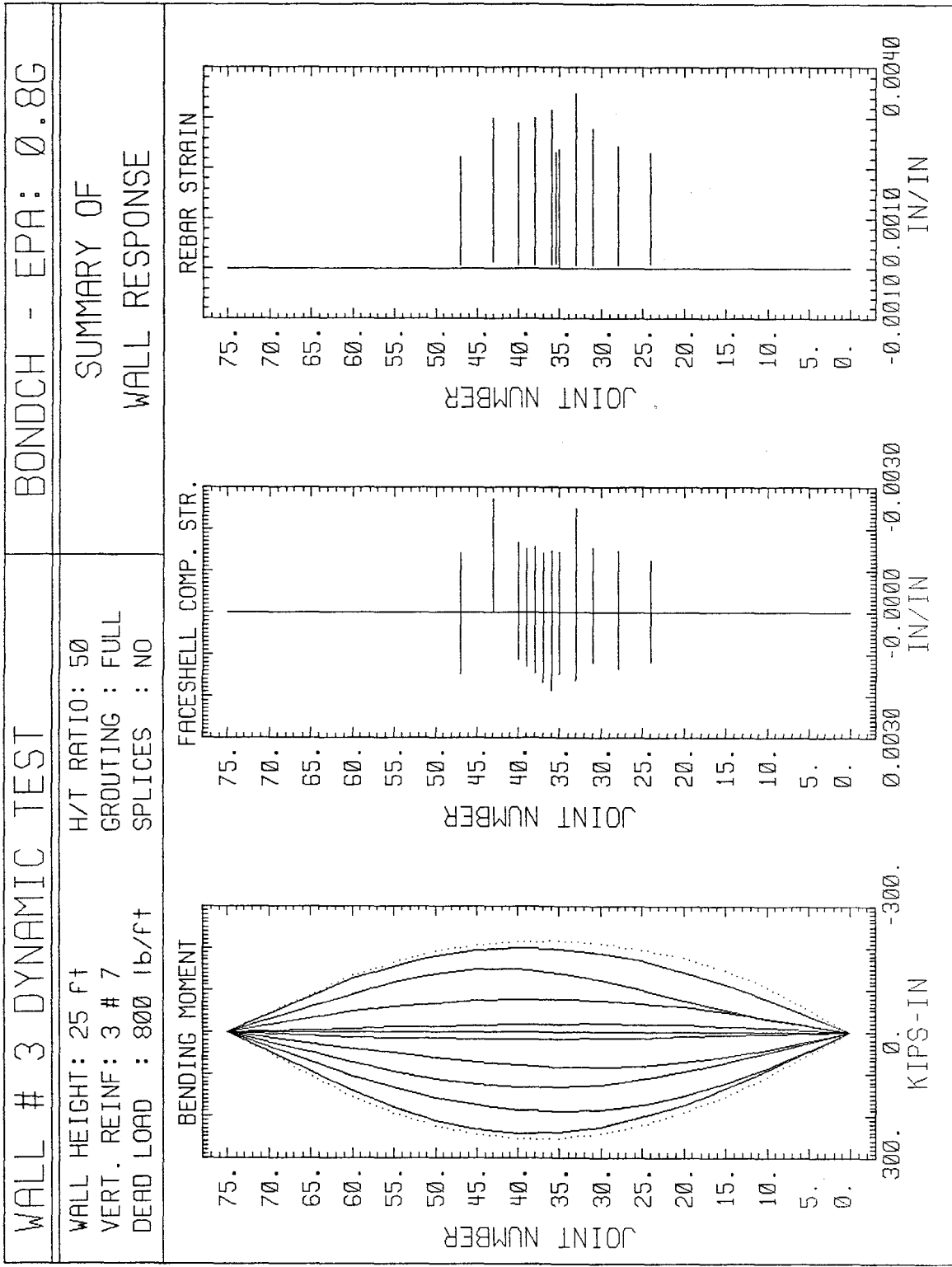
H/T RATIO: 50  
 GROUTING : FULL  
 SPLICES : NO

SUMMARY OF  
 WALL RESPONSE







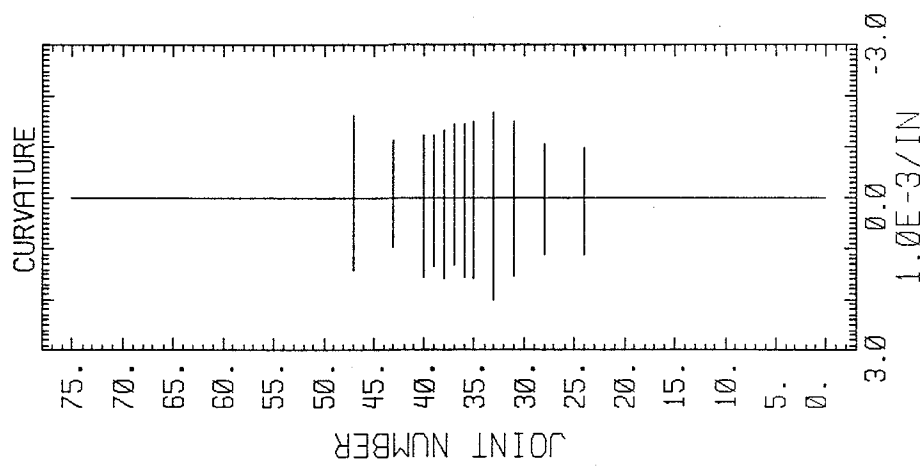
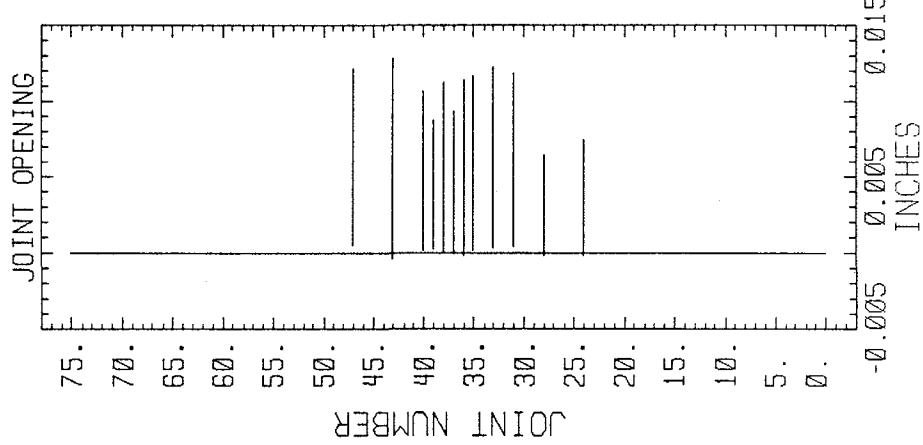
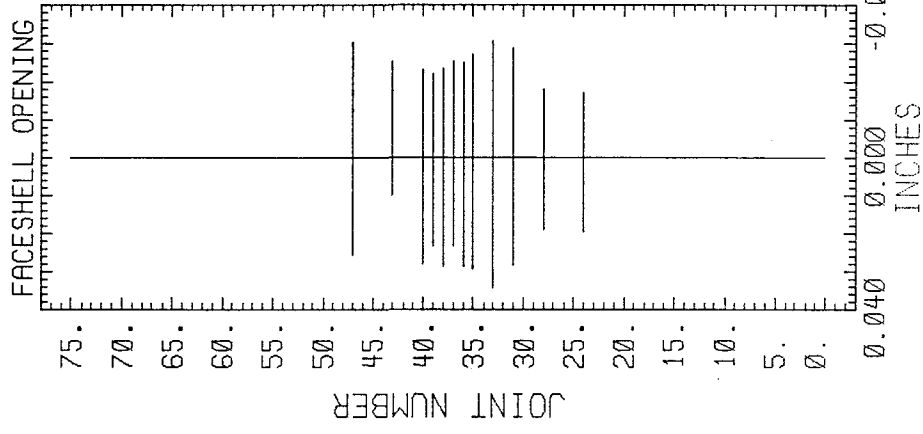


WALL # 3 DYNAMIC TEST

BONDCH - EPA: 0.8G

WALL HEIGHT: 25 FT H/T RATIO: 50  
 VERT. REINF: 3 # 7 GROUTING : FULL  
 DEAD LOAD : 800 lb/ft SPLICES : NO

SUMMARY OF  
 WALL RESPONSE



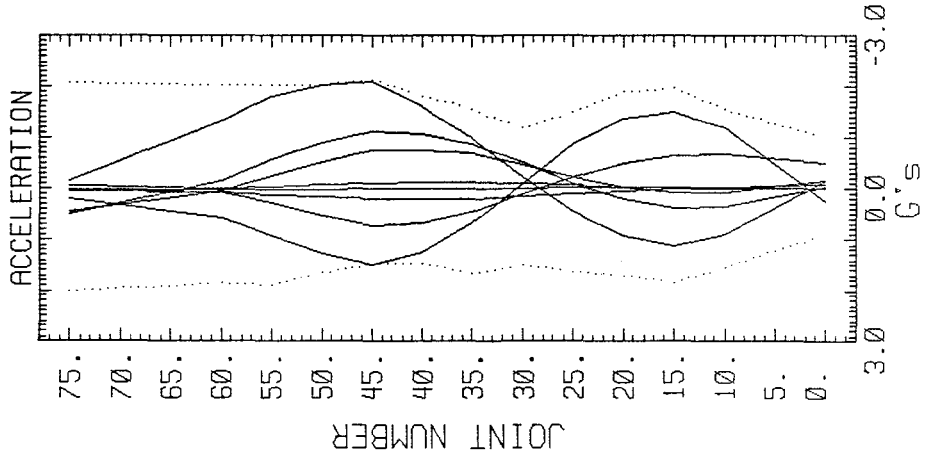
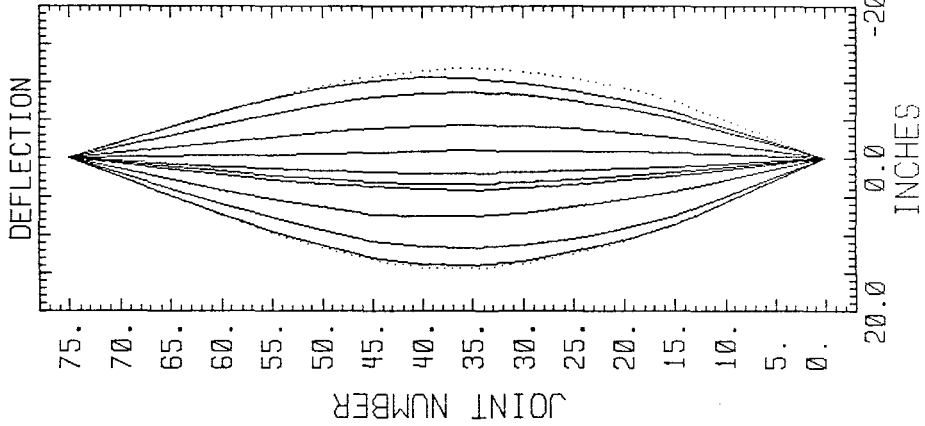
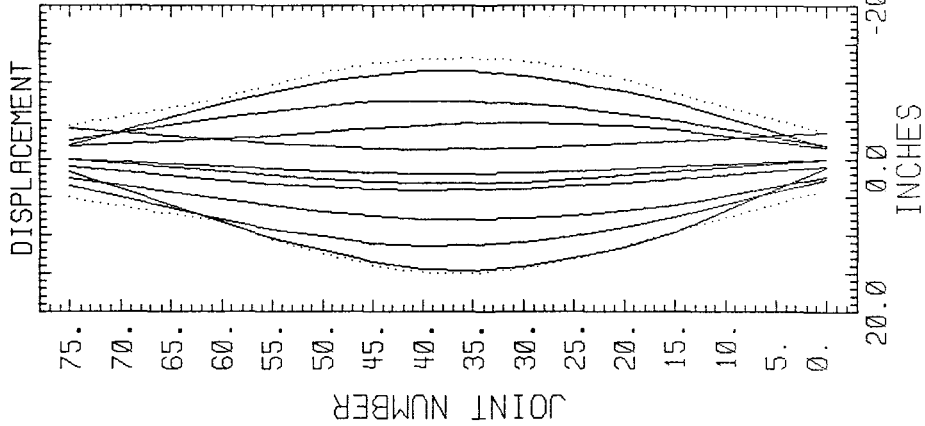
WALL # 3 DYNAMIC TEST

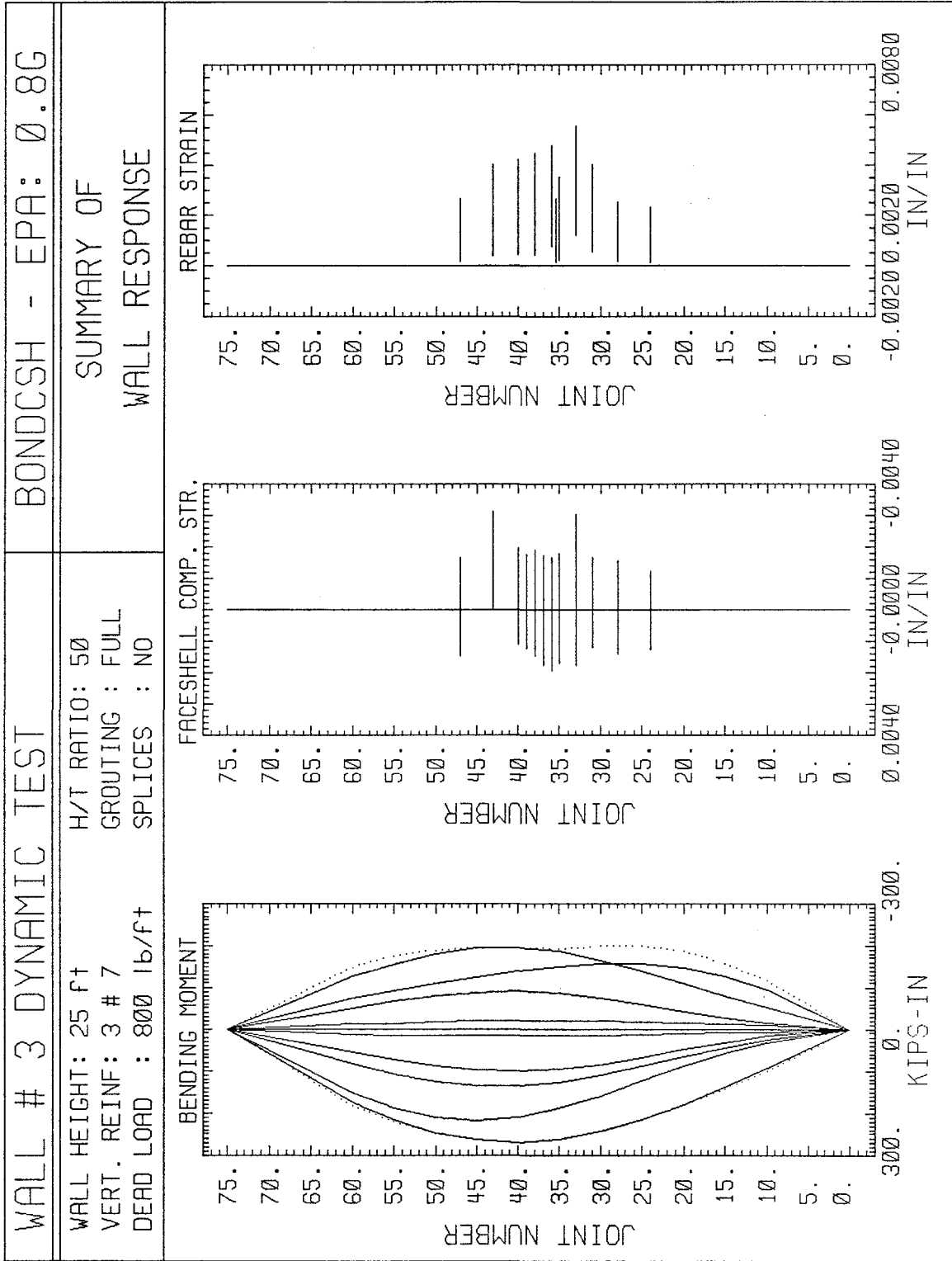
BONDCSH - EPA: 0.8G

WALL HEIGHT: 25 FT  
 VERT. REINF: 3 # 7  
 DEAD LOAD : 800 lb/ft

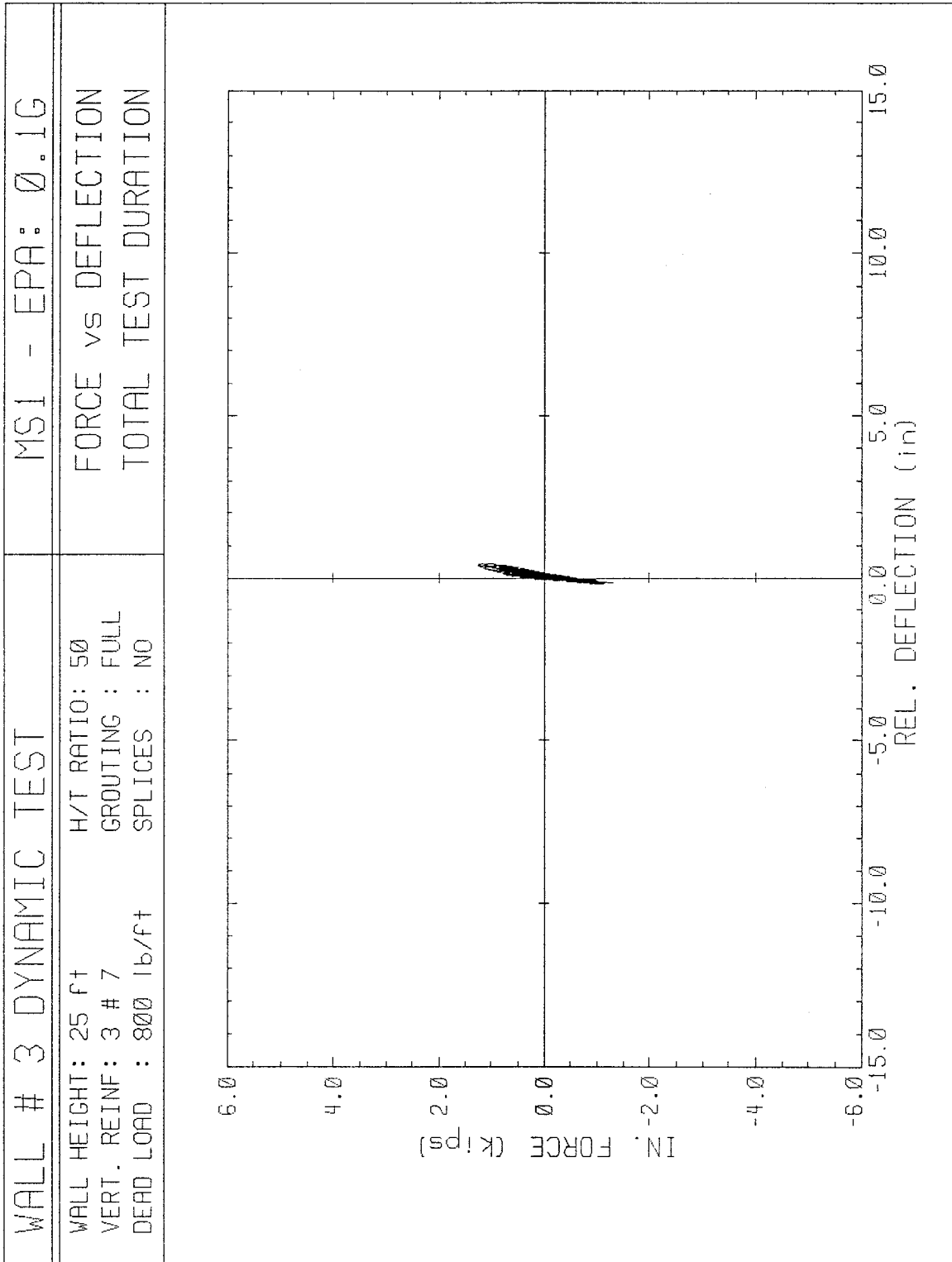
H/T RATIO: 50  
 GROUTING : FULL  
 SPLICES : NO

SUMMARY OF WALL RESPONSE

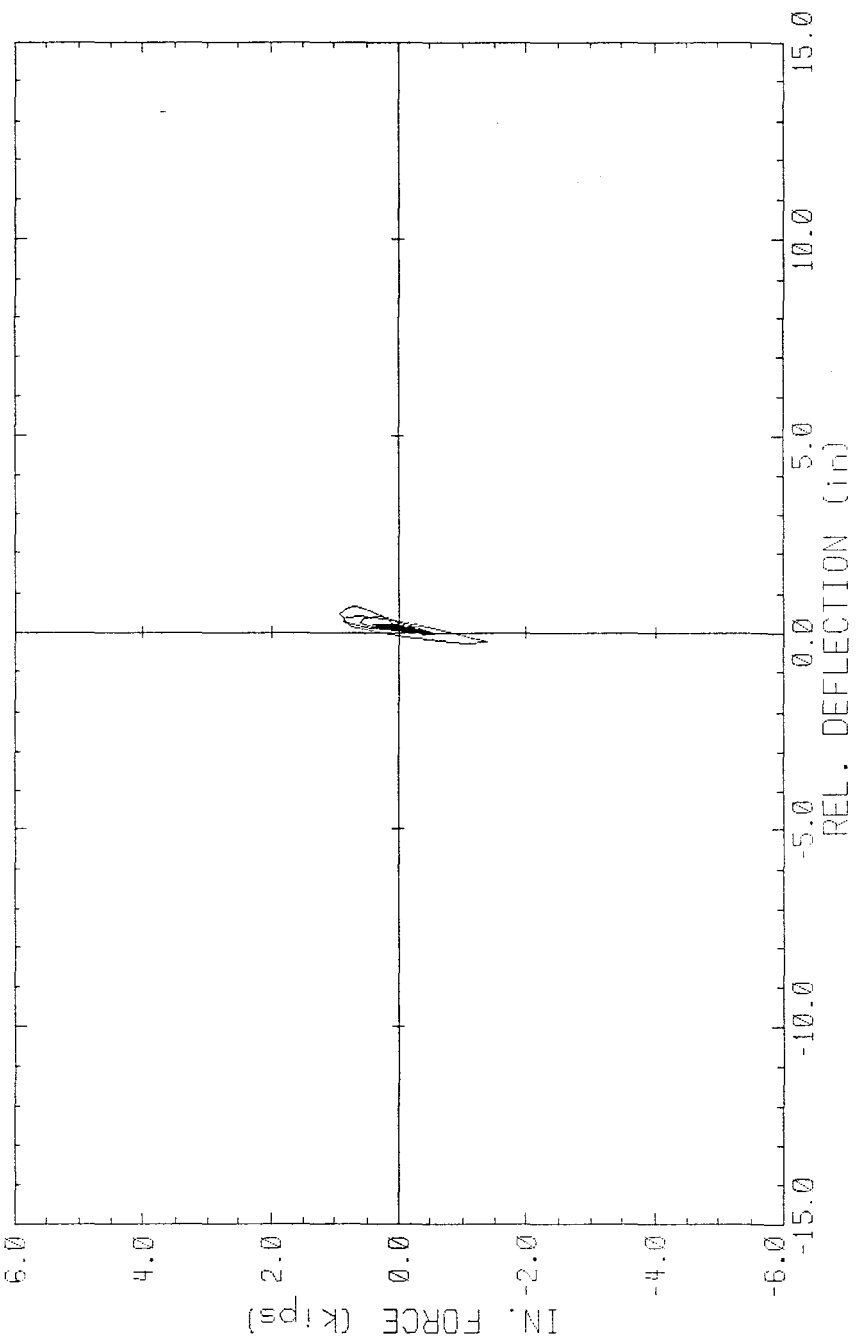


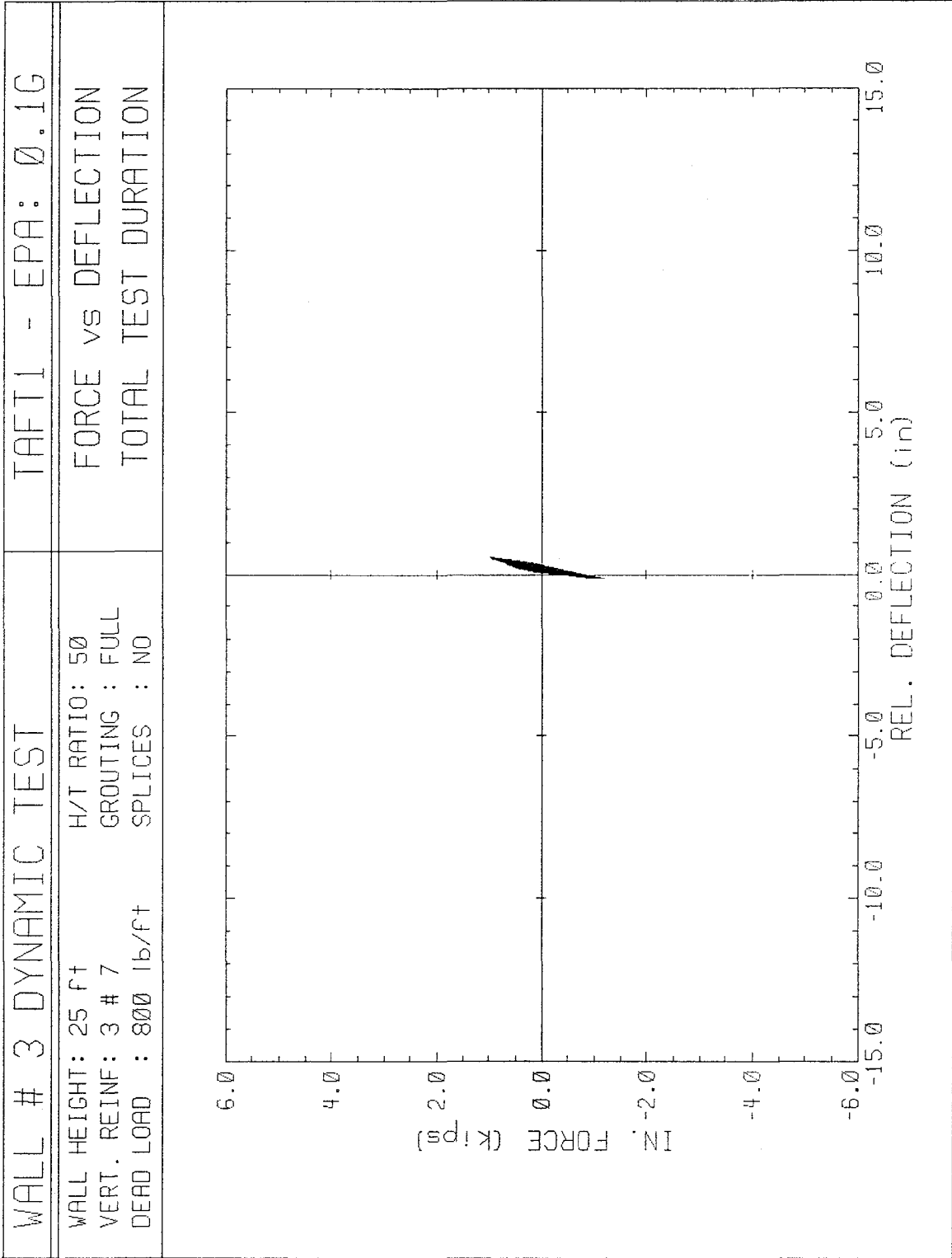


WALL # 3 DYNAMIC TEST	BONDCSH - EPA: 0.8G
WALL HEIGHT: 25 ft VERT. REINF: 3 # 7 DEAD LOAD : 800 lb/ft	H/T RATIO: 50 GROUTING : FULL SPLICES : NO
SUMMARY OF WALL RESPONSE	
<p>Graph showing Faceshell Opening (INCHES) versus Joint Number. The y-axis ranges from 0 to 75. The x-axis ranges from -0.050 to 0.050. Data points are plotted for joints 25, 30, 35, 40, 45, and 50, showing openings between approximately -0.025 and 0.025 inches.</p>	<p>Graph showing Joint Opening (INCHES) versus Joint Number. The y-axis ranges from 0 to 75. The x-axis ranges from -0.005 to 0.020. Data points are plotted for joints 25, 30, 35, 40, 45, and 50, showing openings between approximately -0.002 and 0.015 inches.</p>
<p>Graph showing Curvature (1.0E-3/IN) versus Joint Number. The y-axis ranges from 0 to 75. The x-axis ranges from -3.0 to 3.0. Data points are plotted for joints 25, 30, 35, 40, 45, and 50, showing curvature values between approximately -1.5 and 1.5.</p>	

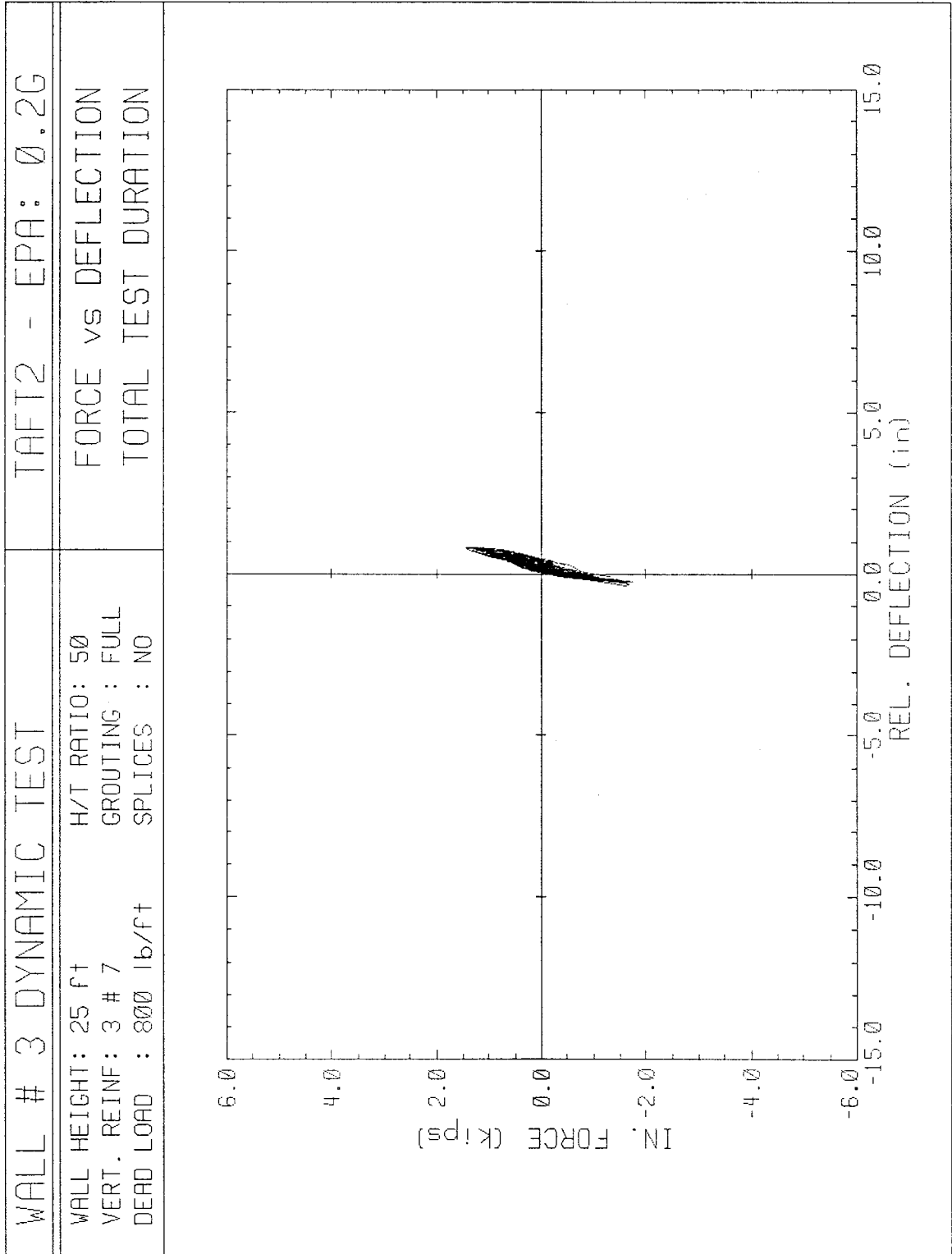


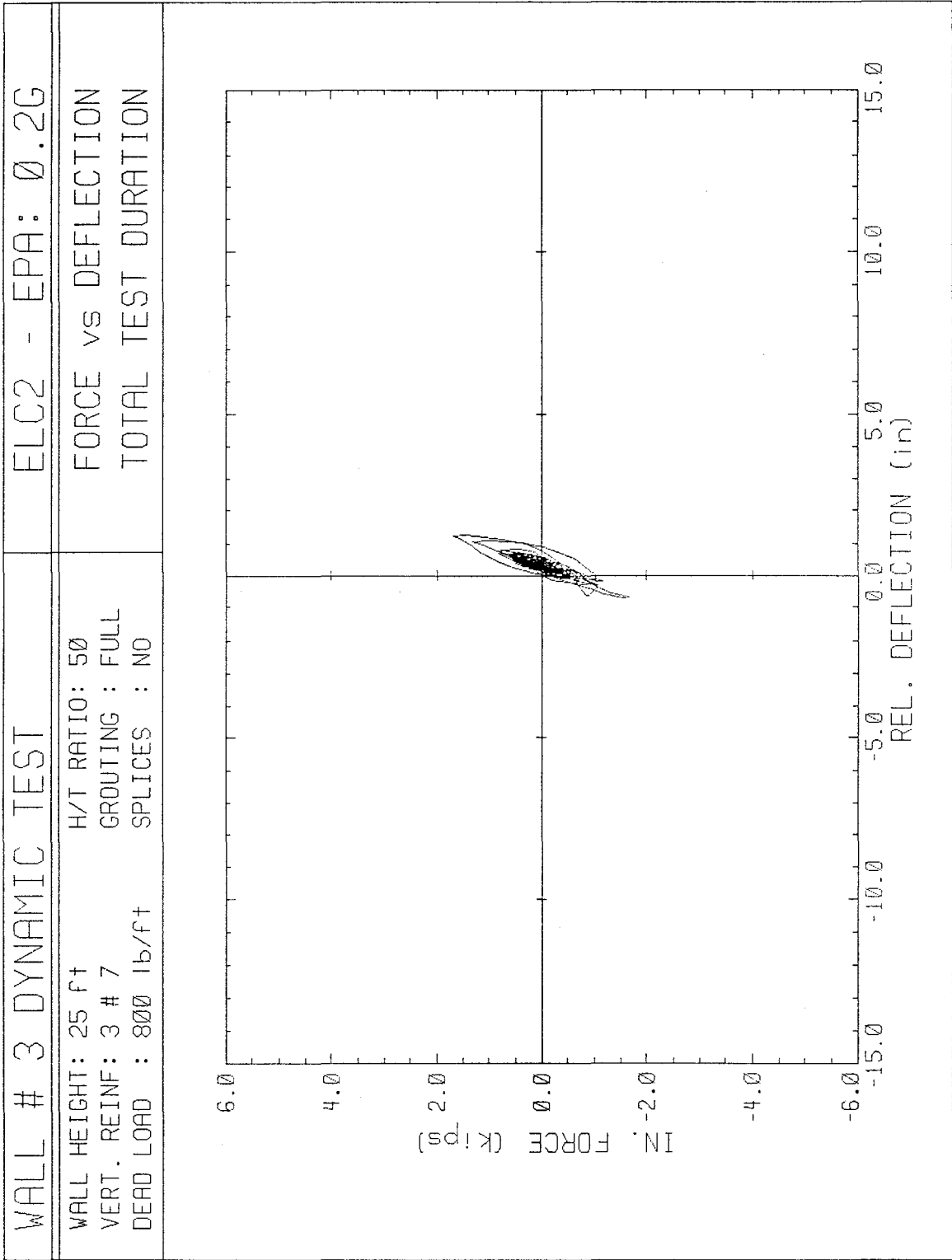
WALL # 3 DYNAMIC TEST	MS2 - EPA: Ø.1G
WALL HEIGHT: 25 ft VERT. REINF: 3 # 7 DEAD LOAD : 800 lb/ft	H/T RATIO: 50 GROUTING : FULL SPLICES : NO
FORCE vs DEFLECTION	
TOTAL TEST DURATION	

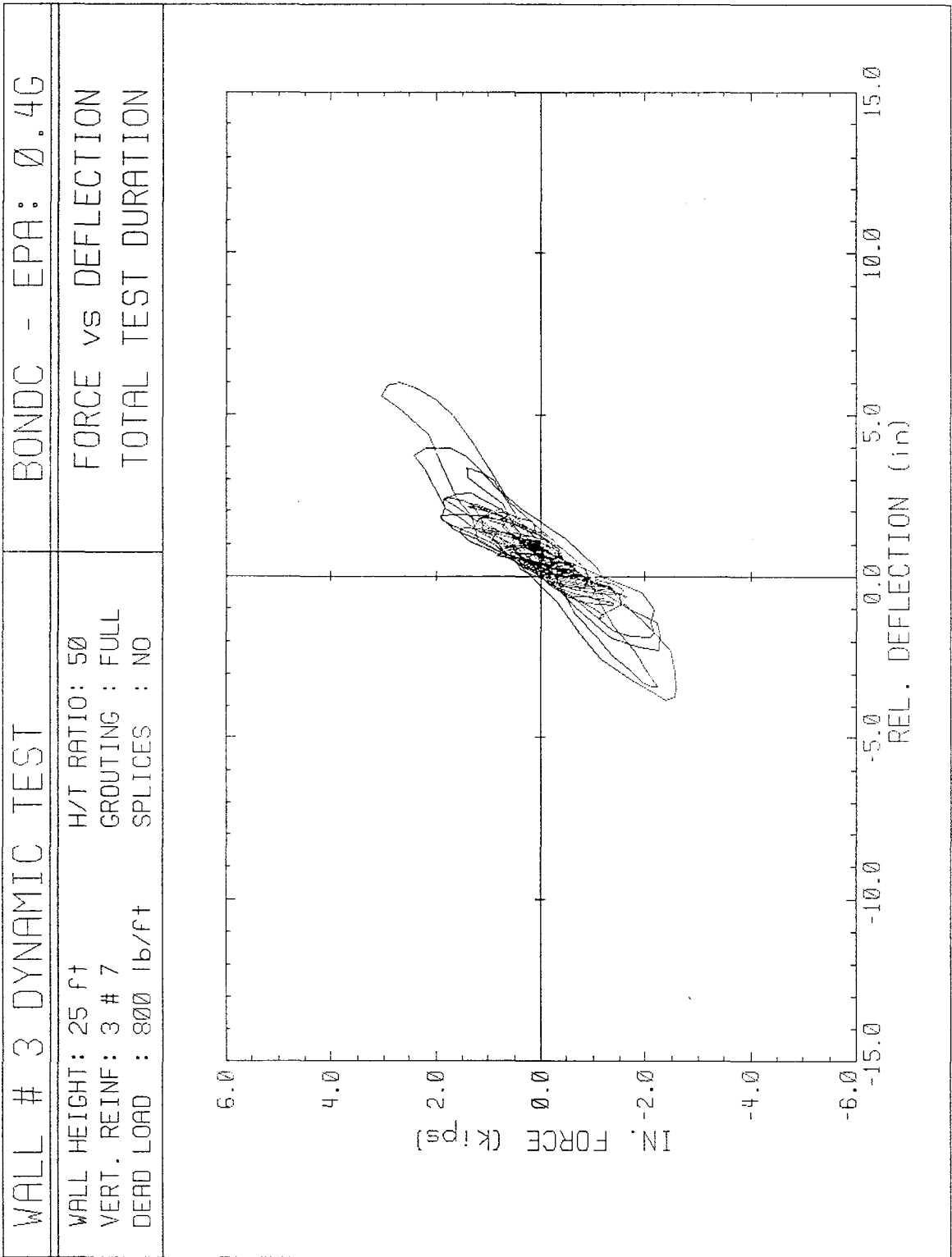


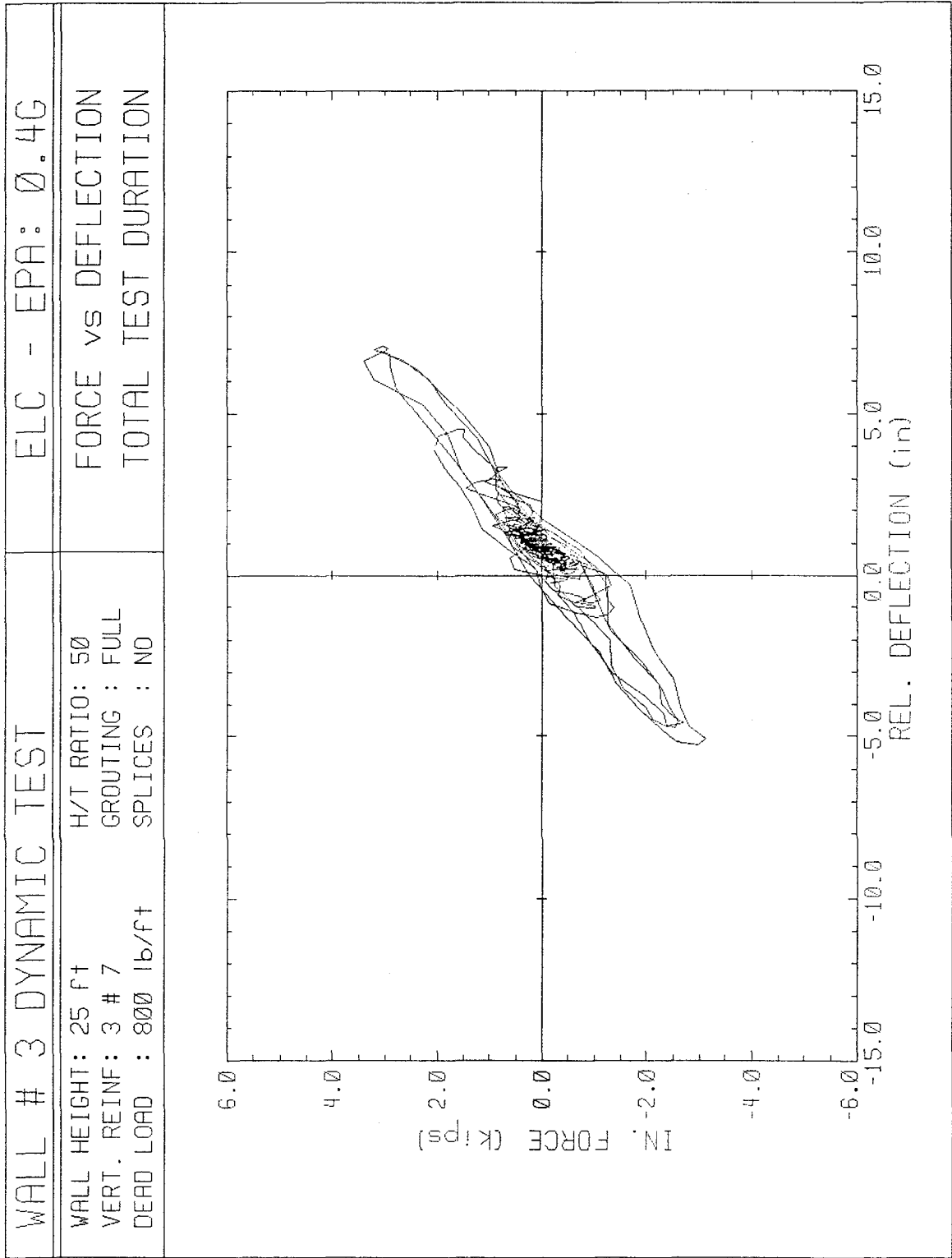


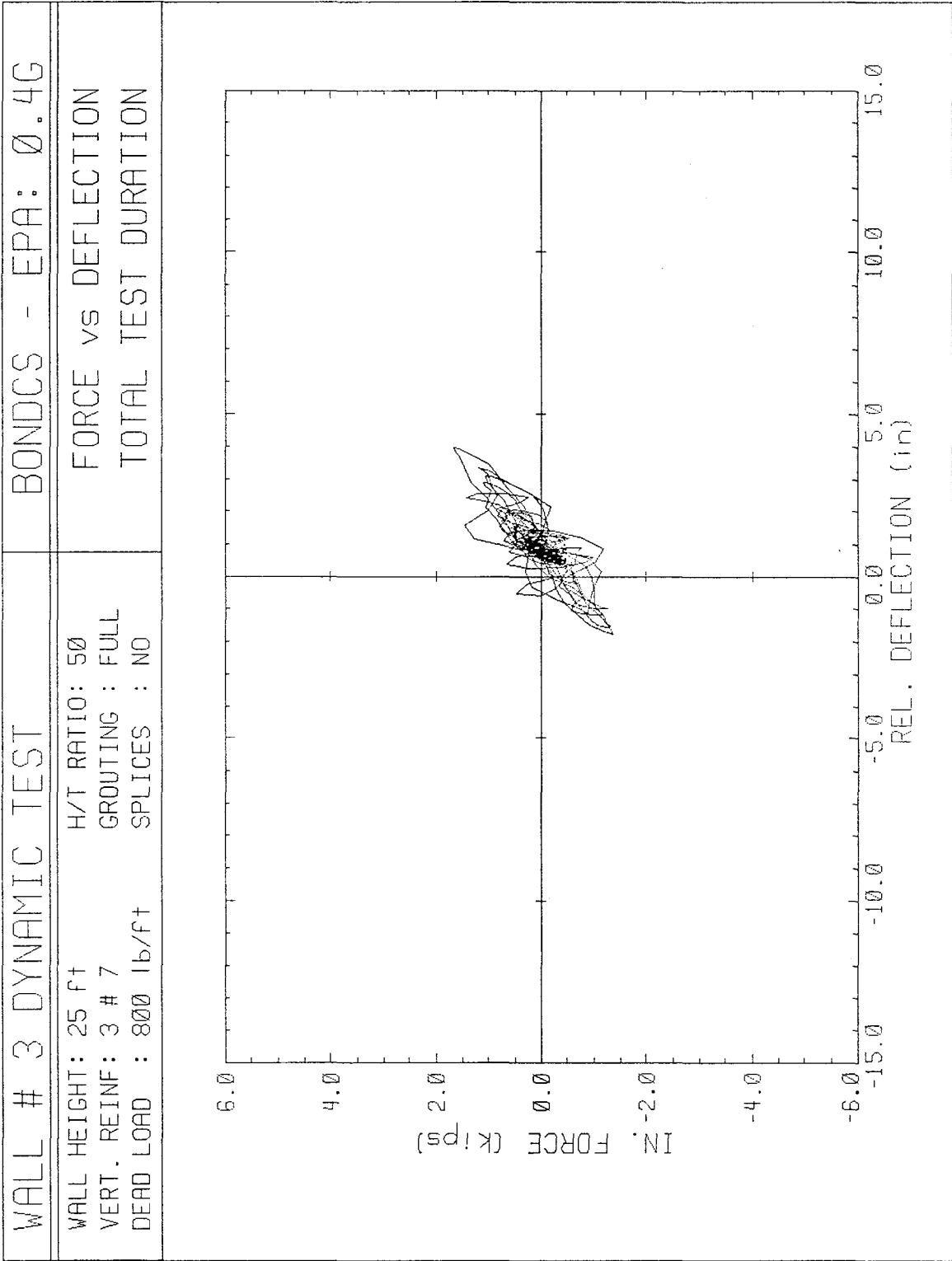


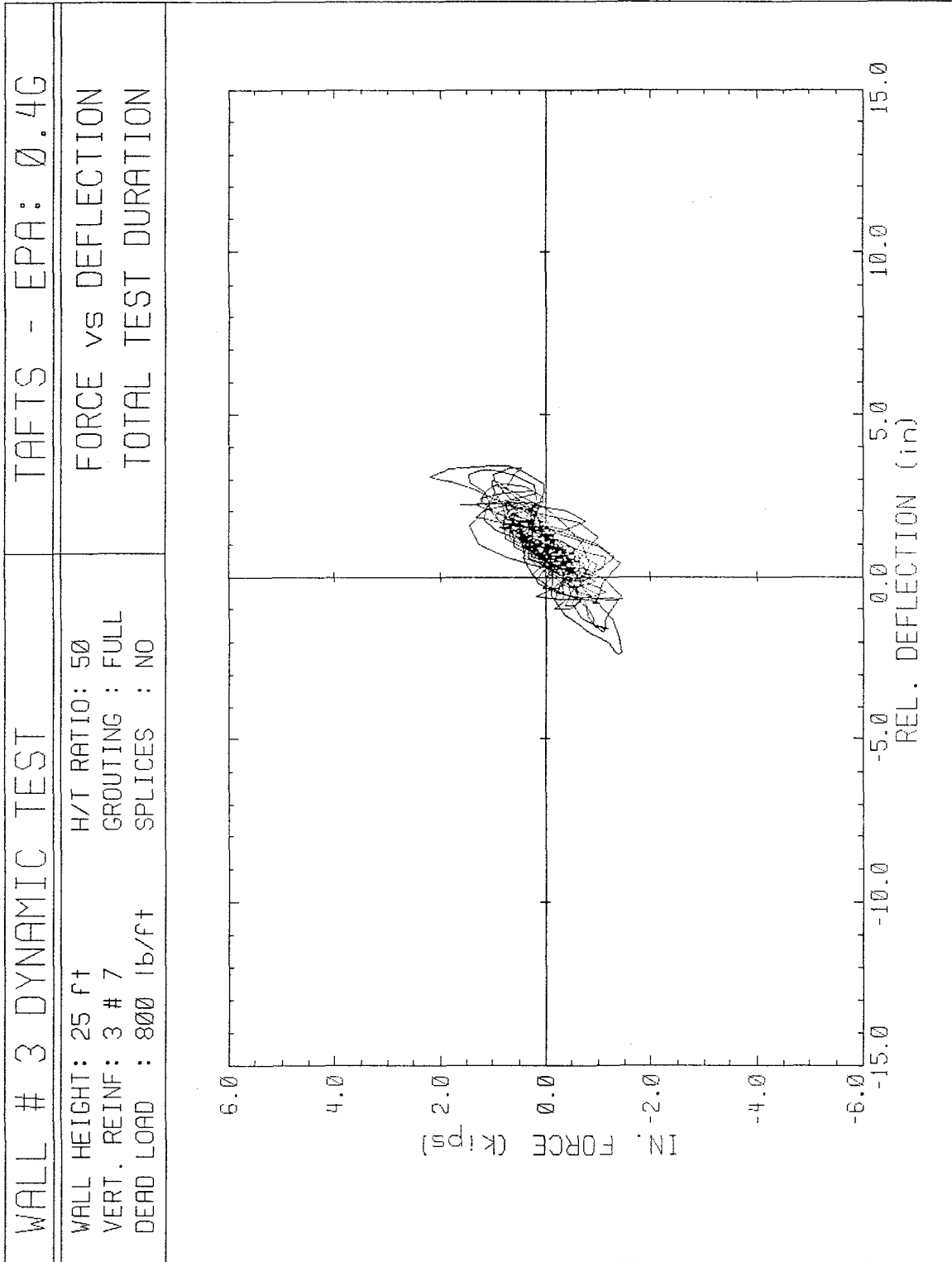


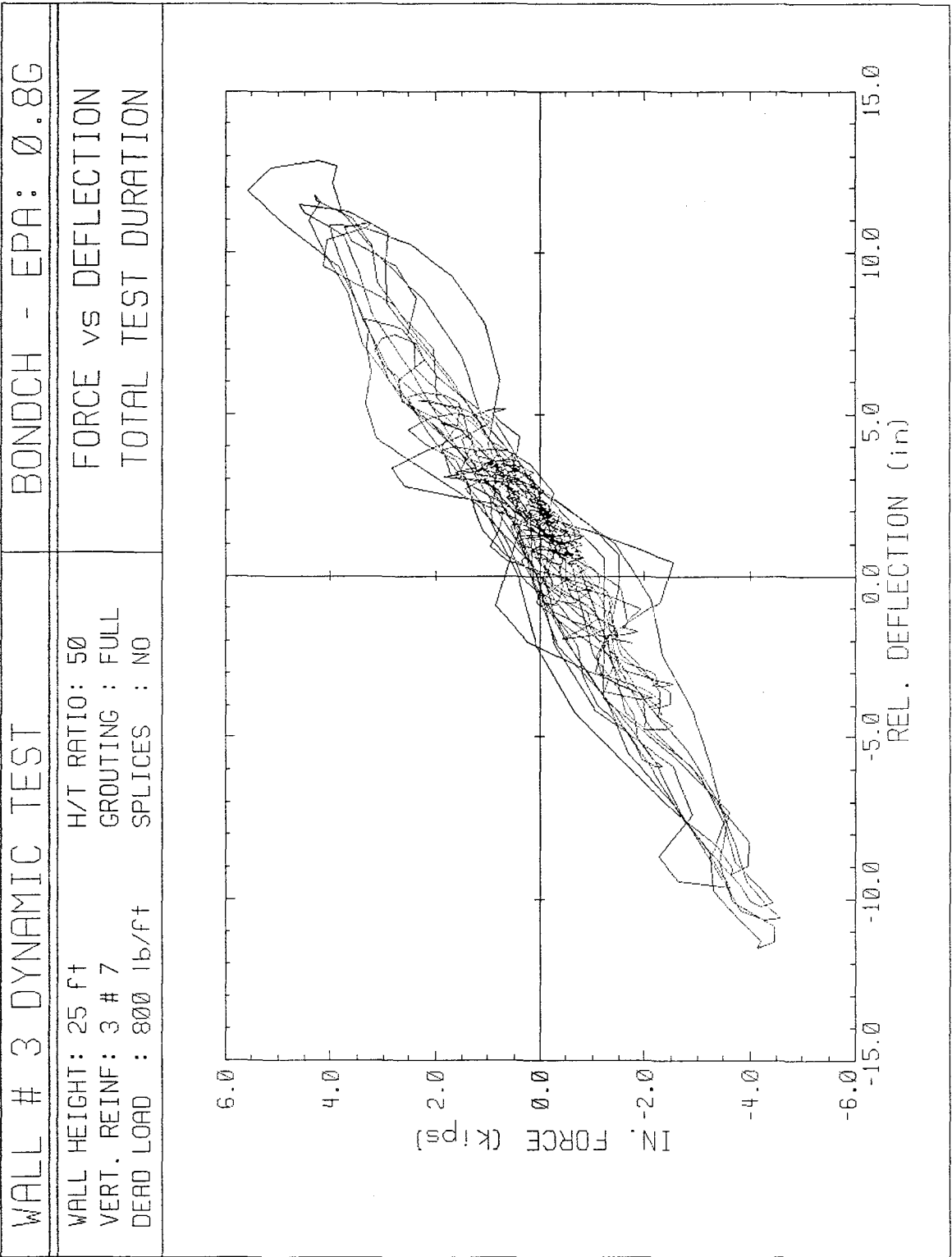


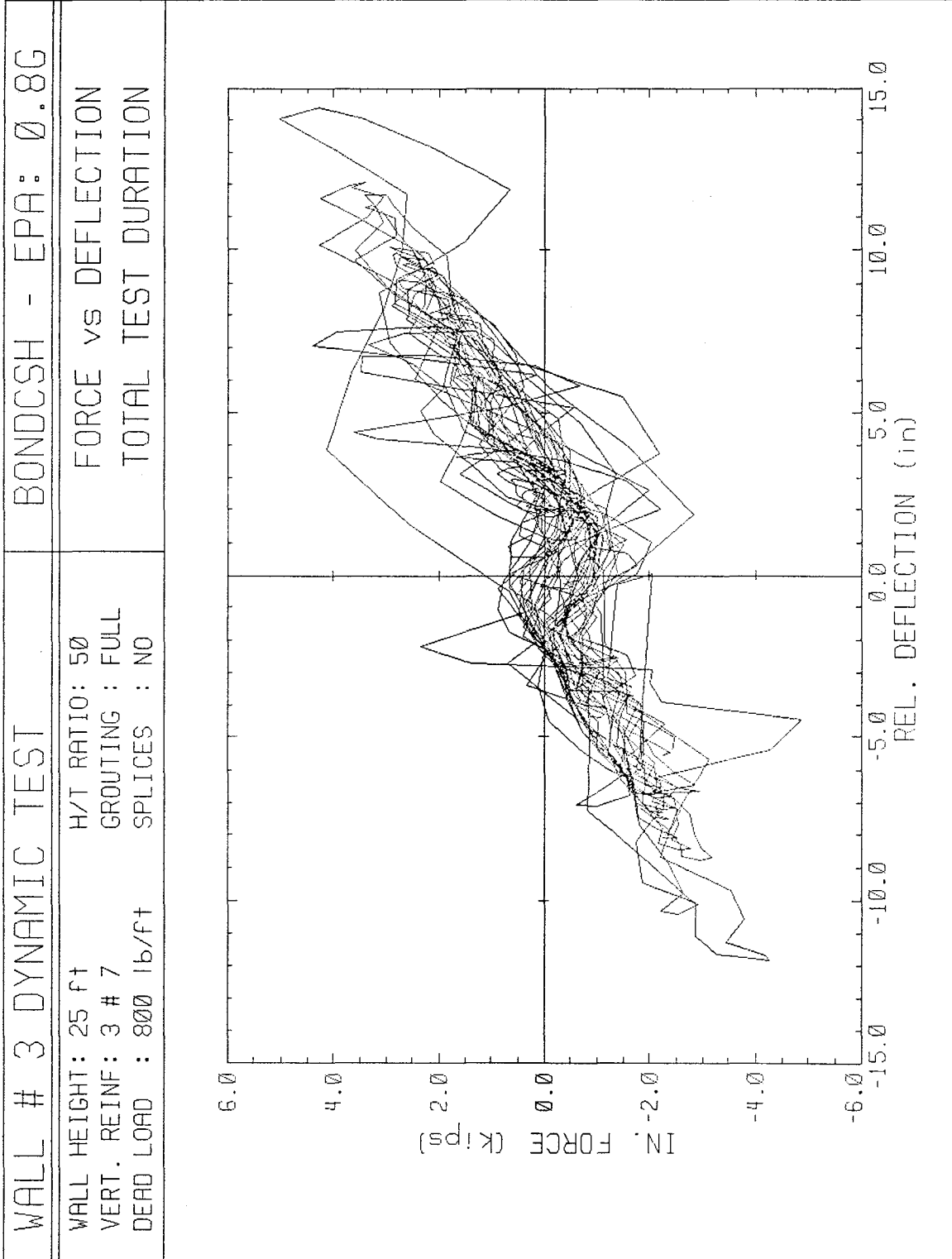




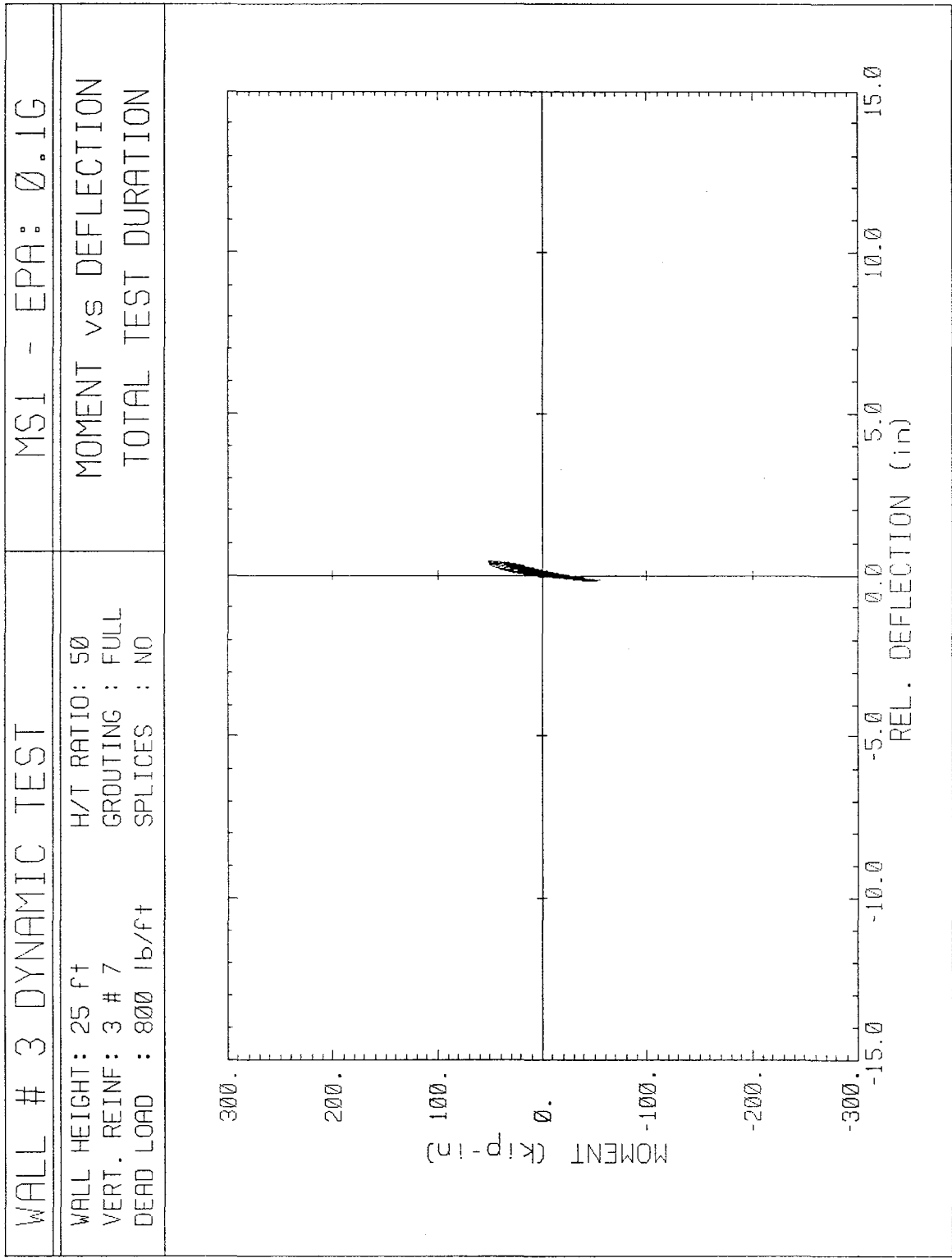


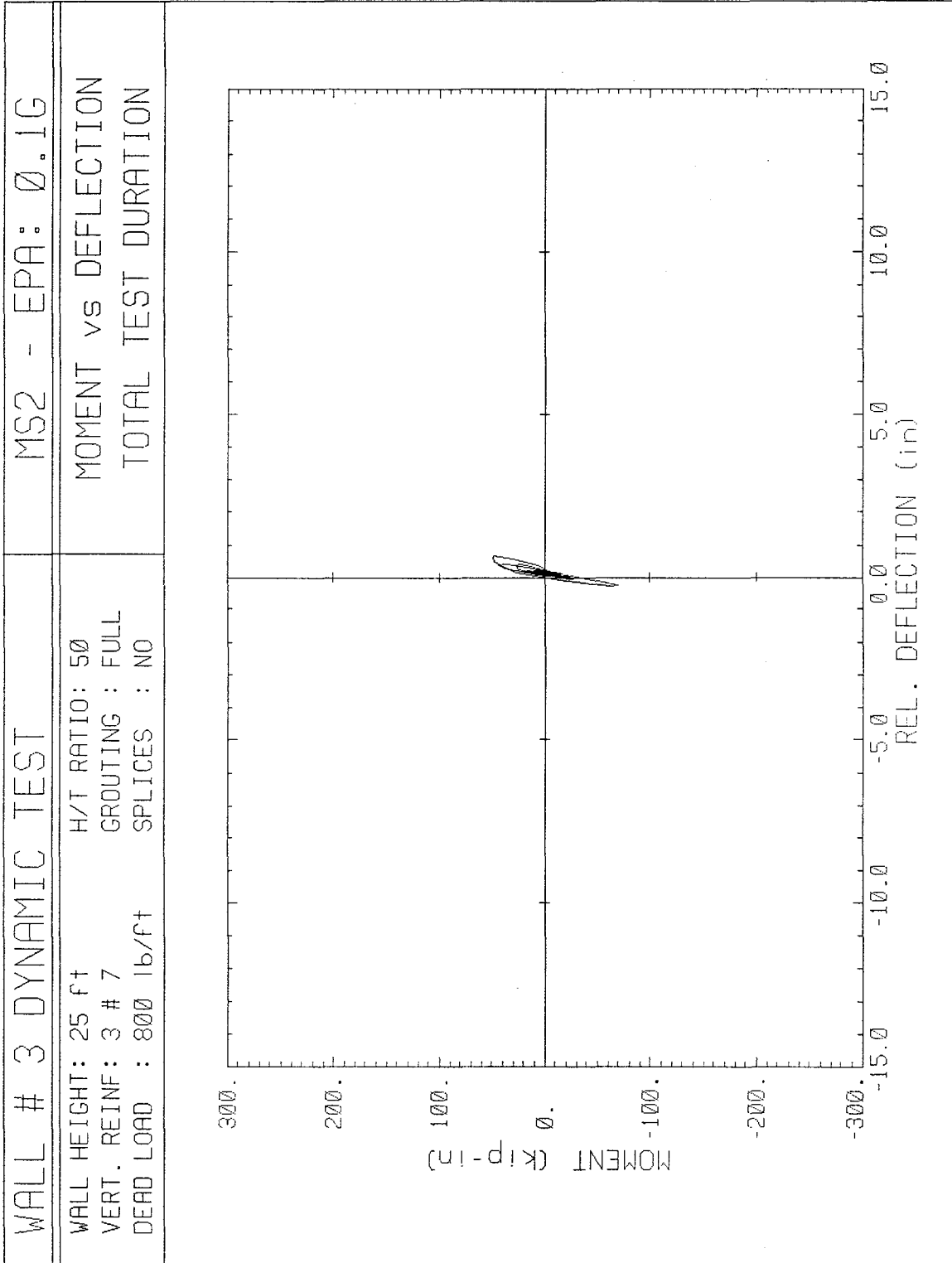


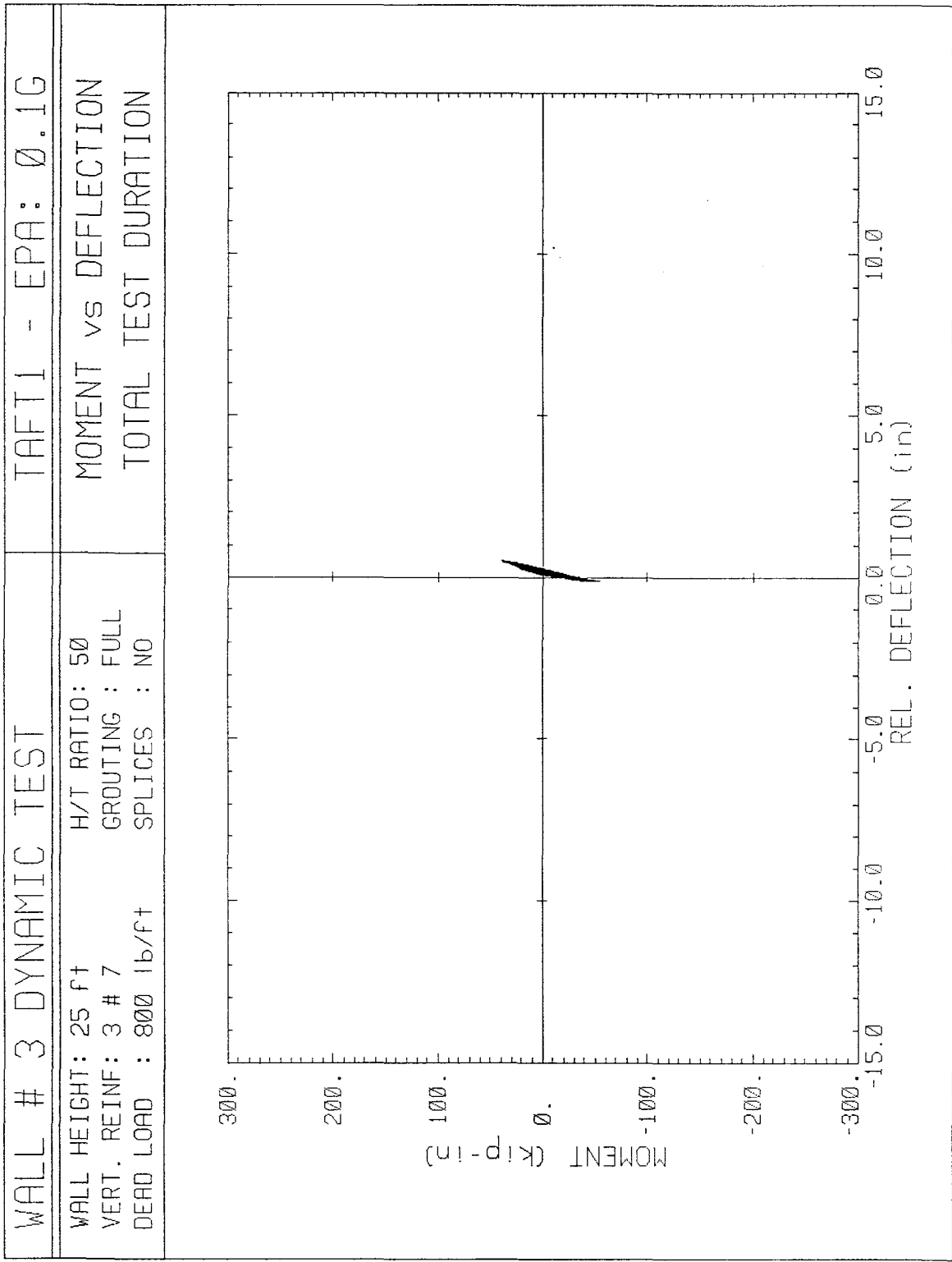


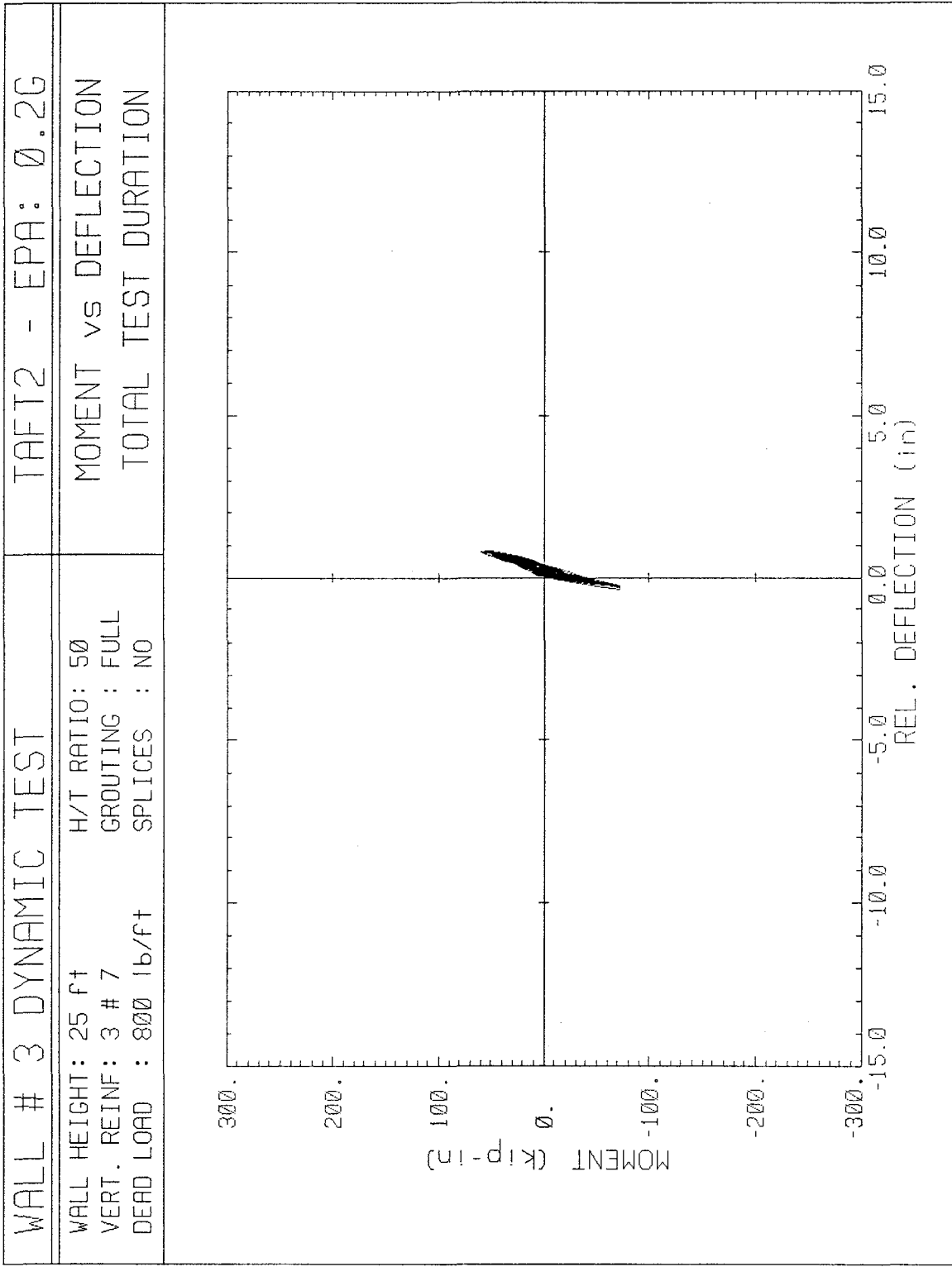


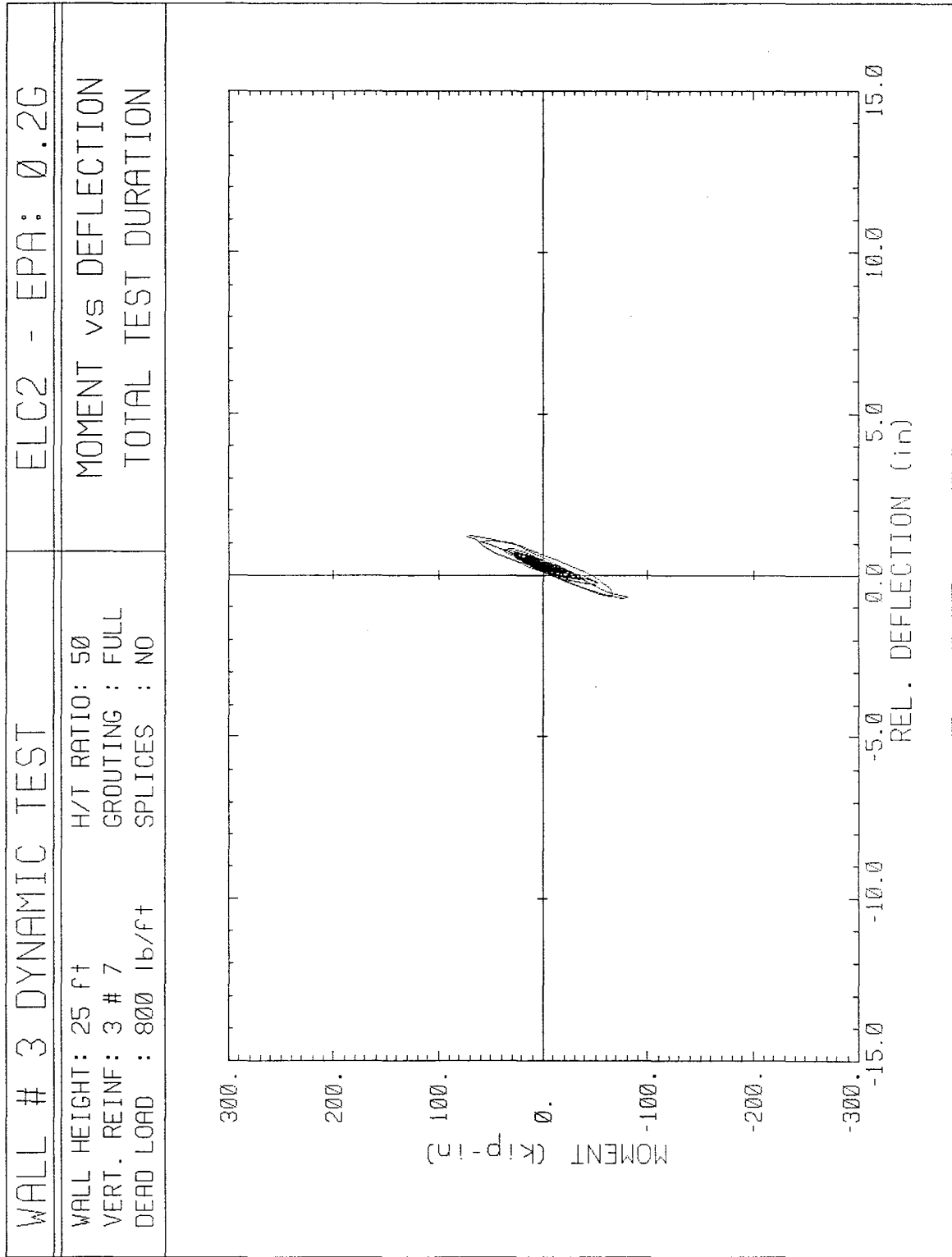


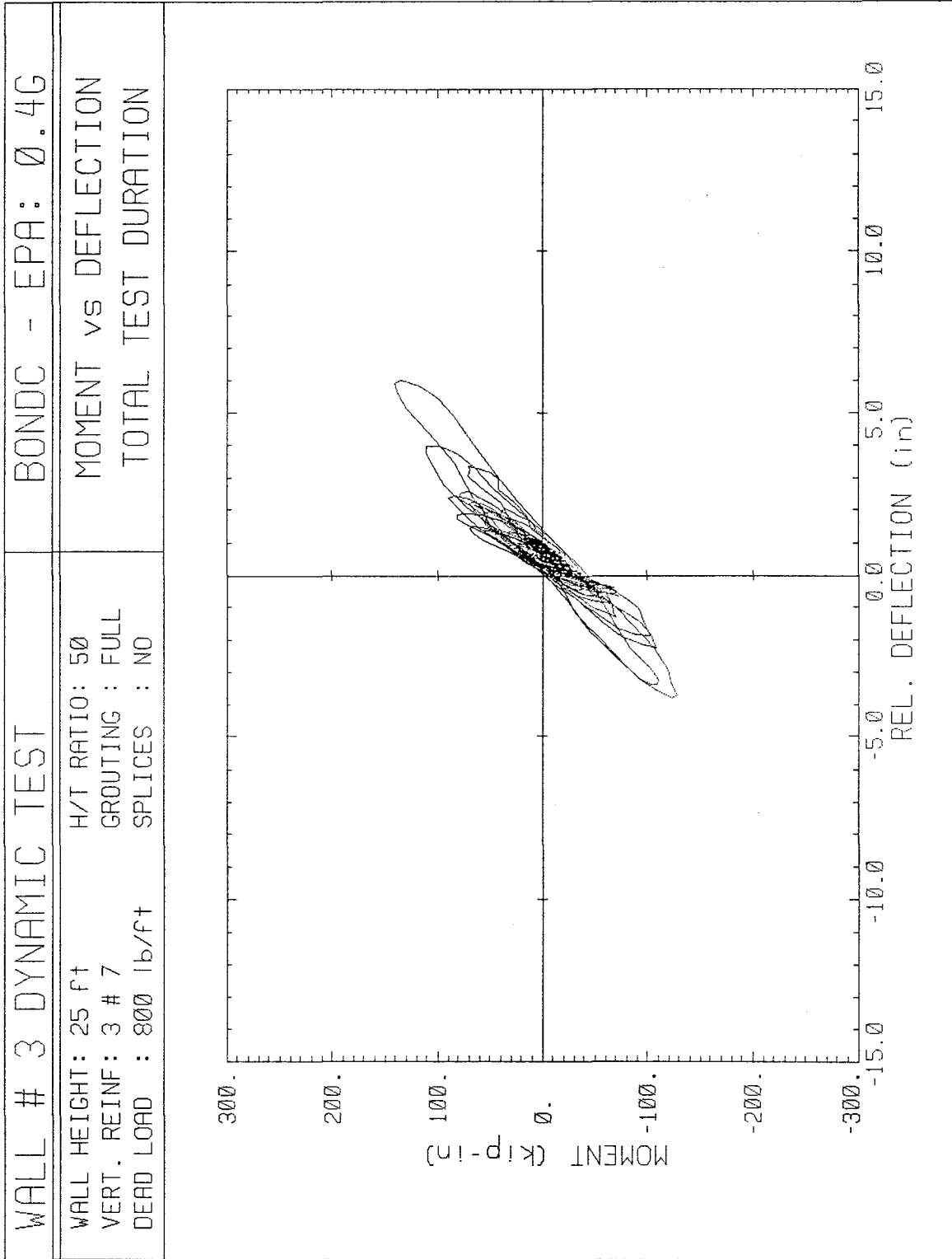


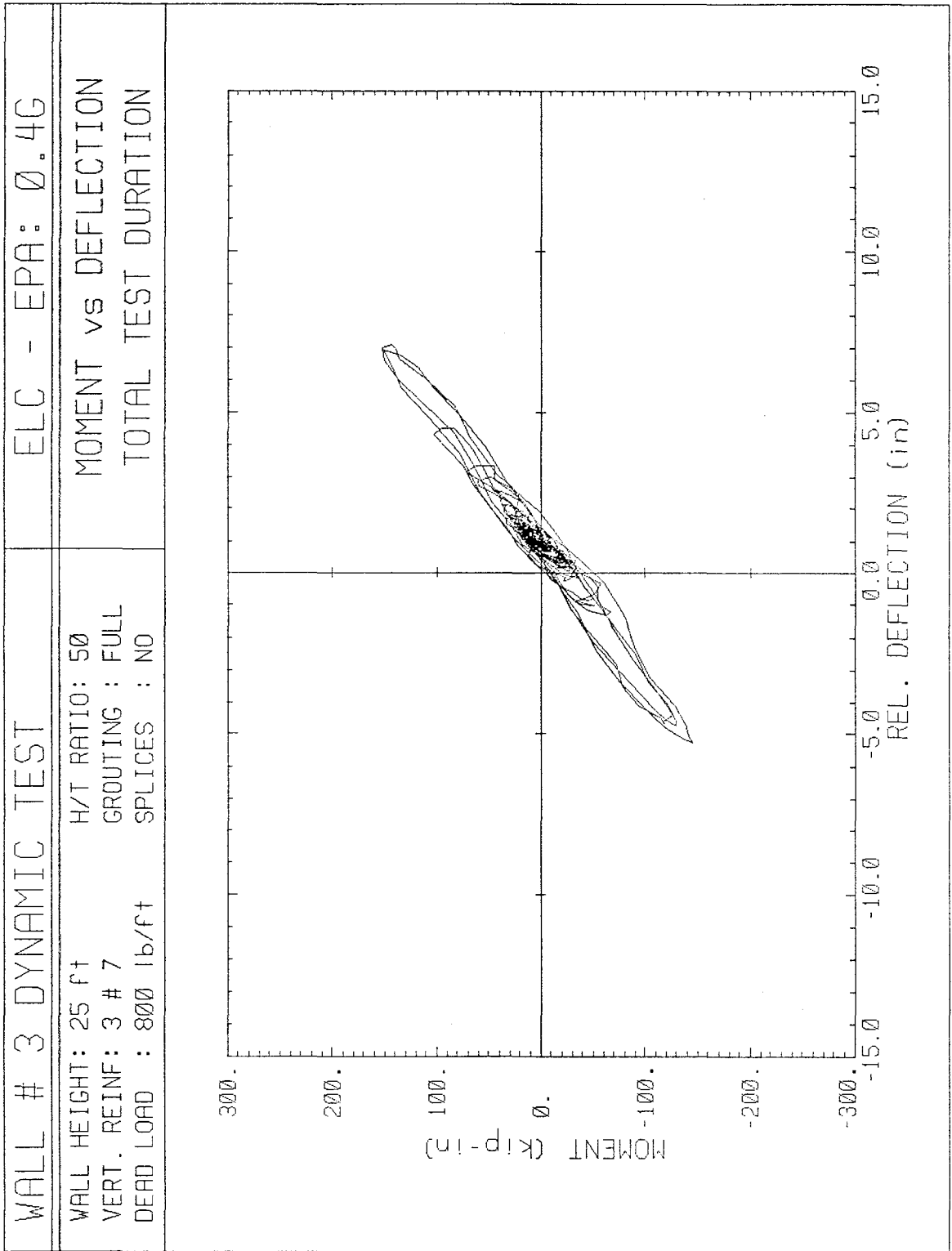


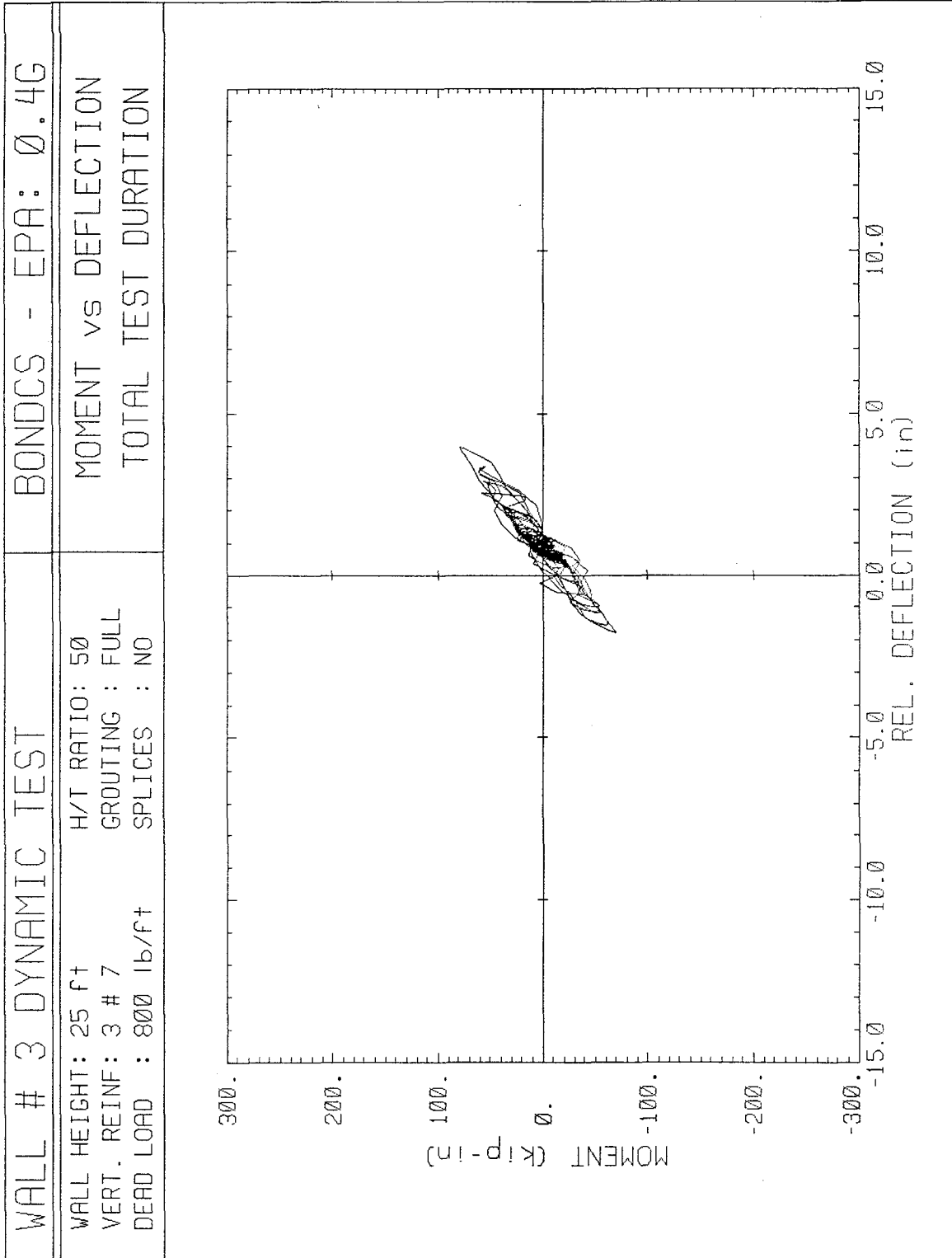




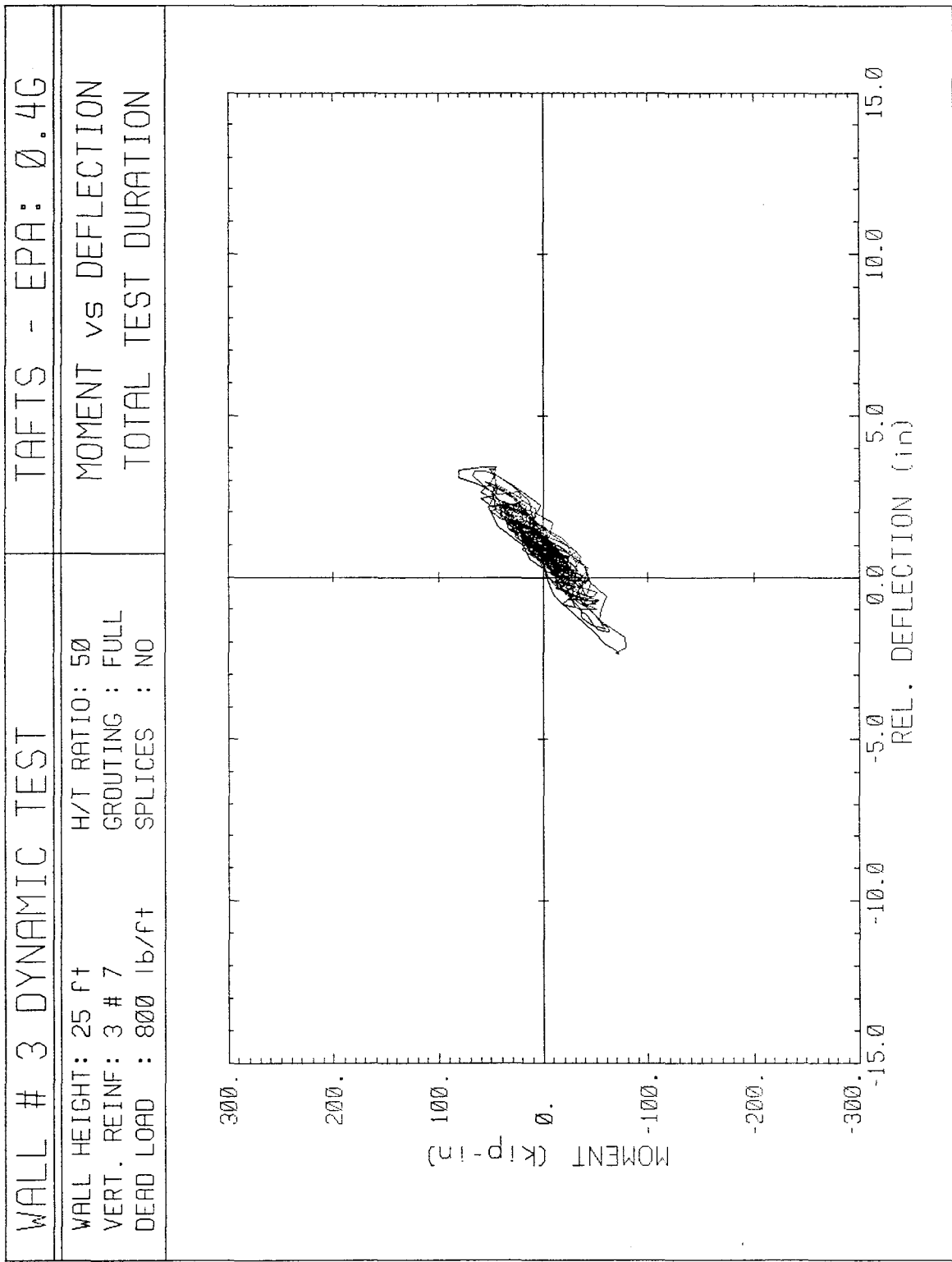


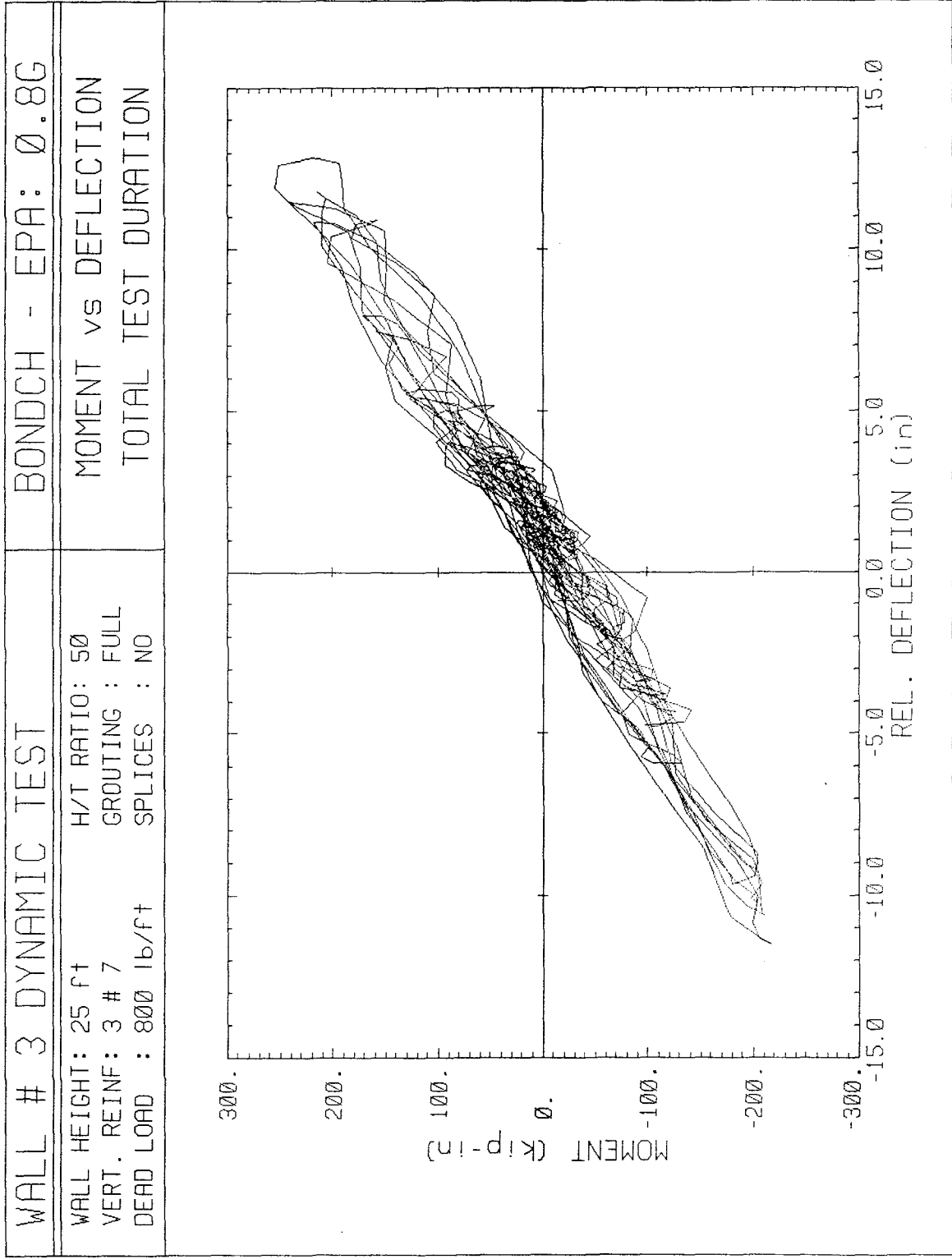


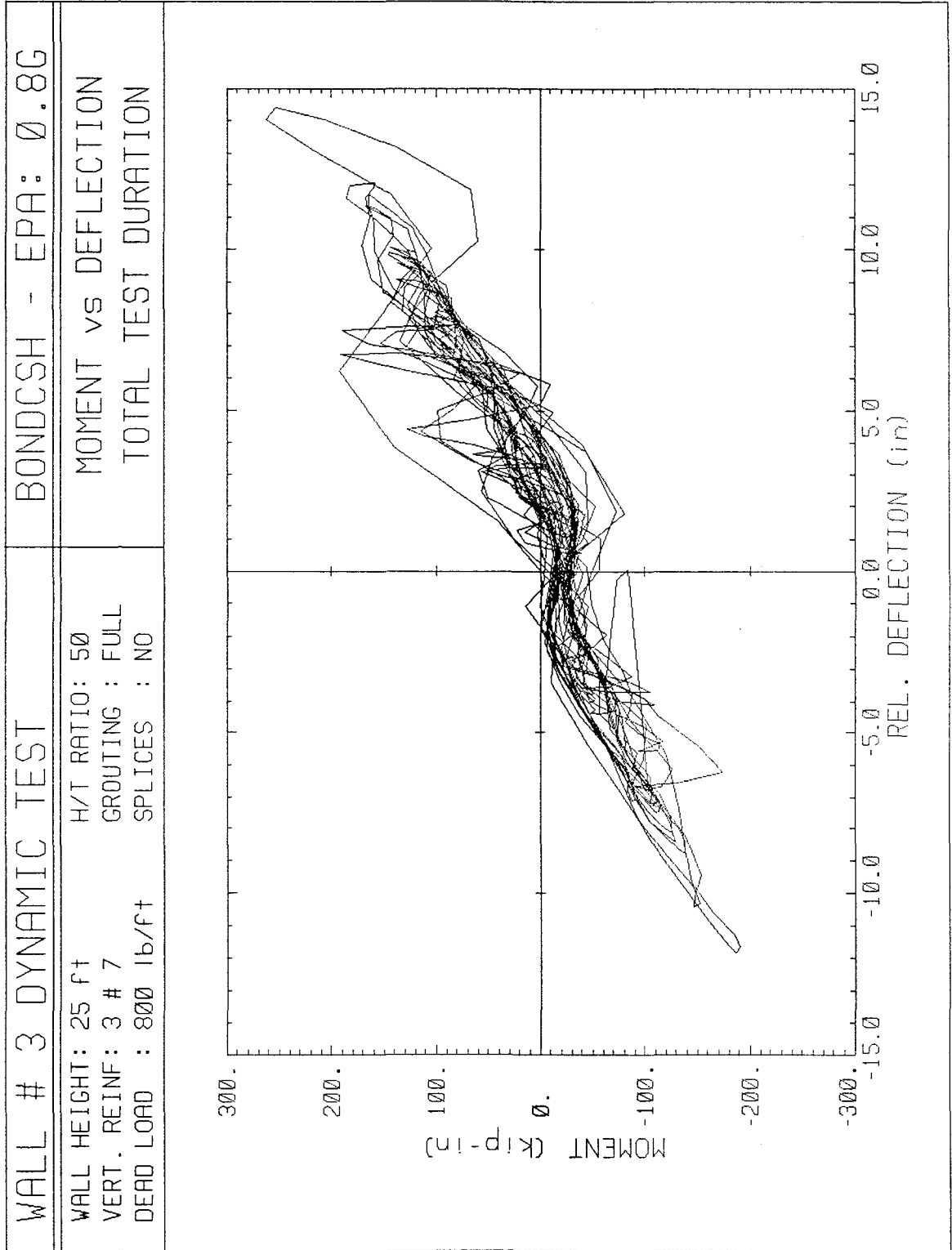


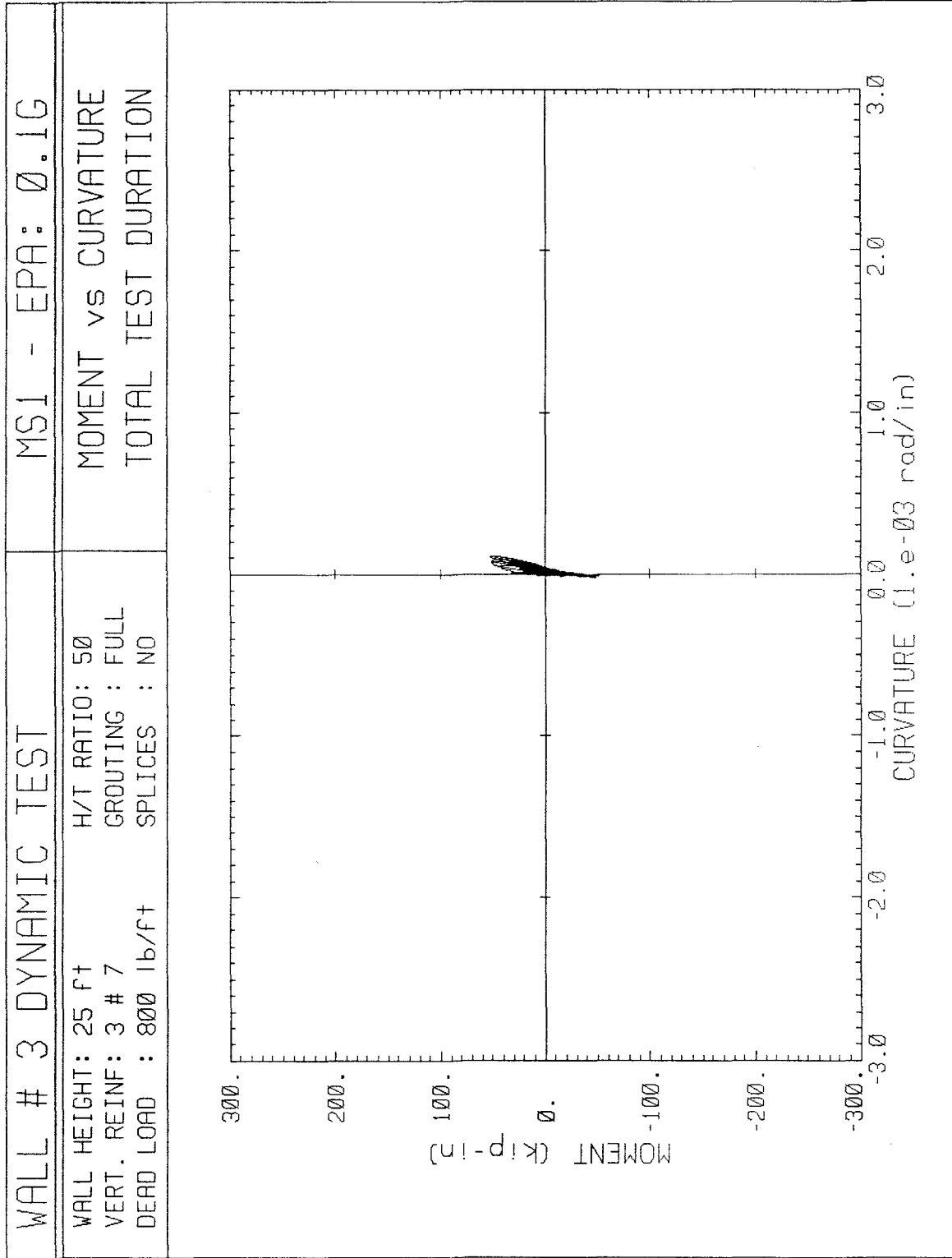


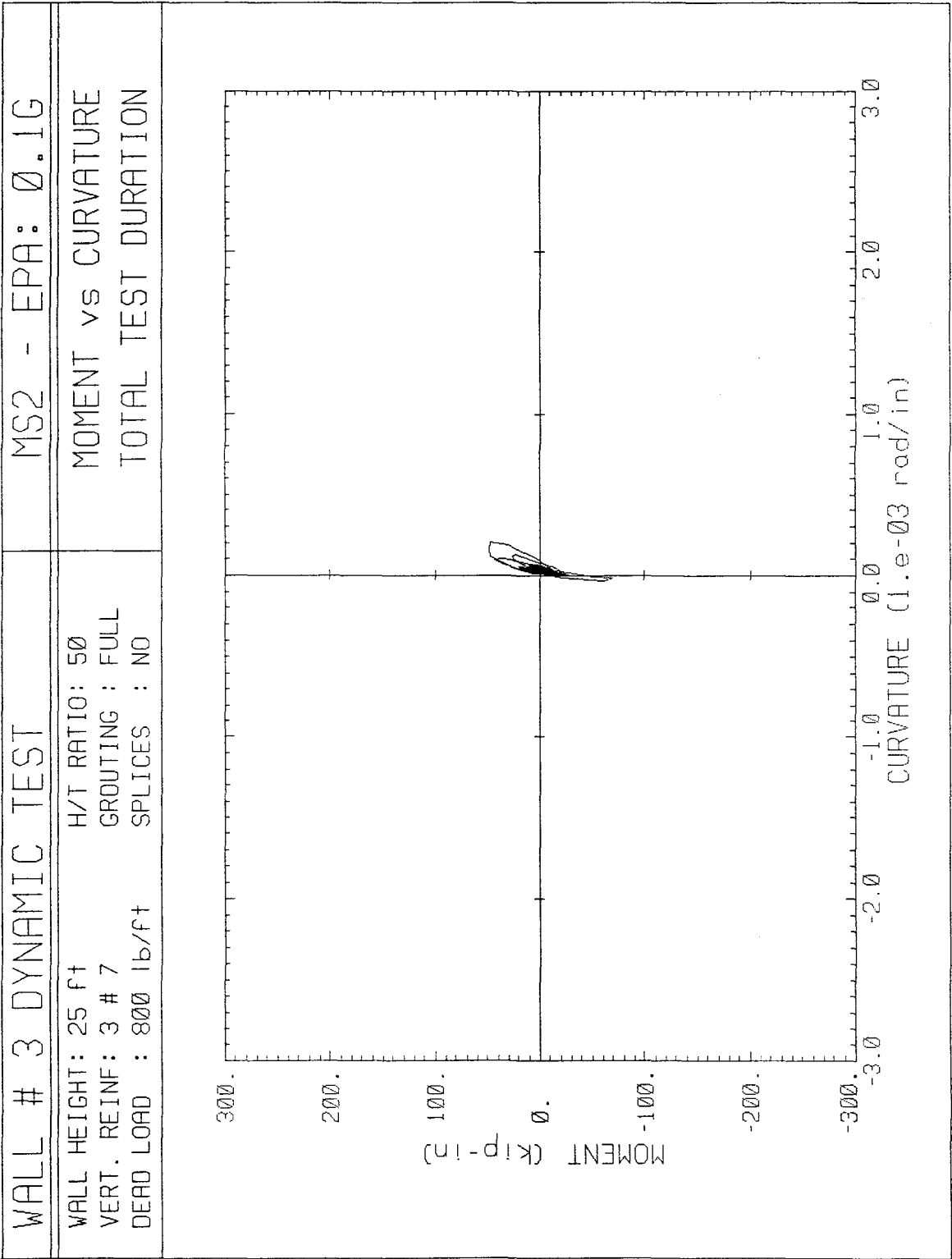


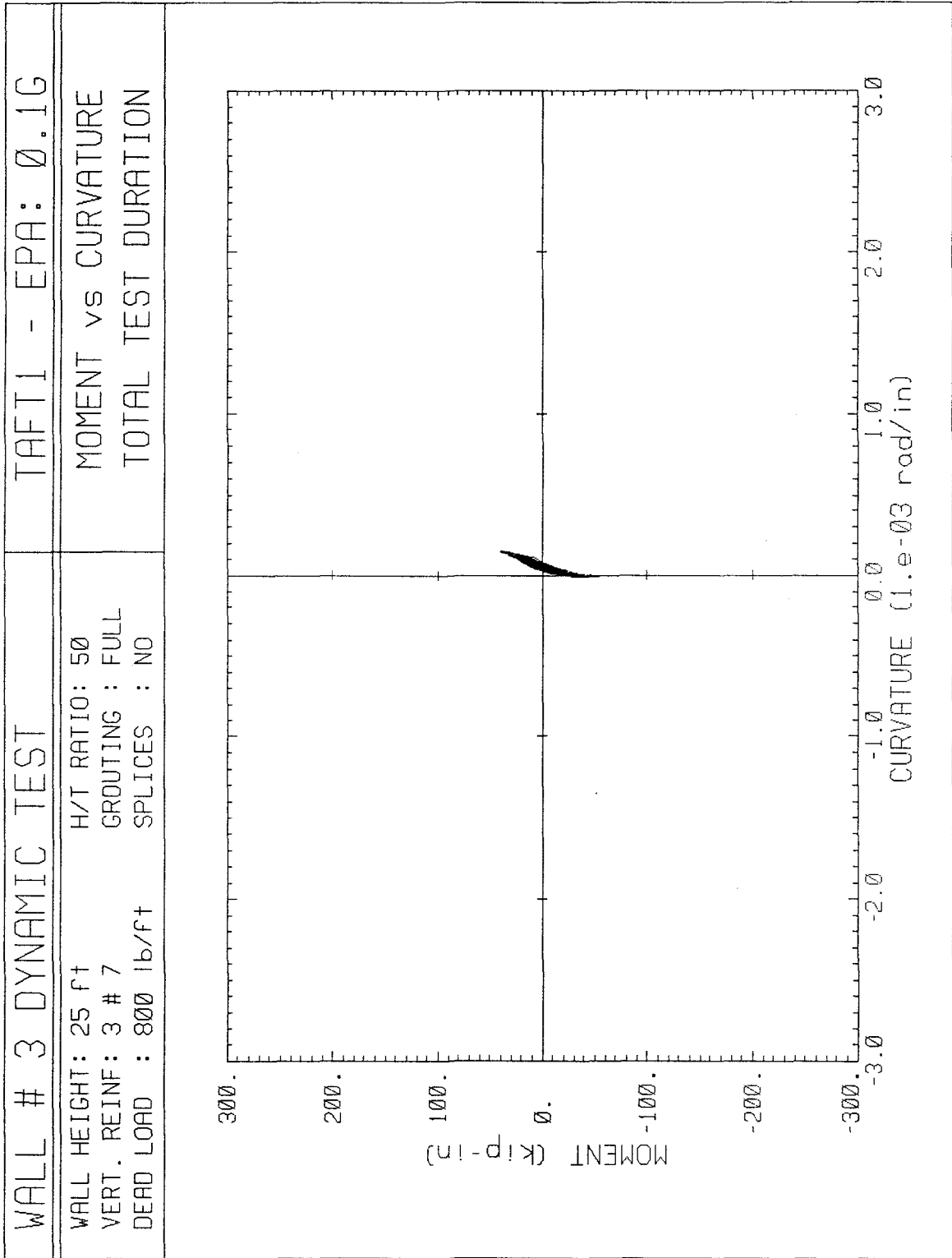


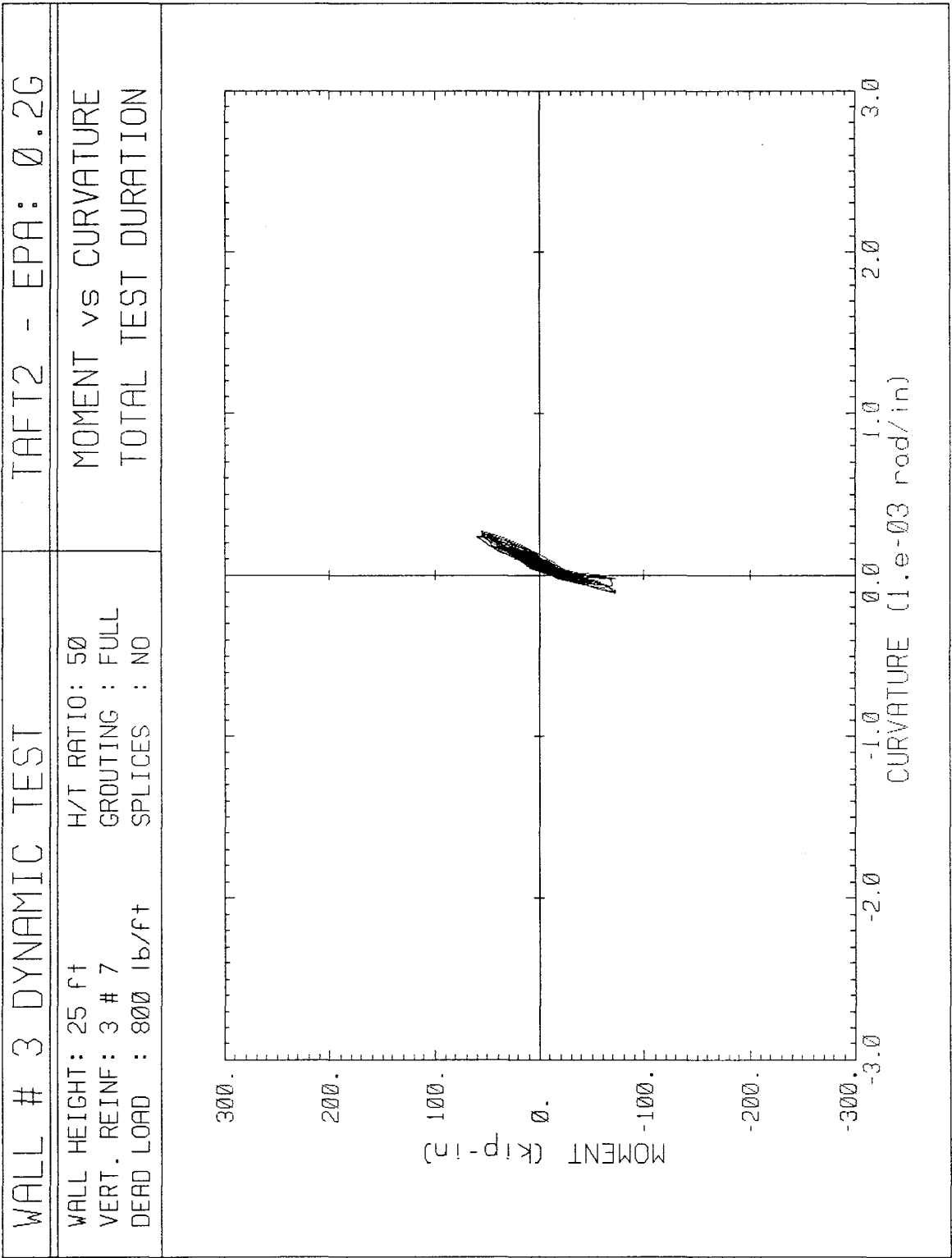


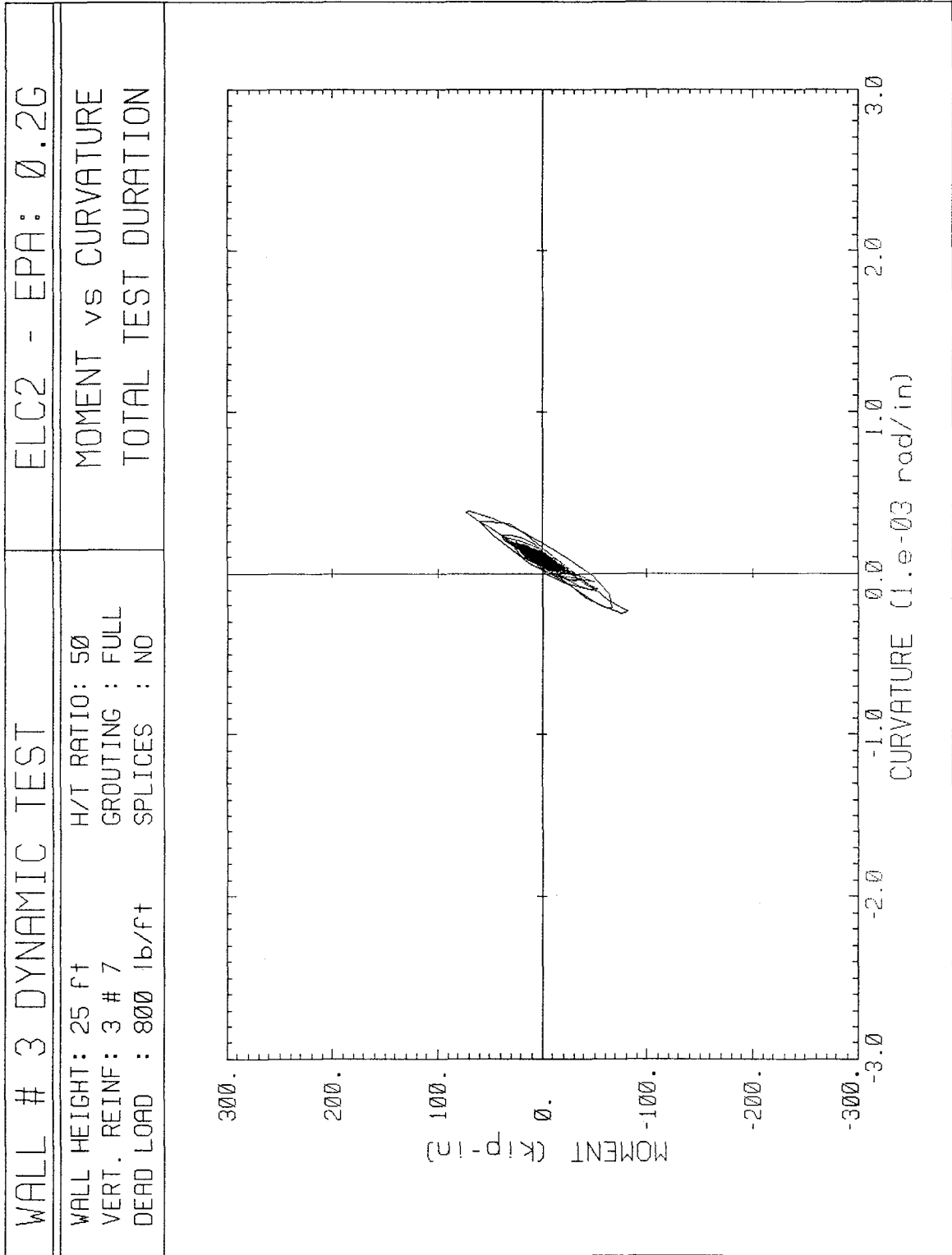




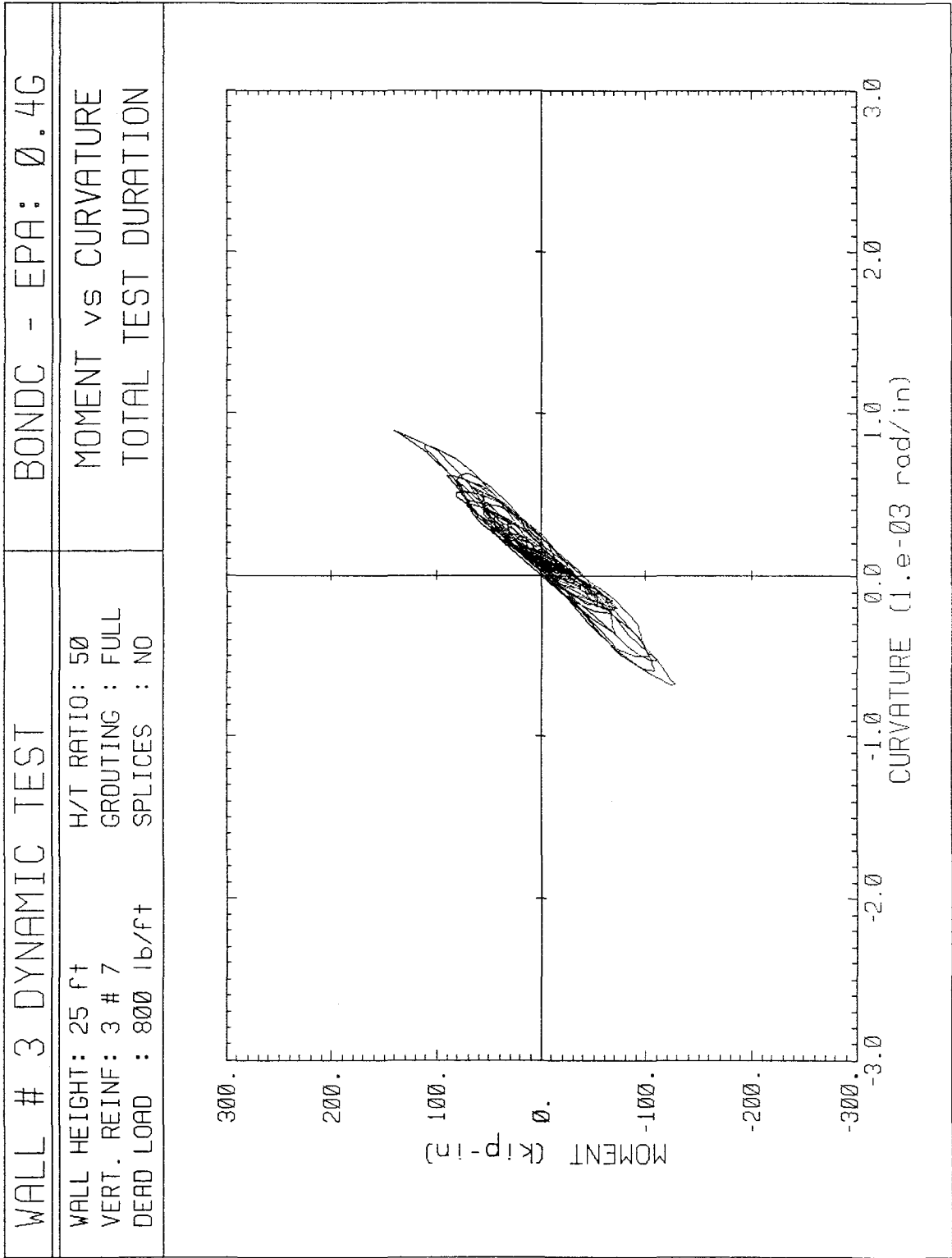


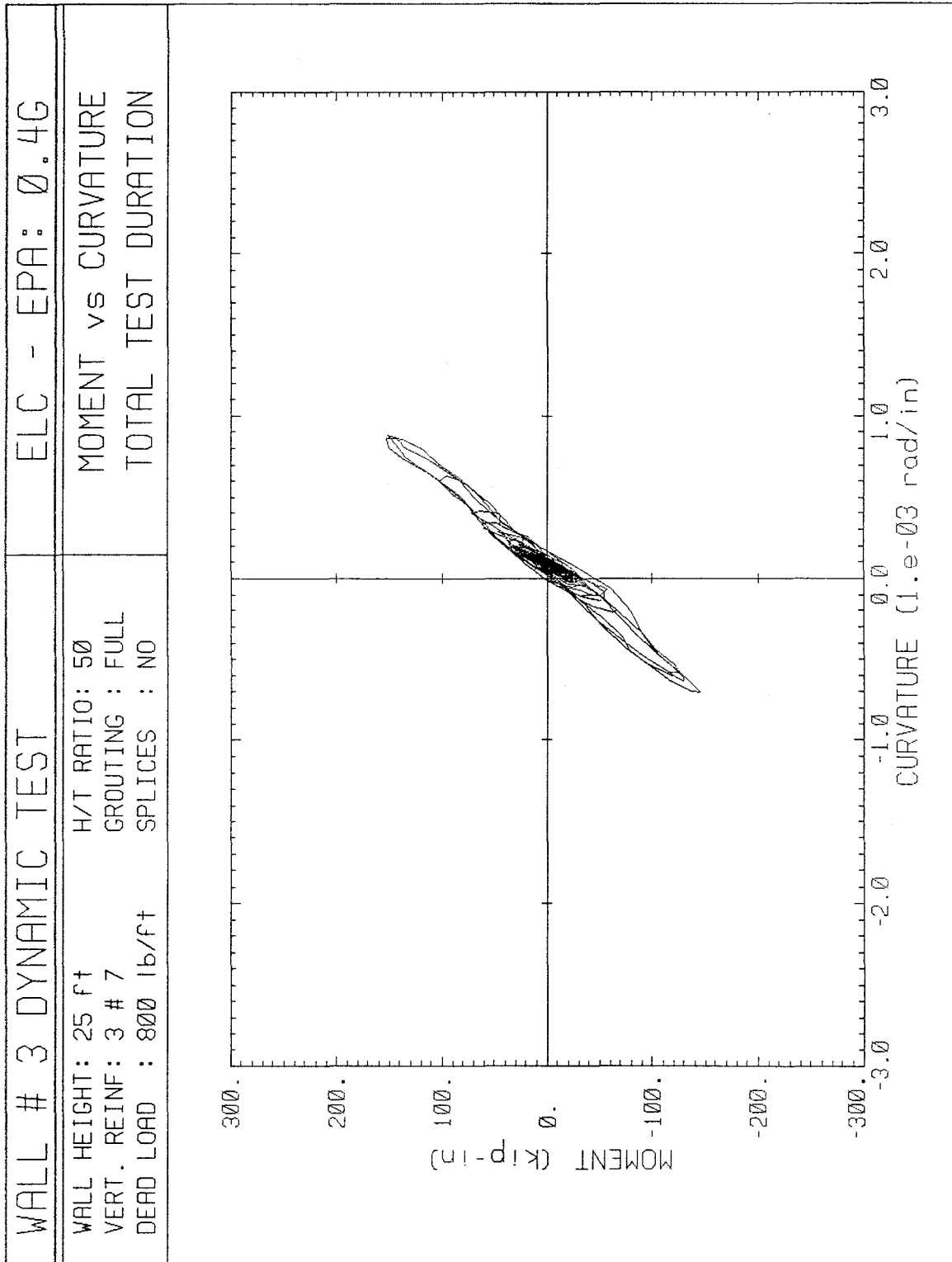


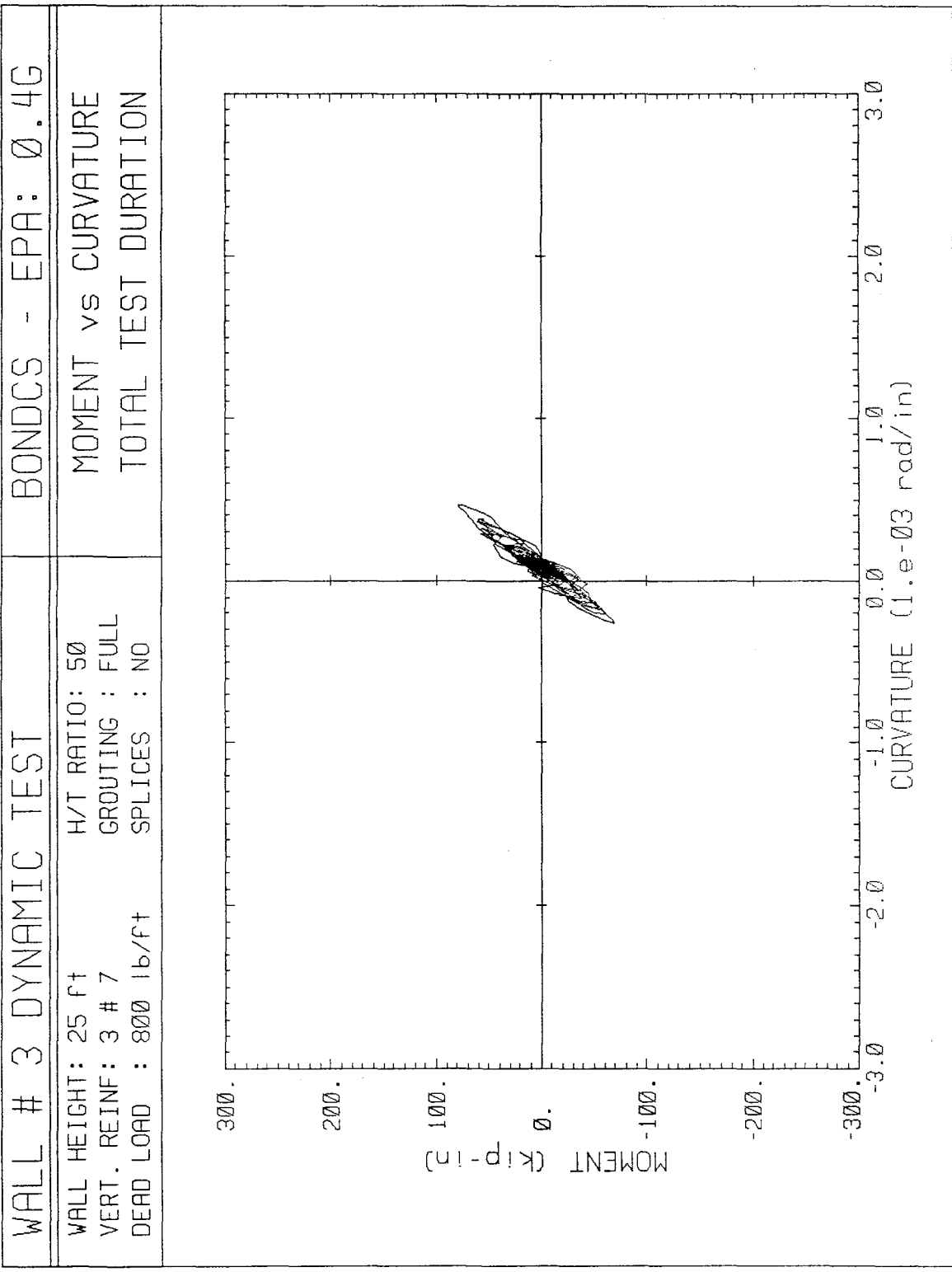


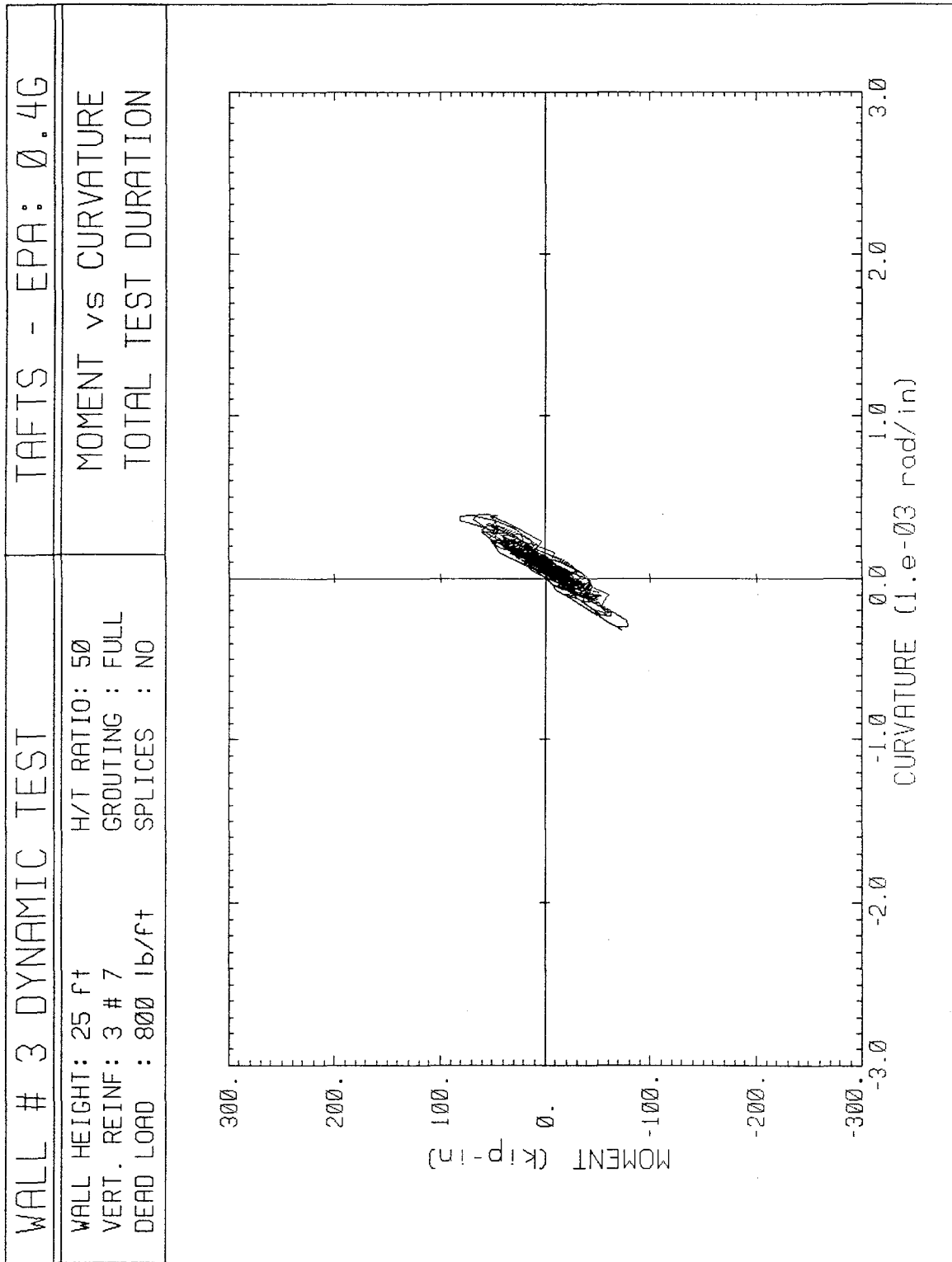


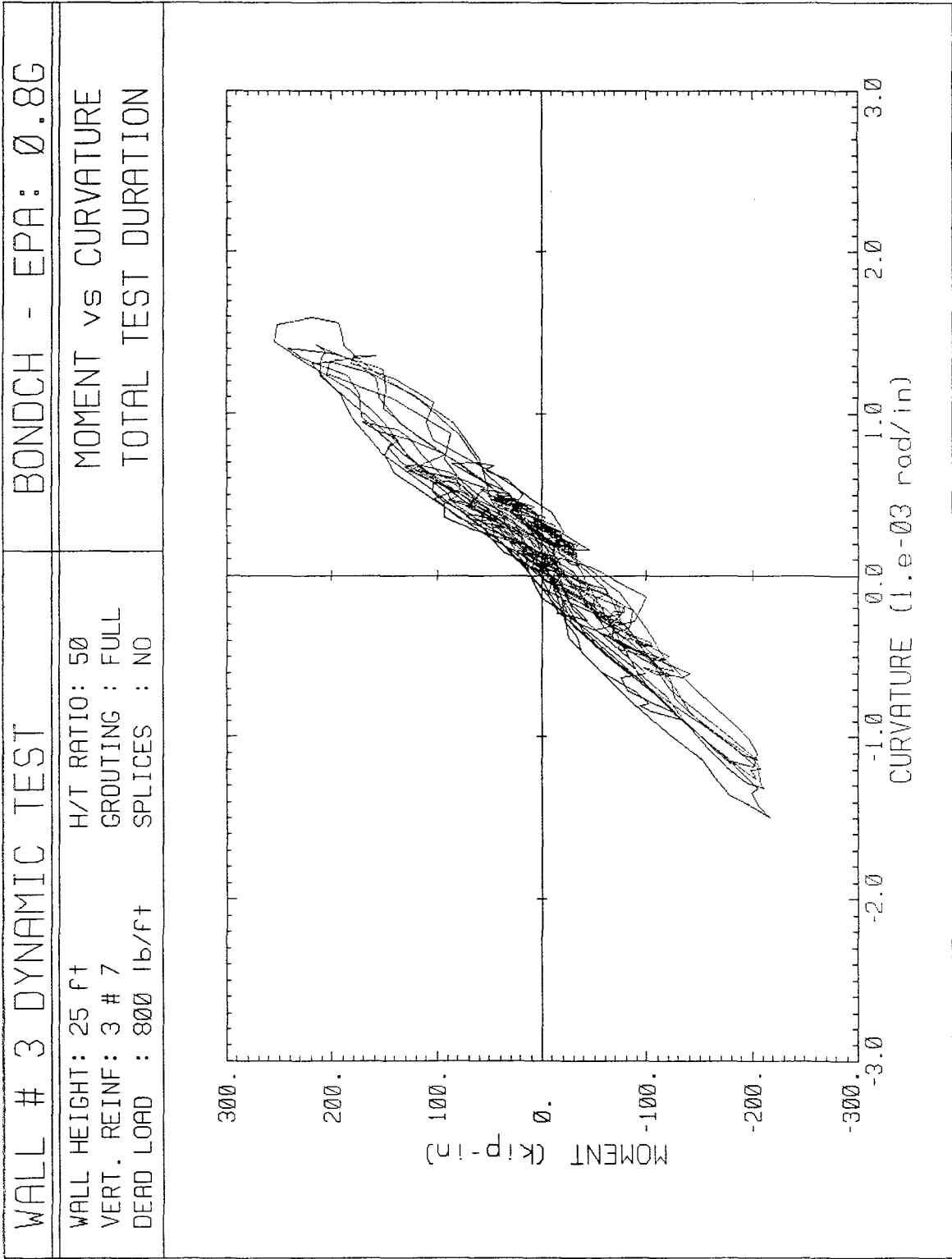


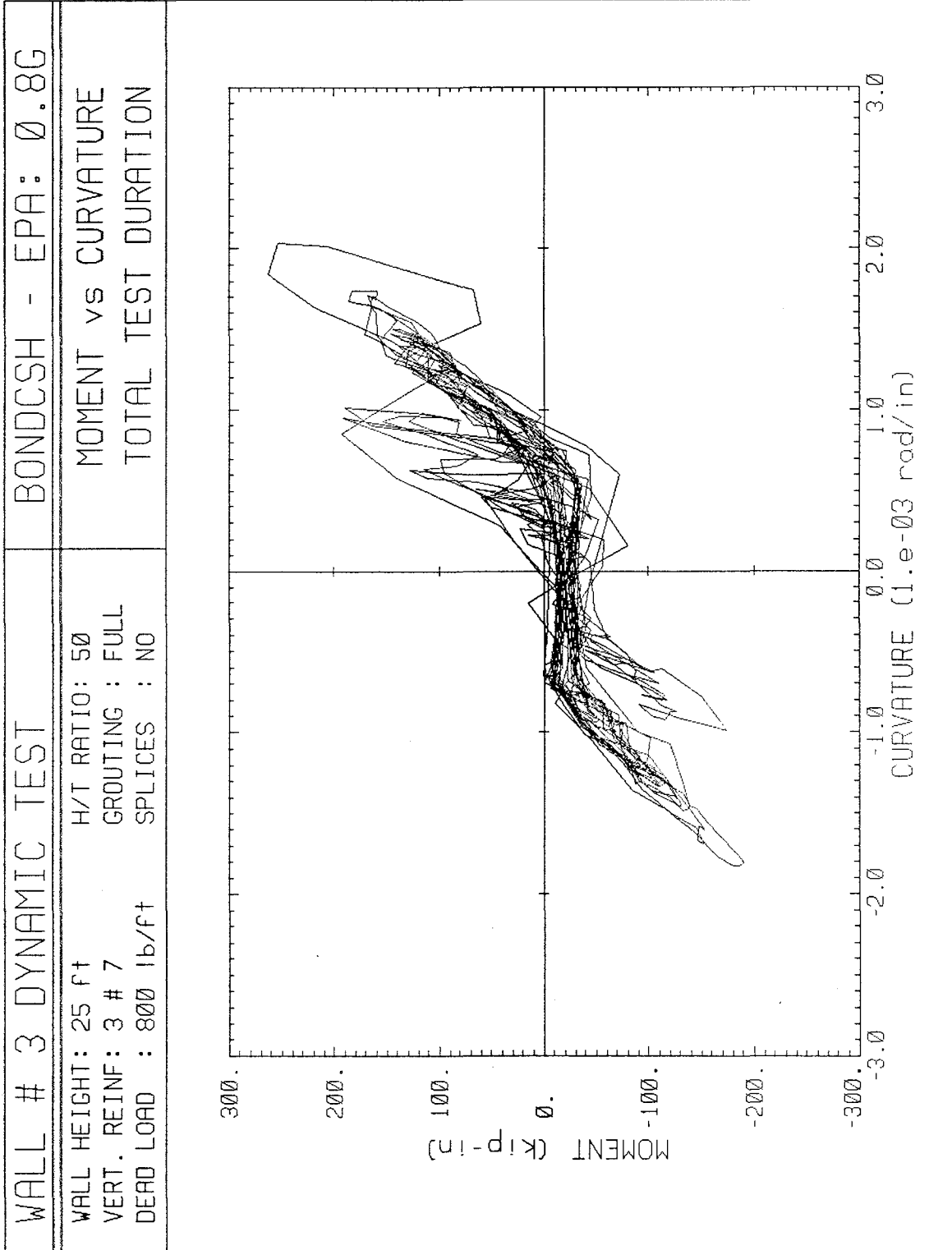


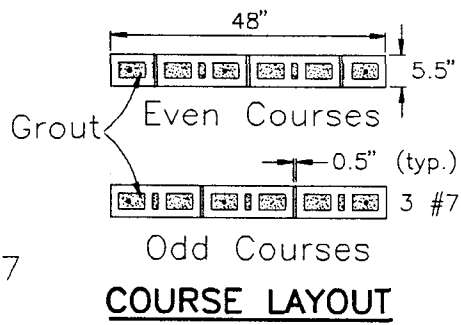
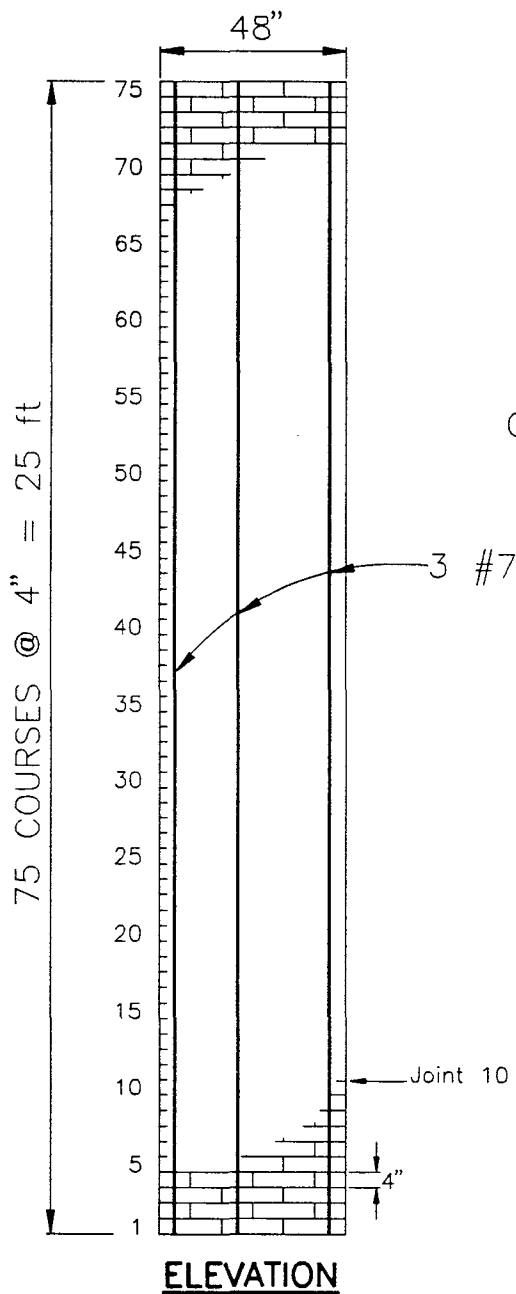








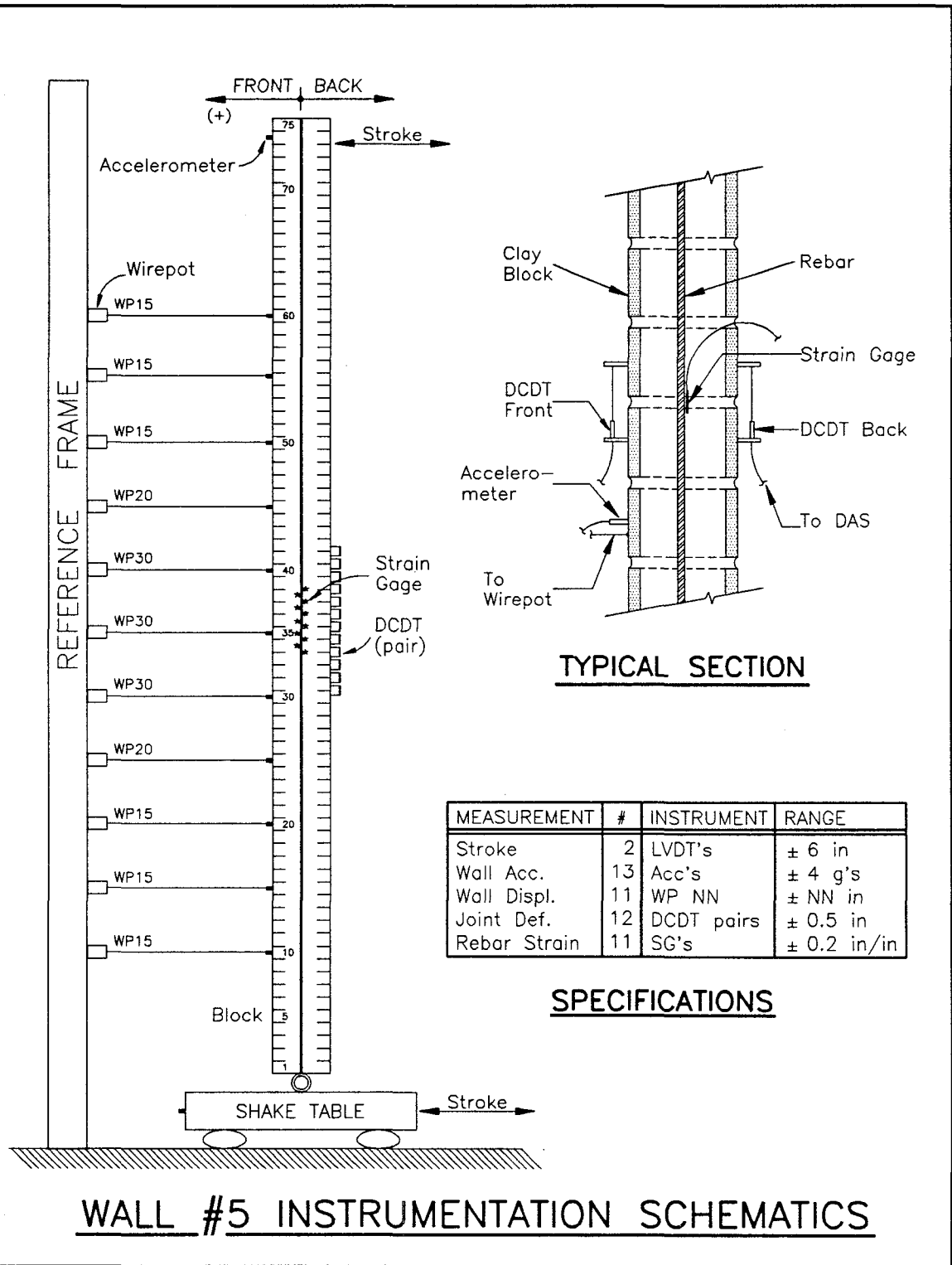




Wall Height: 25 ft  
 Nominal Thickness: 6"  
 $H/t = 50$   
 Vertical Reinf.: 3 #7  
 No Splices  
 Full Grouting  
 Dead Load: 800 lb/ft

**SPECIFICATIONS**

**WALL # 5 CONSTRUCTION DRAWINGS**





Wall No. 5: Test Sequence & Peak Measurements

Run		EPA	Diaphragm	Displacement (in)			Acceleration (g)			Rebar Strain (in/in)
No	ID			Bottom	Center	Top	Bottom	Center	Top	
1	MS1	0.10	Flexible	1.24	1.58	1.65	0.07	0.26	0.29	0.0001
2	MS2	0.10	Stiff	0.25	0.81	0.31	0.10	0.40	0.31	0.0004
3	TAFT2	0.20	Flexible	2.28	3.10	3.11	0.17	0.36	0.34	0.0004
4	TAFT1	0.10	Flexible	1.15	1.83	1.60	0.09	0.32	0.26	0.0004
6	ELC2	0.20	Stiff	1.48	2.18	1.88	0.16	0.49	0.49	0.0005
7	BONDC	0.40	Flexible	2.24	7.31	3.96	0.29	0.72	0.45	0.0015
8	ELC	0.40	Flexible	2.94	9.71	5.66	0.30	0.86	0.59	0.0016
9	BONDCS	0.40	Stiff	2.24	5.08	3.16	0.30	0.50	0.78	0.0009
10	TAFTS	0.40	Stiff	4.54	6.00	5.70	0.34	0.58	0.71	0.0008
11	BONDCH	0.80	Flexible	2.78	15.07	5.79	0.60	1.49	1.27	0.0054
12	BONDCHSH	0.80	Stiff	4.12	13.90	4.92	1.07	2.42	2.02	0.0049

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TCCMAR PROJECT

WALL No 5 DYNAMIC TEST Run No 1: MS1 0.10 EPA

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Wall Weight: 6.84 kips	H/t Ratio: 50
Vert. Reinf: 3 # 7	Grouting : Full
Dead Load: 800 lb/ft	Splices : no

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SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	1.65 in	Acc Top	0.29 g
Disp Cent	1.58 in	Acc Cent	0.26 g
Disp Bot	1.24 in	Acc Bot	0.07 g
Peak Defl	0.46 in		
Inertia Force	1.27 kips	Eqv Load	60.0 lb/ft
Bending Mt	55.14 kip-in	Seismic C	0.21
		C/Acc Bot	2.94

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in4	EmIg	2269000 kip-in2
Avg Freq	3.08 Hz	EIeqv	1124000 kip-in2
		EmIg/EIeqv	2.02

LOCAL RESPONSE

	Peak	Joint 35
Rebar Strain	0.0001	0.0001 in/in
Strain Ductility	0.04	0.04 in
Avg Joint Opening	0.0012	0.0012 in
Faceshell Comp. Strain	0.0004	0.0004 in/in
Faceshell Opening	0.0023	0.0023 in
Curvature	0.1200	0.1200 (1/in)*10-3
EI joint		451000 kip-in2

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CES

October 9, 1989

10:20:26 am

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TCCMAR PROJECT

WALL No 5 DYNAMIC TEST Run No 2: MS2 0.10 EPA

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Wall Weight: 6.84 kips H/t Ratio: 50  
Vert. Reinf: 3 # 7 Grouting : Full  
Dead Load: 800 lb/ft Splices : no

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SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	0.31 in	Acc Top	0.31 g
Disp Cent	0.81 in	Acc Cent	0.40 g
Disp Bot	0.25 in	Acc Bot	0.10 g
Peak Defl	0.78 in		
Inertia Force	1.54 kips	Eqv Load	80.0 lb/ft
Bending Mt	79.06 kip-in	Seismic C	0.31
		C/Acc Bot	3.24

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in <sup>4</sup>	EmIg	2269000 kip-in <sup>2</sup>
Avg Freq	2.61 Hz	EIEqv	950000 kip-in <sup>2</sup>
		EmIg/EIEqv	2.39

LOCAL RESPONSE

Rebar Strain	Peak 0.0004	Joint 35 0.0003	in/in
Strain Ductility	0.16	0.12	in
Avg Joint Opening	0.0050	0.0050	in
Faceshell Comp. Strain	0.0002	0.0002	in/in
Faceshell Opening	0.0110	0.0110	in
Curvature	0.5400	0.5400	(1/in)*10 <sup>-3</sup>
EI joint		145000	kip-in <sup>2</sup>

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CES

October 9, 1989

10:20:33 am

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TCCMAR PROJECT

WALL No 5 DYNAMIC TEST Run No 3: TAFT2 0.20 EPA

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Wall Weight: 6.84 kips	H/t Ratio: 50
Vert. Reinf: 3 # 7	Grouting : Full
Dead Load: 800 lb/ft	Splices : no

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	3.11 in	Acc Top	0.34 g
Disp Cent	3.10 in	Acc Cent	0.36 g
Disp Bot	2.28 in	Acc Bot	0.17 g
Peak Defl	0.87 in		
Inertia Force	1.68 kips	Eqv Load	80.0 lb/ft
Bending Mt	74.04 kip-in	Seismic C	0.29
		C/Acc Bot	1.70

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in4	EmIg	2269000 kip-in2
Avg Freq	3.20 Hz	EIeqv	798000 kip-in2
		EmIg/EIeqv	2.84

LOCAL RESPONSE

	Peak	Joint	35
Rebar Strain	0.0004	0.0003	in/in
Strain Ductility	0.16	0.12	in
Avg Joint Opening	0.0054	0.0054	in
Faceshell Comp. Strain	0.0003	0.0002	in/in
Faceshell Opening	0.0115	0.0115	in
Curvature	0.5600	0.5600	(1/in)*10-3
EI joint		130000	kip-in2

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CES

October 9, 1989

10:20:40 am

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TCCMAR PROJECT

WALL No 5 DYNAMIC TEST Run No 4: TAFT1 0.10 EPA

---

Wall Weight: 6.84 kips H/t Ratio: 50  
Vert. Reinf: 3 # 7 Grouting : Full  
Dead Load: 800 lb/ft Splices : no

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	1.60 in	Acc Top	0.26 g
Disp Cent	1.83 in	Acc Cent	0.32 g
Disp Bot	1.15 in	Acc Bot	0.09 g
Peak Defl	0.81 in		
Inertia Force	1.44 kips	Eqv Load	70.0 lb/ft
Bending Mt	67.03 kip-in	Seismic C	0.26
		C/Acc Bot	3.00

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in <sup>4</sup>	EmIg	2269000 kip-in <sup>2</sup>
Avg Freq	2.43 Hz	EIEqv	776000 kip-in <sup>2</sup>
		EmIg/EIEqv	2.92

LOCAL RESPONSE

	Peak	Joint	35
Rebar Strain	0.0004	0.0003	in/in
Strain Ductility	0.16	0.12	in
Avg Joint Opening	0.0053	0.0053	in
Faceshell Comp. Strain	0.0003	0.0002	in/in
Faceshell Opening	0.0111	0.0111	in
Curvature	0.5300	0.5300	(1/in)*10 <sup>-3</sup>
EI joint		125000	kip-in <sup>2</sup>

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CES

October 9, 1989

10:20:48 am

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TCCMAR PROJECT

WALL No 5 DYNAMIC TEST Run No 6: ELC2 0.20 EPA

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Wall Weight: 6.84 kips H/t Ratio: 50  
Vert. Reinf: 3 # 7 Grouting : Full  
Dead Load: 800 lb/ft Splices : no

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	1.88 in	Acc Top	0.49 g
Disp Cent	2.18 in	Acc Cent	0.49 g
Disp Bot	1.48 in	Acc Bot	0.16 g
Peak Defl	1.25 in		
Inertia Force	1.83 kips	Eqv Load	90.0 lb/ft
Bending Mt	88.36 kip-in	Seismic C	0.34
		C/Acc Bot	2.15

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in4	EmIg	2269000 kip-in2
Avg Freq	1.91 Hz	EIeqv	663000 kip-in2
		EmIg/EIeqv	3.42

LOCAL RESPONSE

	Peak	Joint	35
Rebar Strain	0.0005	0.0004	in/in
Strain Ductility	0.20	0.16	in
Avg Joint Opening	0.0067	0.0067	in
Faceshell Comp. Strain	0.0003	0.0003	in/in
Faceshell Opening	0.0145	0.0145	in
Curvature	0.7100	0.7100	(1/in)*10-3
EI joint		124000	kip-in2

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CES

October 9, 1989

10:20:55 am

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TCCMAR PROJECT

WALL No 5 DYNAMIC TEST Run No 7: BONDC 0.40 EPA

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Wall Weight: 6.84 kips H/t Ratio: 50  
Vert. Reinf: 3 # 7 Grouting : Full  
Dead Load: 800 lb/ft Splices : no

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	3.96 in	Acc Top	0.45 g
Disp Cent	7.31 in	Acc Cent	0.72 g
Disp Bot	2.24 in	Acc Bot	0.29 g
Peak Defl	6.28 in		
Inertia Force	3.17 kips	Eqv Load	160.0 lb/ft
Bending Mt	148.05 kip-in	Seismic C	0.58
		C/Acc Bot	1.99

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in <sup>4</sup>	EmIg	2269000 kip-in <sup>2</sup>
Avg Freq	0.89 Hz	EIeqv	221000 kip-in <sup>2</sup>
		EmIg/EIeqv	10.27

LOCAL RESPONSE

Rebar Strain	Peak 0.0015	Joint 35 0.0012	in/in
Strain Ductility	0.60	0.48	in
Avg Joint Opening	0.0124	0.0124	in
Faceshell Comp. Strain	0.0011	0.0009	in/in
Faceshell Opening	0.0272	0.0272	in
Curvature	1.3500	1.3500	(1/in)*10 <sup>-3</sup>
EI joint		110000	kip-in <sup>2</sup>

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CES

October 9, 1989

10:21:02 am

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TCCMAR PROJECT

WALL No 5 DYNAMIC TEST Run No 8: ELC 0.40 EPA

Wall Weight: 6.84 kips	H/t Ratio: 50
Vert. Reinf: 3 # 7	Grouting : Full
Dead Load: 800 lb/ft	Splices : no

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	5.66 in	Acc Top	0.59 g
Disp Cent	9.71 in	Acc Cent	0.86 g
Disp Bot	2.94 in	Acc Bot	0.30 g
Peak Defl	7.22 in		
Inertia Force	3.56 kips	Eqv Load	170.0 lb/ft
Bending Mt	163.76 kip-in	Seismic C	0.64
		C/Acc Bot	2.13

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in4	EmIg	2269000 kip-in2
Avg Freq	1.02 Hz	EIeqv	213000 kip-in2
		EmIg/EIeqv	10.65

LOCAL RESPONSE

	Peak	Joint	35
Rebar Strain	0.0016	0.0013	in/in
Strain Ductility	0.64	0.52	in
Avg Joint Opening	0.0104	0.0104	in
Faceshell Comp. Strain	0.0012	0.0009	in/in
Faceshell Opening	0.0242	0.0242	in
Curvature	1.2500	1.2500	(1/in)*10-3
EI joint		130000	kip-in2

CES

October 9, 1989

10:21:10 am



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TCCMAR PROJECT

WALL No 5 DYNAMIC TEST Run No 9: BONDCS 0.40 EPA

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Wall Weight: 6.84 kips	H/t Ratio: 50
Vert. Reinf: 3 # 7	Grouting : Full
Dead Load: 800 lb/ft	Splices : no

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	3.16 in	Acc Top	0.78 g
Disp Cent	5.08 in	Acc Cent	0.50 g
Disp Bot	2.24 in	Acc Bot	0.30 g
Peak Defl	4.18 in		
Inertia Force	1.76 kips	Eqv Load	90.0 lb/ft
Bending Mt	86.26 kip-in	Seismic C	0.34
		C/Acc Bot	1.12

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in4	EmIg	2269000 kip-in2
Avg Freq	1.05 Hz	EIeqv	193000 kip-in2
		EmIg/EIeqv	11.76

LOCAL RESPONSE

	Peak	Joint	35
Rebar Strain	0.0009	0.0007	in/in
Strain Ductility	0.36	0.28	in
Avg Joint Opening	0.0056	0.0056	in
Faceshell Comp. Strain	0.0007	0.0005	in/in
Faceshell Opening	0.0131	0.0131	in
Curvature	0.6800	0.6800	(1/in)*10-3
EI joint		126000	kip-in2

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CES

October 9, 1989

10:21:17 am

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TCCMAR PROJECT

WALL No 5 DYNAMIC TEST Run No 10: TAFTS 0.40 EPA

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Wall Weight: 6.84 kips	H/t Ratio: 50
Vert. Reinf: 3 # 7	Grouting : Full
Dead Load: 800 lb/ft	Splices : no

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	5.70 in	Acc Top	0.71 g
Disp Cent	6.00 in	Acc Cent	0.58 g
Disp Bot	4.54 in	Acc Bot	0.34 g
Peak Defl	3.72 in		
Inertia Force	2.30 kips	Eqv Load	110.0 lb/ft
Bending Mt	107.27 kip-in	Seismic C	0.42
		C/Acc Bot	1.23

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in4	EmIg	2269000 kip-in2
Avg Freq	1.22 Hz	EIeqv	270000 kip-in2
		EmIg/EIeqv	8.40

LOCAL RESPONSE

	Peak	Joint	35
Rebar Strain	0.0008	0.0007	in/in
Strain Ductility	0.32	0.28	in
Avg Joint Opening	0.0050	0.0050	in
Faceshell Comp. Strain	0.0006	0.0004	in/in
Faceshell Opening	0.0115	0.0115	in
Curvature	0.6000	0.6000	(1/in)*10-3
EI joint		157000	kip-in2

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CES

October 9, 1989

10:21:25 am

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TCCMAR PROJECT

WALL No 5 DYNAMIC TEST Run No 11: BONDCH 0.80 EPA

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Wall Weight: 6.84 kips	H/t Ratio: 50
Vert. Reinf: 3 # 7	Grouting : Full
Dead Load: 800 lb/ft	Splices : no

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	5.79 in	Acc Top	1.27 g
Disp Cent	15.07 in	Acc Cent	1.49 g
Disp Bot	2.78 in	Acc Bot	0.60 g
Peak Defl	14.03 in		
Inertia Force	5.64 kips	Eqv Load	290.0 lb/ft
Bending Mt	271.76 kip-in	Seismic C	1.06
		C/Acc Bot	1.77

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in4	EmIg	2269000 kip-in2
Avg Freq	0.84 Hz	EIeqv	182000 kip-in2
		EmIg/EIeqv	12.47

LOCAL RESPONSE

Rebar Strain	Peak 0.0054	Joint 35	0.0032 in/in
Strain Ductility	2.16		1.28 in
Avg Joint Opening	0.0178		0.0165 in
Faceshell Comp. Strain	0.0029		0.0018 in/in
Faceshell Opening	0.0436		0.0402 in
Curvature	2.4600		2.1500 (1/in)*10-3
EI joint			126000 kip-in2

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CES

October 9, 1989

10:21:32 am

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TCCMAR PROJECT

WALL No 5 DYNAMIC TEST Run No 12: BONDCSH 0.80 EPA

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Wall Weight: 6.84 kips	H/t Ratio: 50
Vert. Reinf: 3 # 7	Grouting : Full
Dead Load: 800 lb/ft	Splices : no

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	4.92 in	Acc Top	2.02 g
Disp Cent	13.90 in	Acc Cent	2.42 g
Disp Bot	4.12 in	Acc Bot	1.07 g
Peak Defl	11.45 in		
Inertia Force	5.17 kips	Eqv Load	280.0 lb/ft
Bending Mt	266.79 kip-in	Seismic C	1.04
		C/Acc Bot	0.97

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in4	EmIg	2269000 kip-in2
Avg Freq	0.74 Hz	EIeqv	218000 kip-in2
		EmIg/EIeqv	10.41

LOCAL RESPONSE

	Peak	Joint	35
Rebar Strain	0.0049	0.0028	in/in
Strain Ductility	1.96	1.12	in
Avg Joint Opening	0.0161	0.0140	in
Faceshell Comp. Strain	0.0024	0.0015	in/in
Faceshell Opening	0.0398	0.0340	in
Curvature	2.2400	1.8200	(1/in)*10-3
EI joint		114000	kip-in2

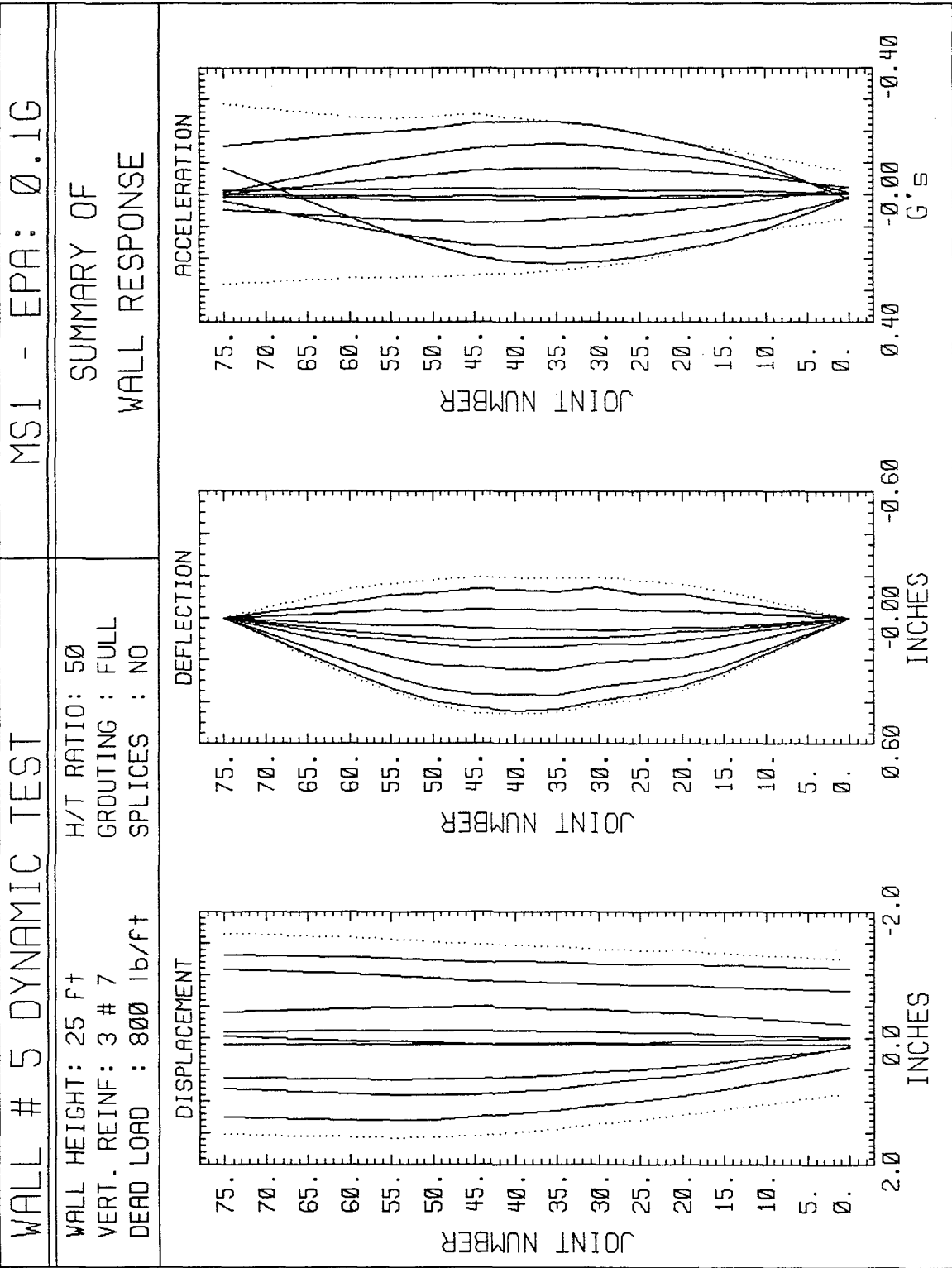
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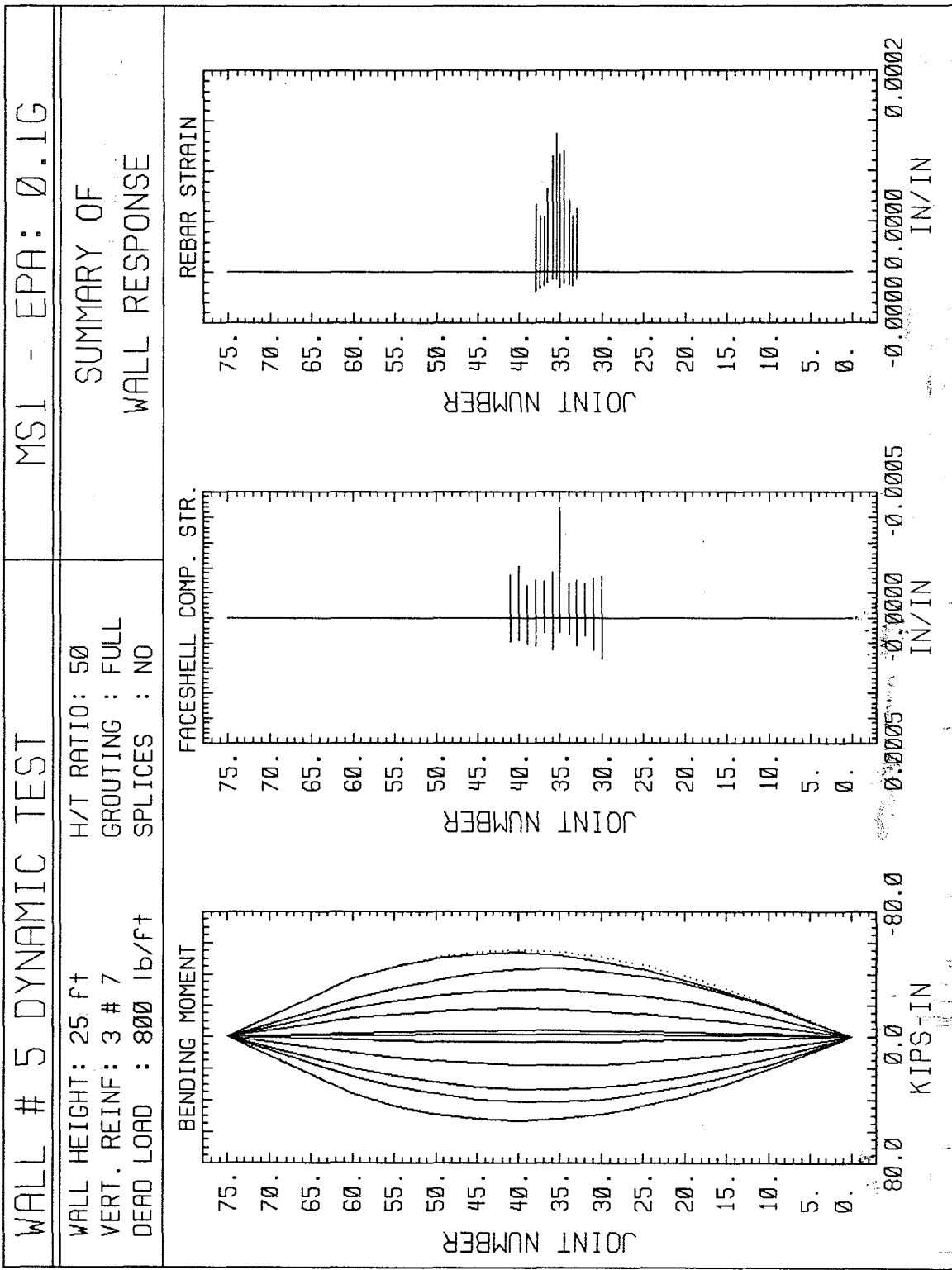
CES

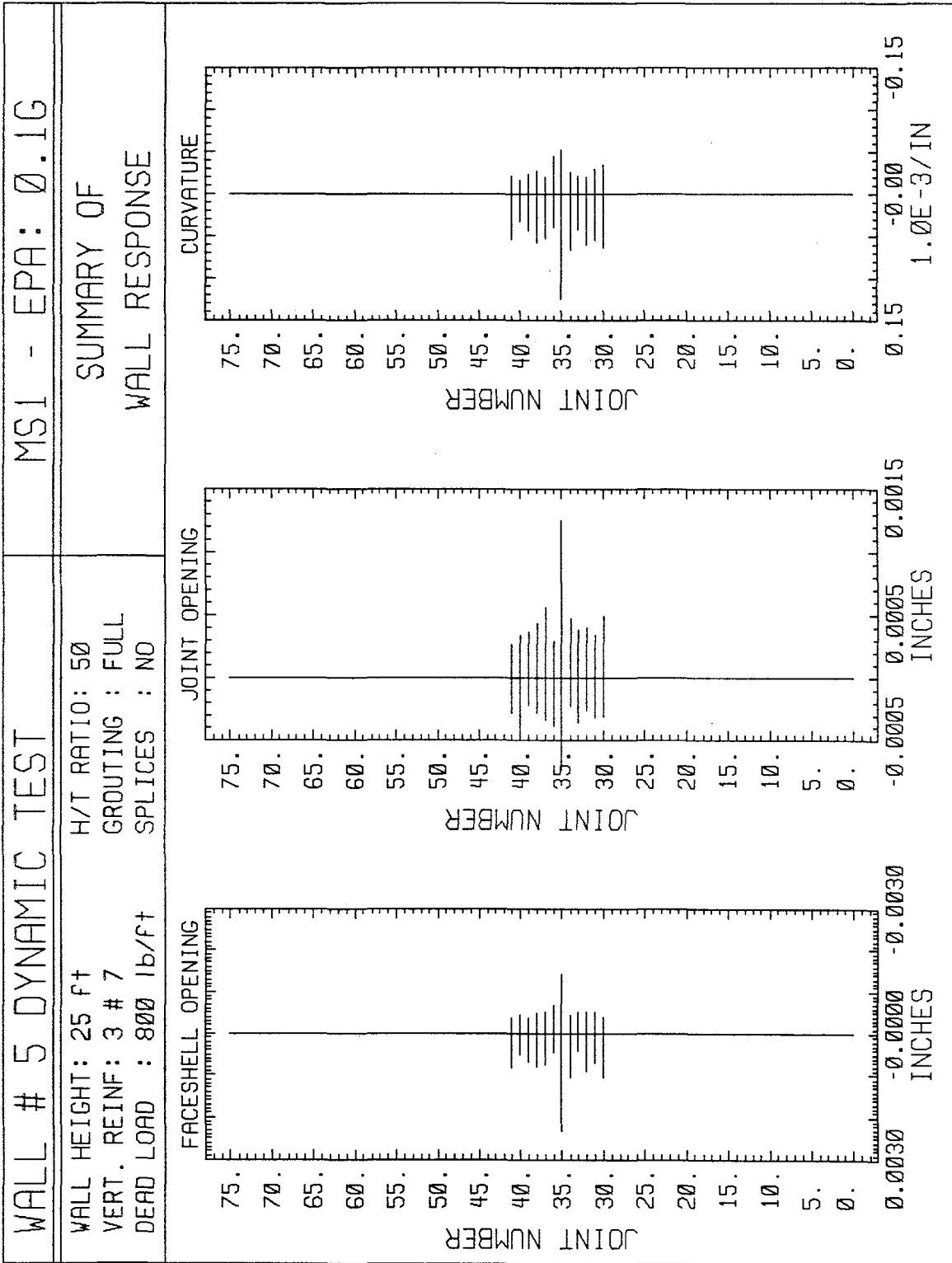
October 9, 1989

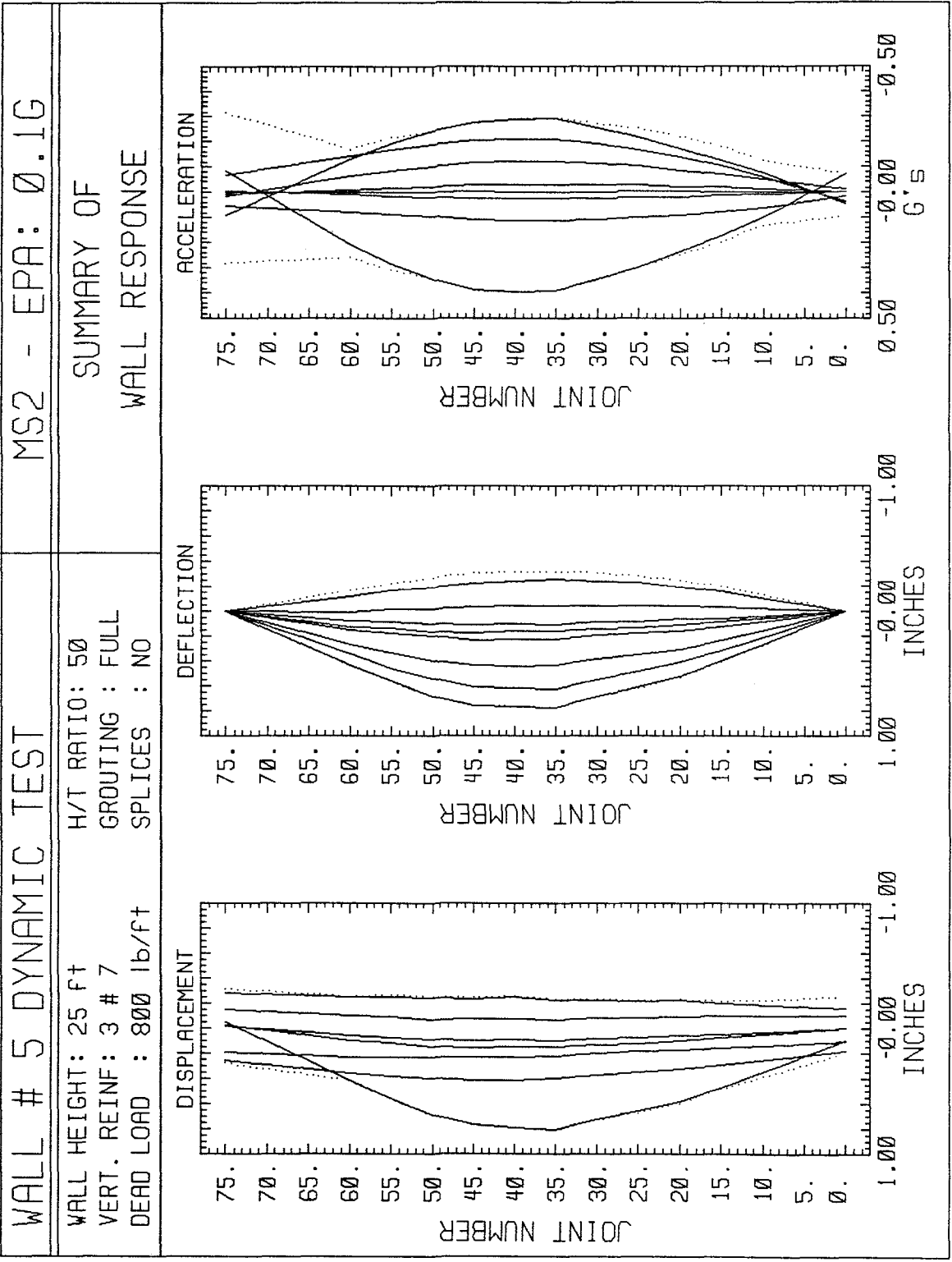
10:21:39 am

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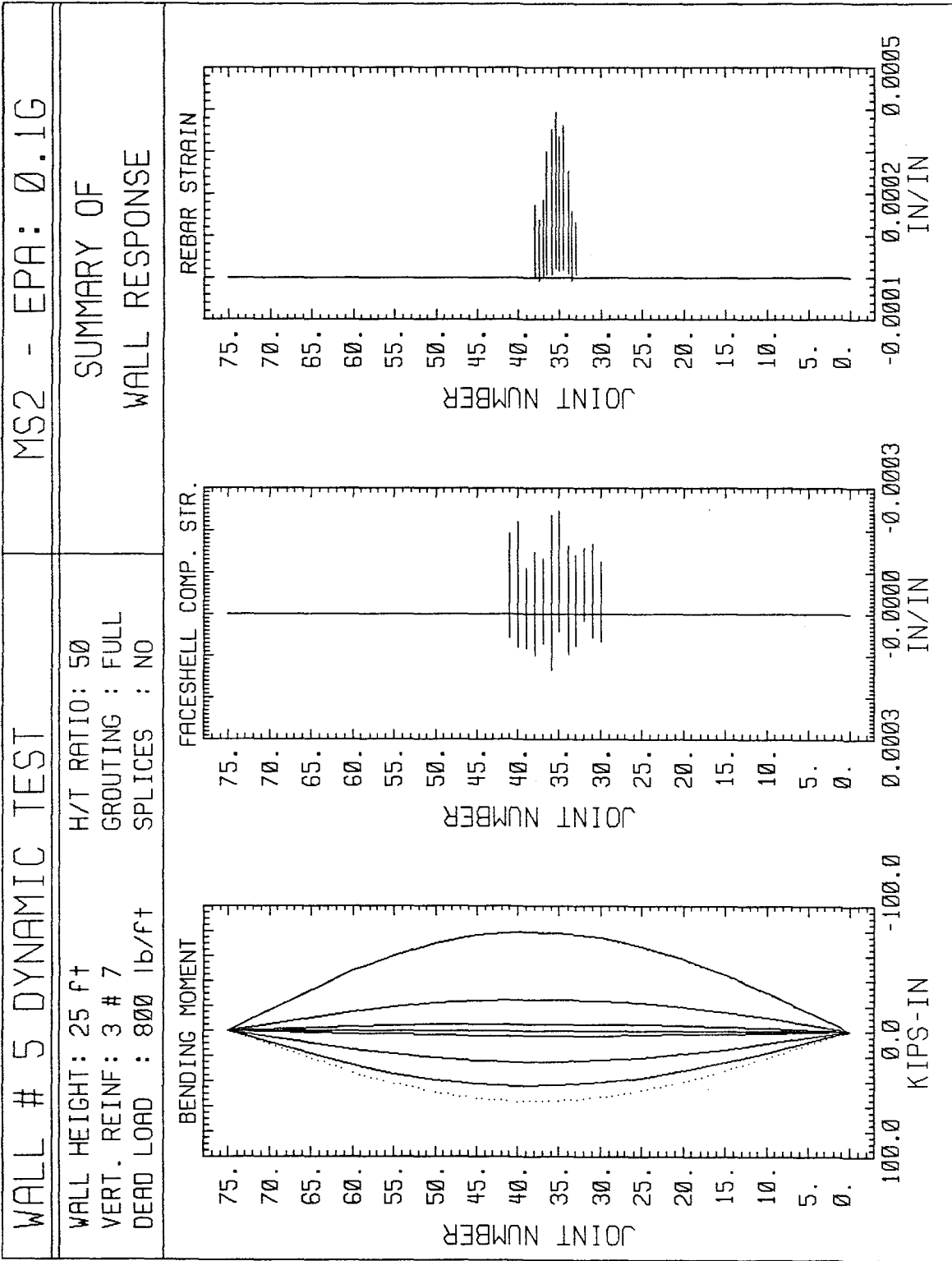


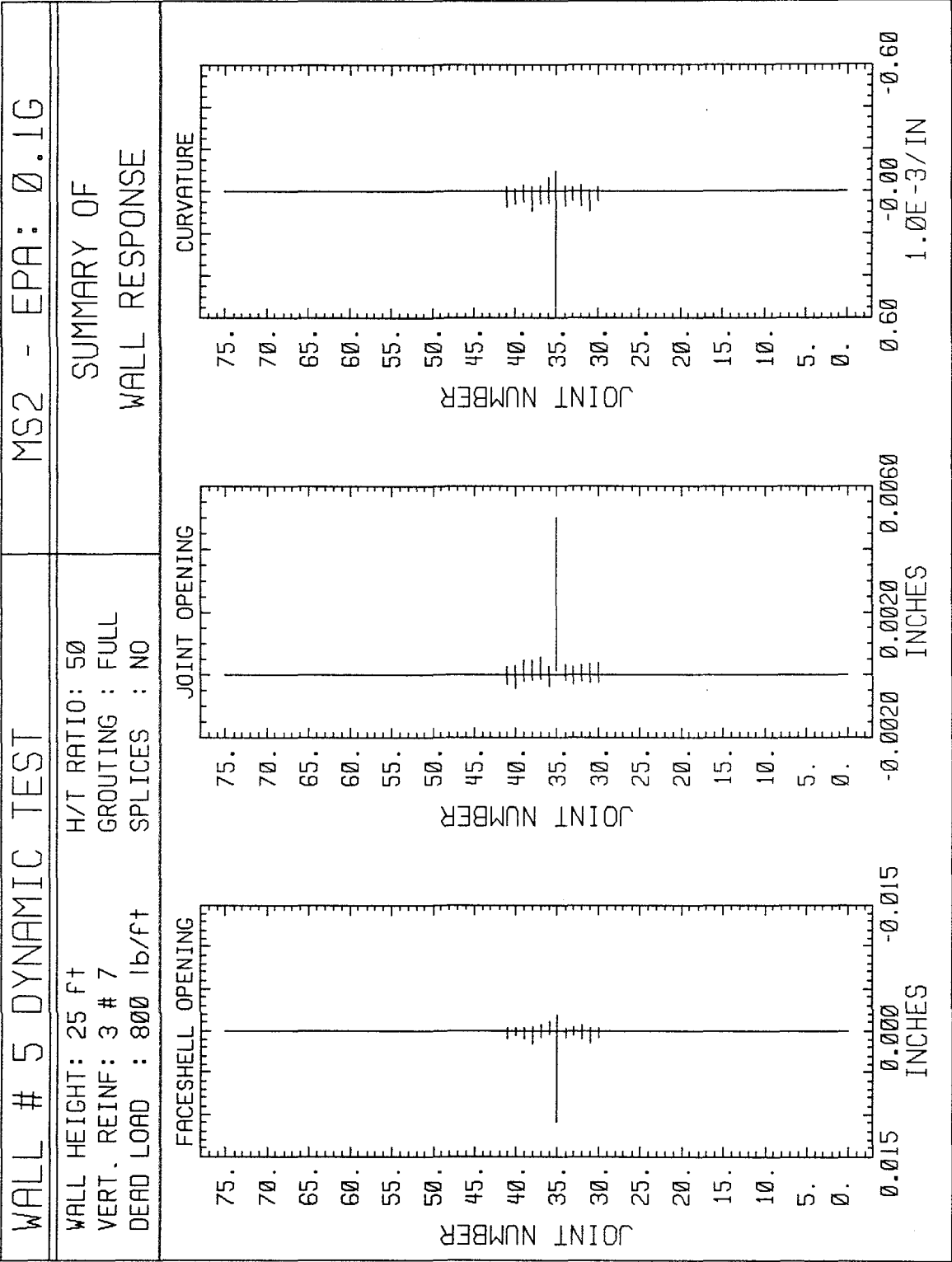












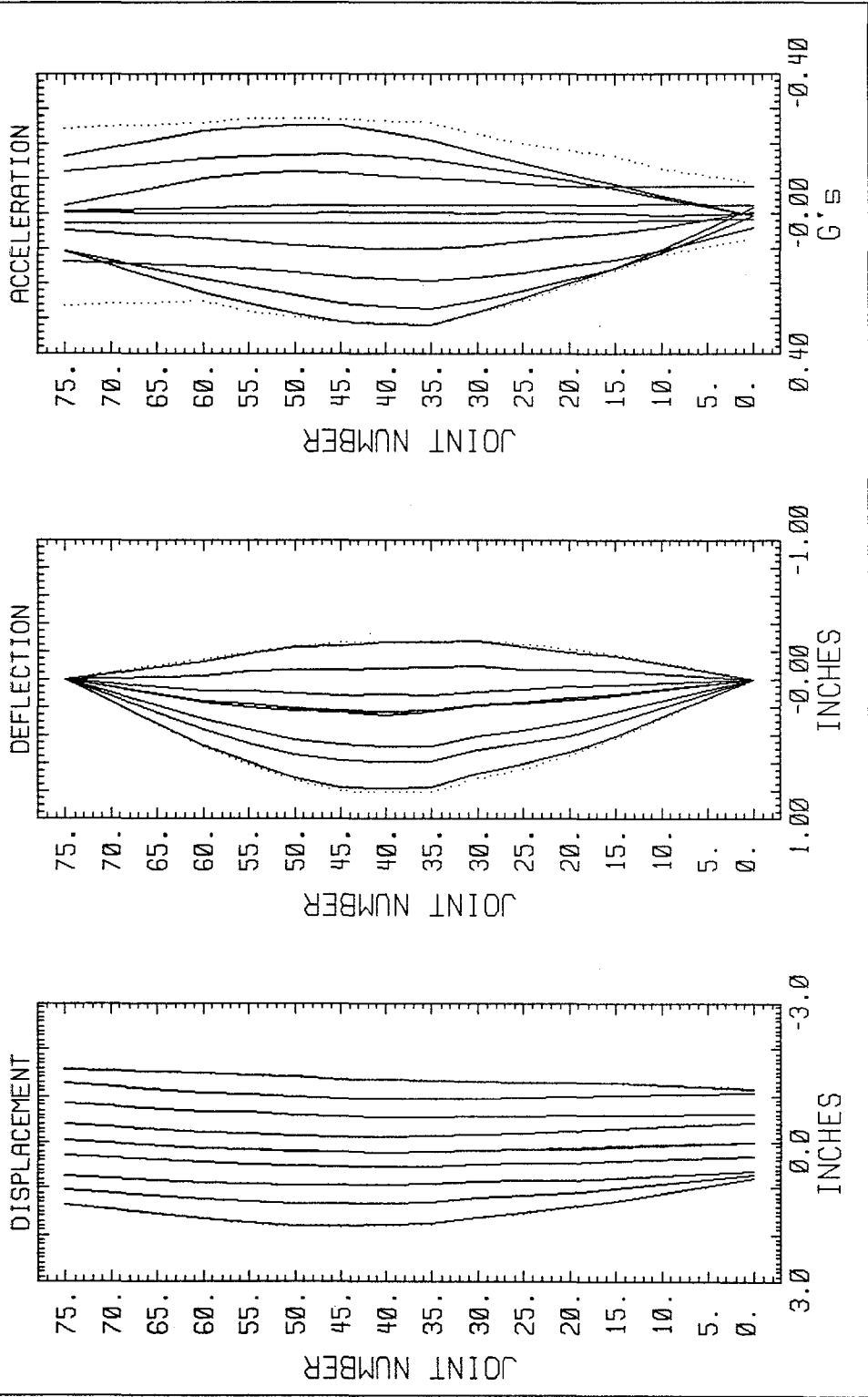
WALL # 5 DYNAMIC TEST

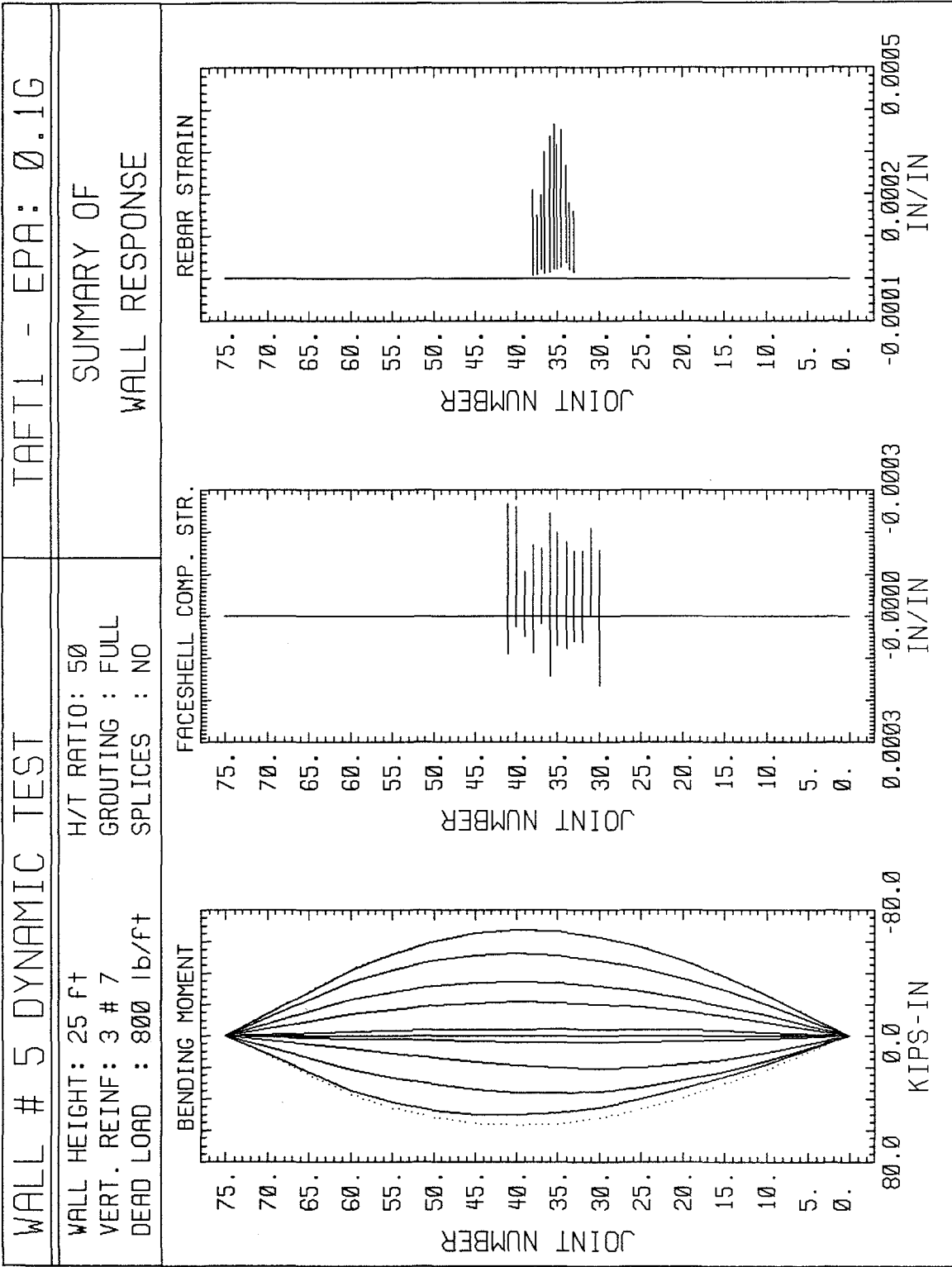
TAFT1 - EPA: 0.1G

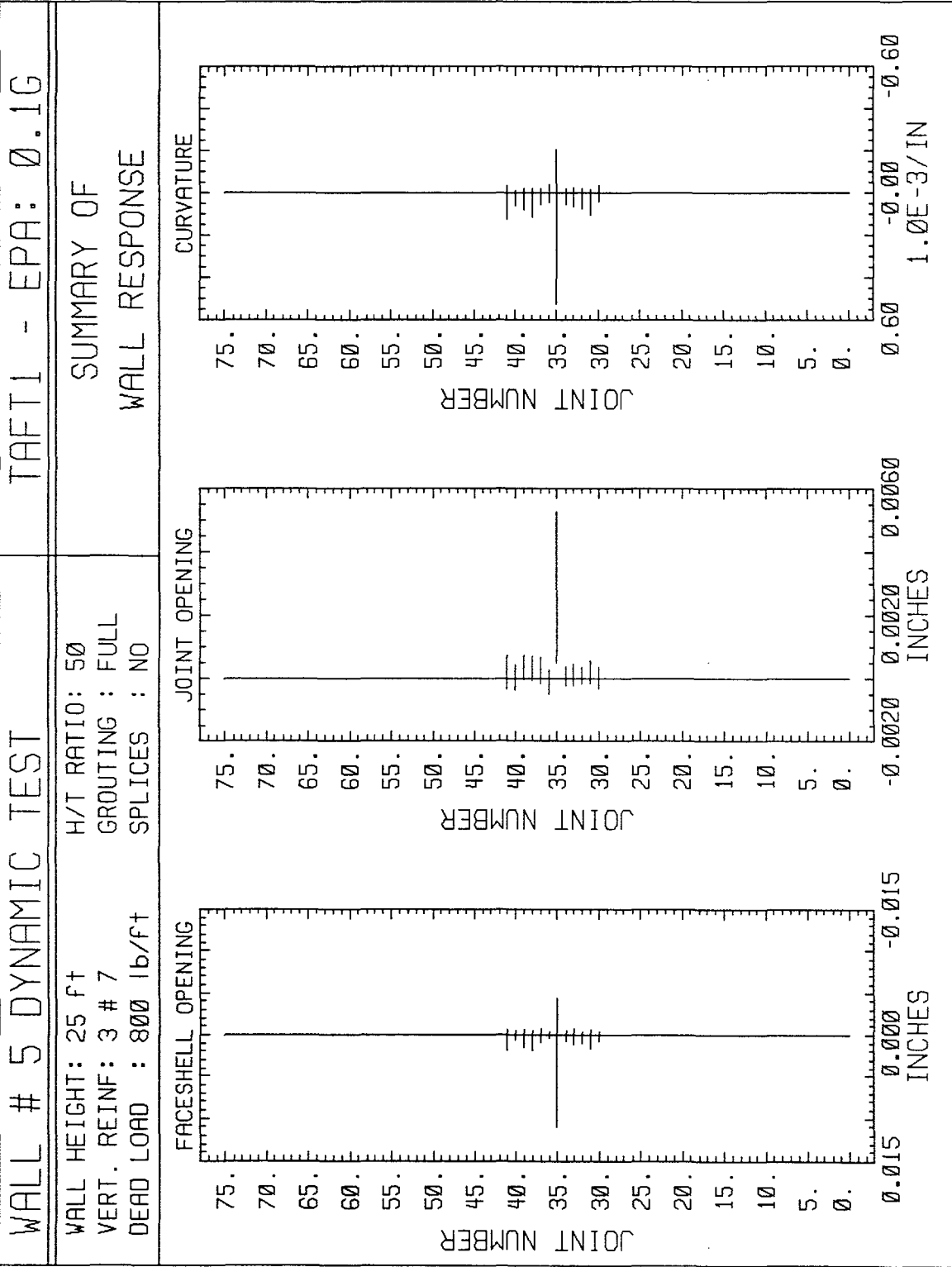
WALL HEIGHT: 25 FT  
 VERT. REINF: 3 # 7  
 DEAD LOAD : 800 lb/ft

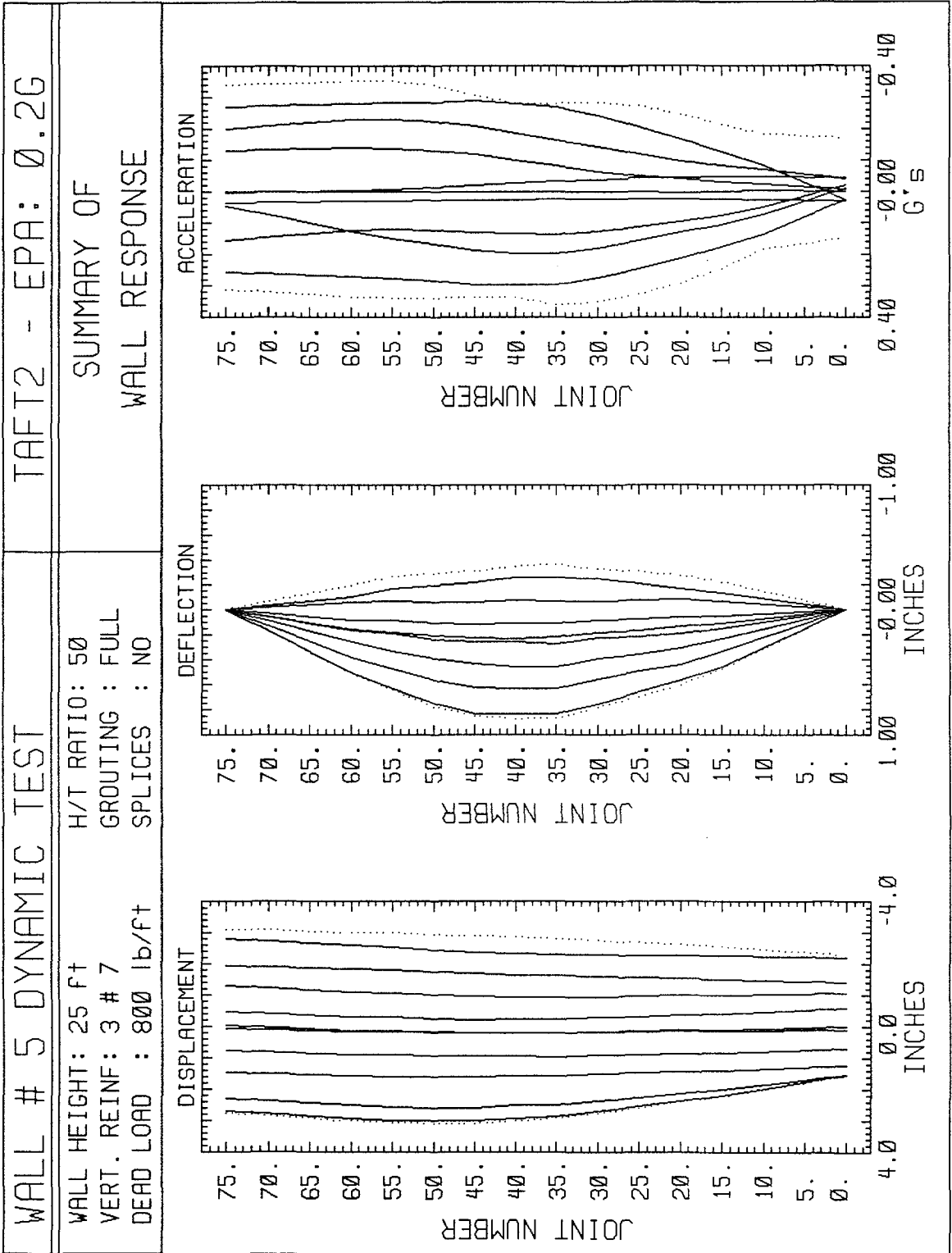
H/T RATIO: 50  
 GROUTING : FULL  
 SPLICES : NO

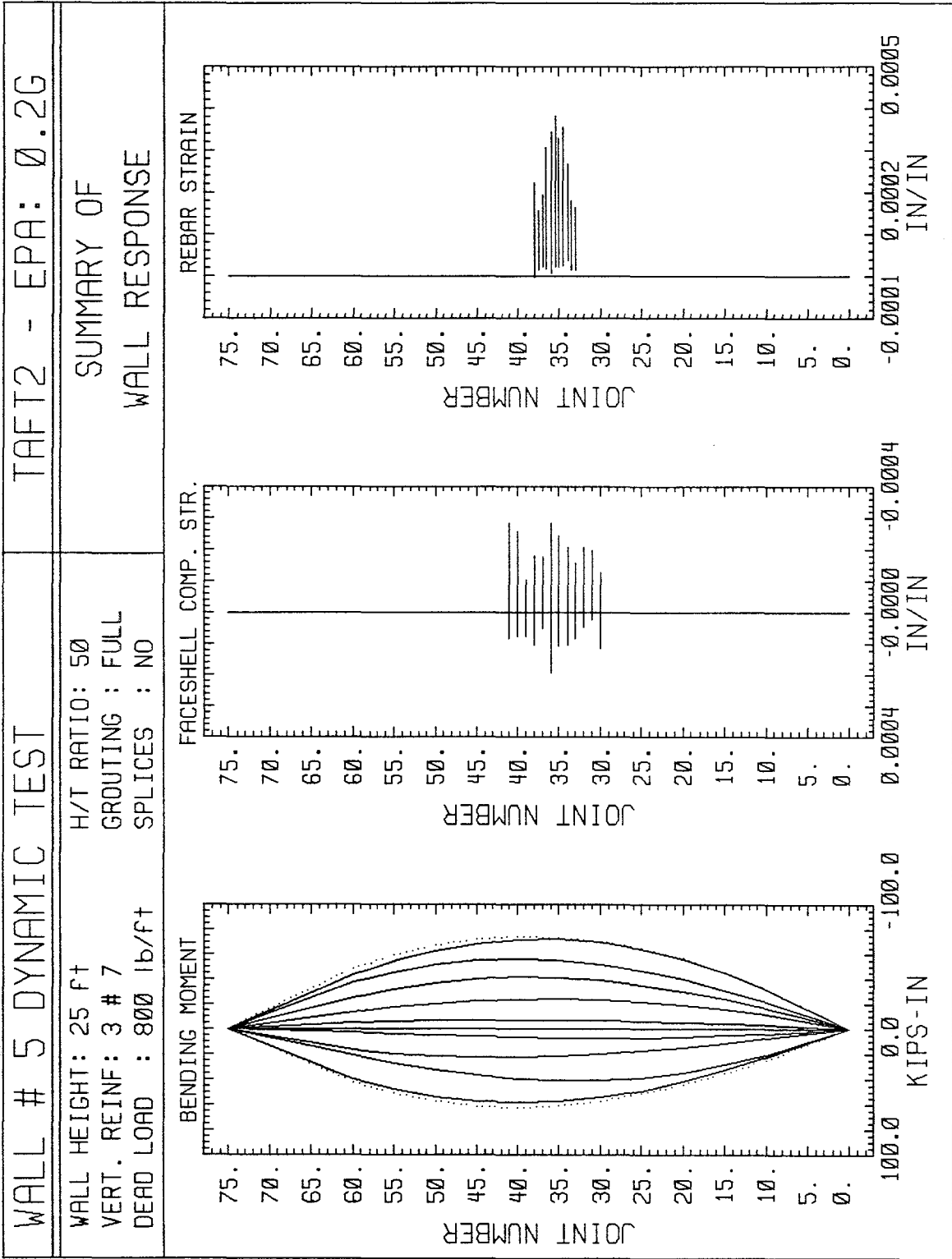
SUMMARY OF WALL RESPONSE

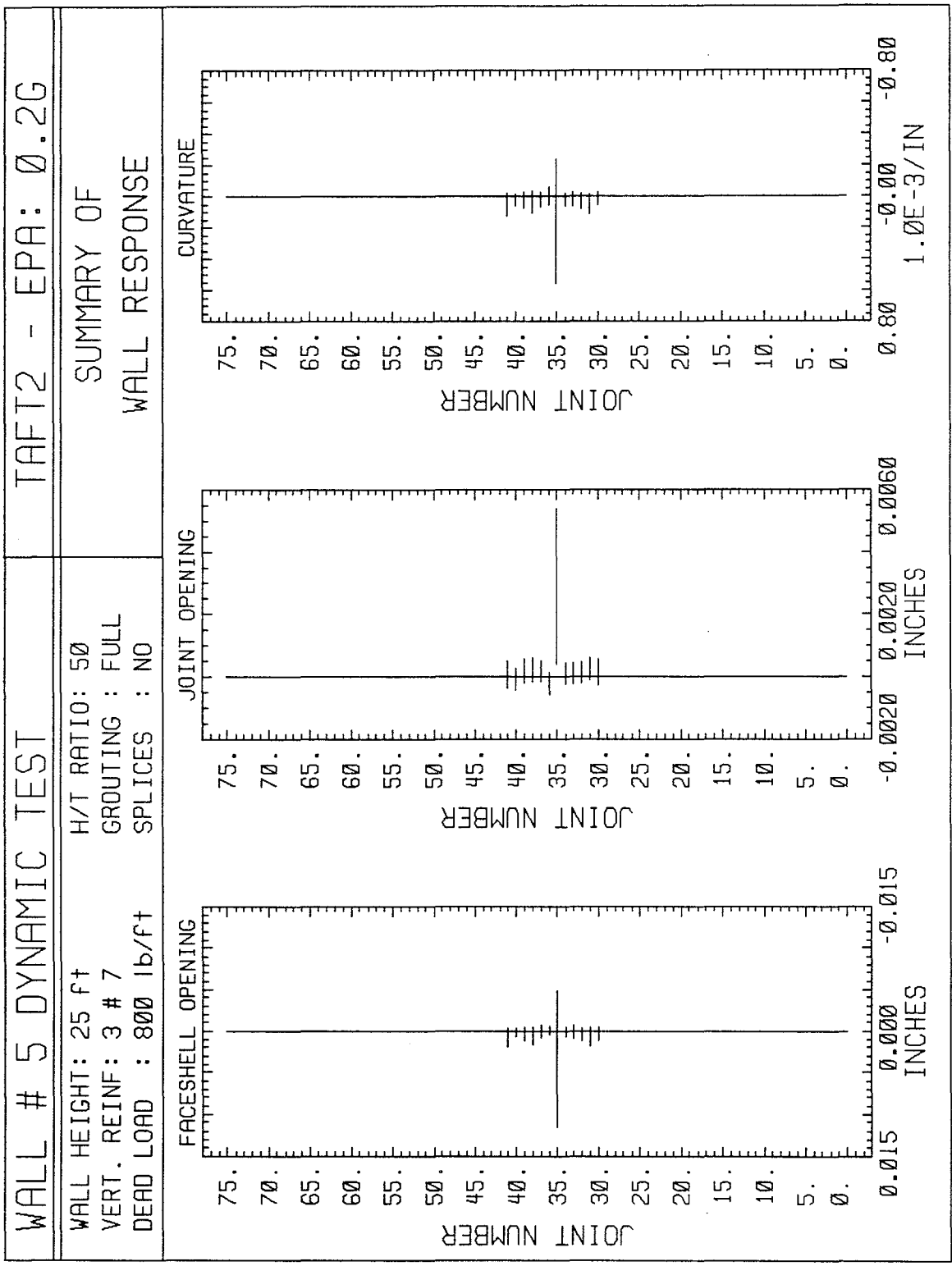




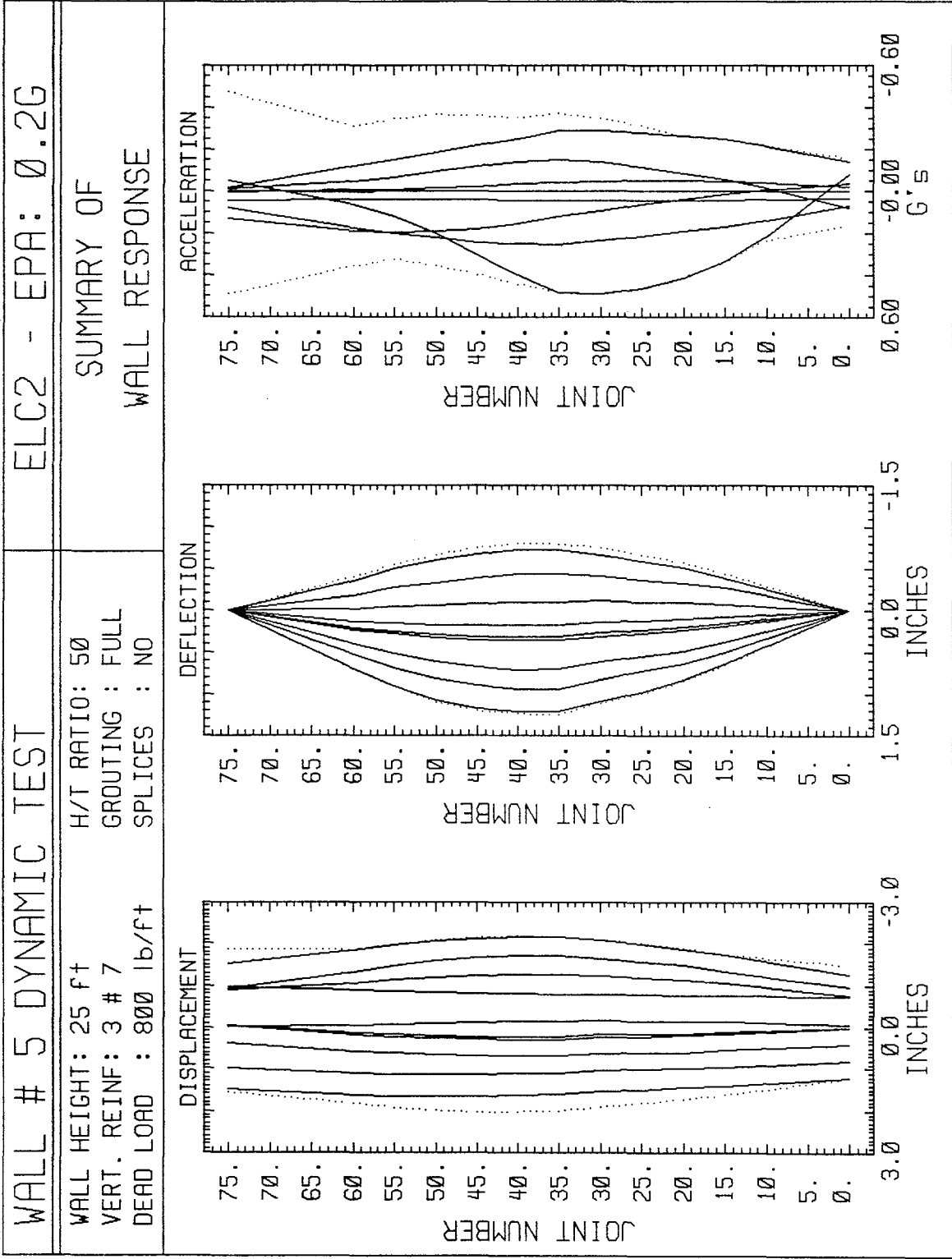


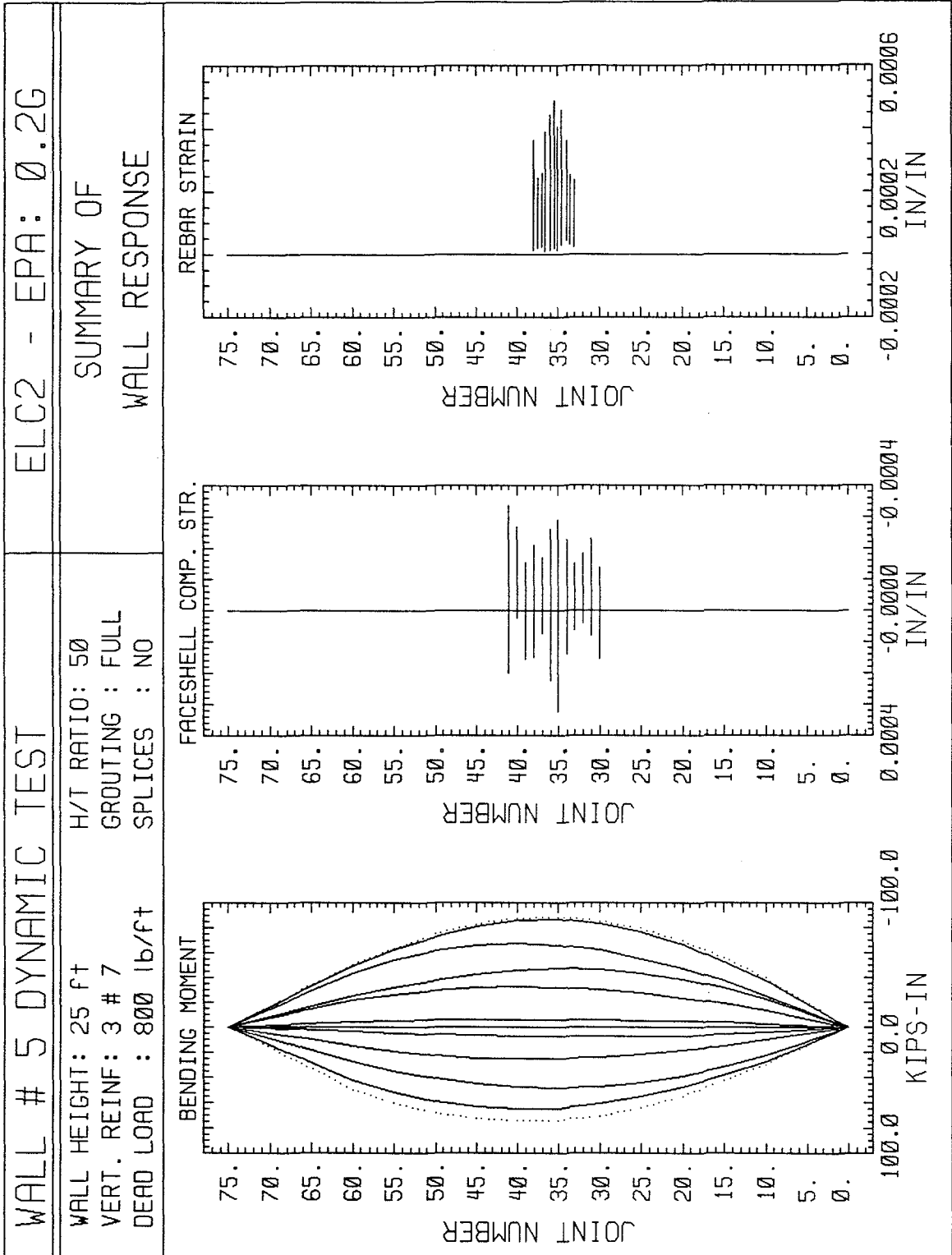




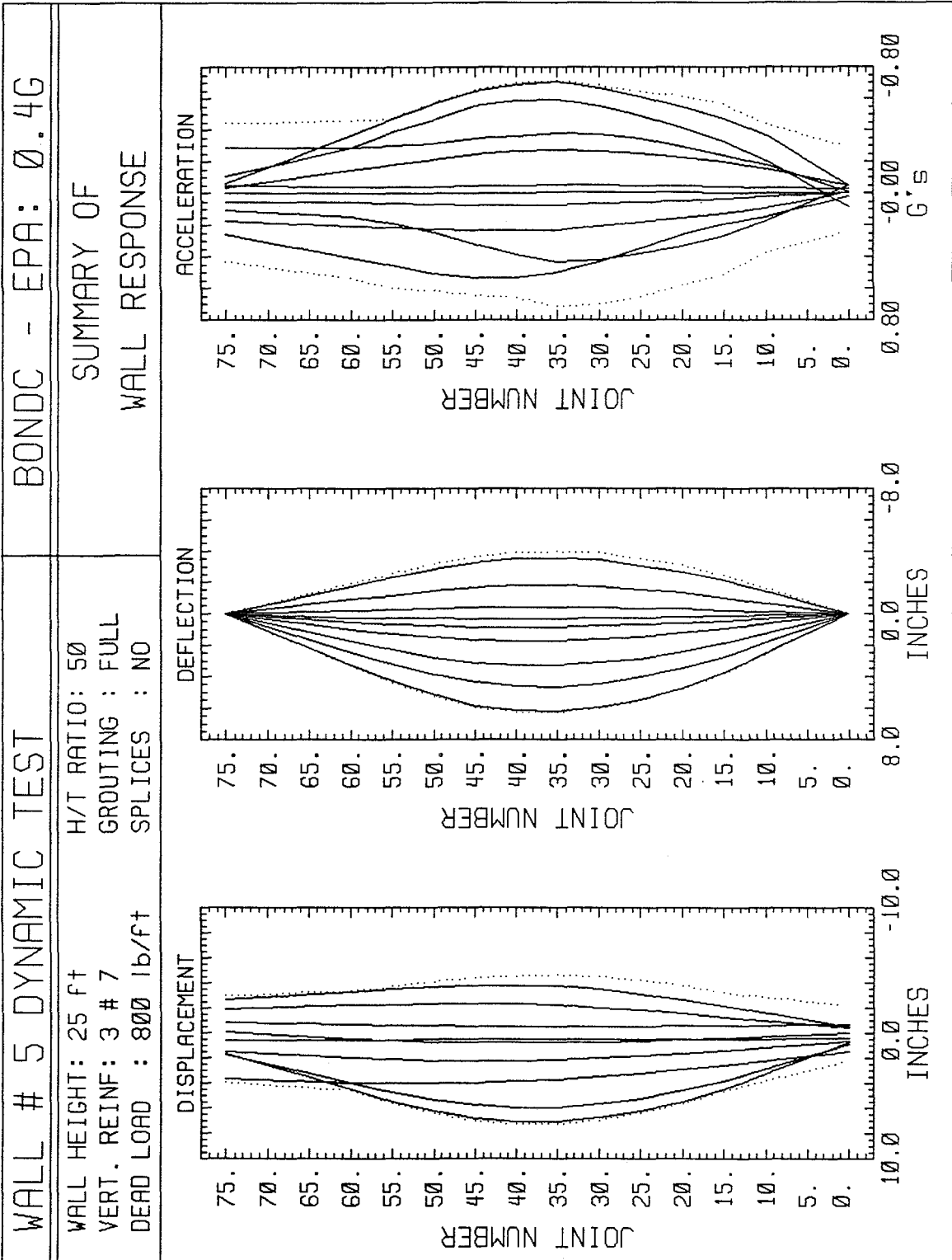


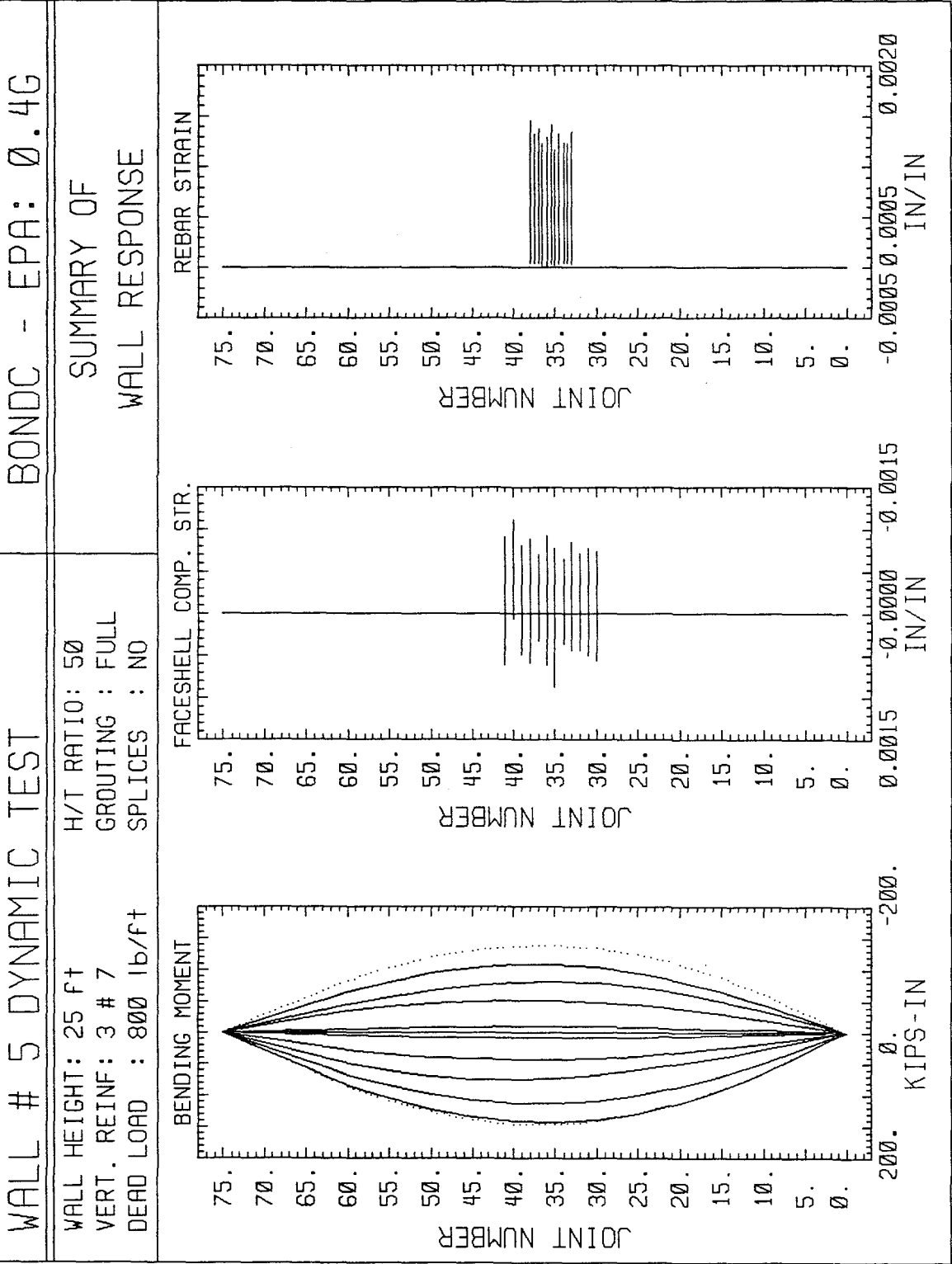


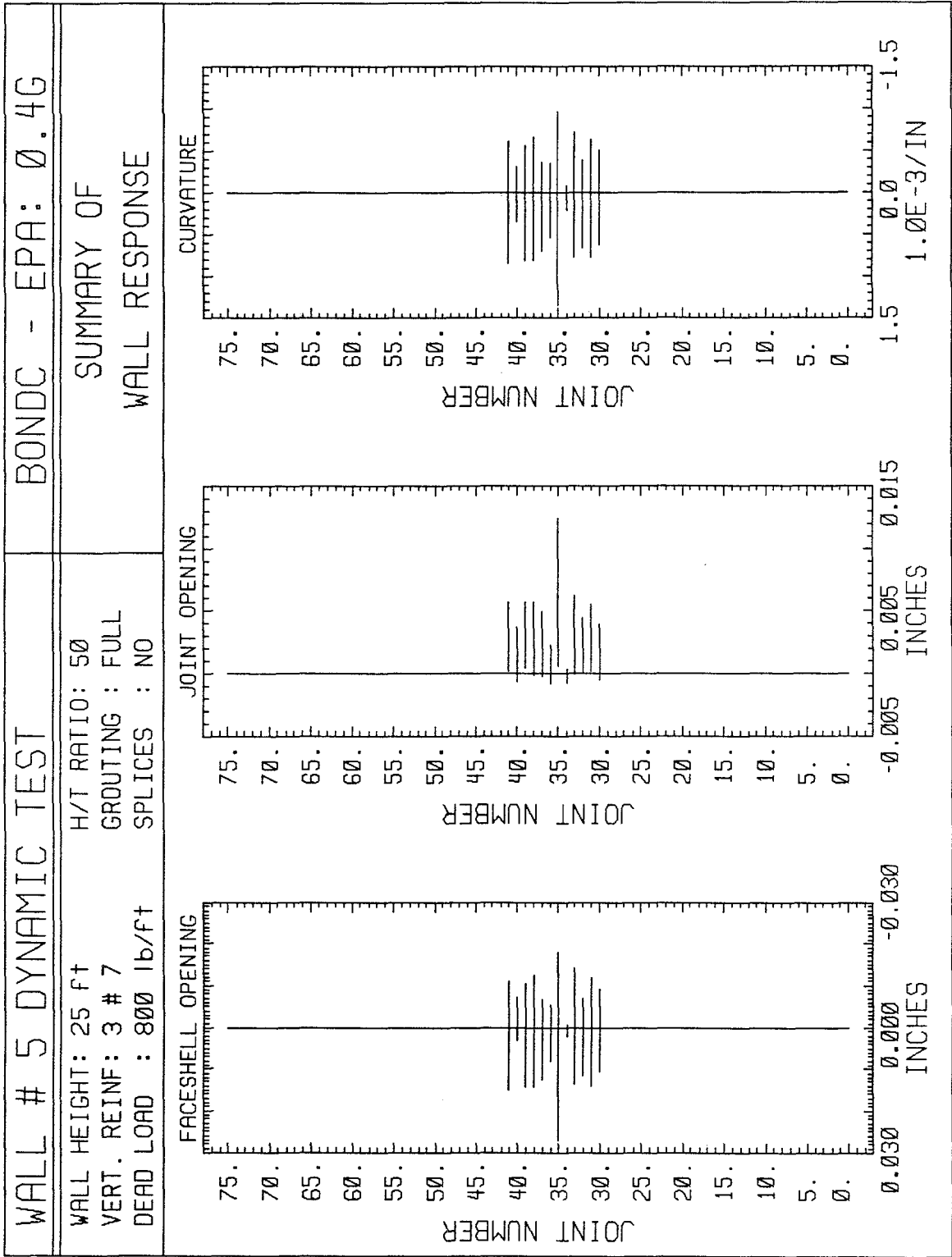


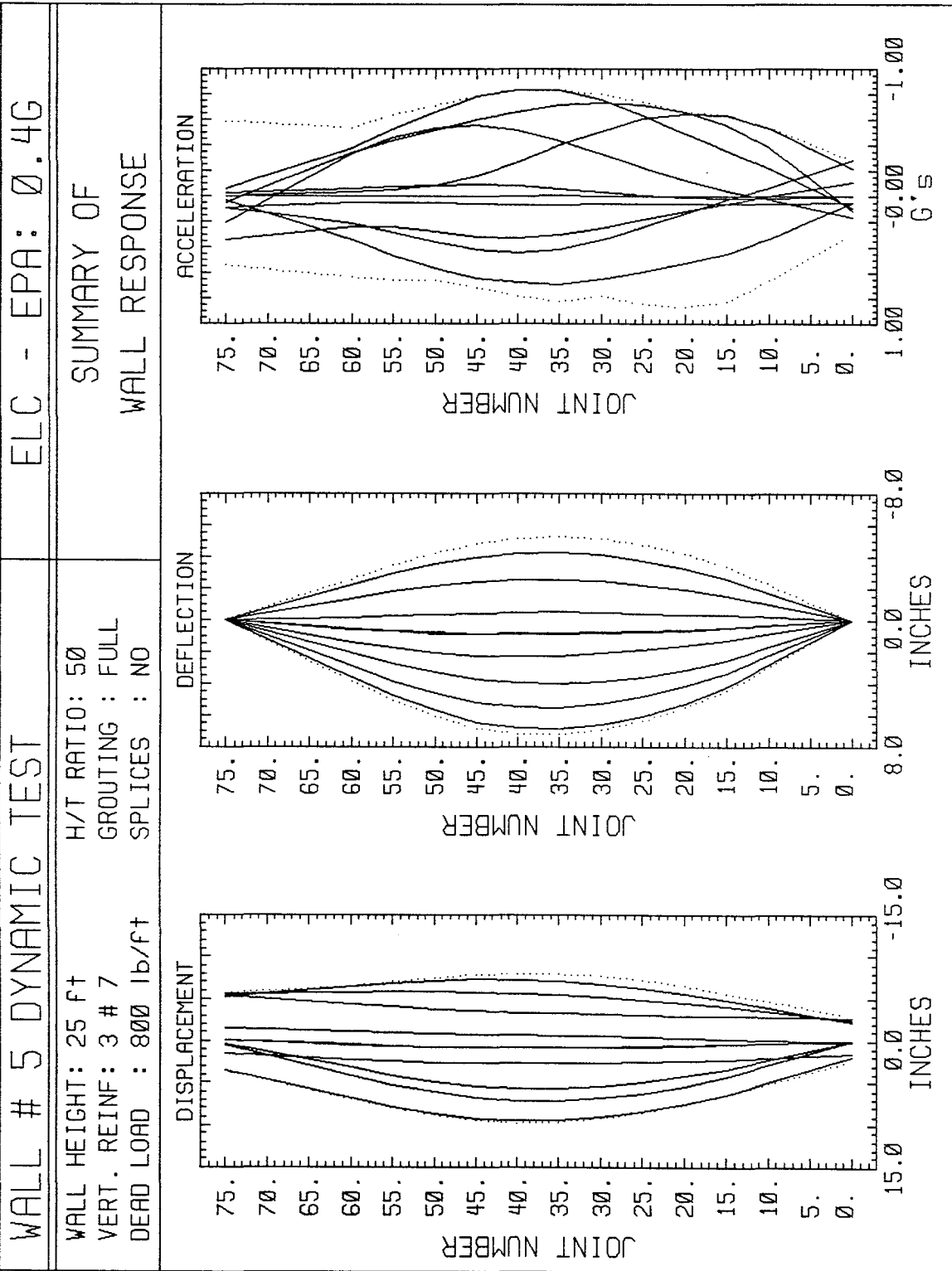


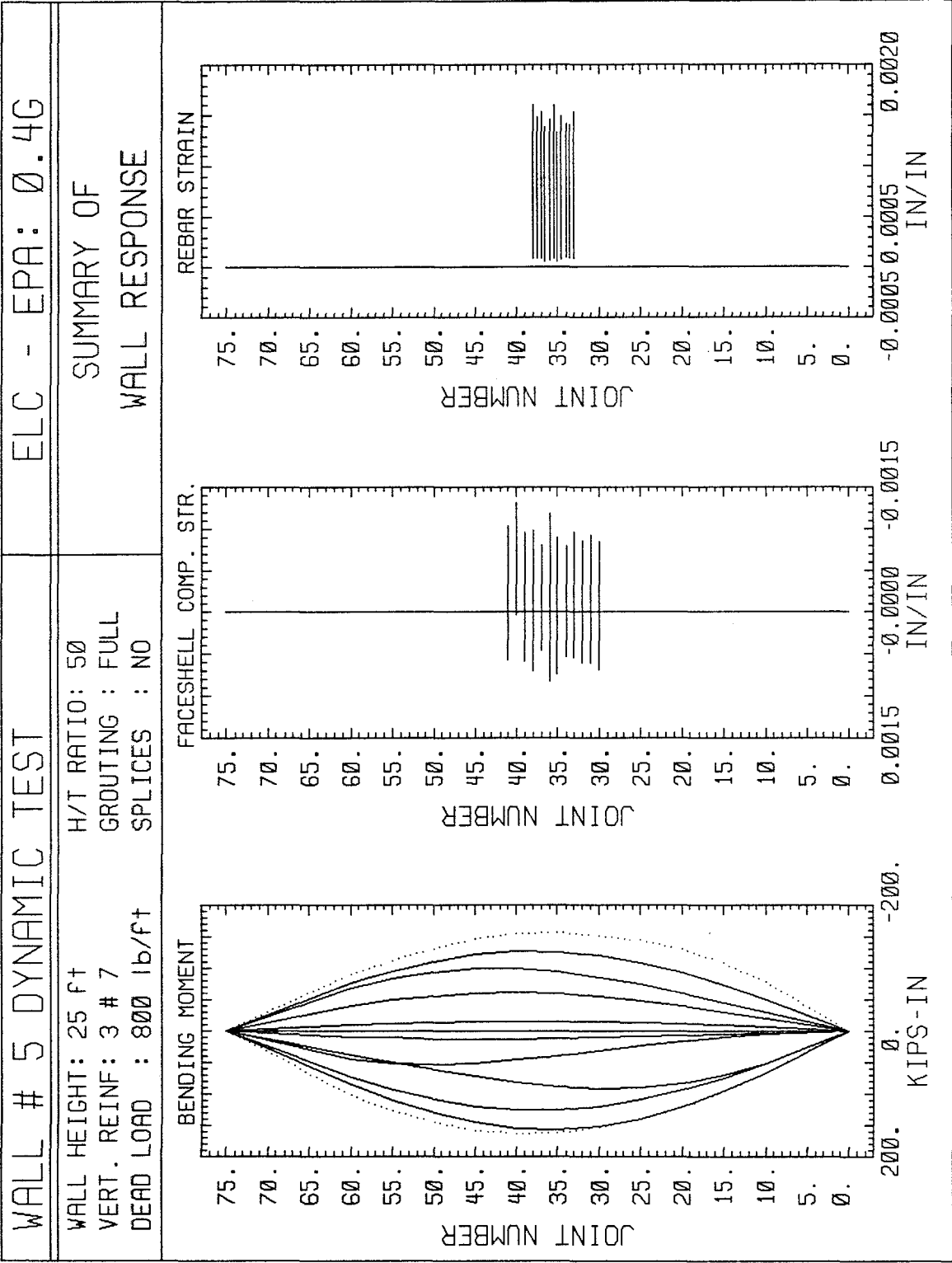
WALL # 5 DYNAMIC TEST		ELC2 - EPA: 0.2G	
WALL HEIGHT: 25 ft VERT. REINF: 3 # 7 DEAD LOAD : 800 lb/ft		H/T RATIO: 50 GROUTING : FULL SPLICES : NO	
SUMMARY OF WALL RESPONSE			
FACESHELL OPENING 	JOINT OPENING 	CURVATURE 	



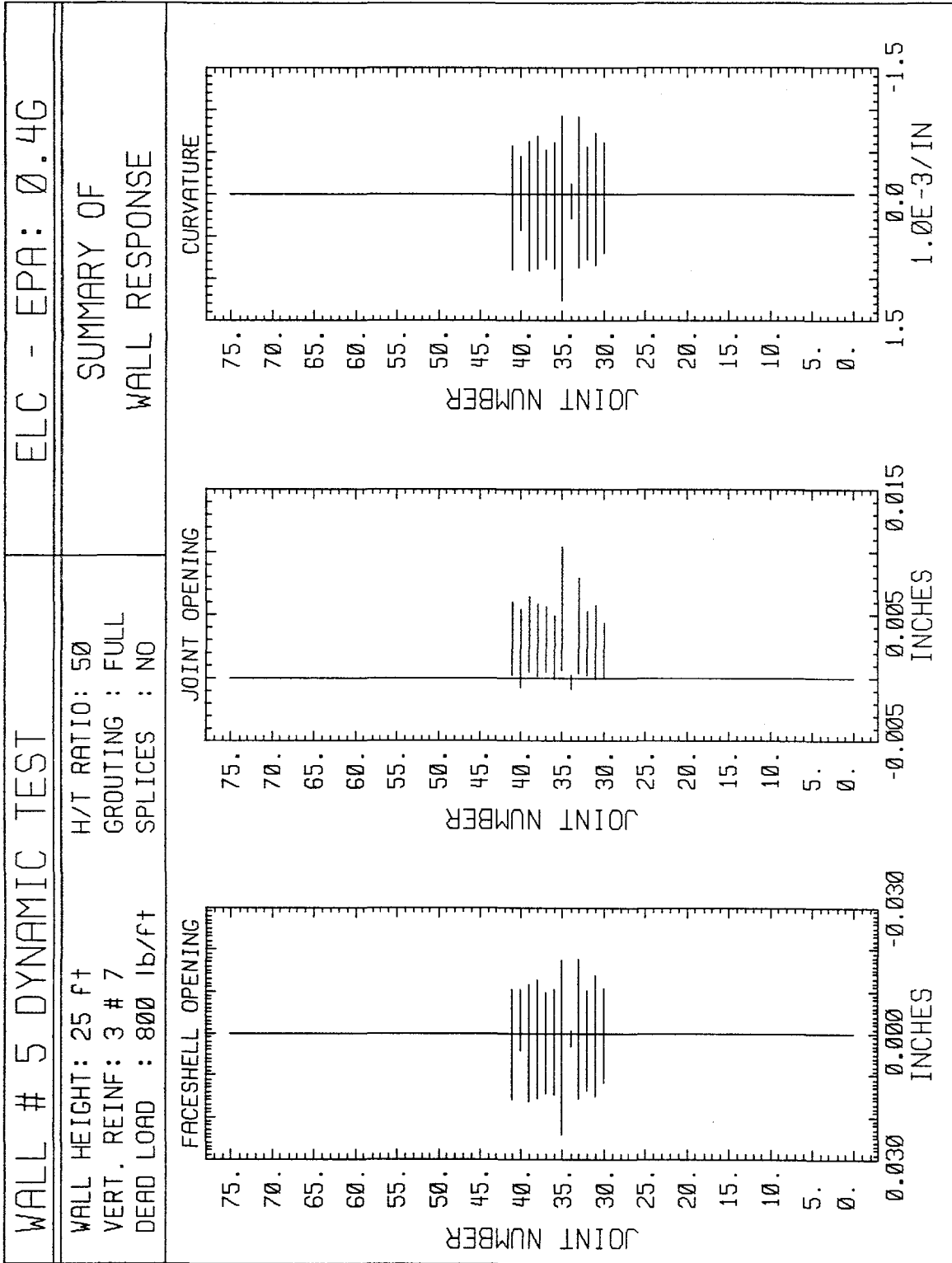


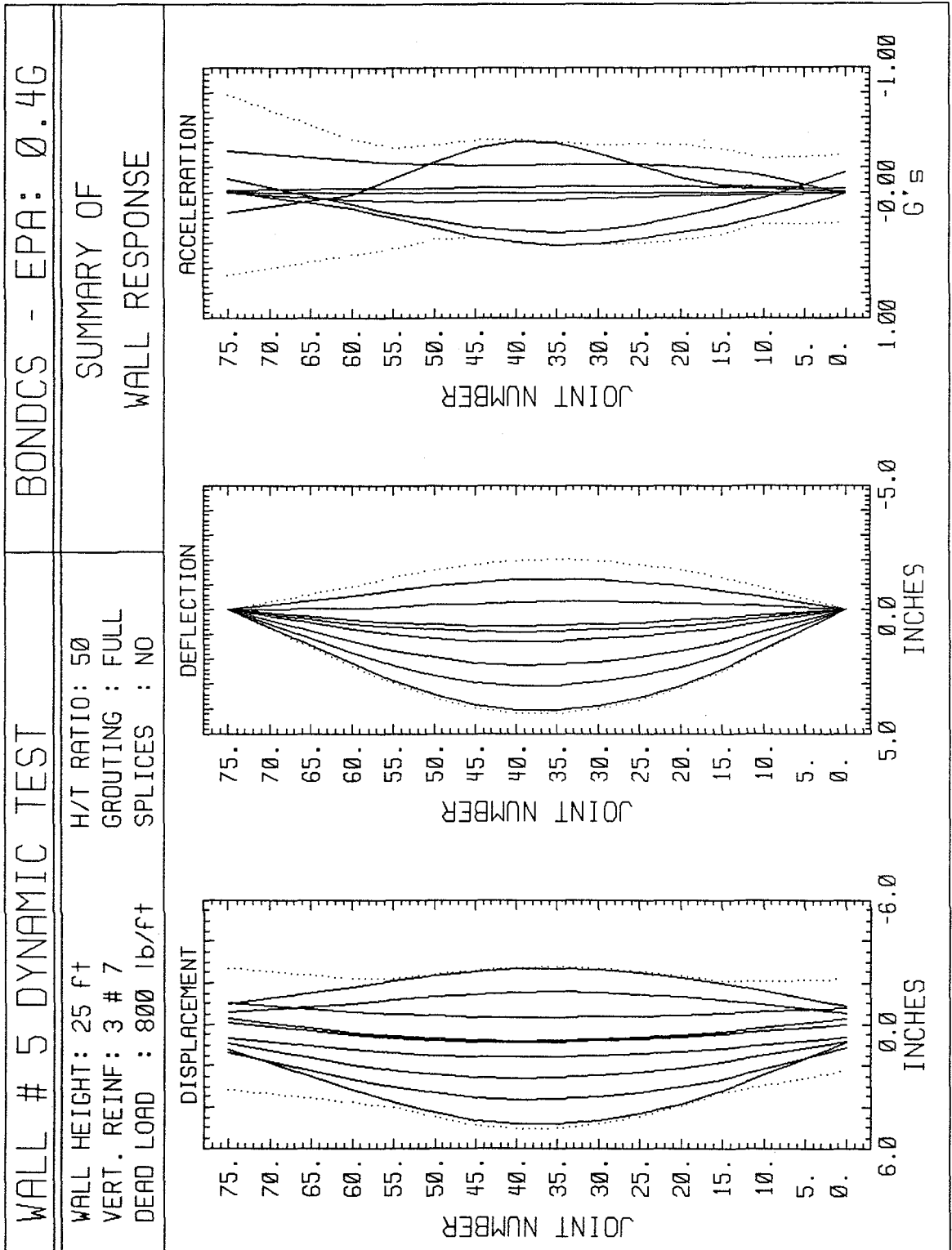


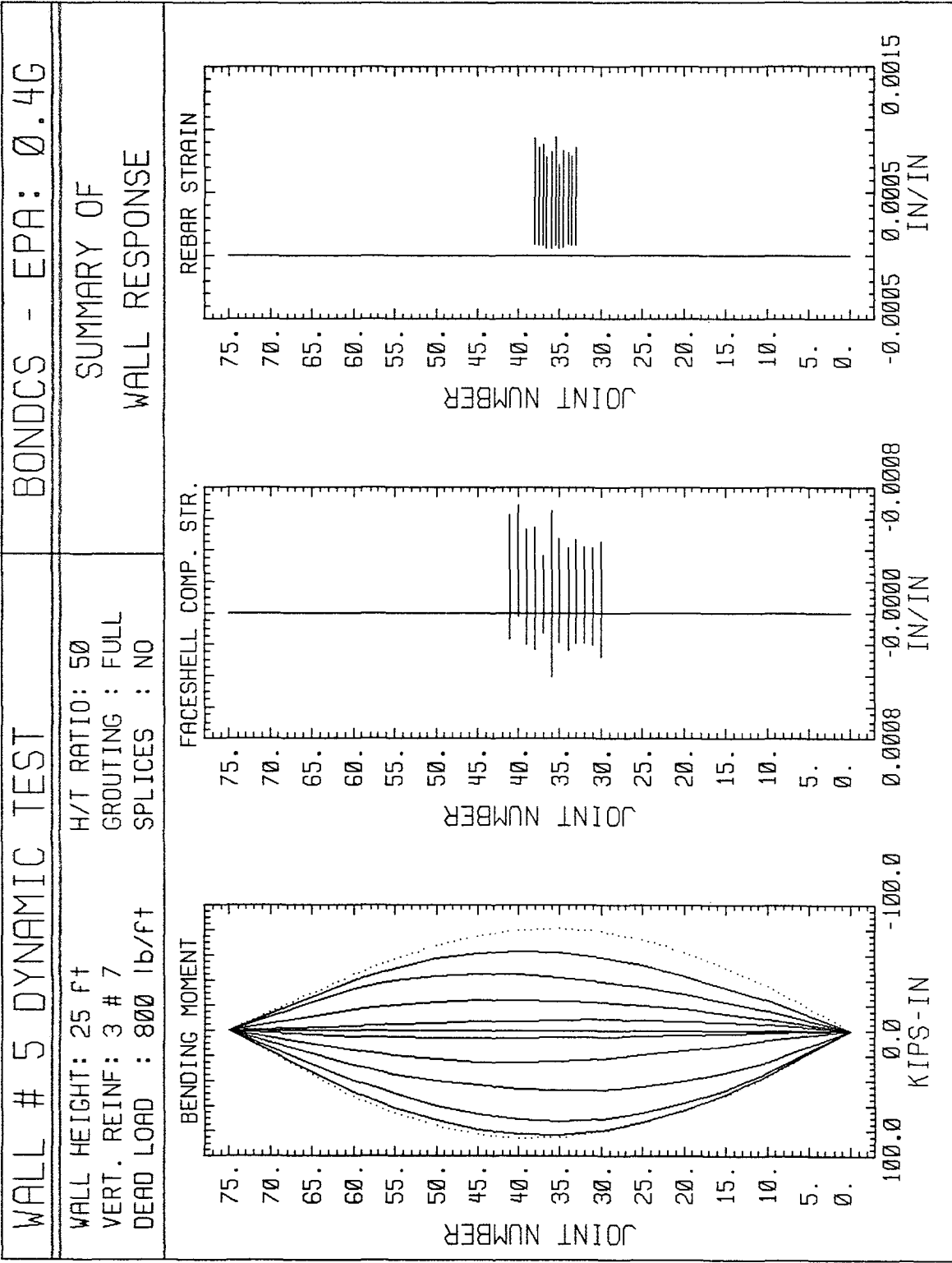


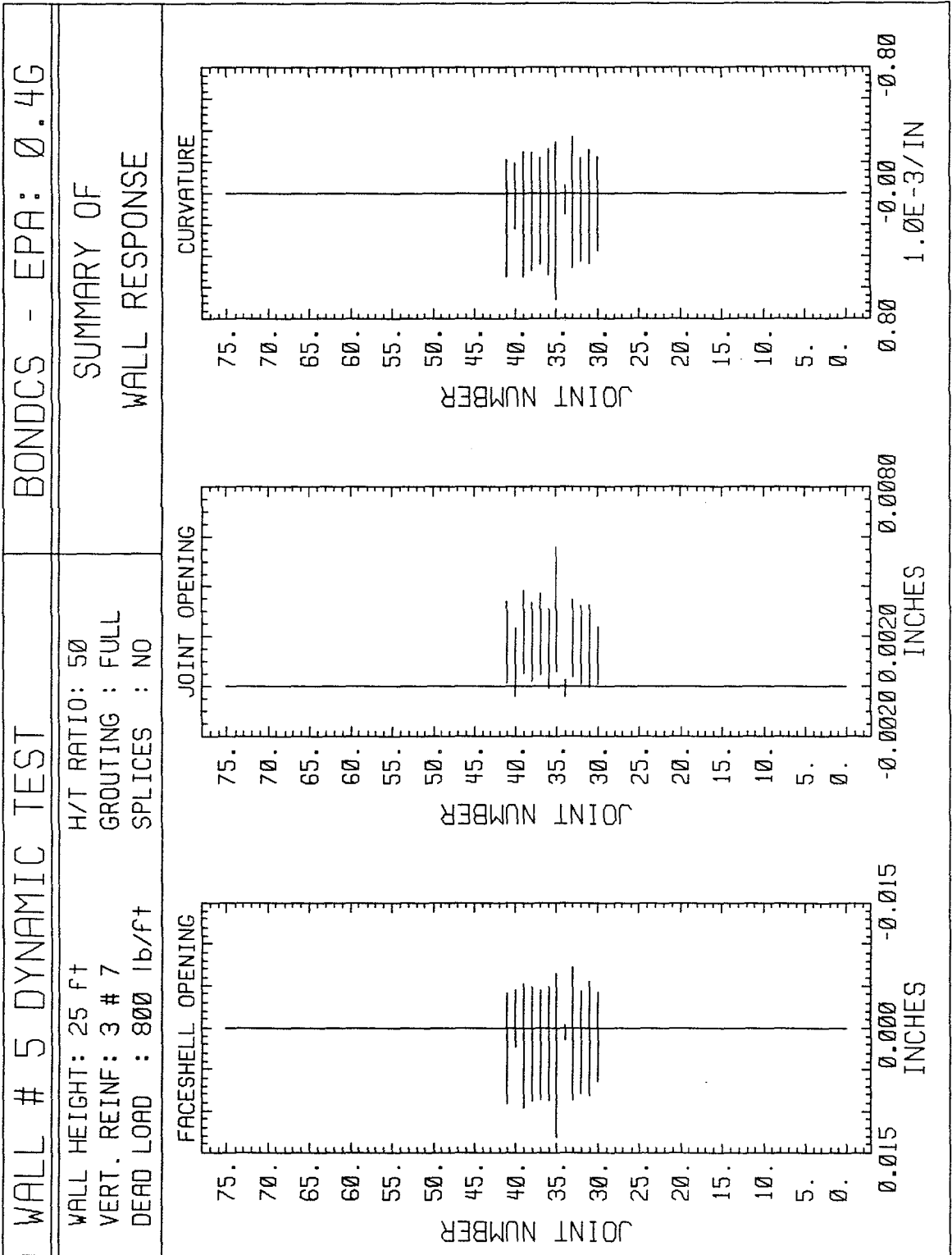


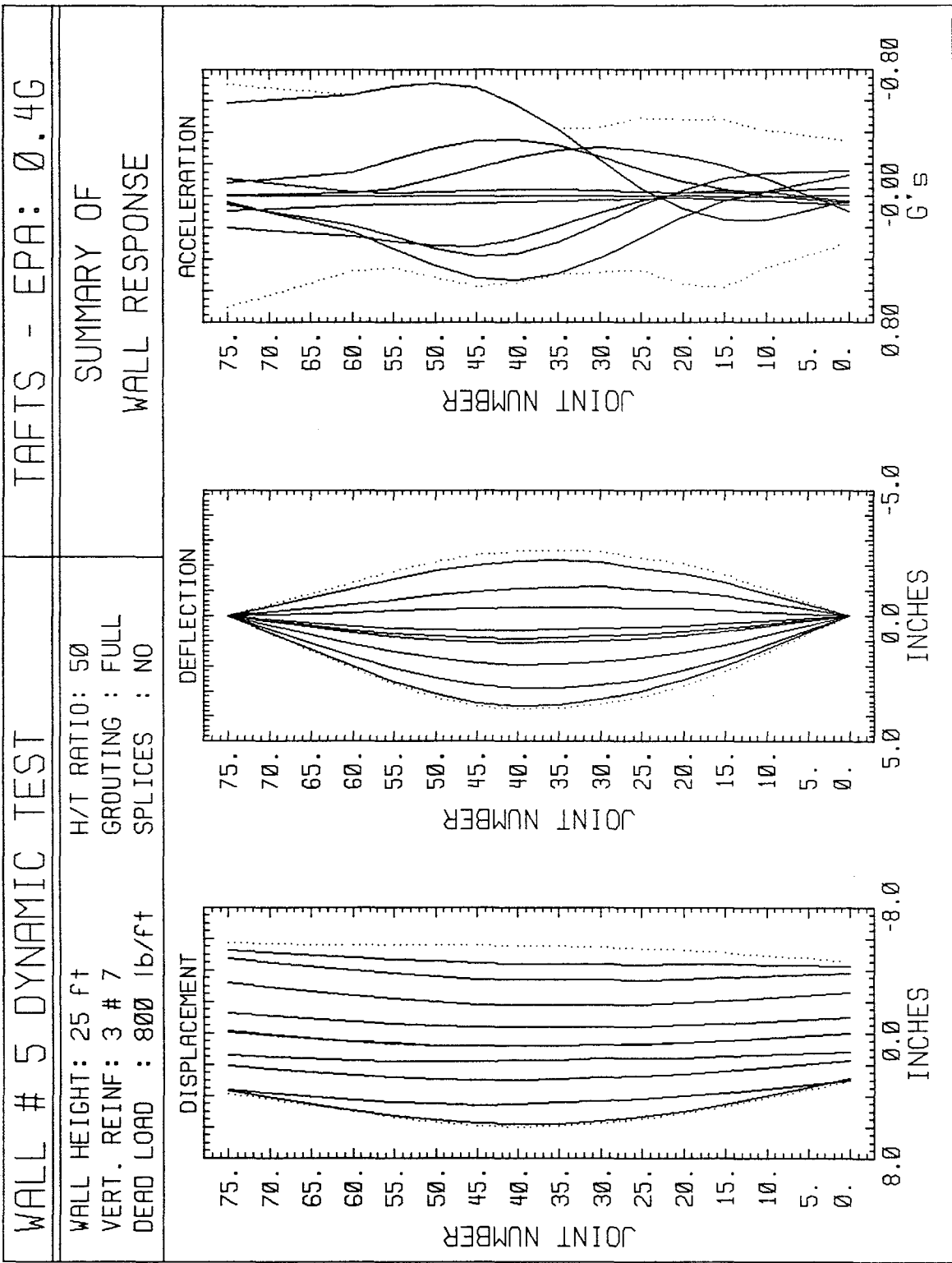


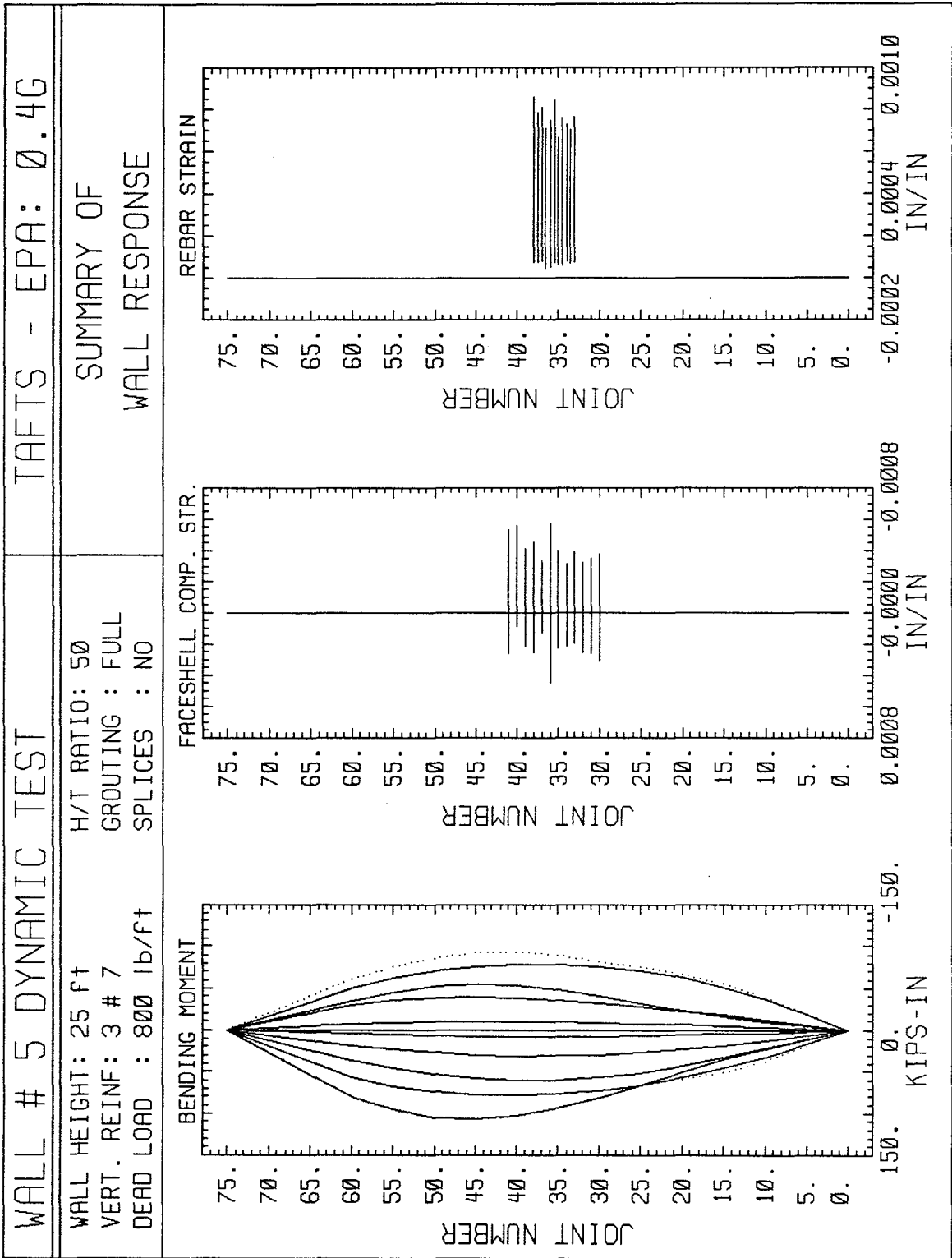


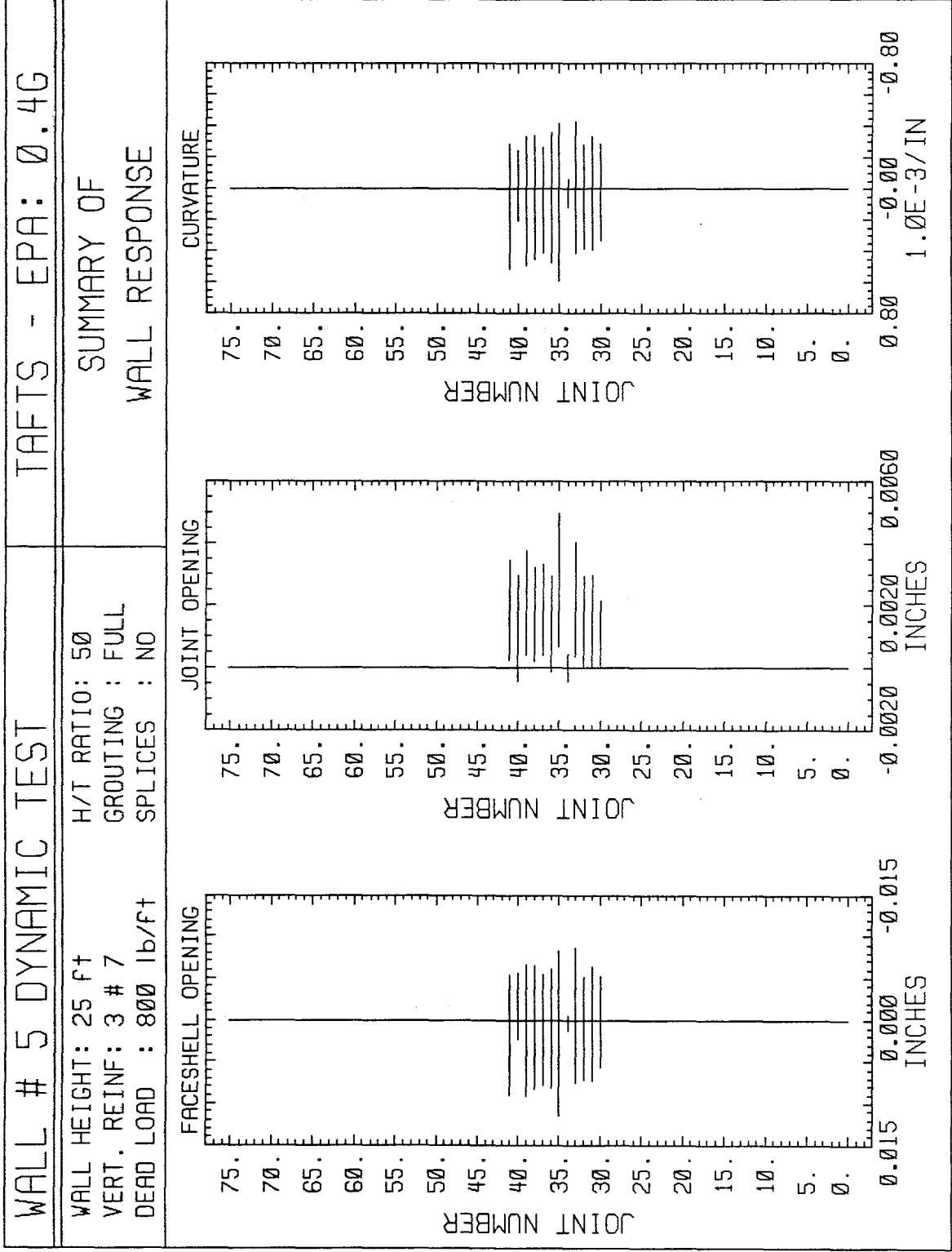


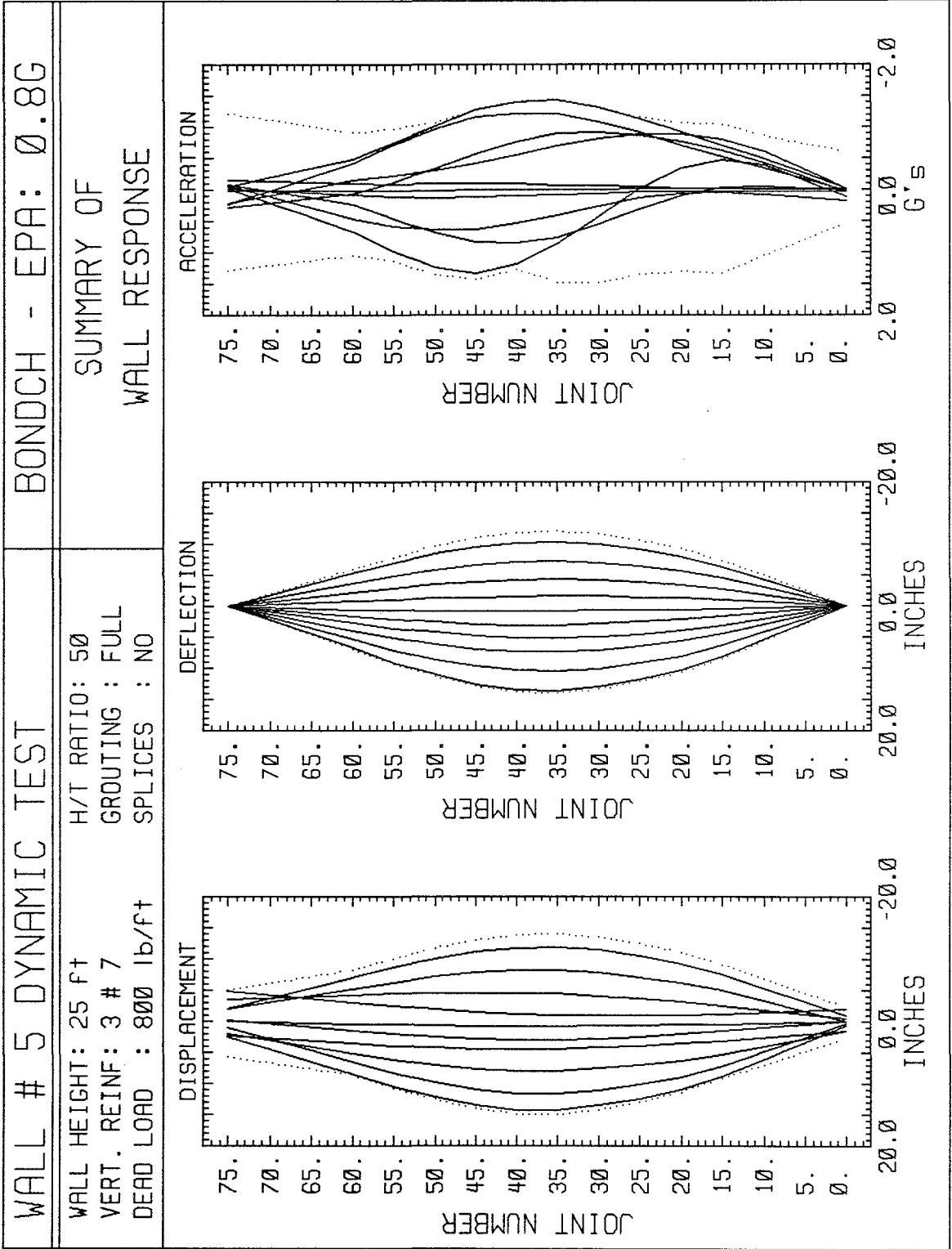




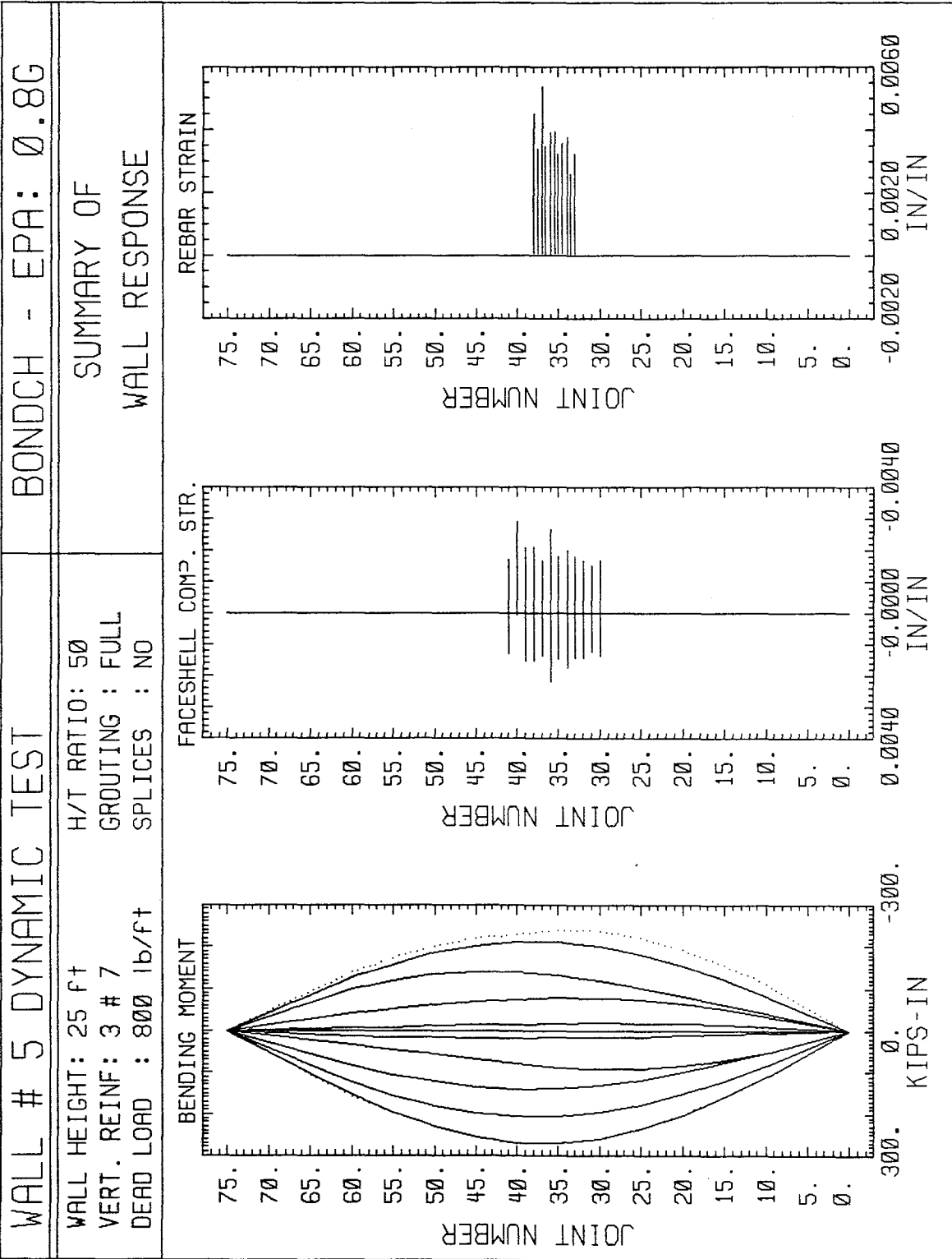


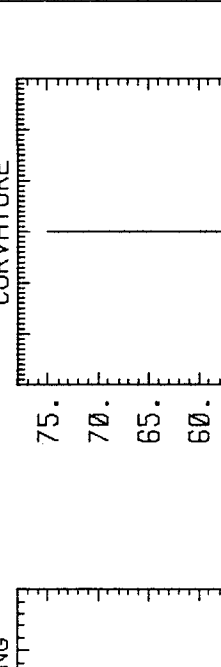
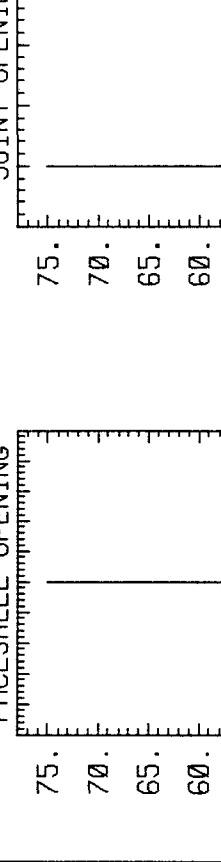
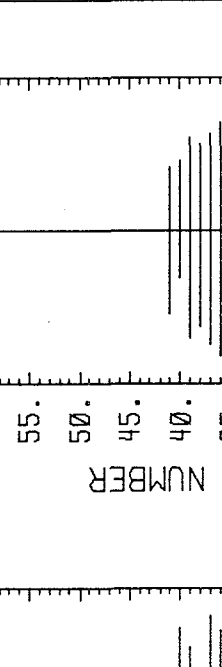
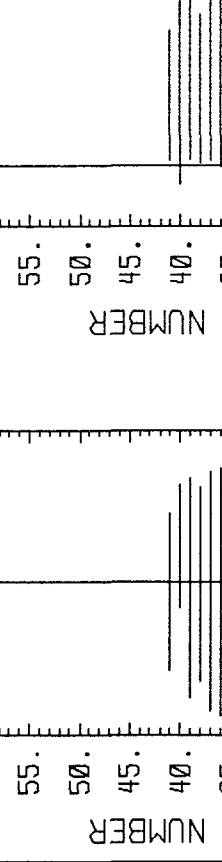


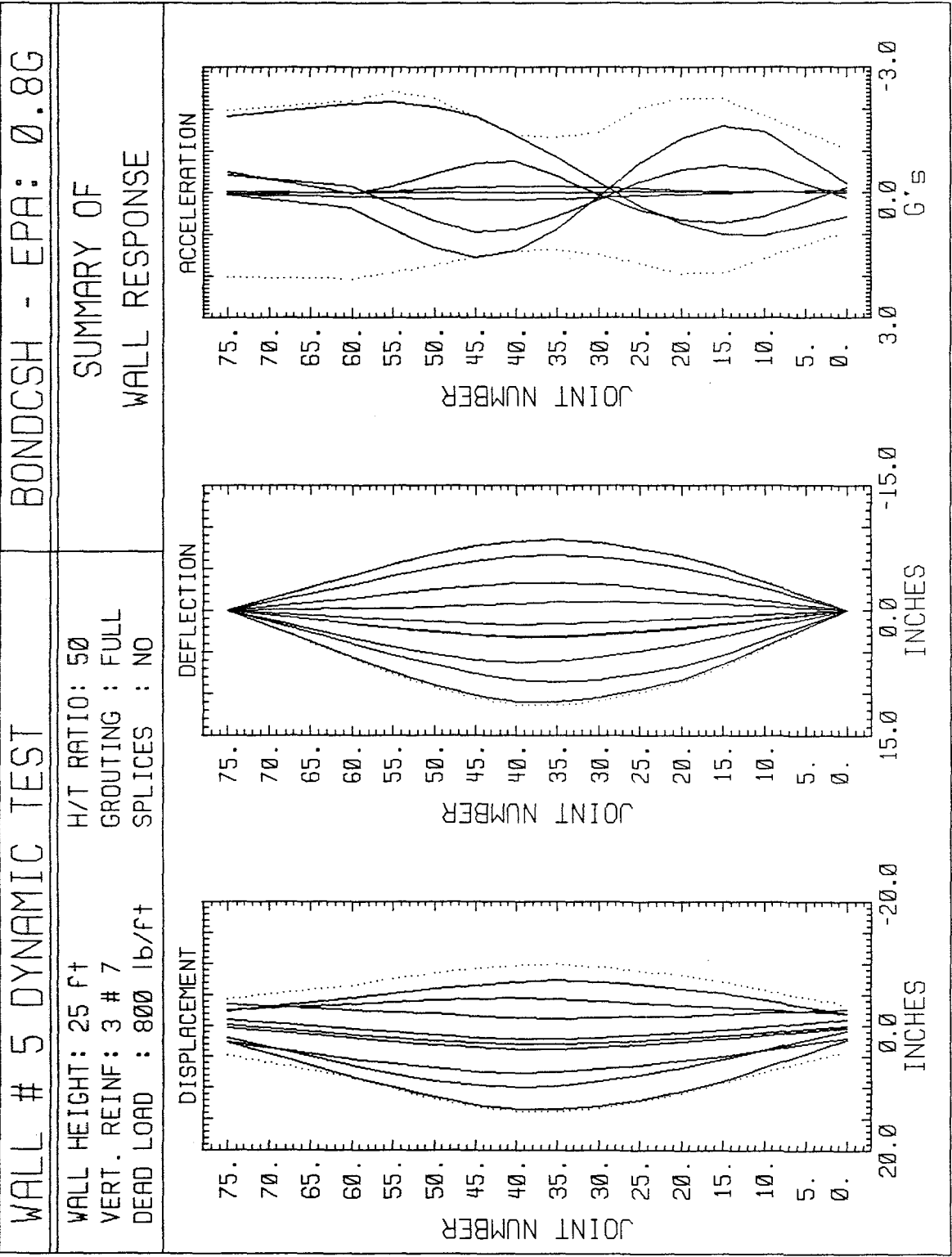


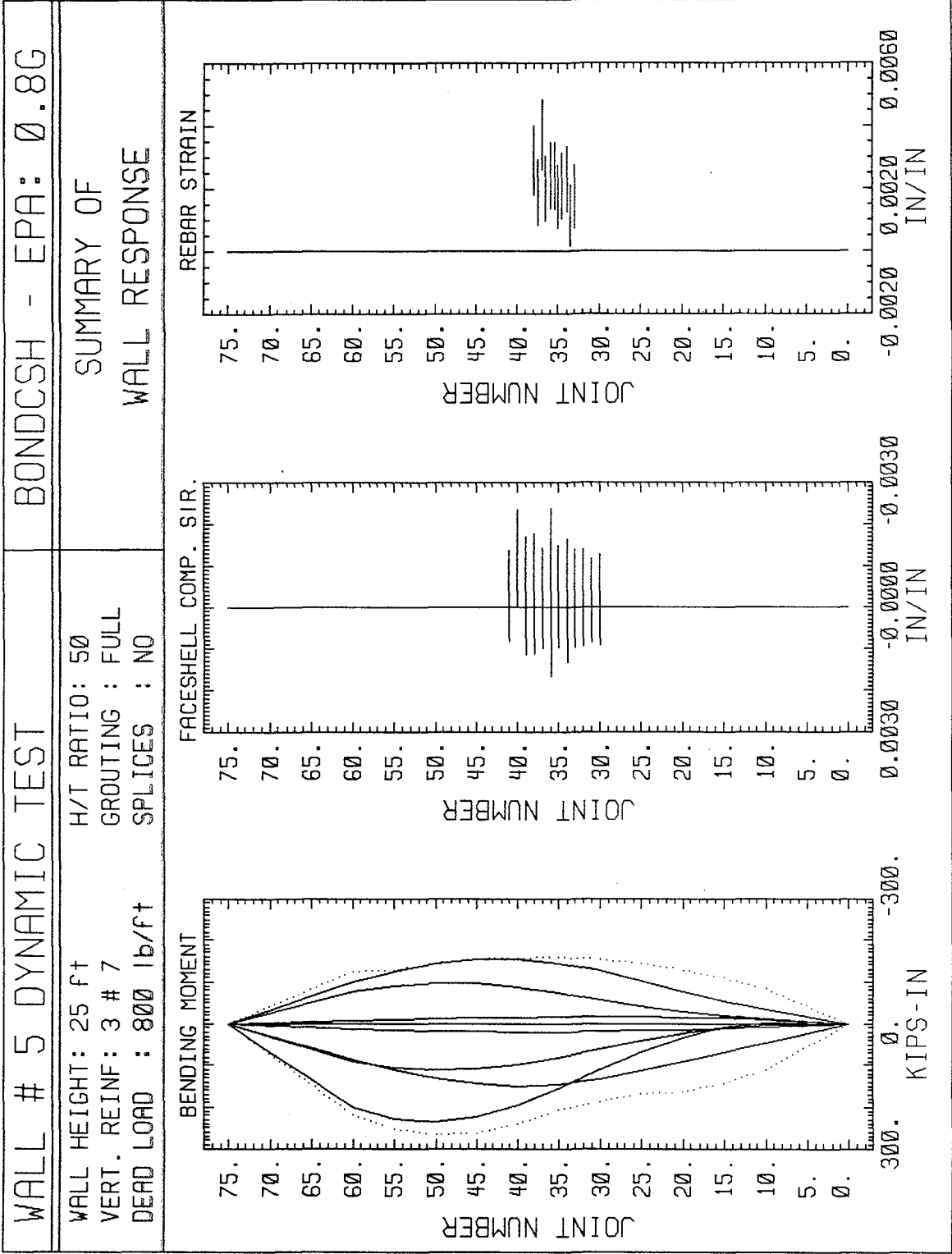






WALL # 5 DYNAMIC TEST	BONDCH - EPA: Ø.8G
WALL HEIGHT: 25 FT VERT. REINF: 3 # 7 DEAD LOAD : 800 lb/ft+	H/T RATIO: 5Ø GROUTING : FULL SPLICES : NO
SUMMARY OF WALL RESPONSE	
FACESHELL OPENING 	JOINT OPENING 
CURVATURE 	JOINT NUMBER 





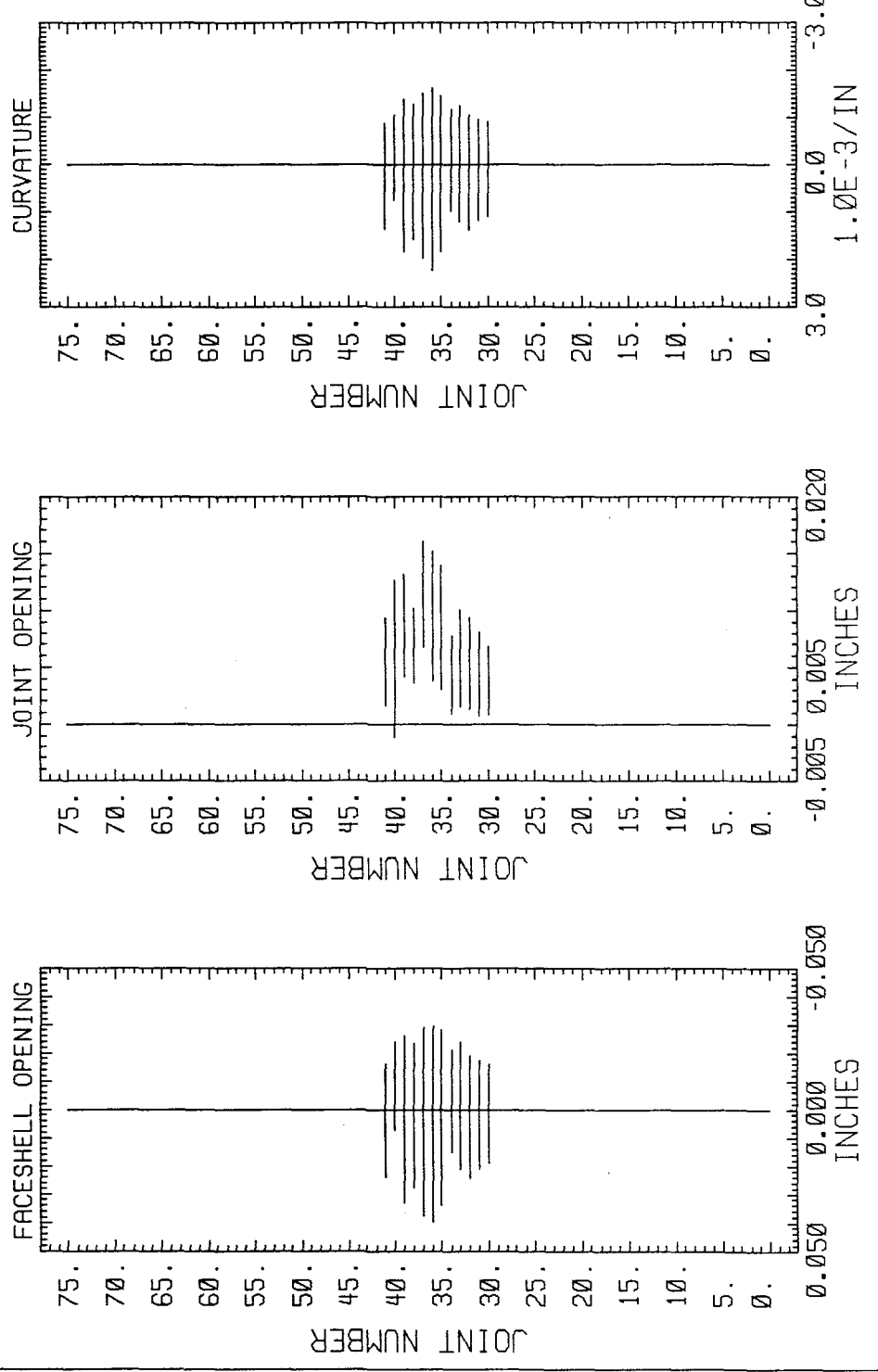
WALL # 5 DYNAMIC TEST

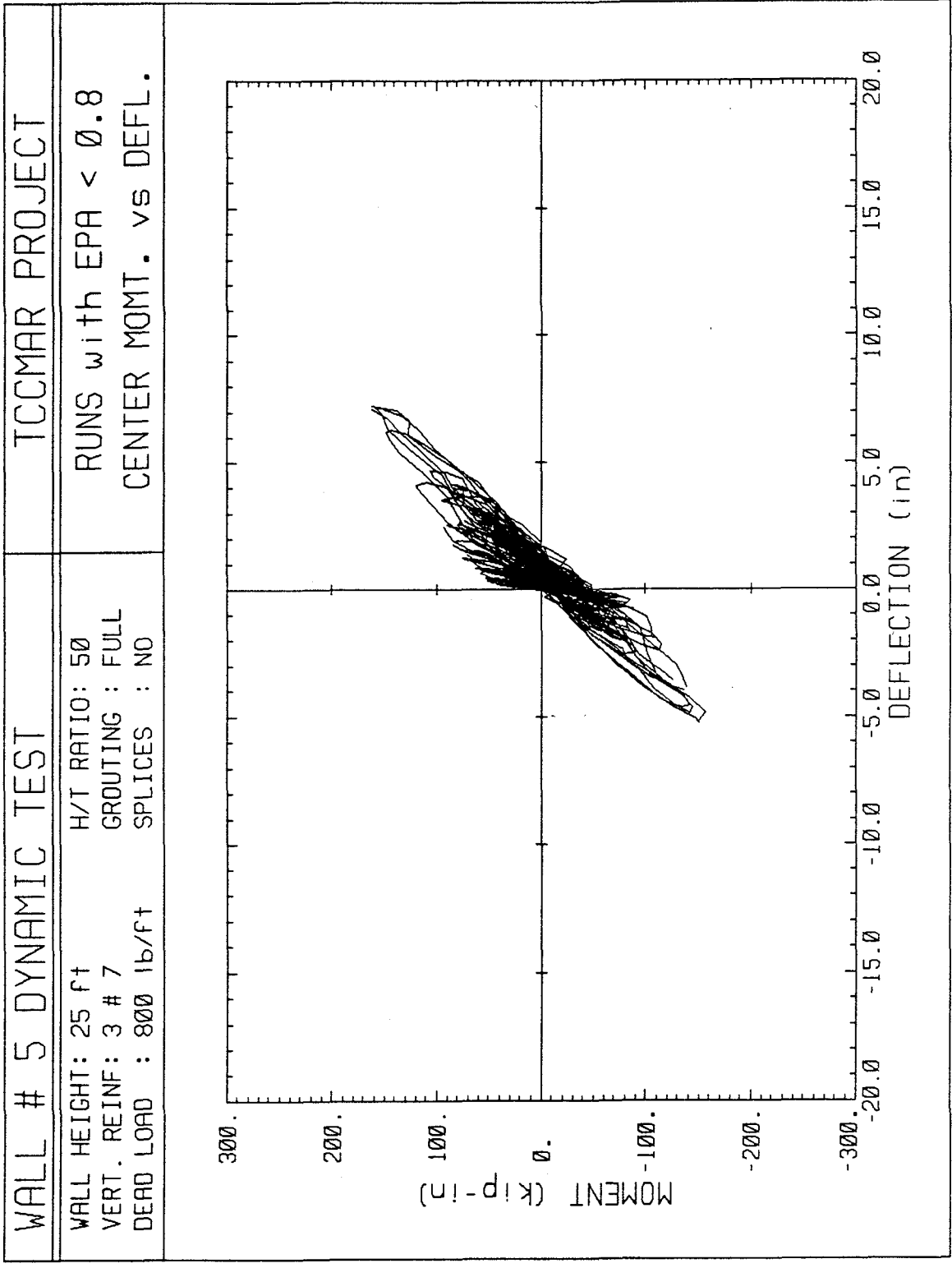
BOND CSH - EPA: 0.8G

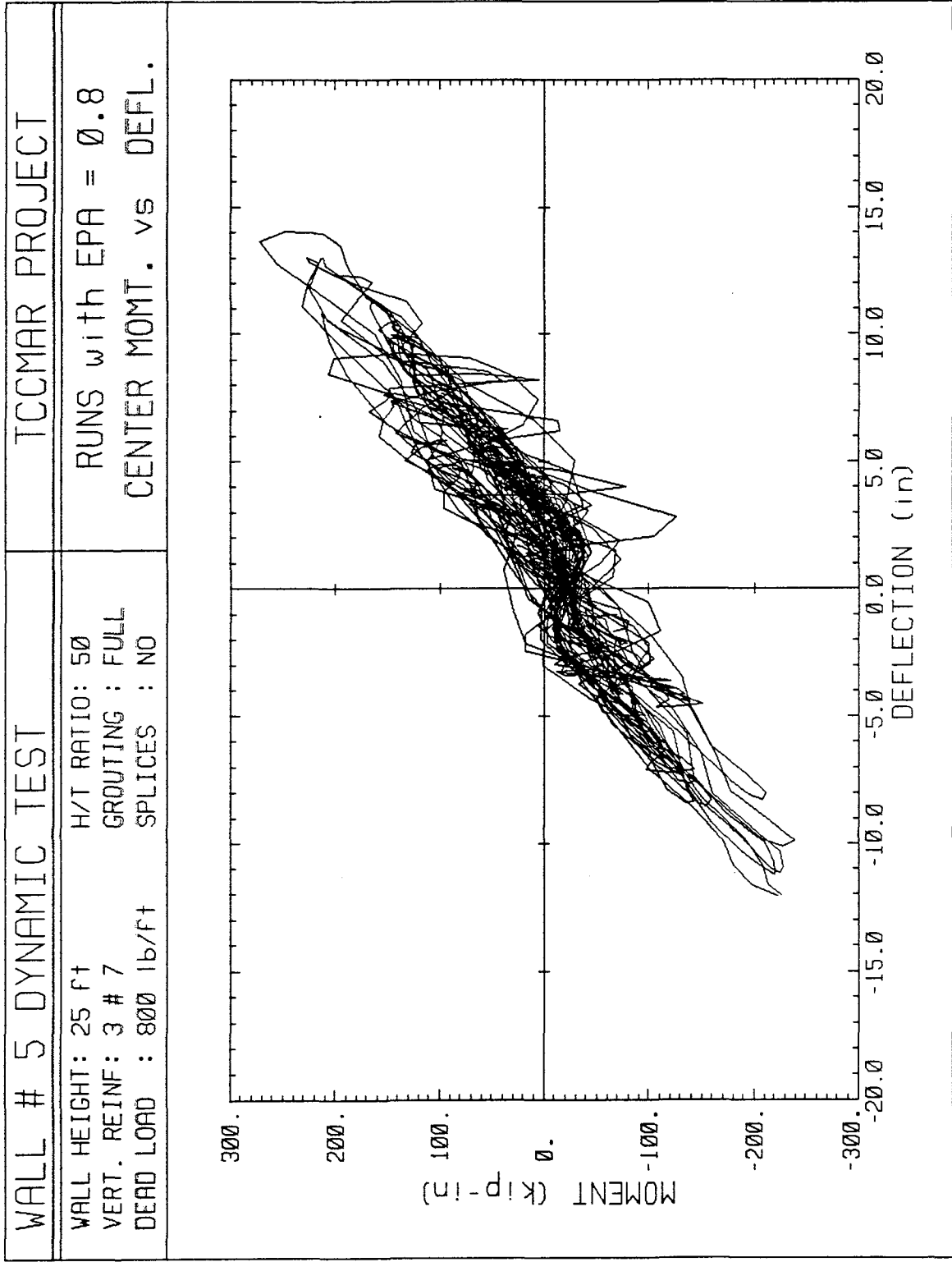
SUMMARY OF WALL RESPONSE

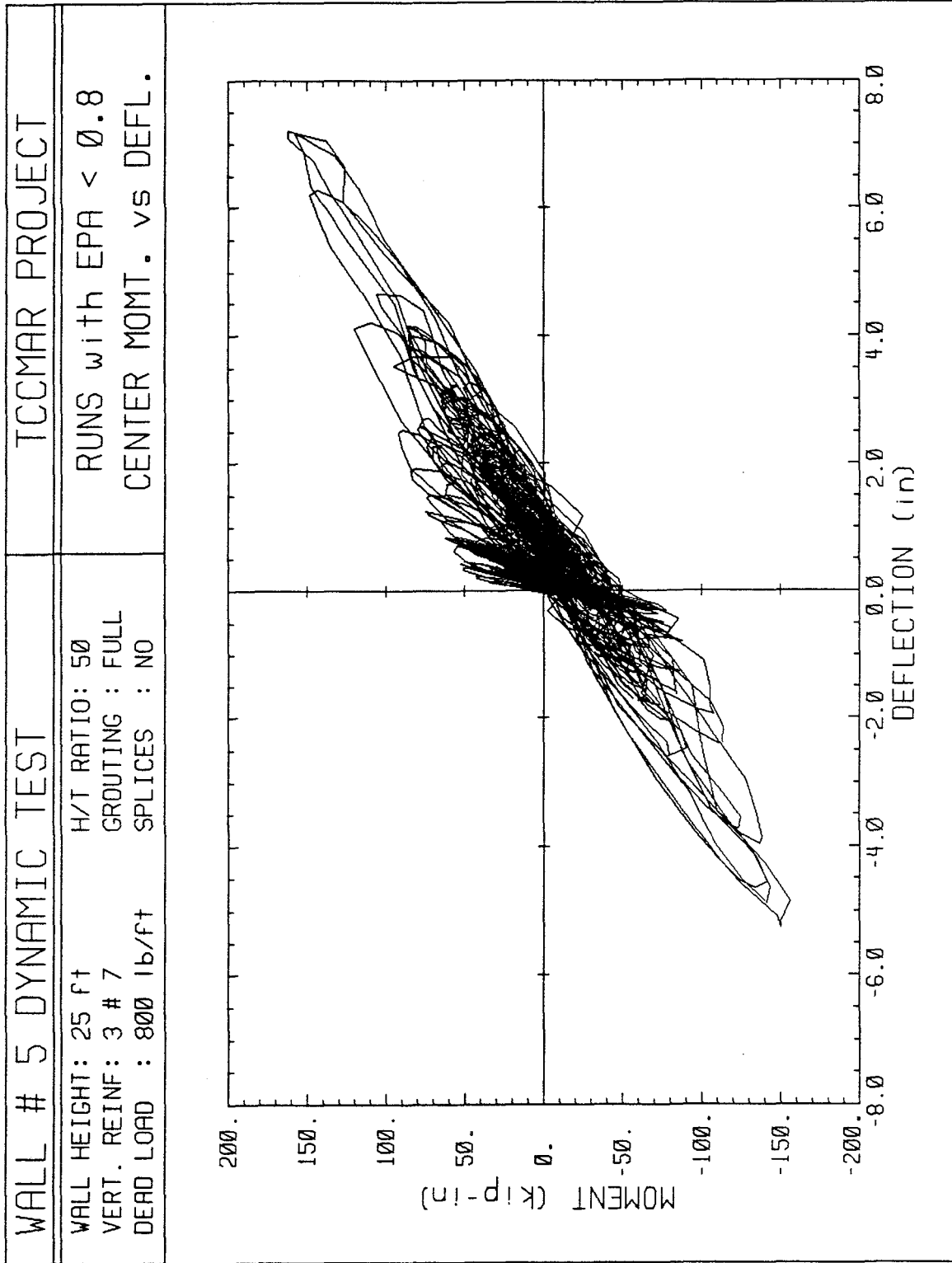
WALL HEIGHT: 25 ft  
 VERT. REINF: 3 # 7  
 DEAD LOAD : 800 lb/ft

H/T RATIO: 50  
 GROUTING : FULL  
 SPLICES : NO

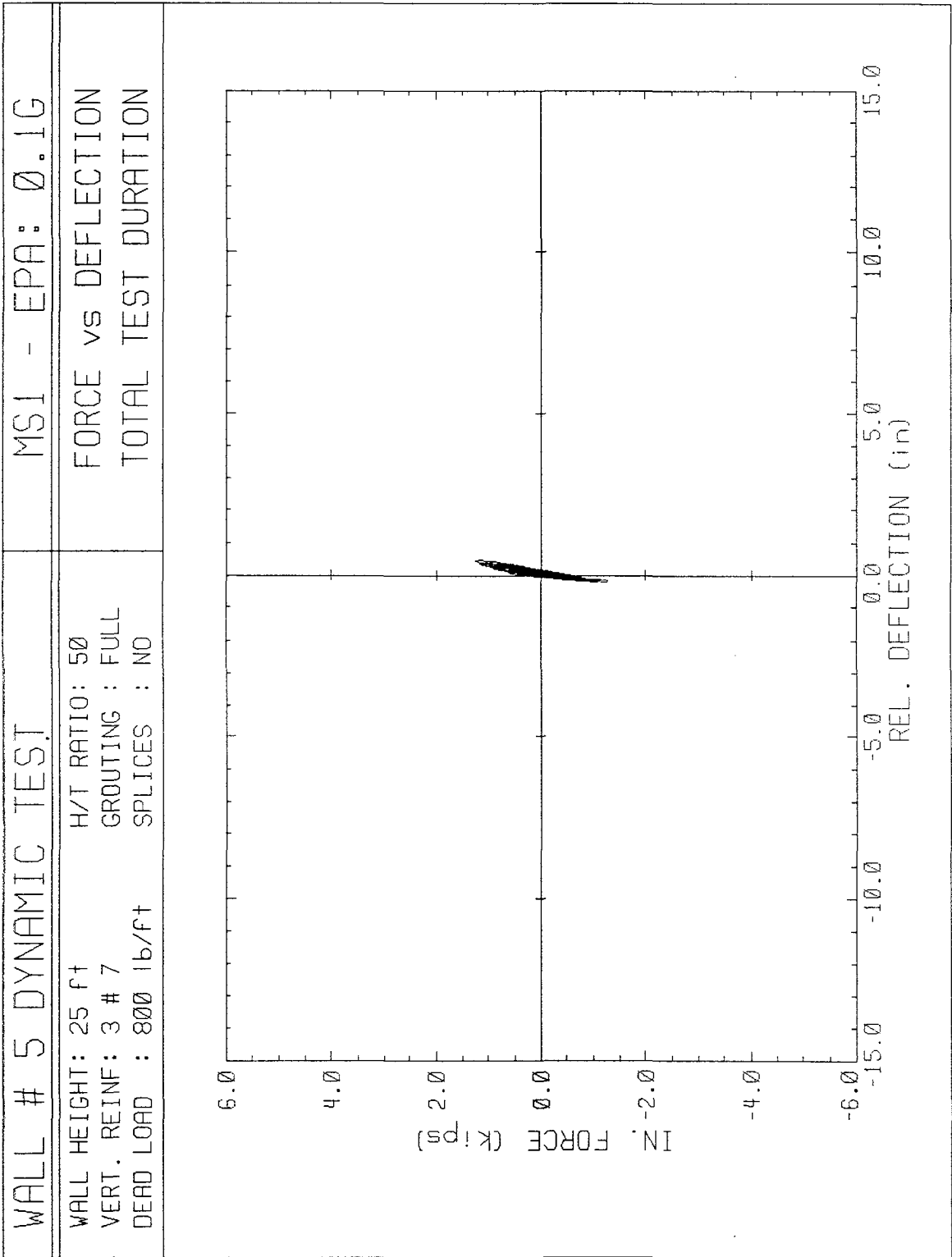


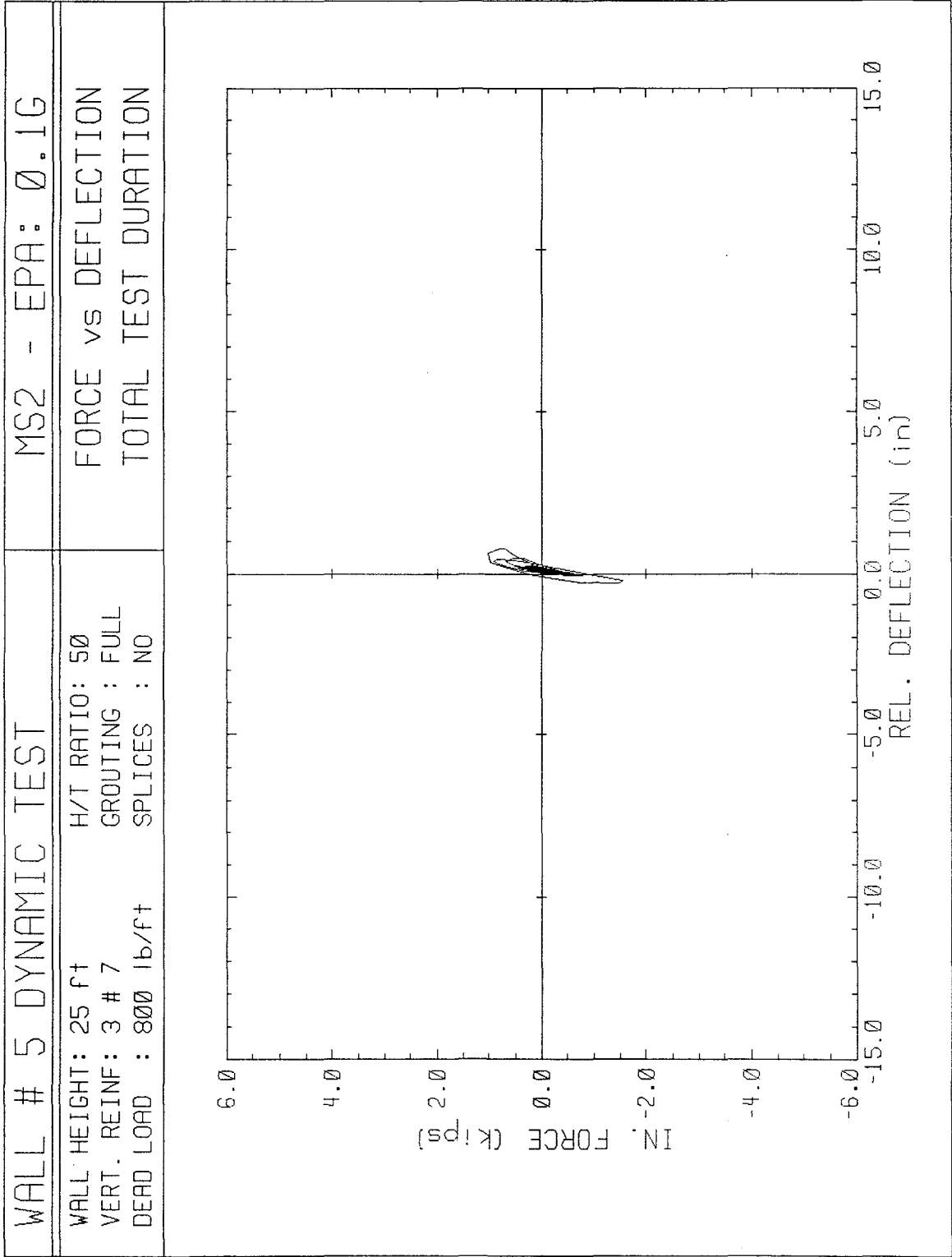


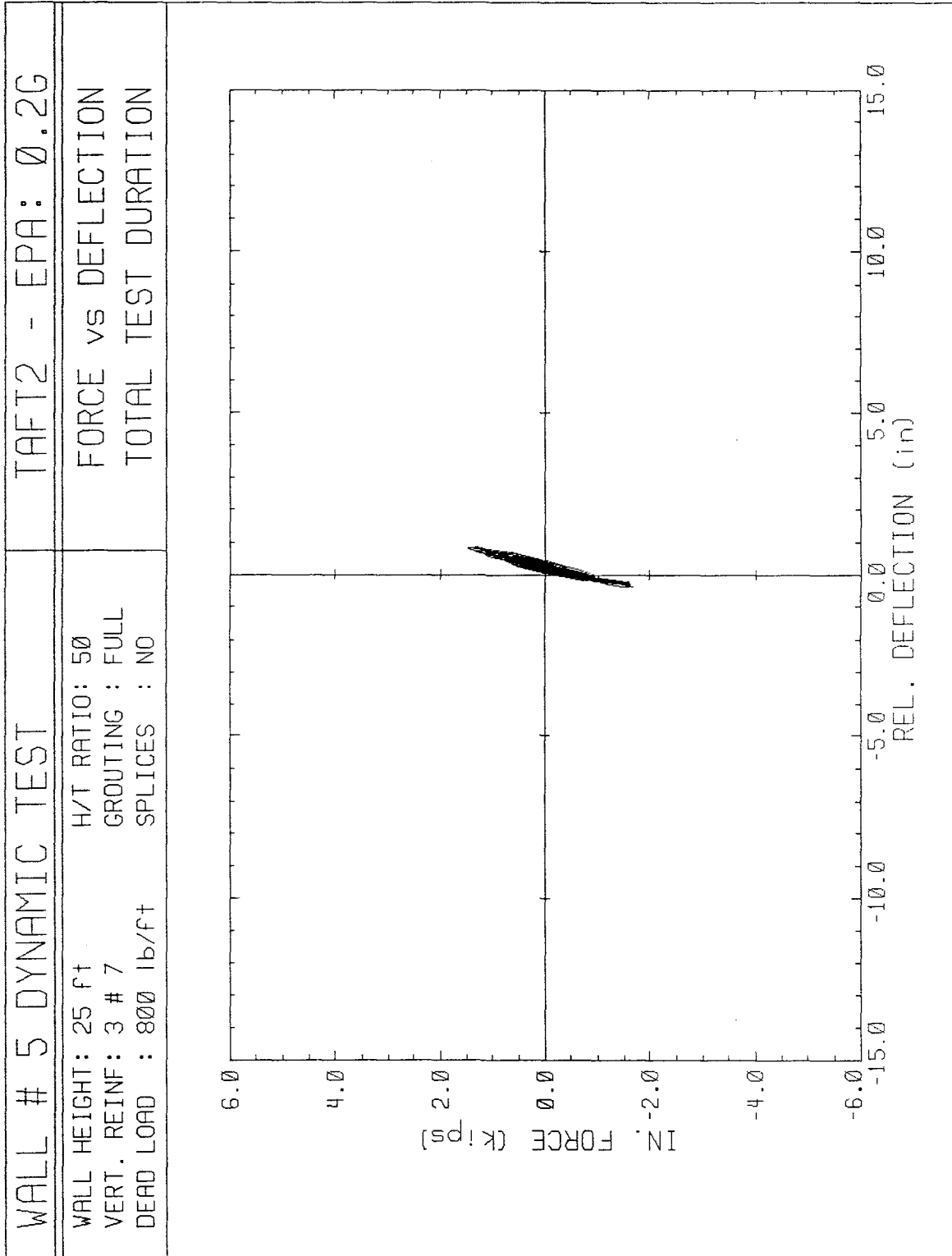


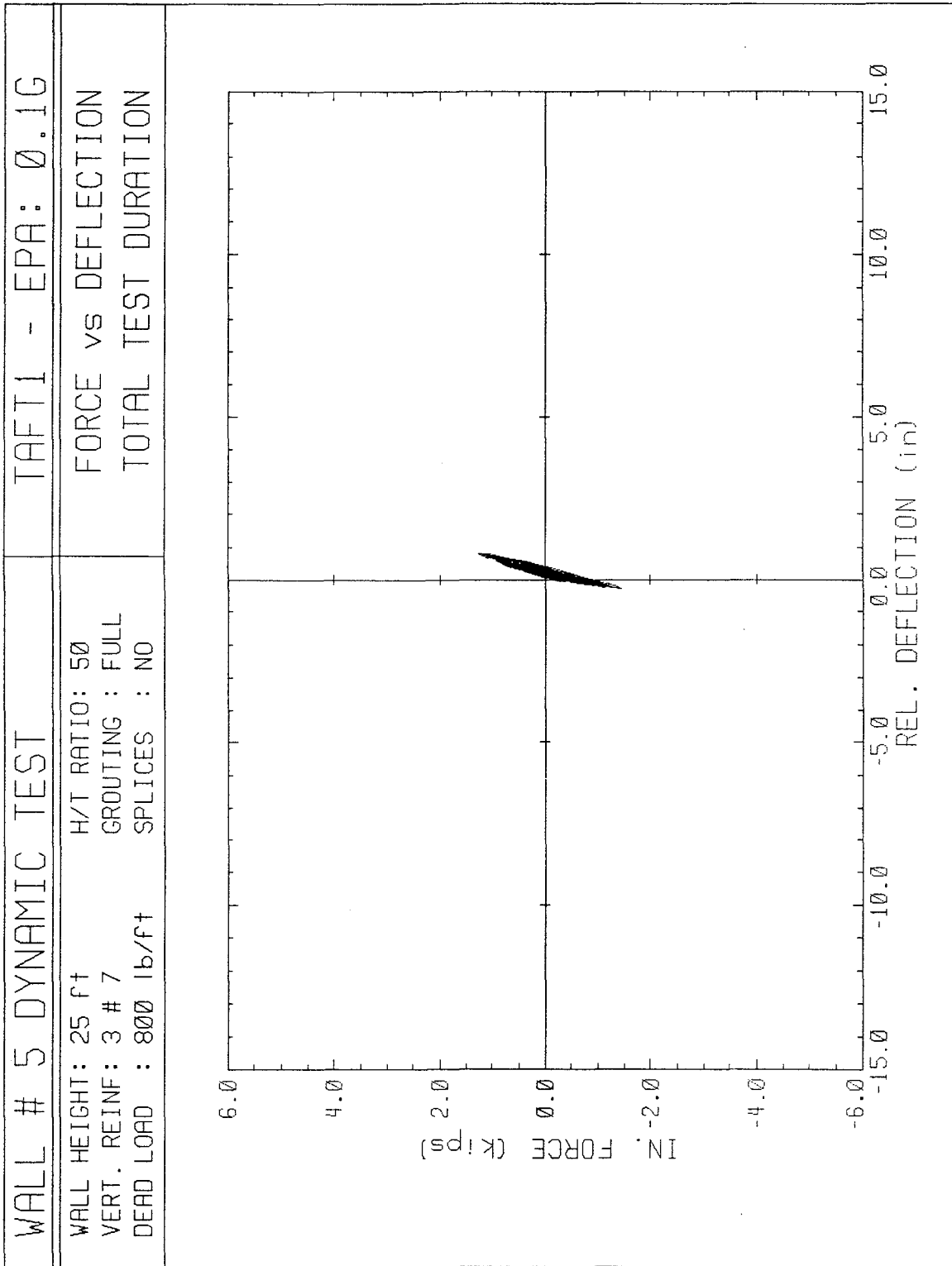


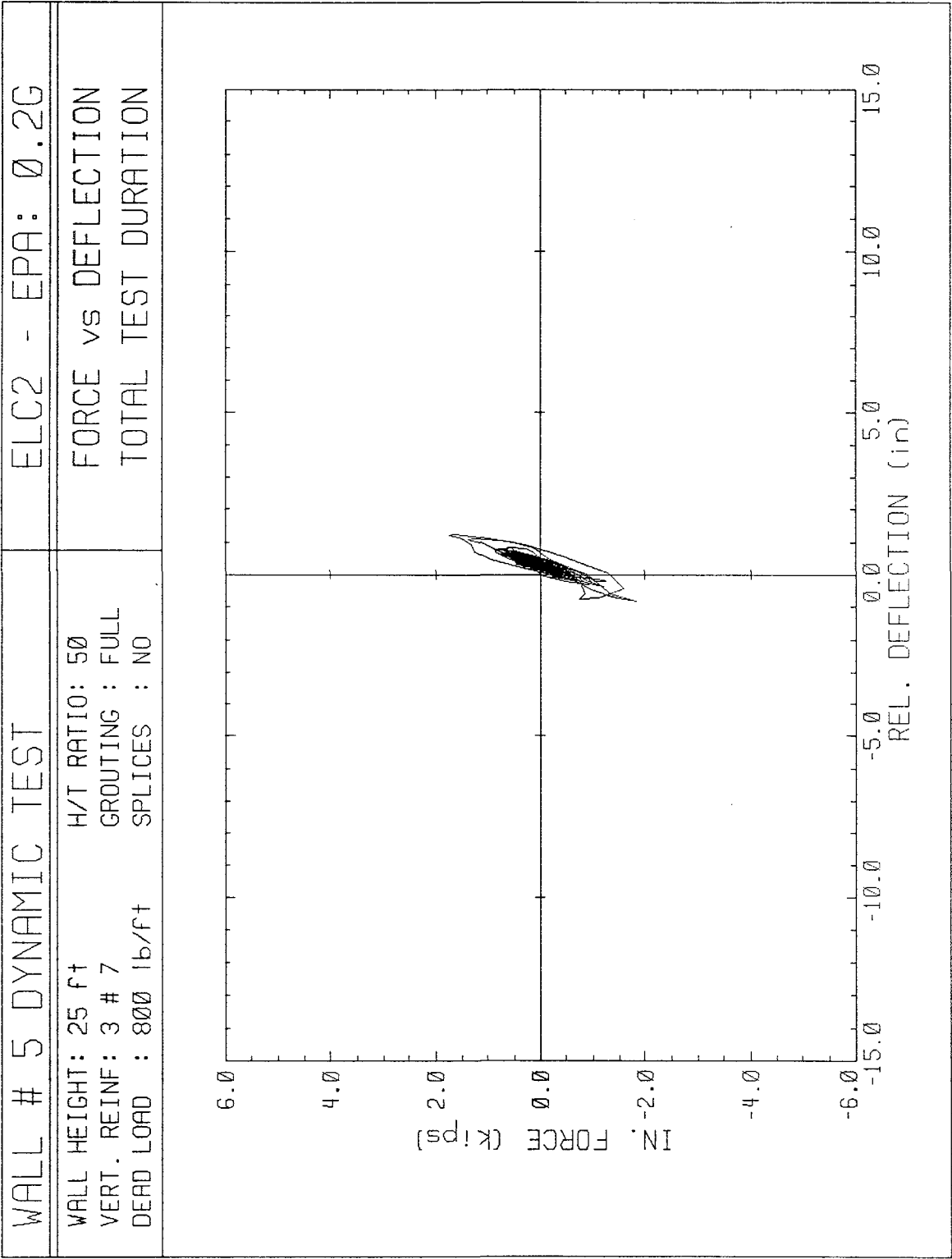


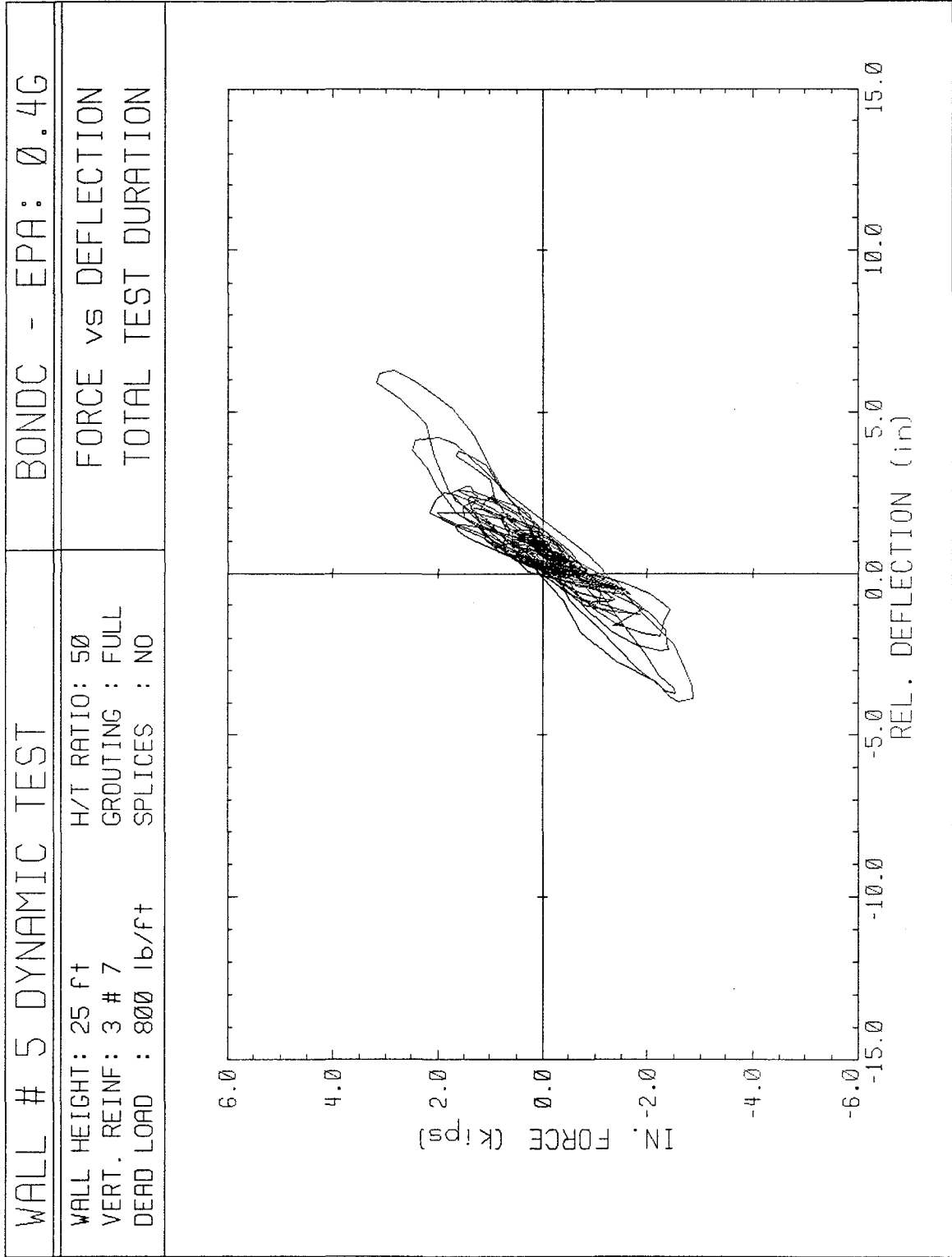


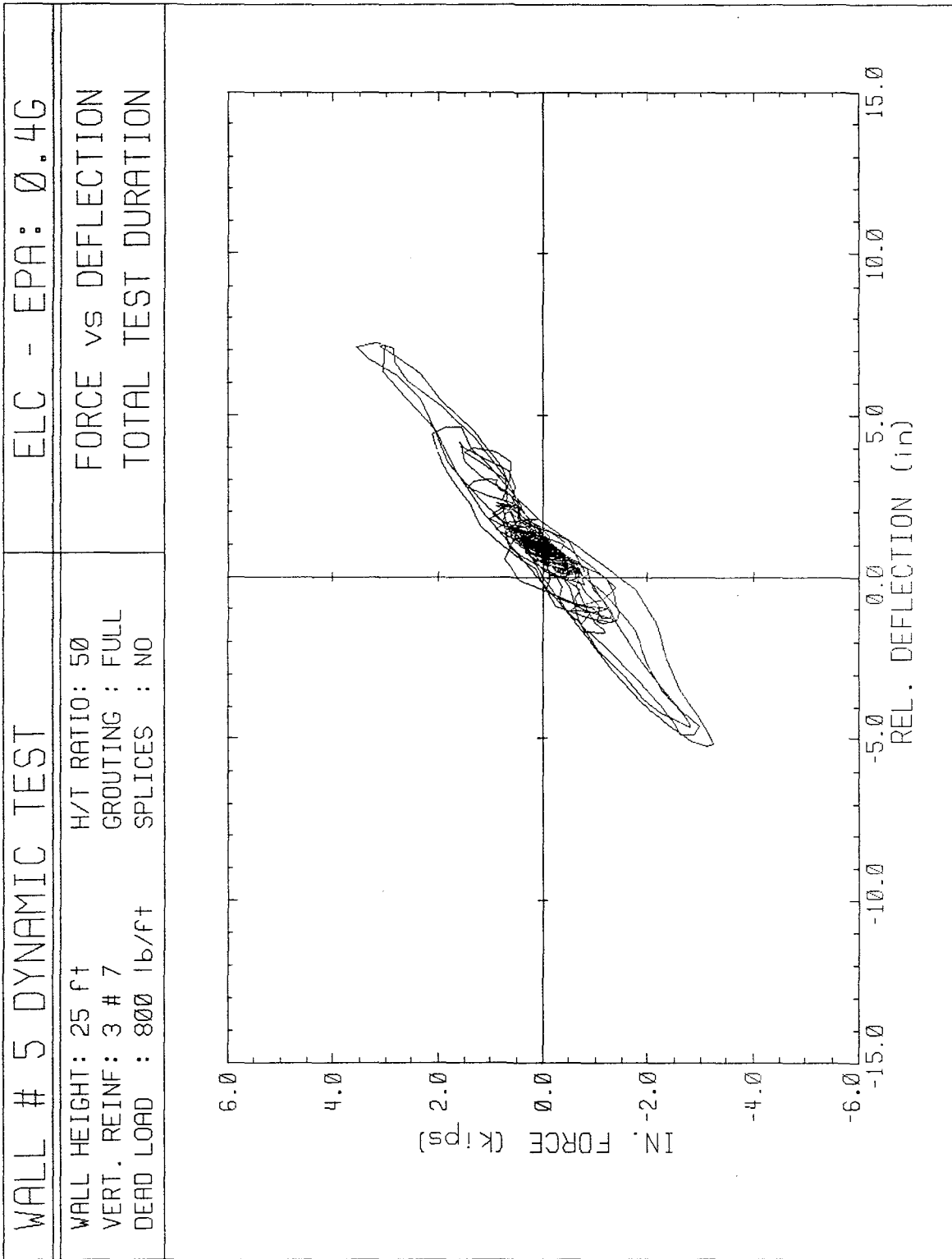


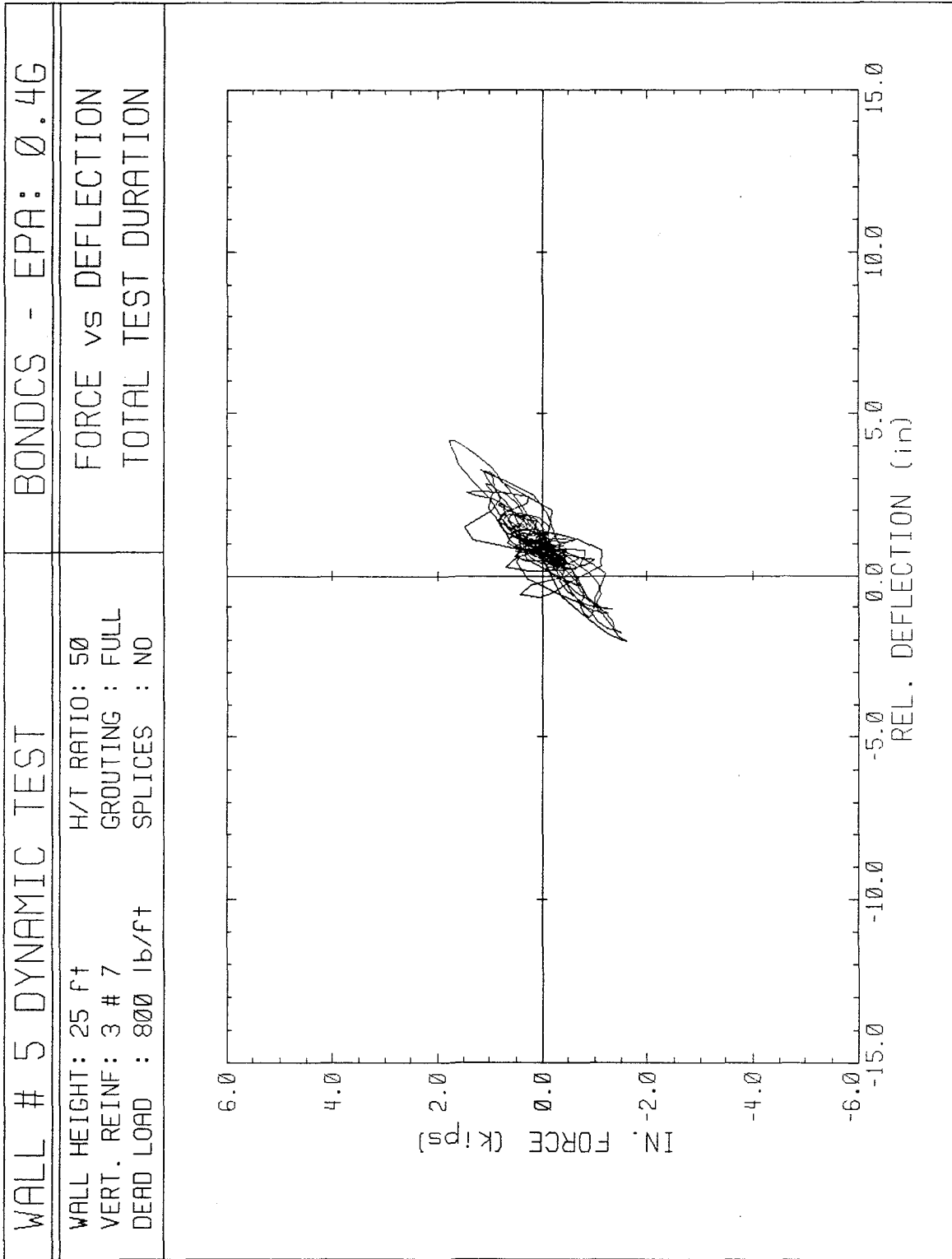




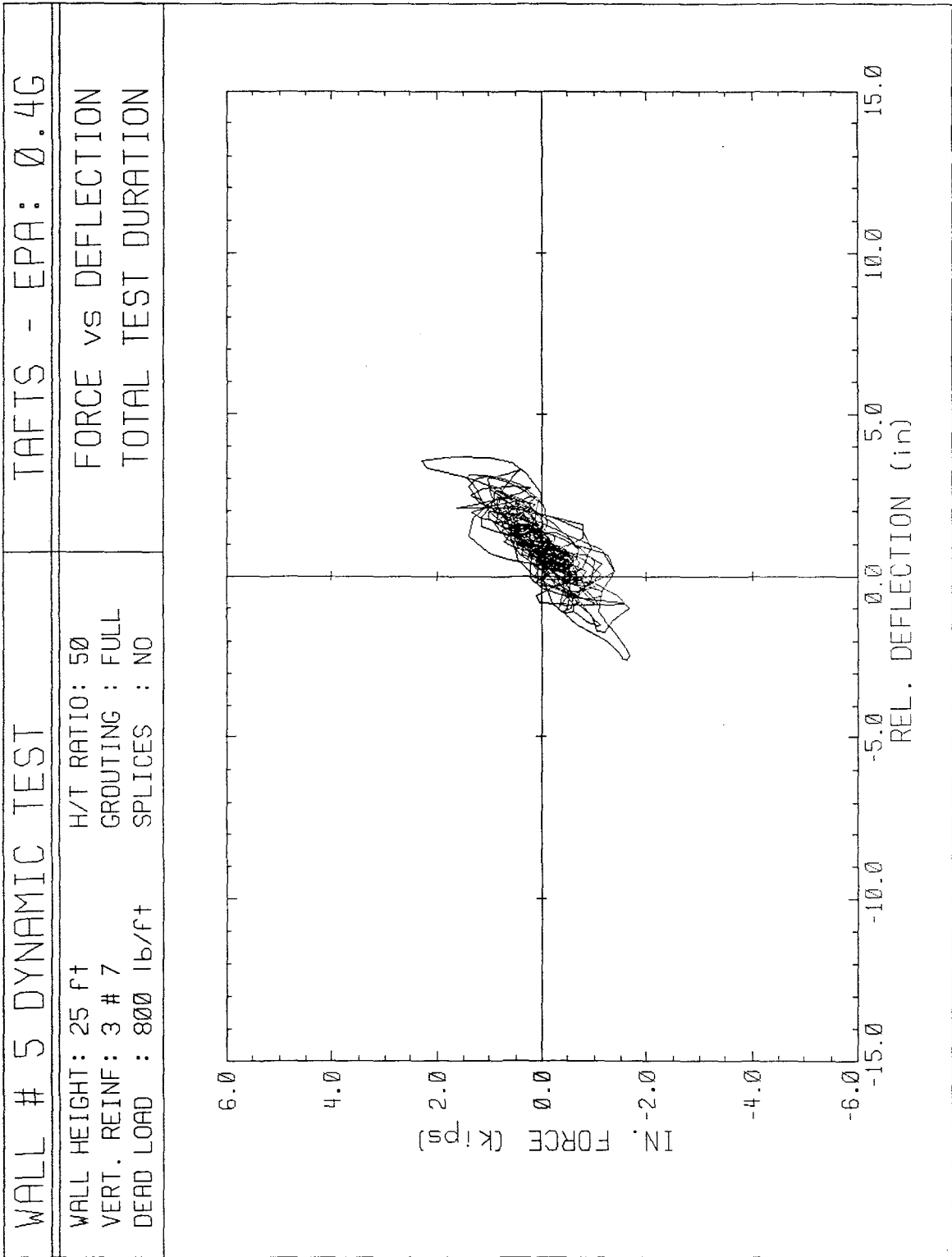


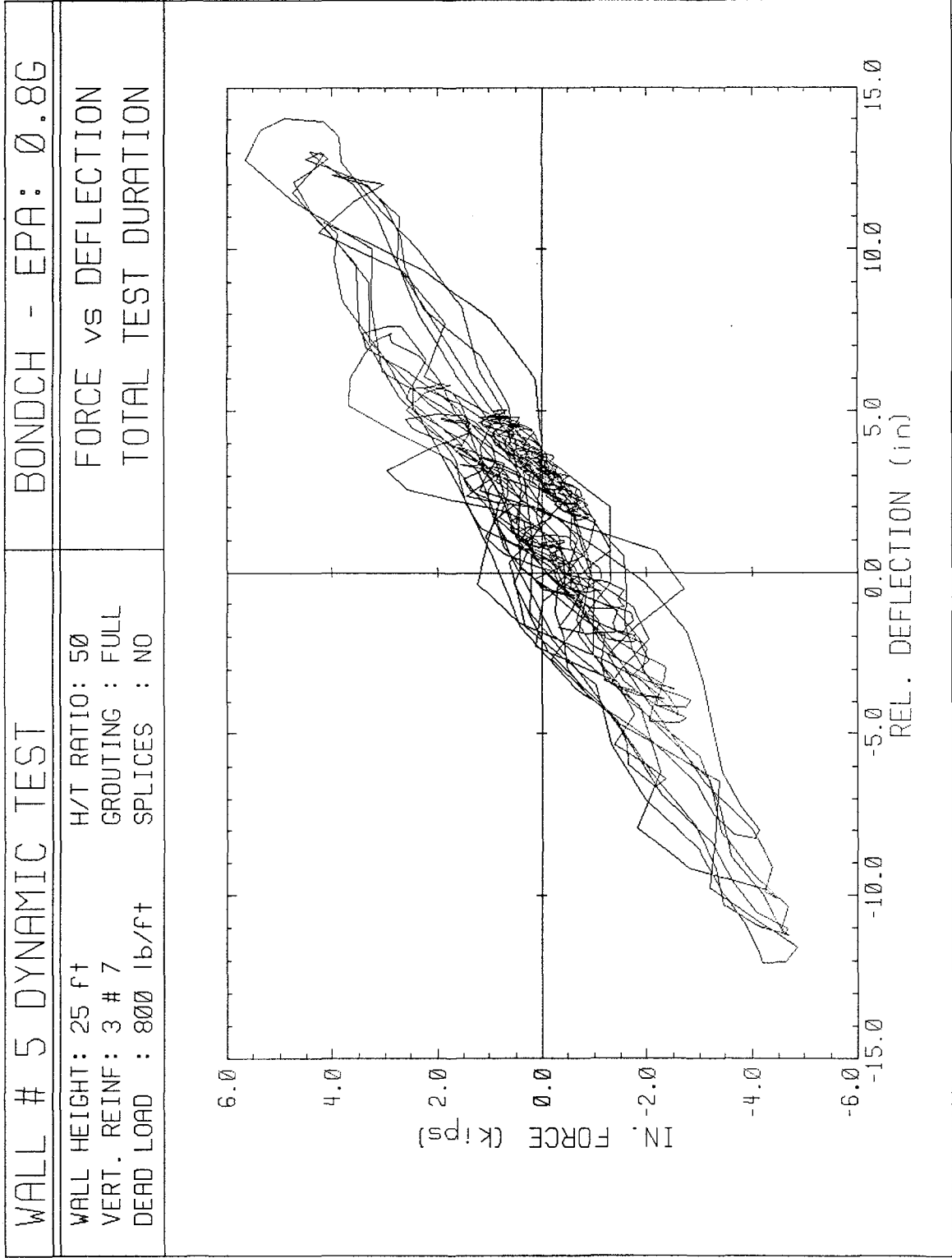


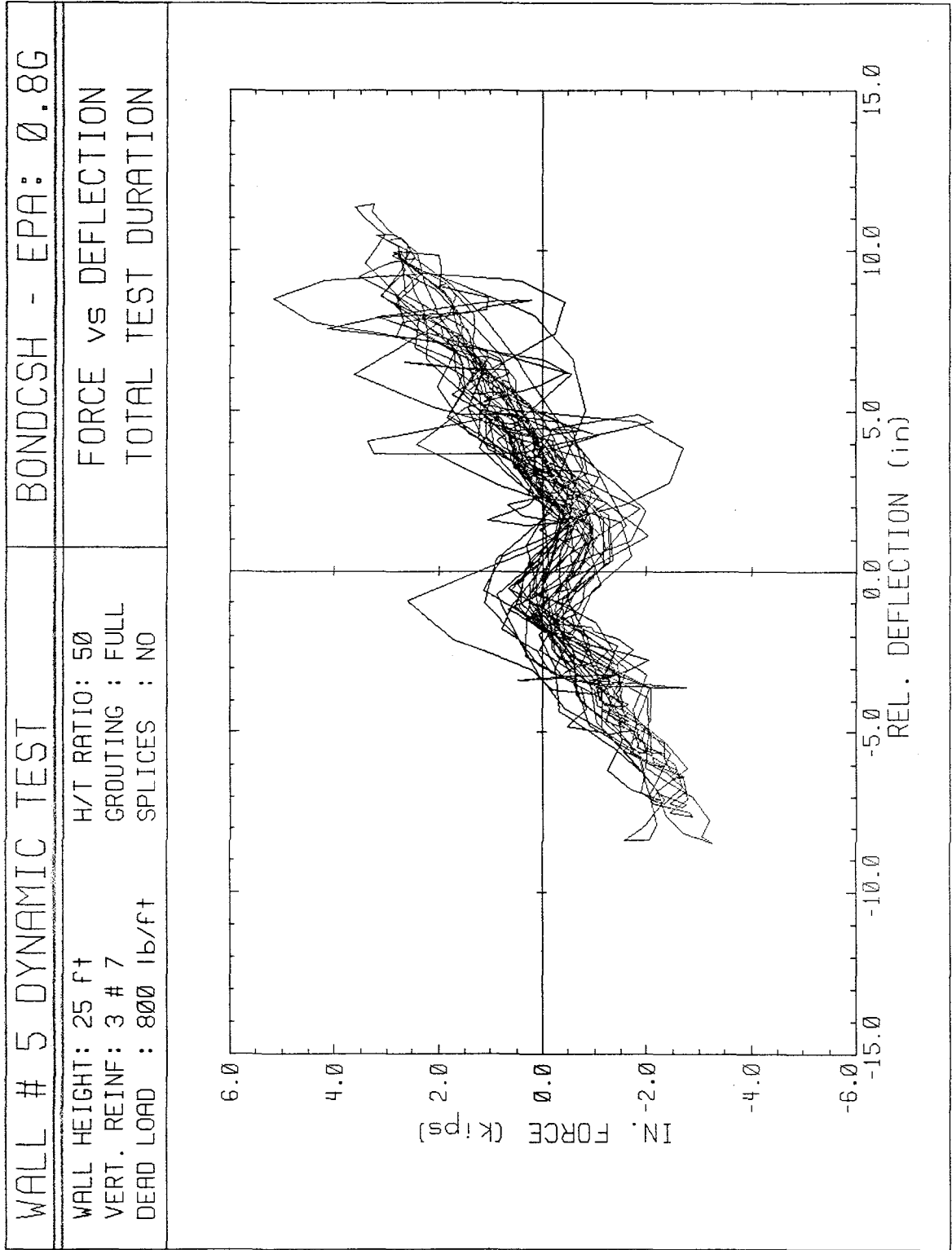


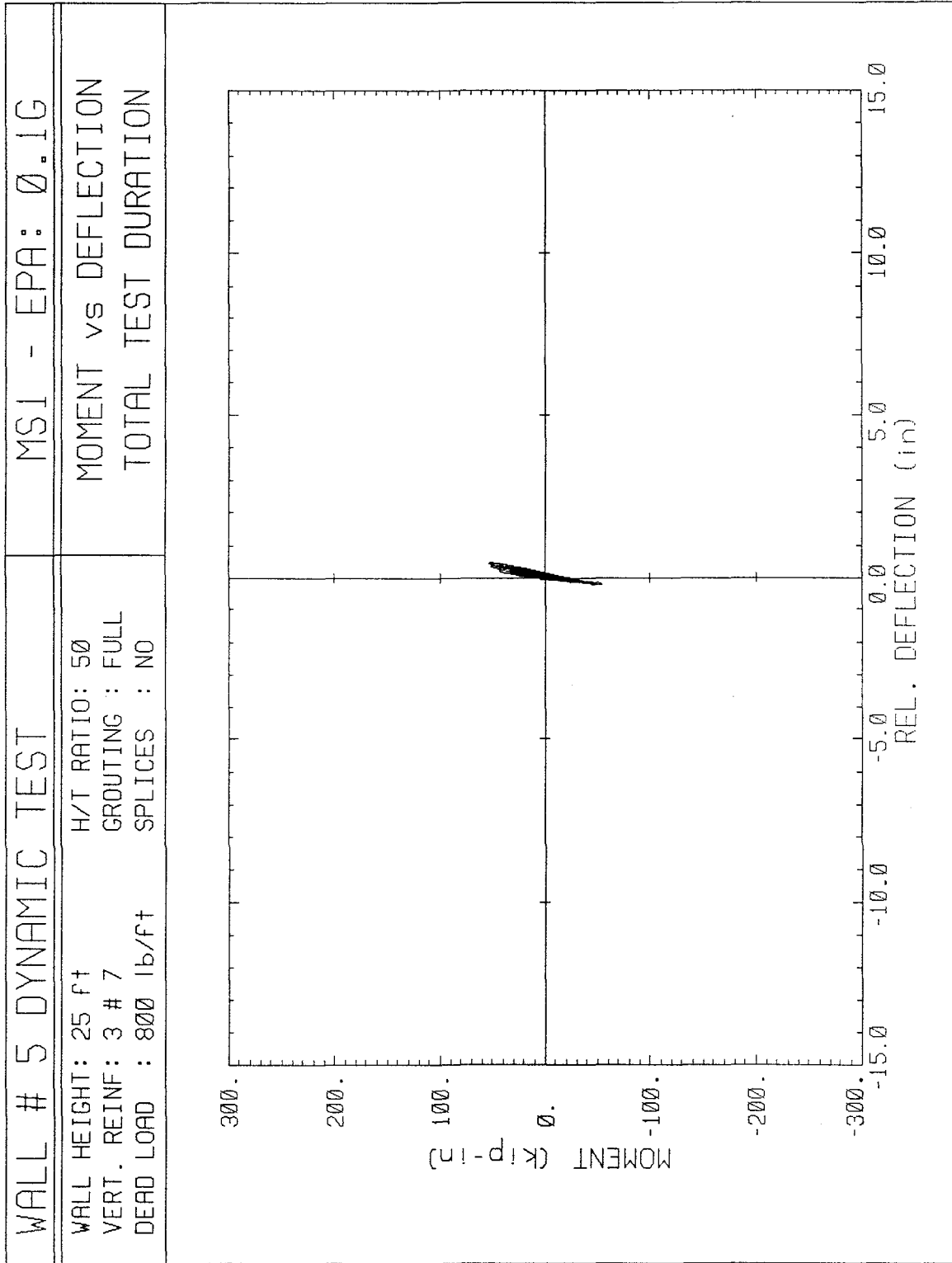


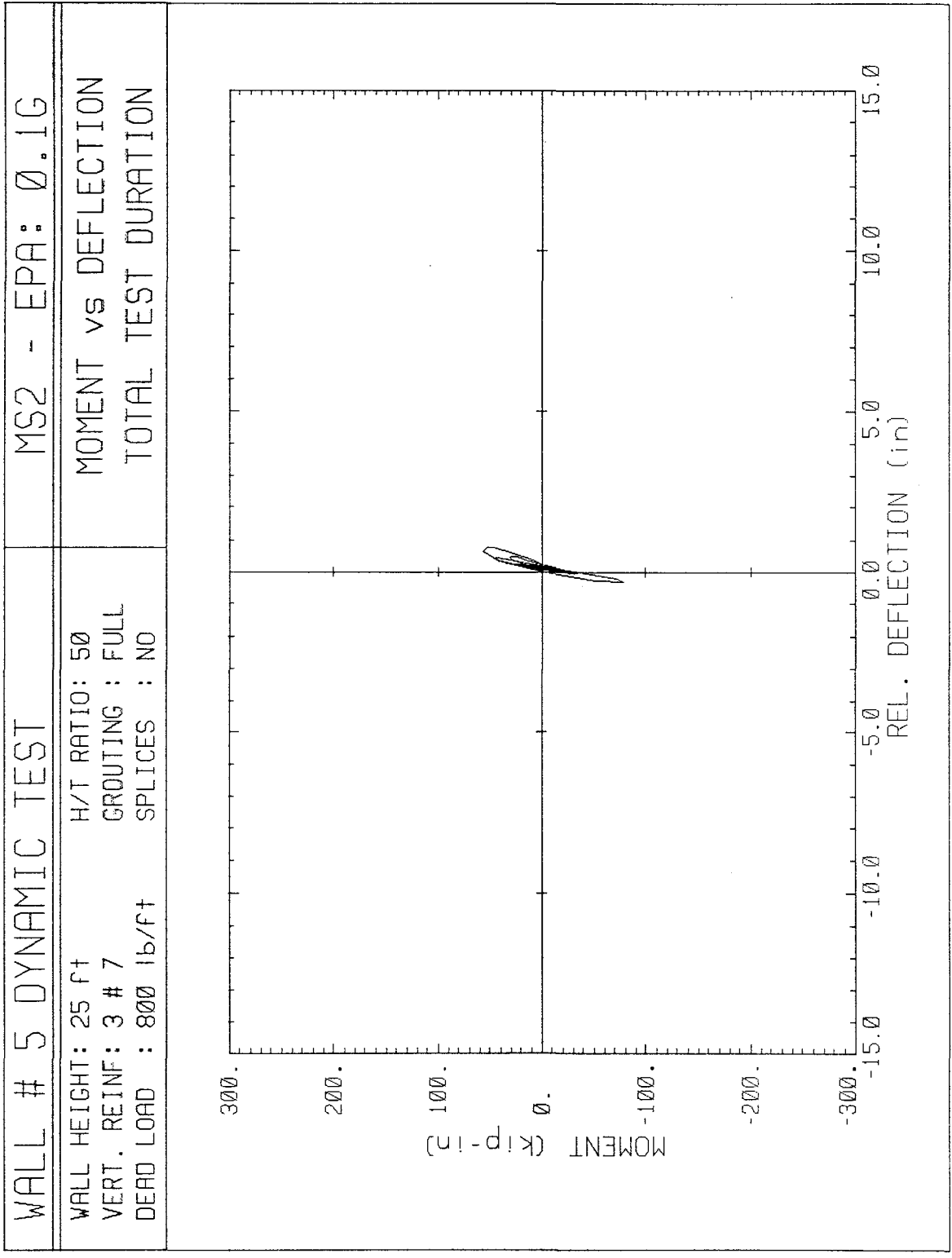


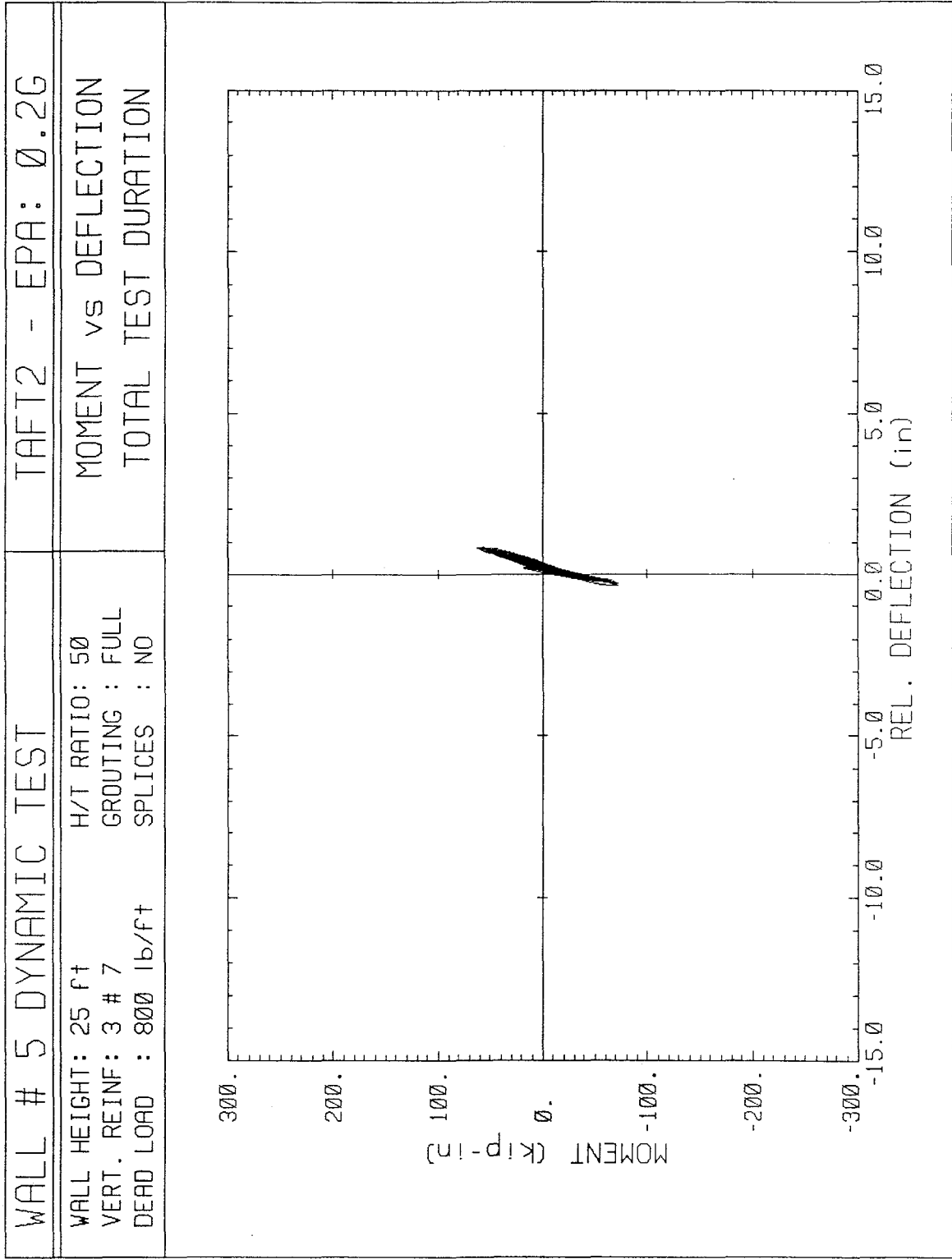


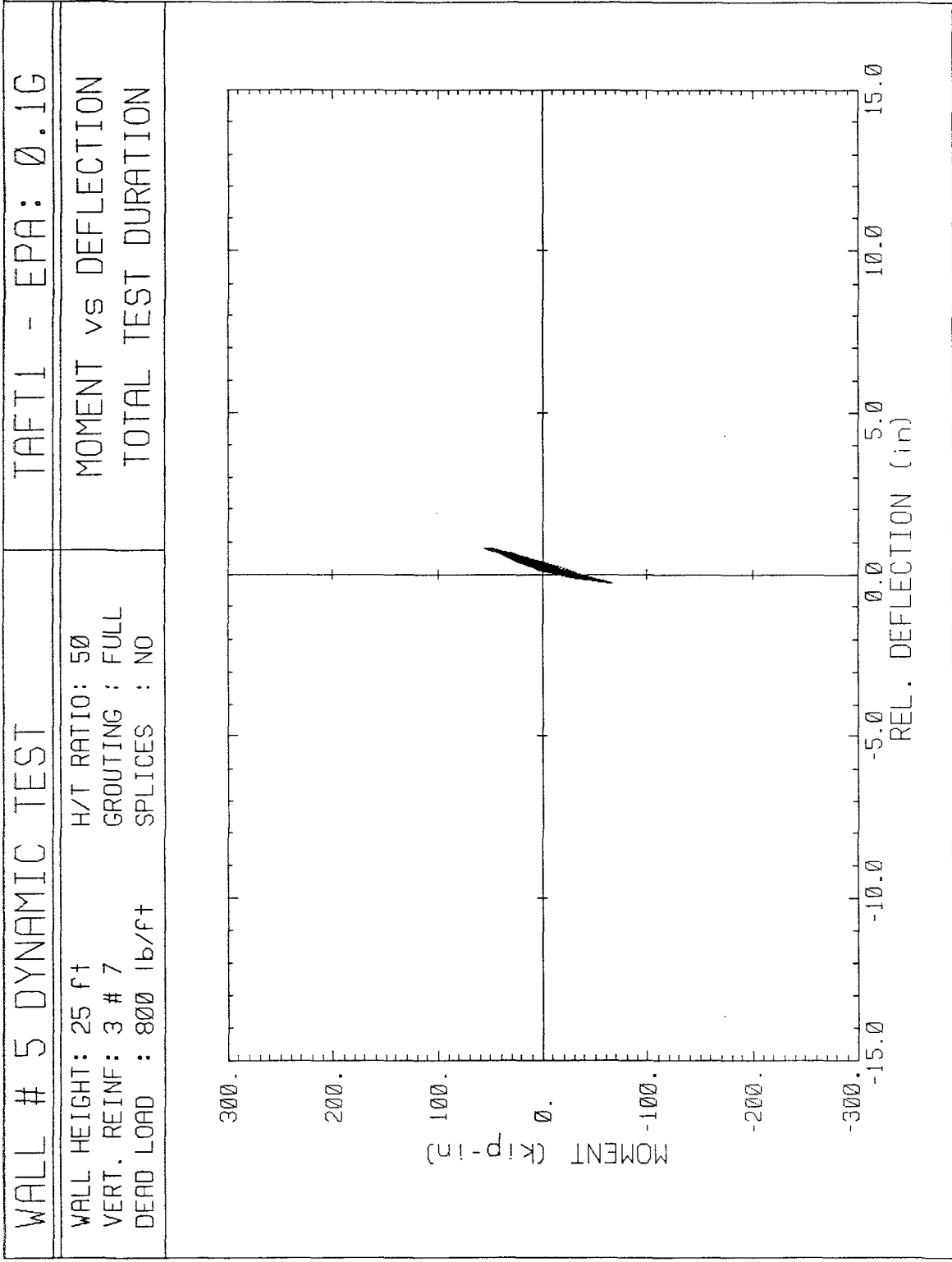


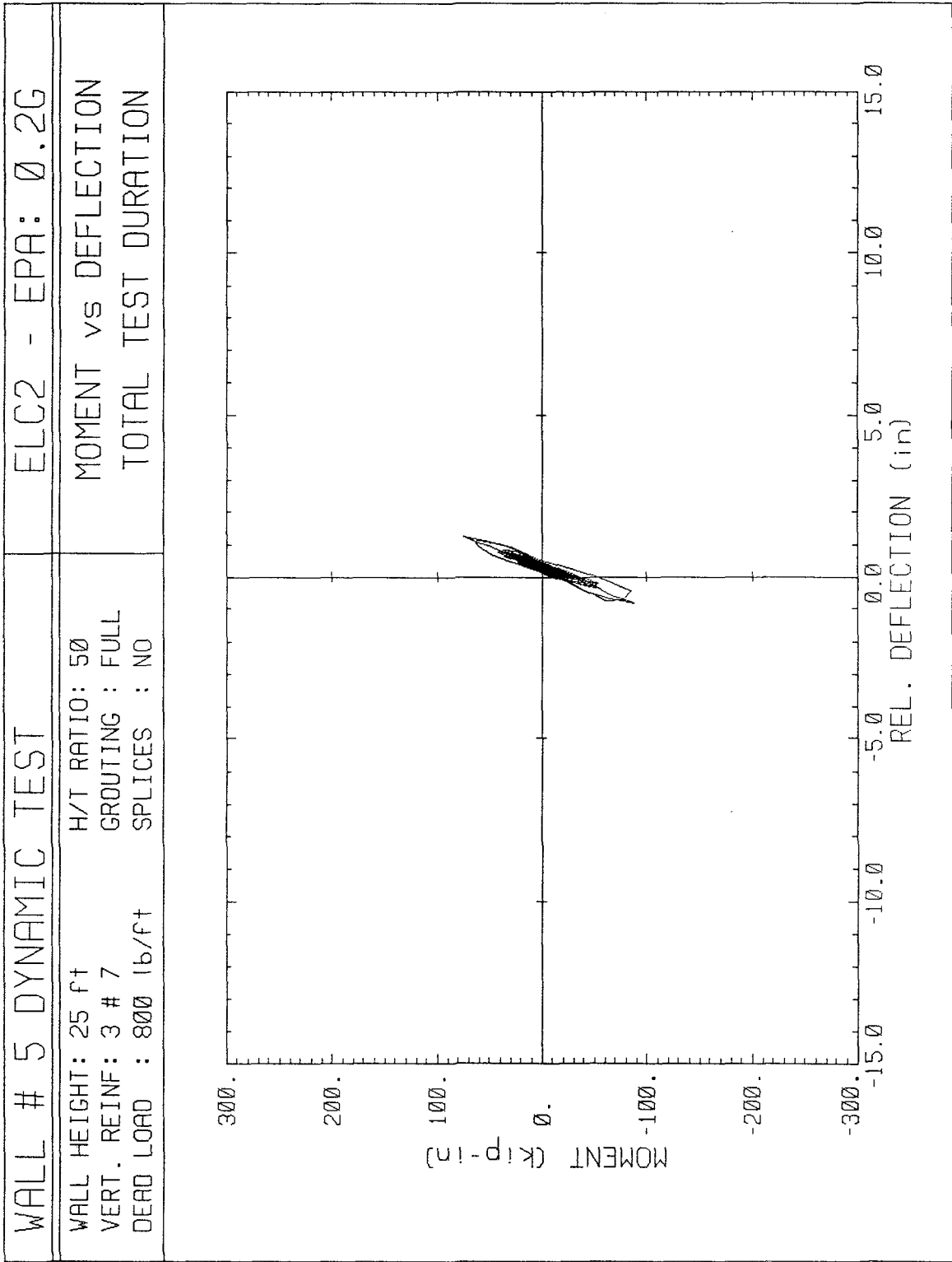




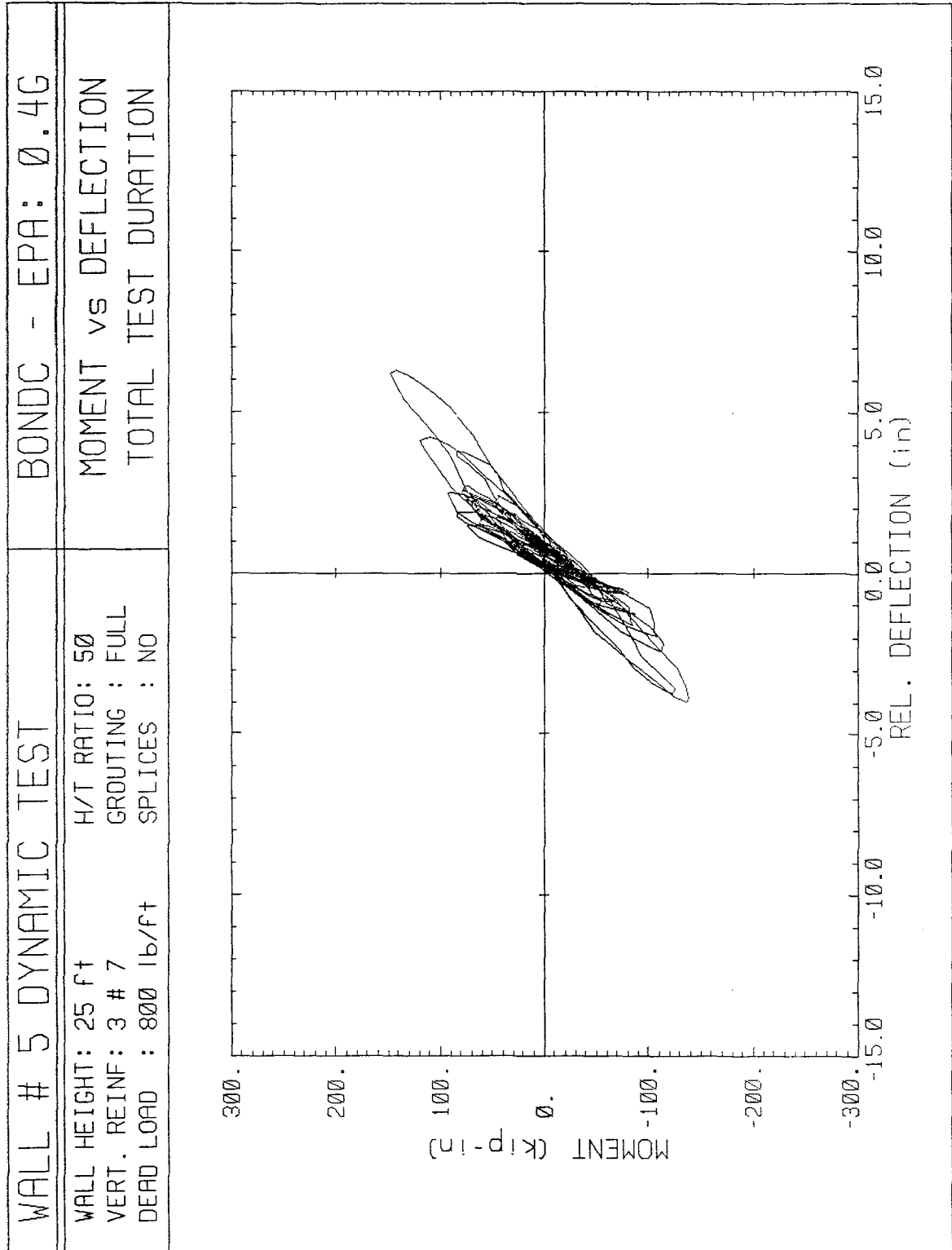


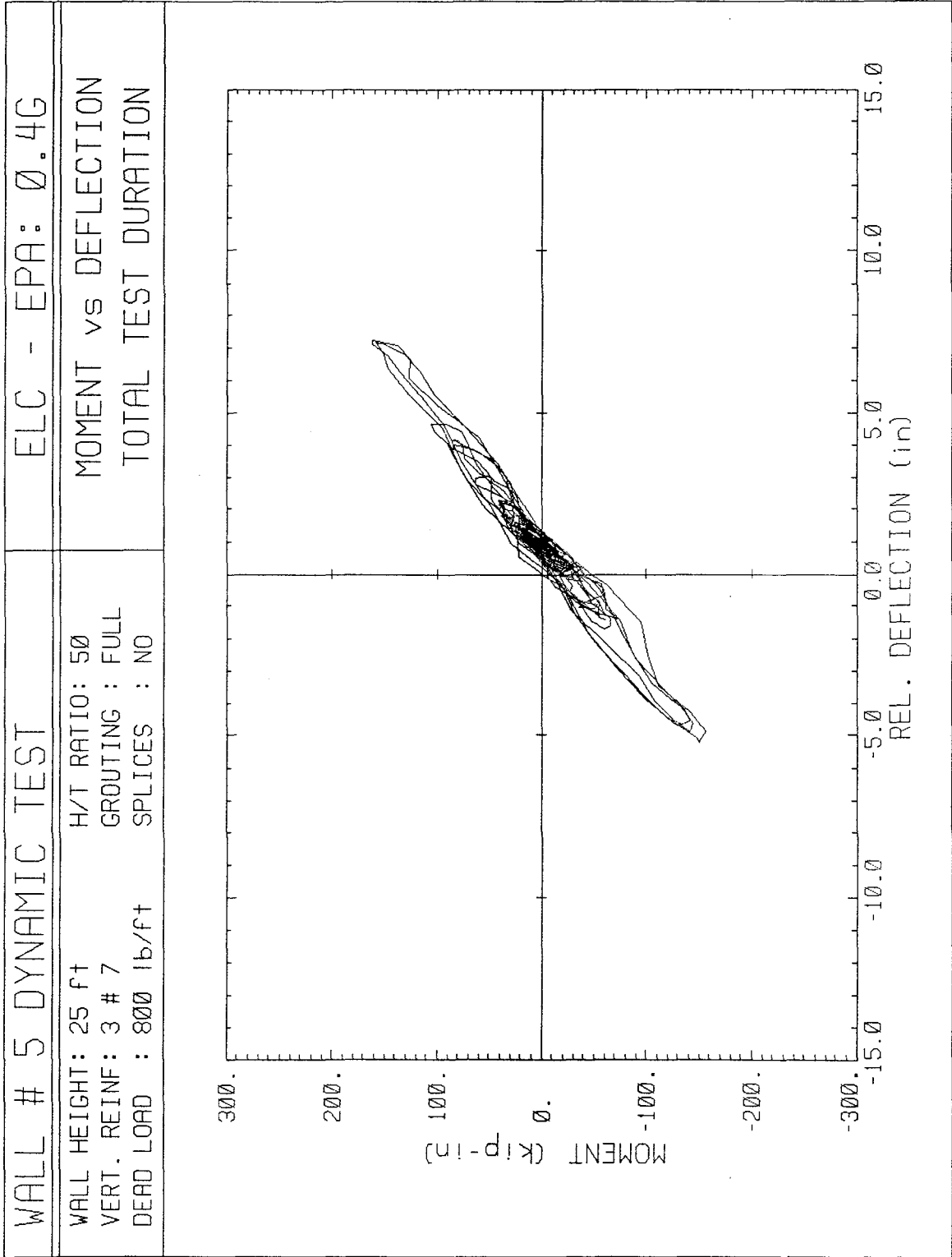


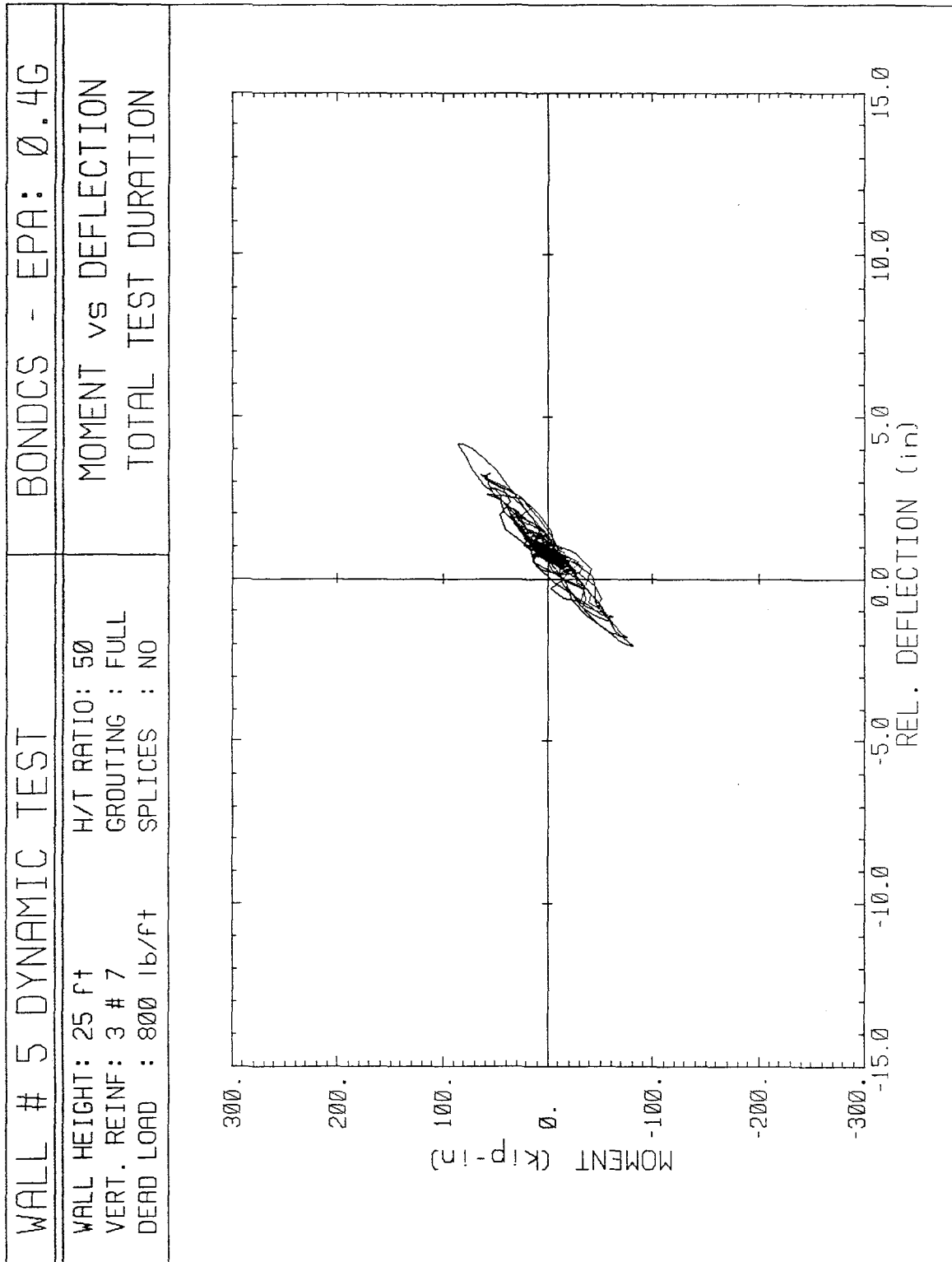


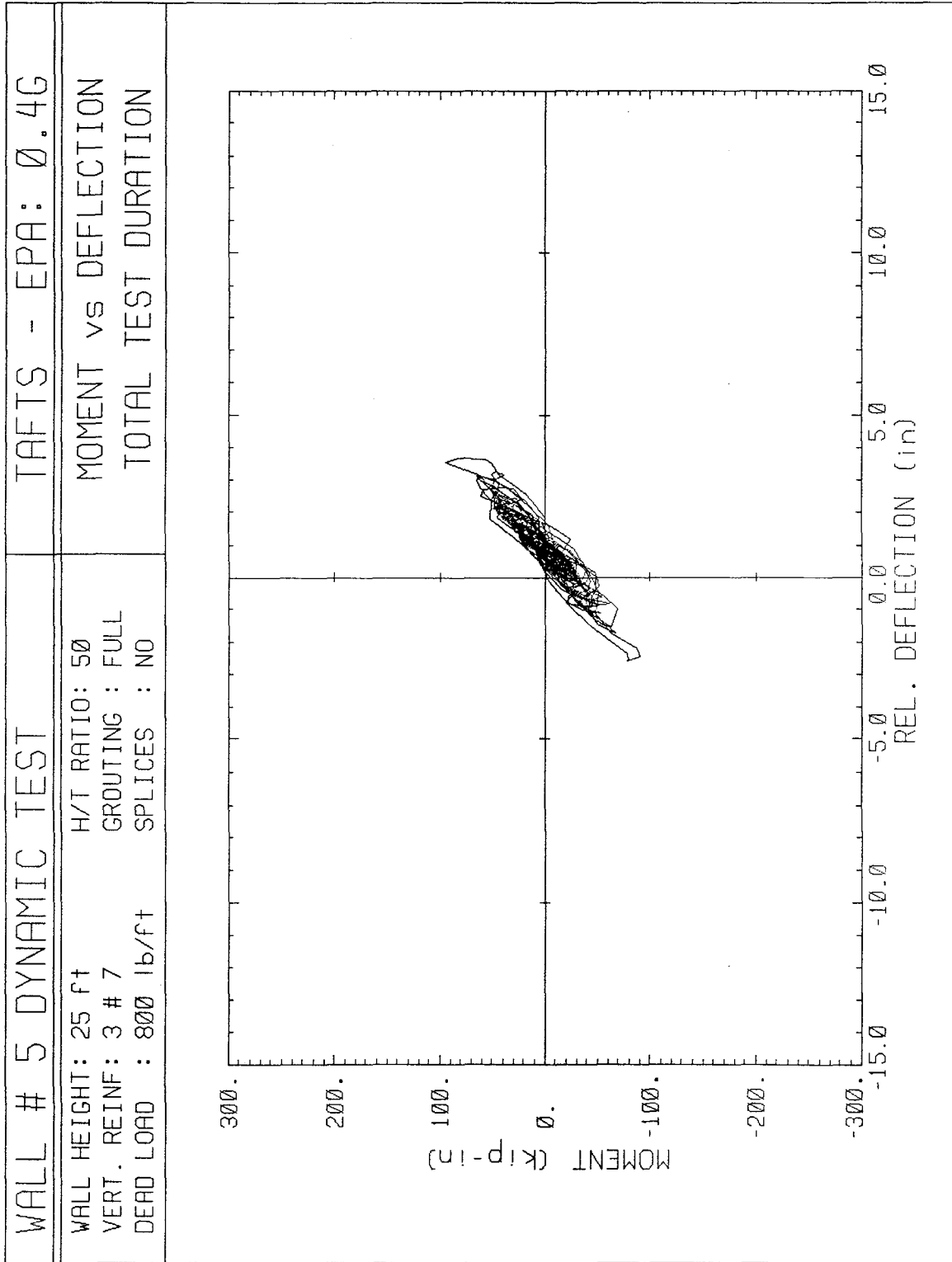


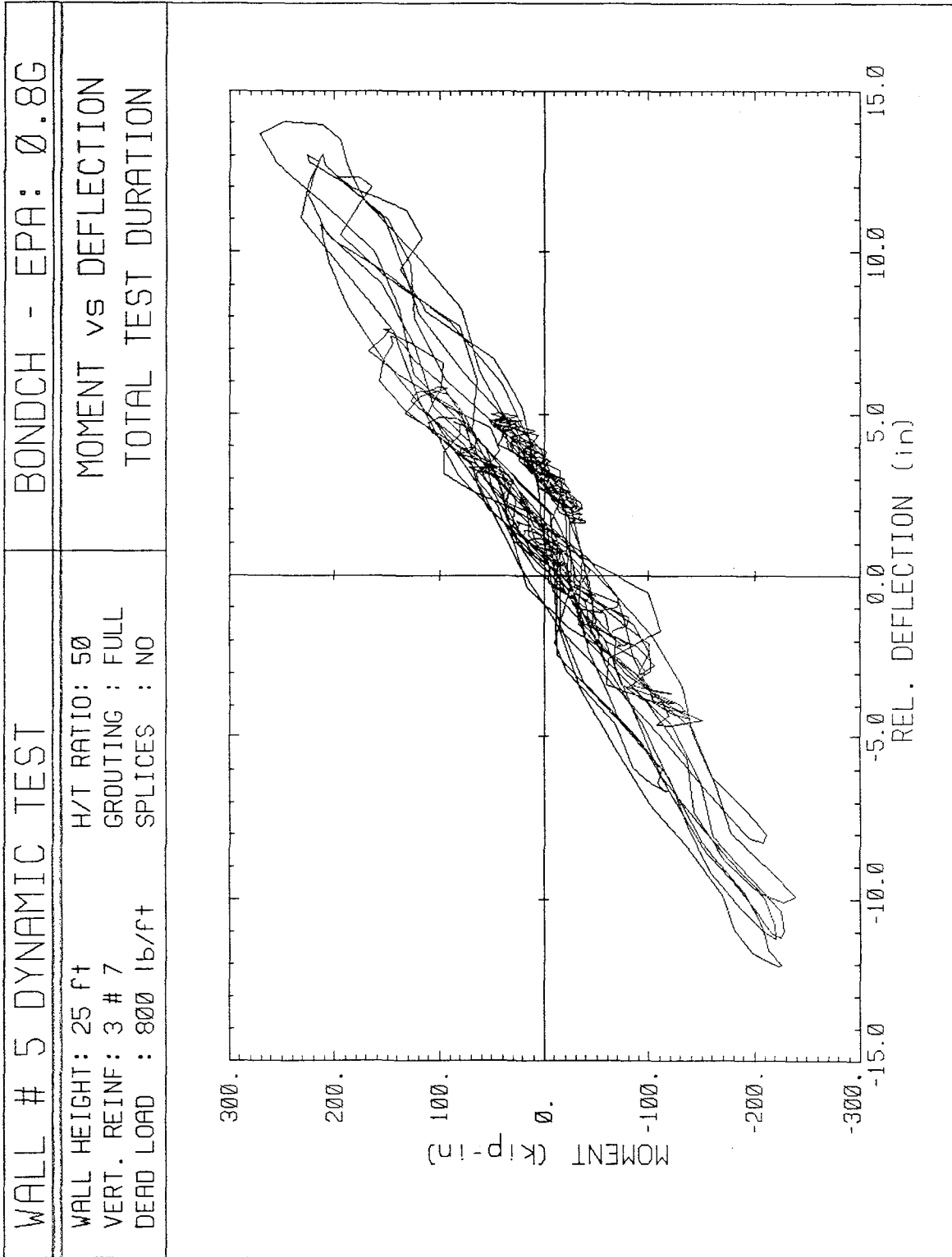


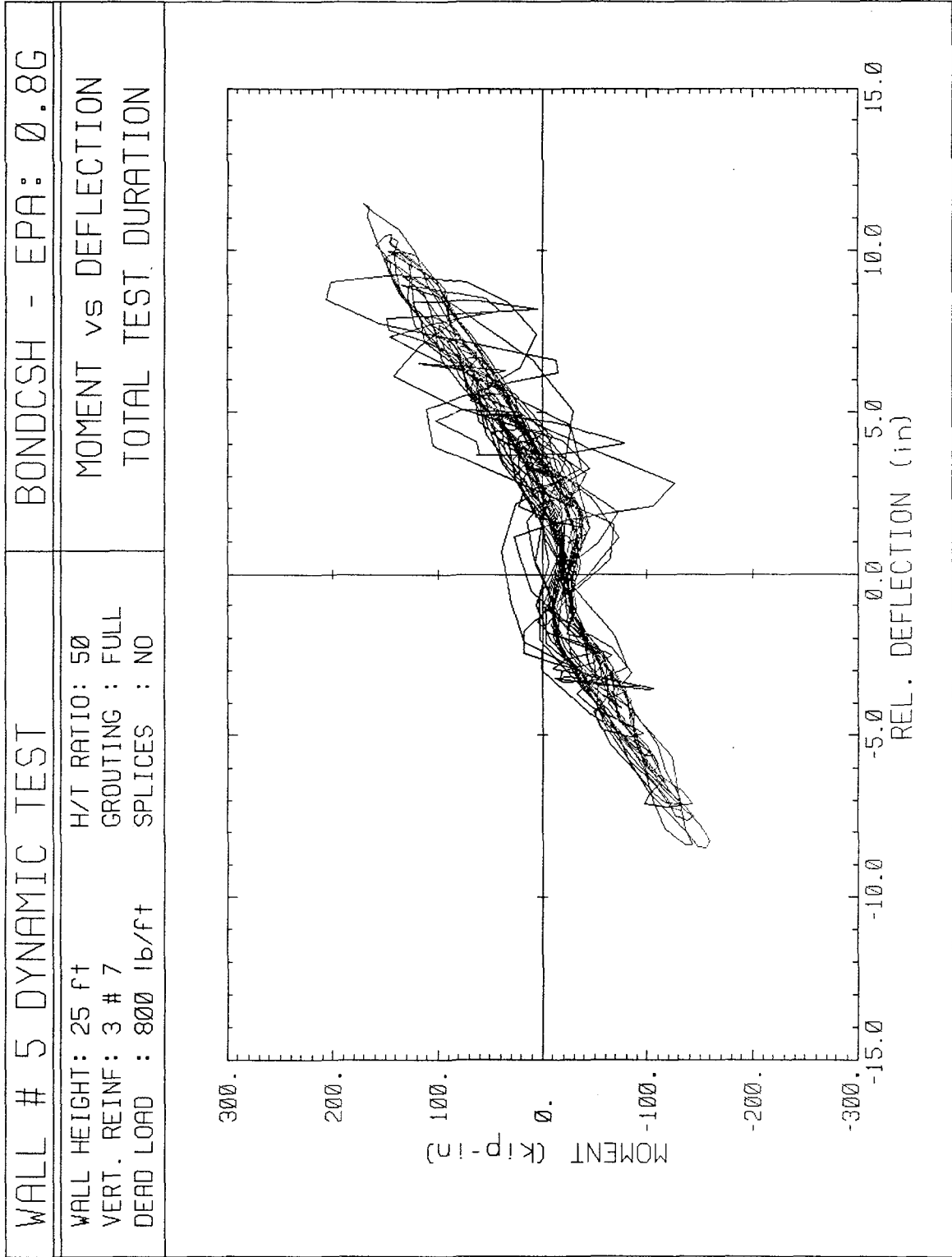


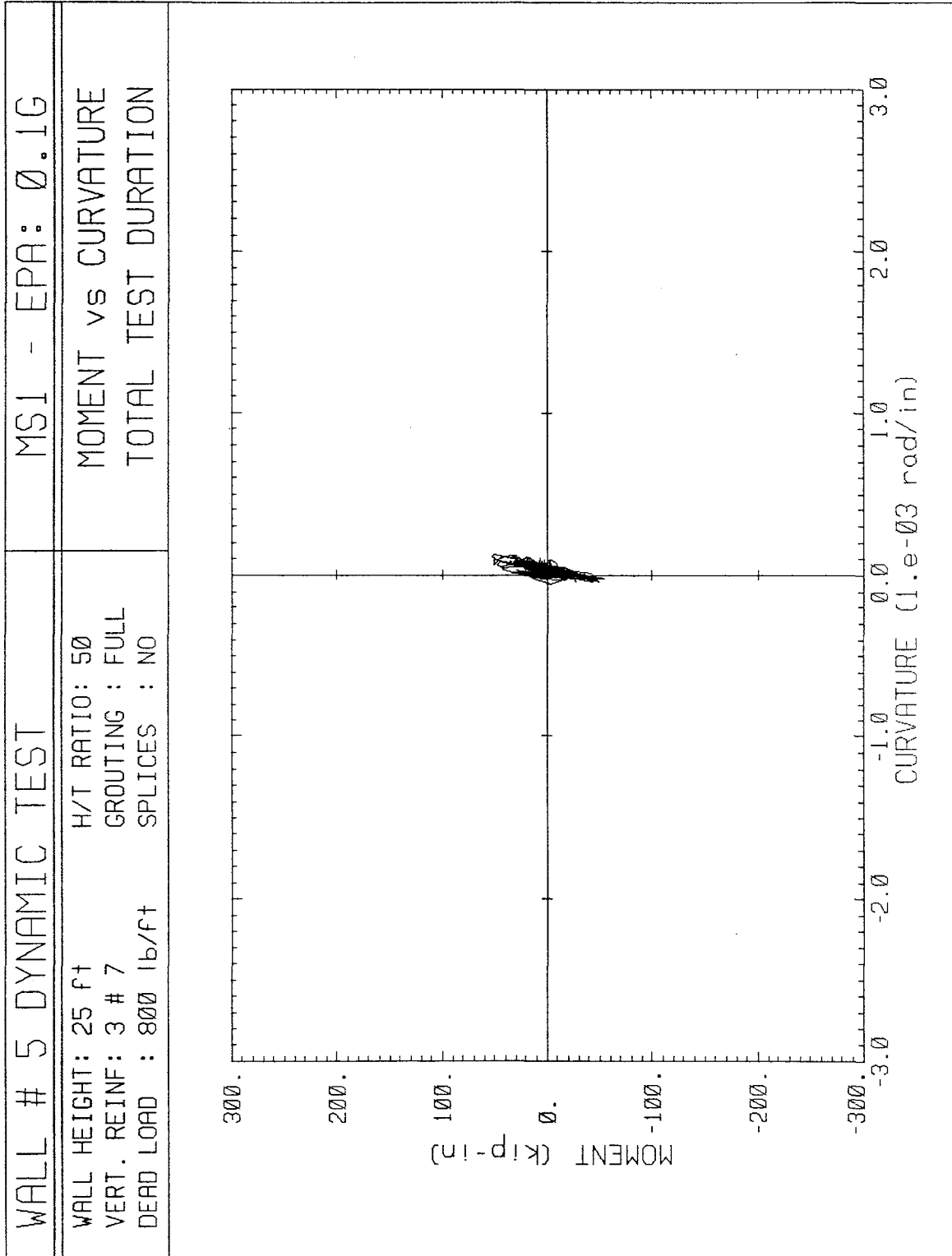


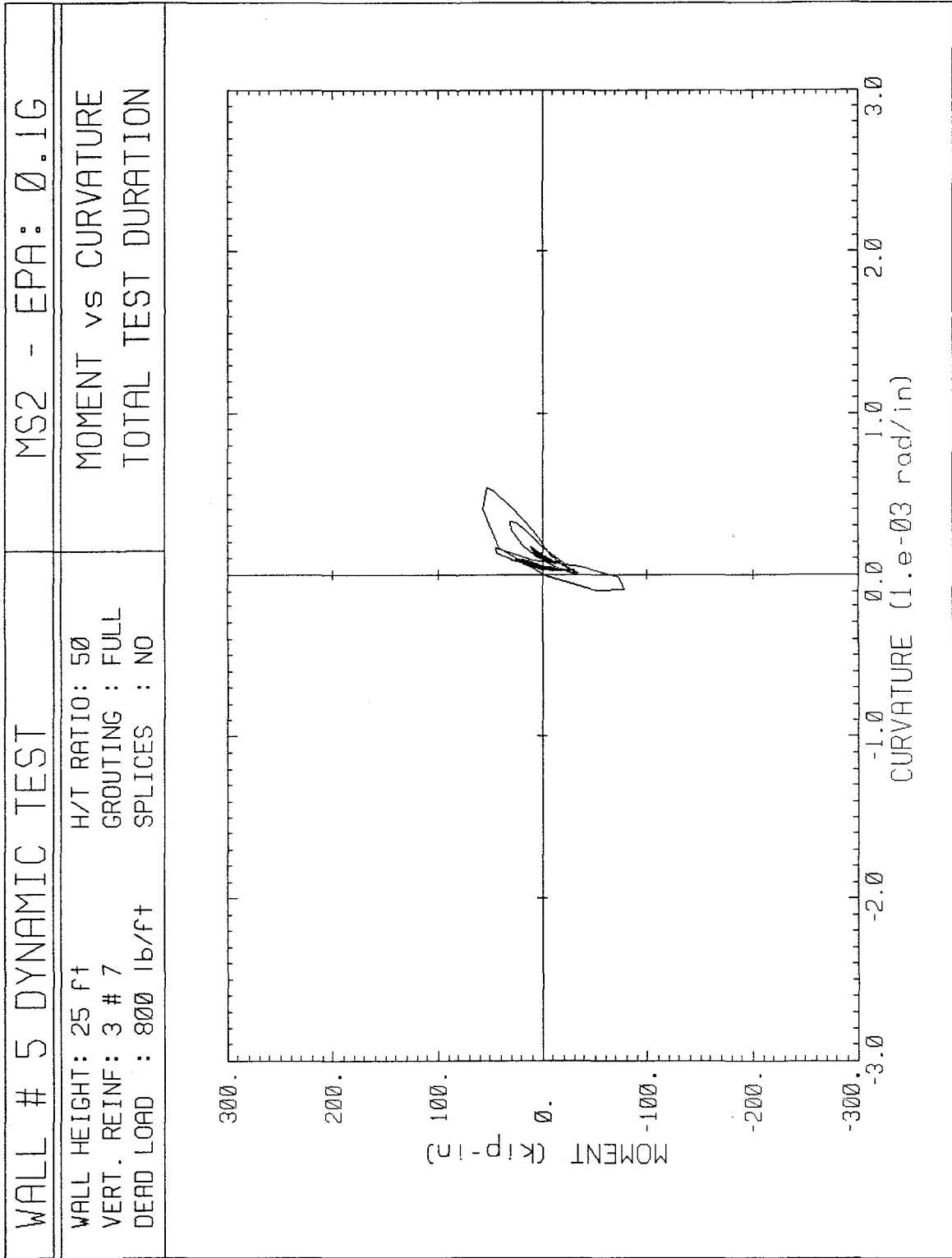




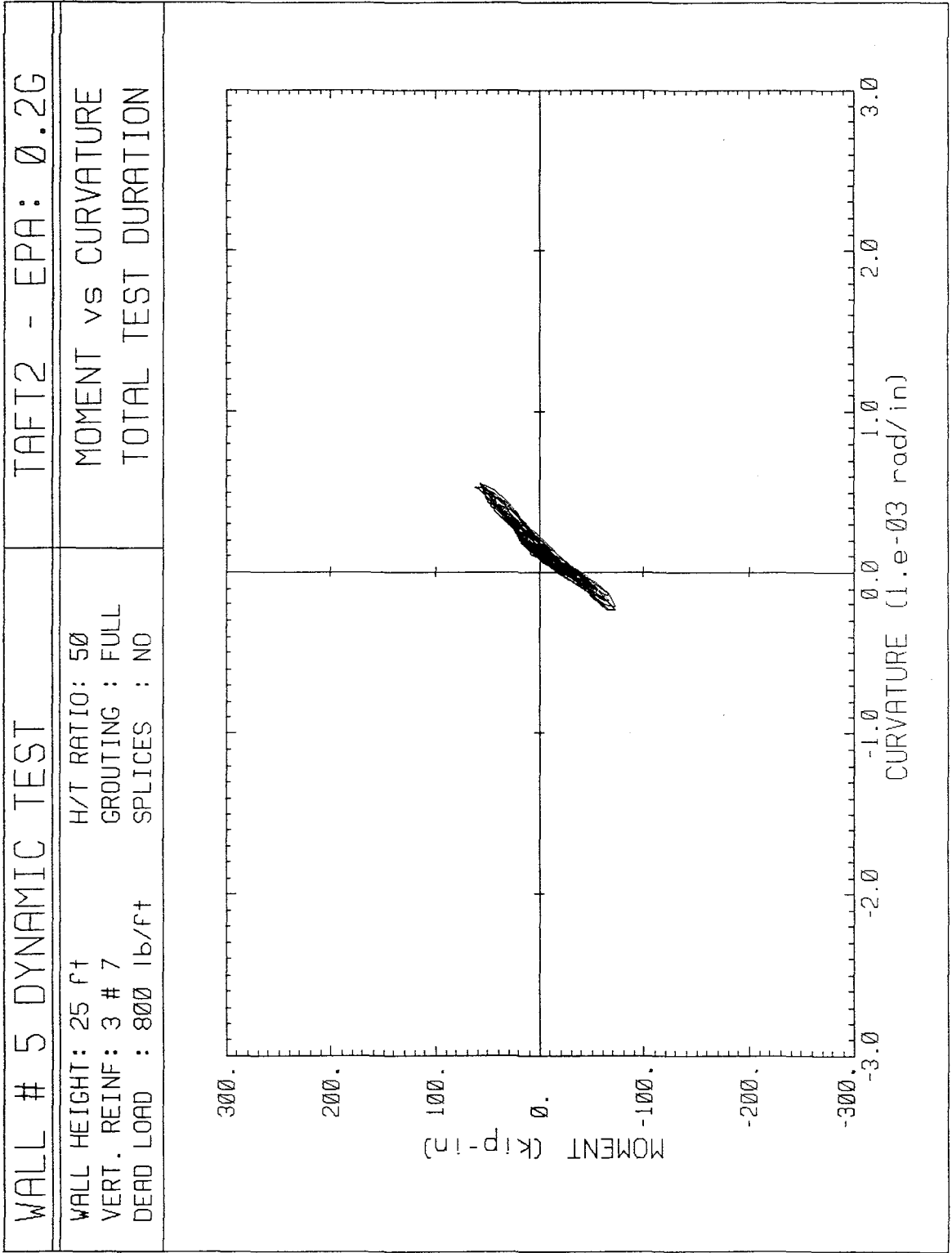


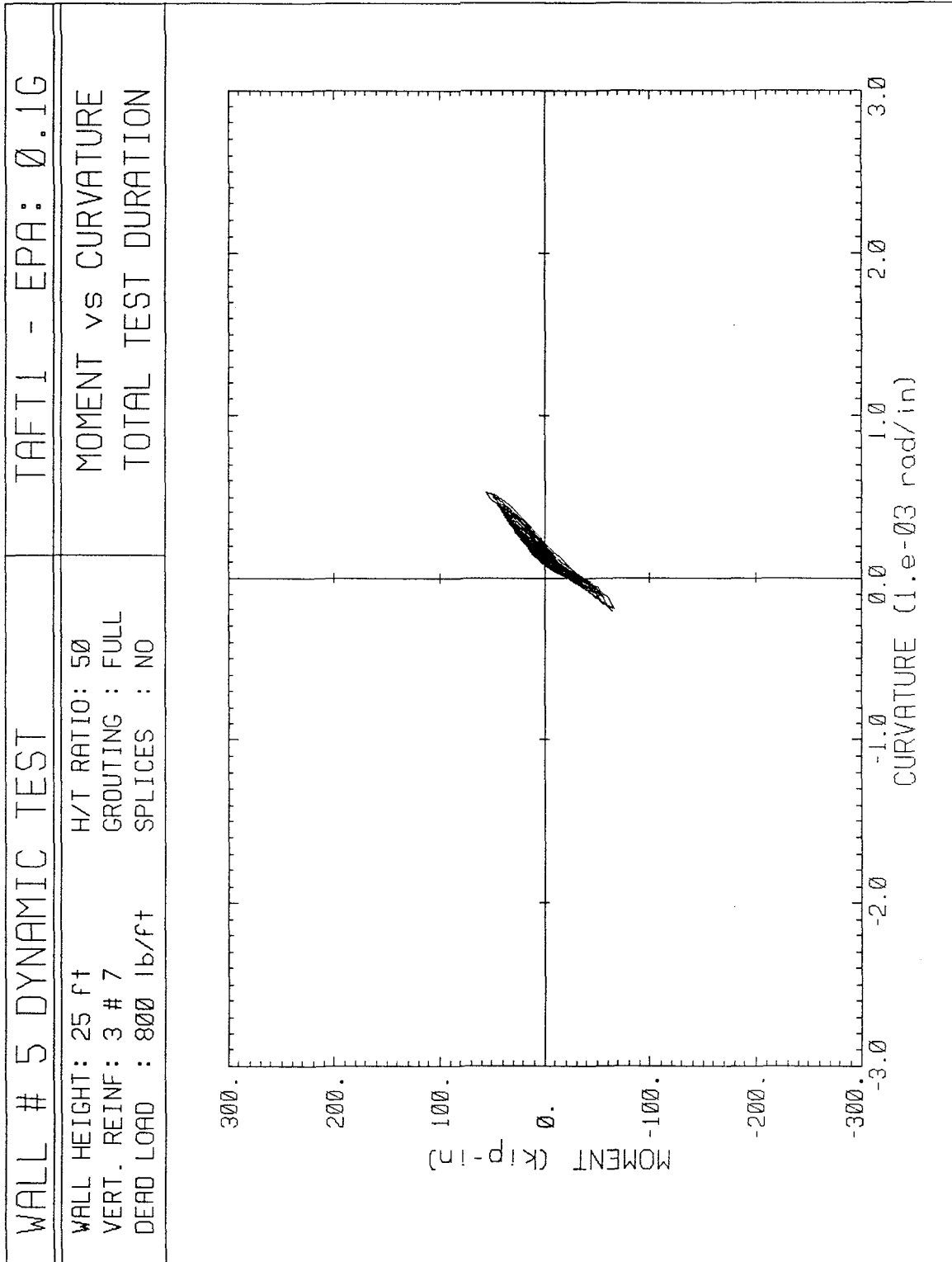


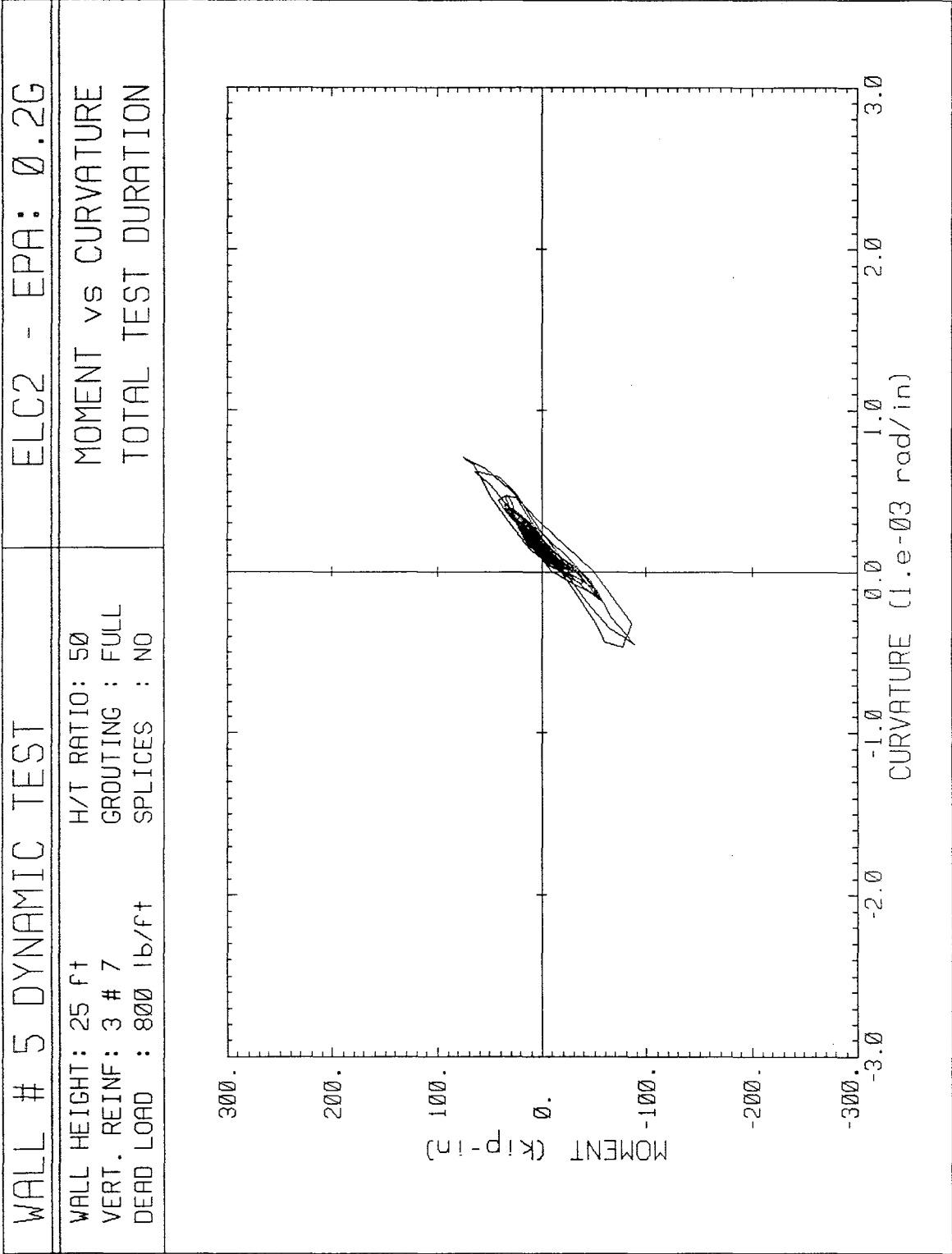


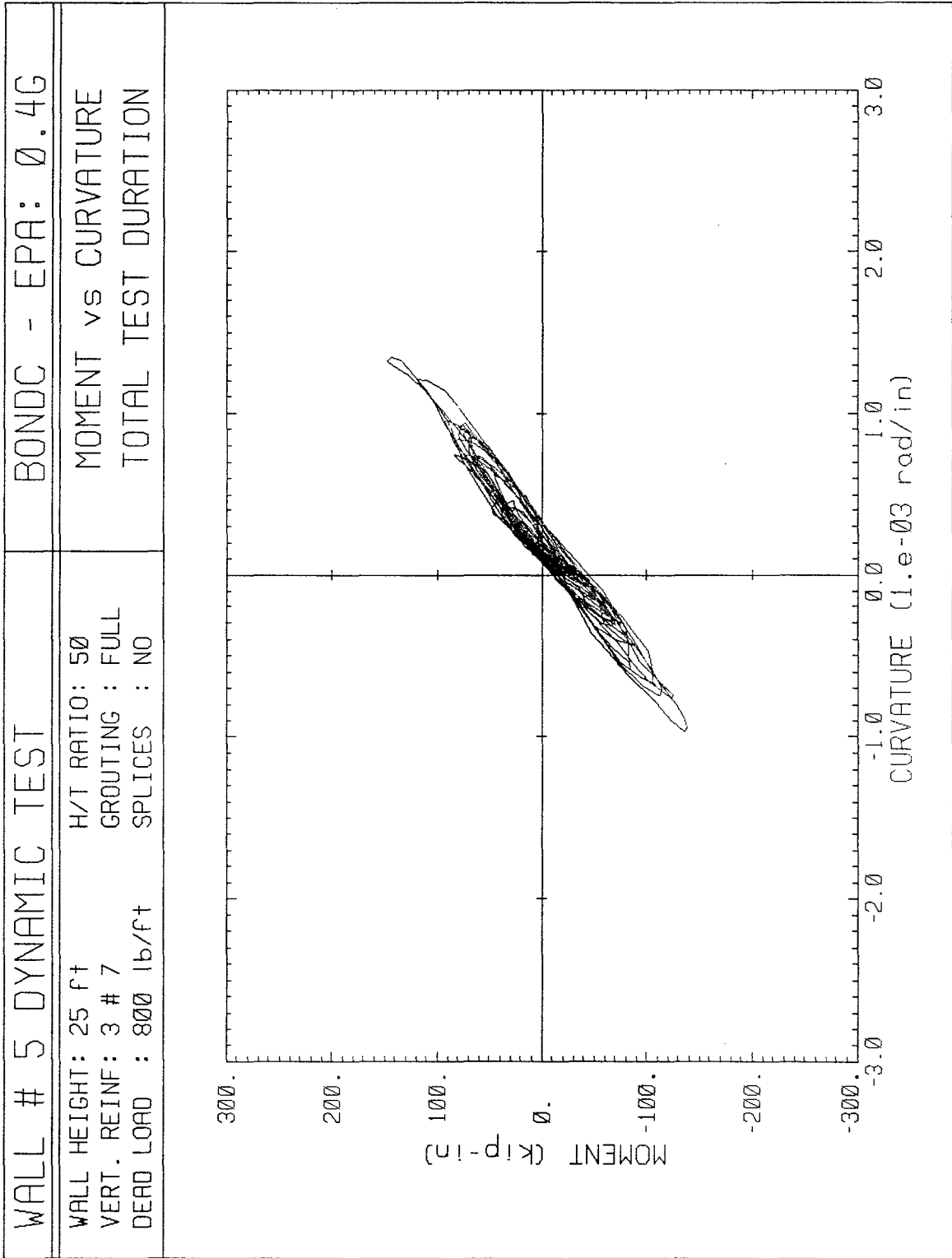


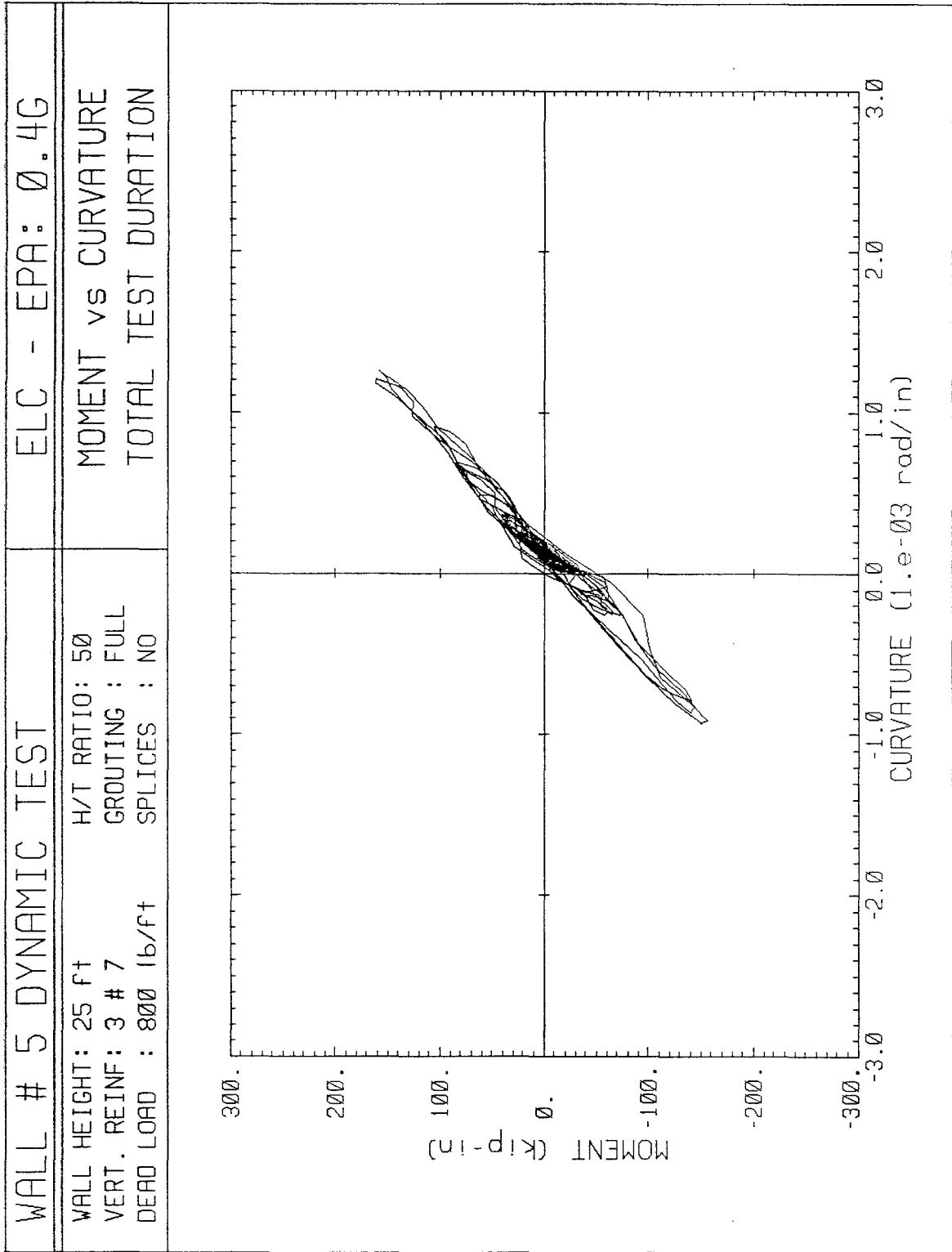


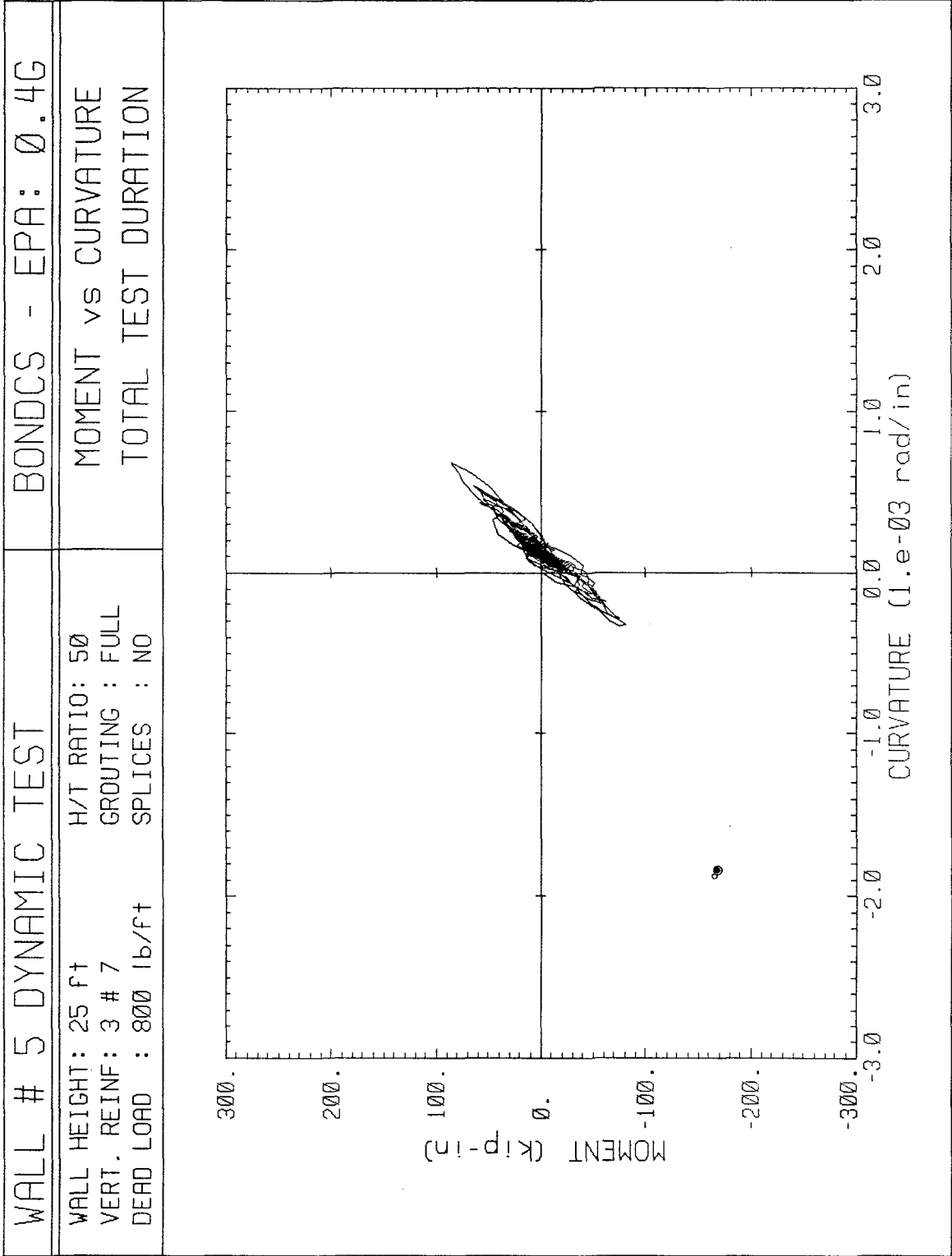


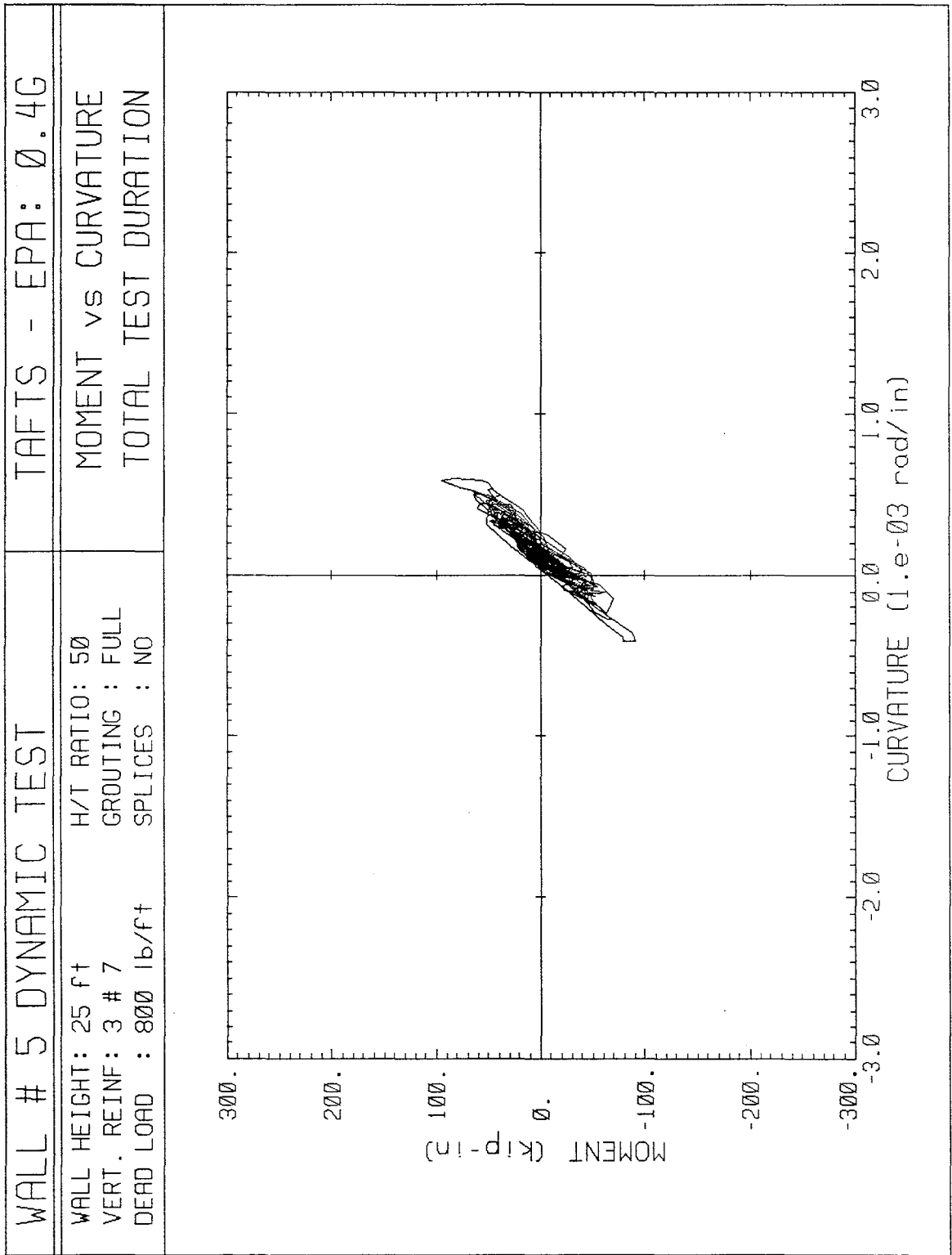


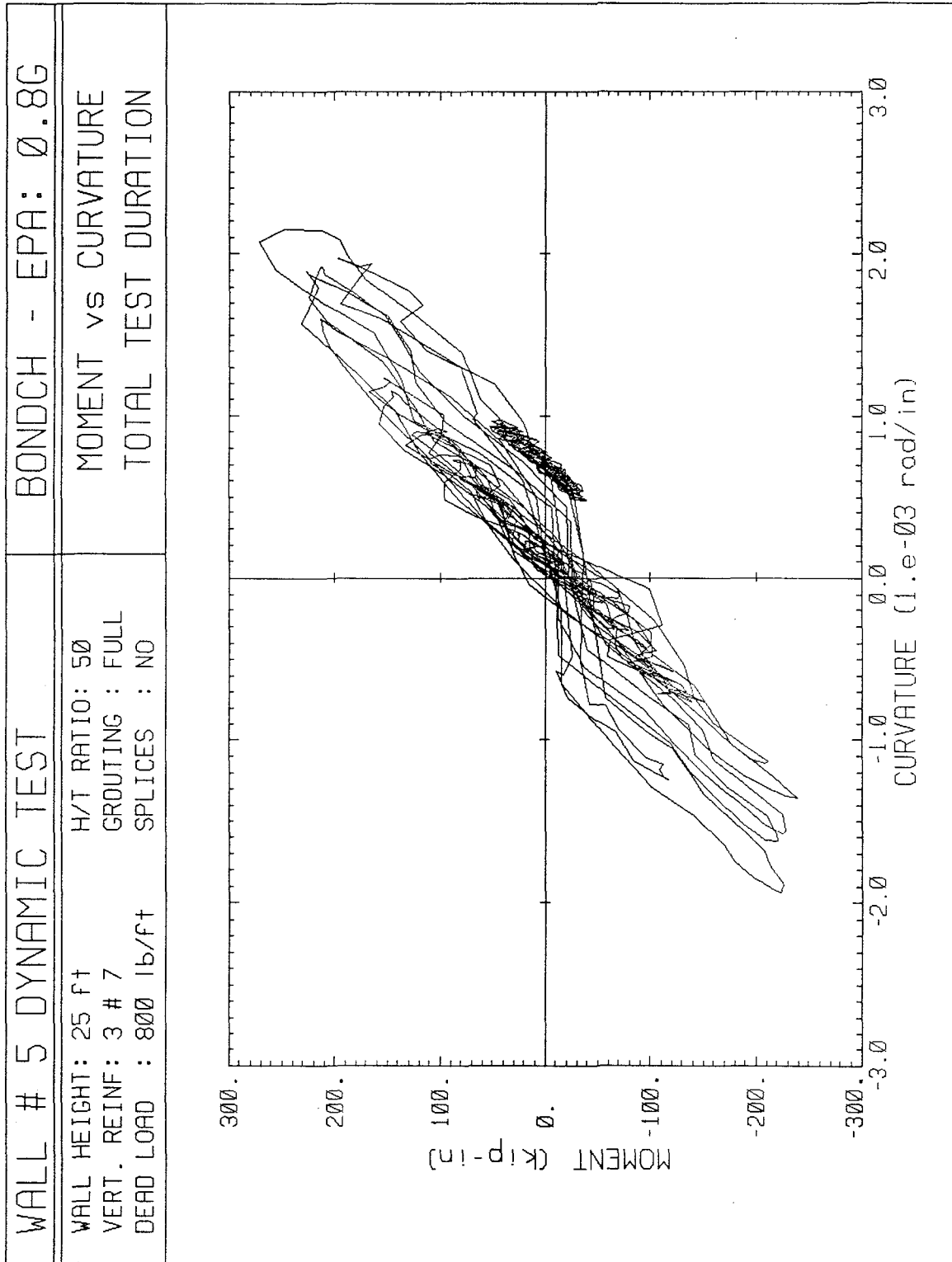




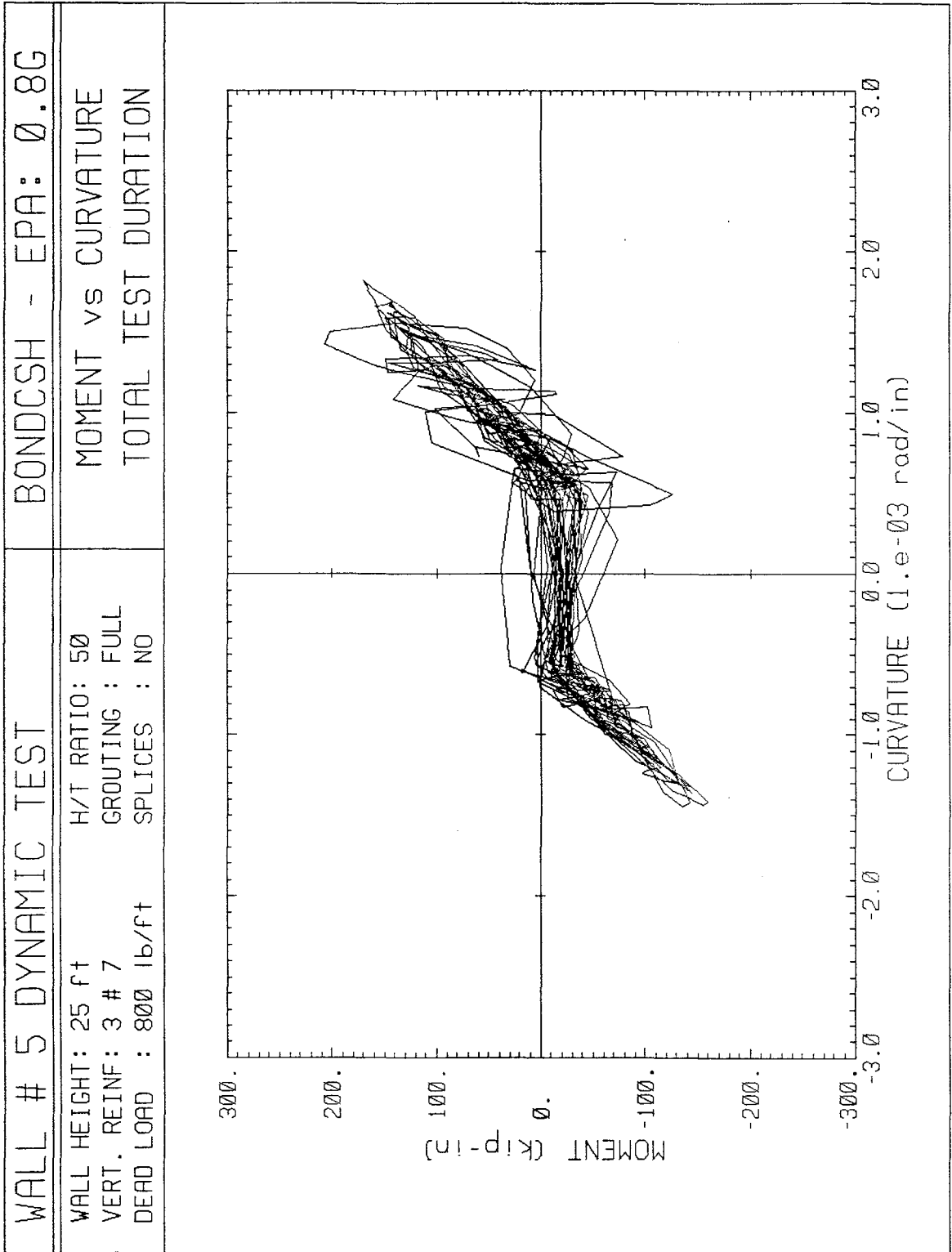


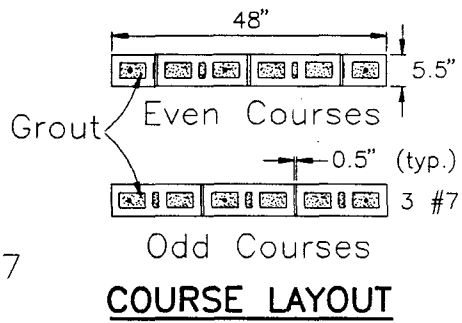
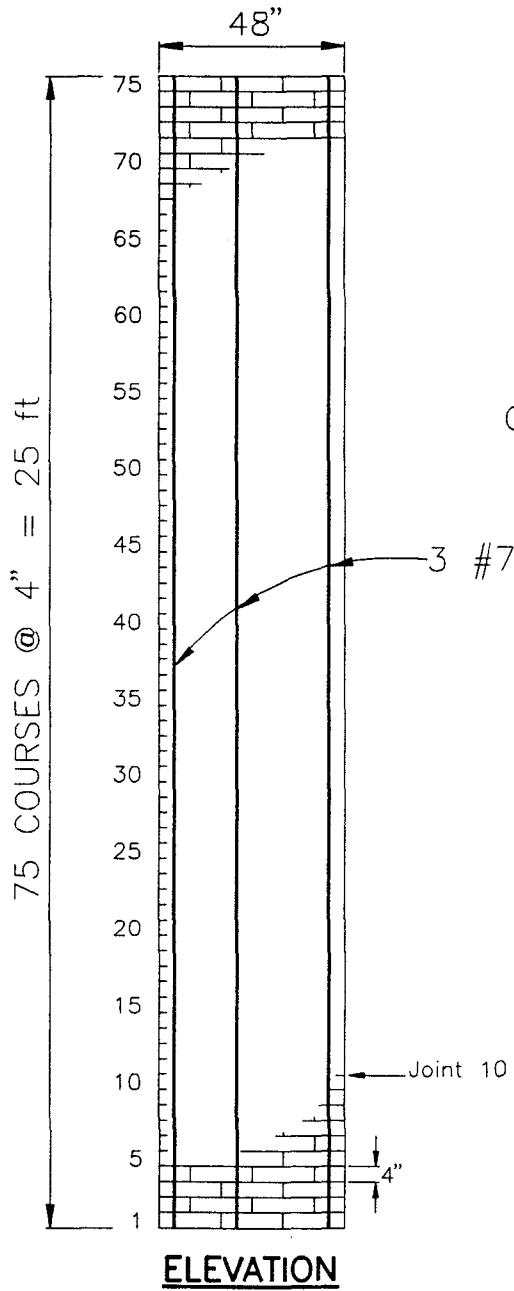








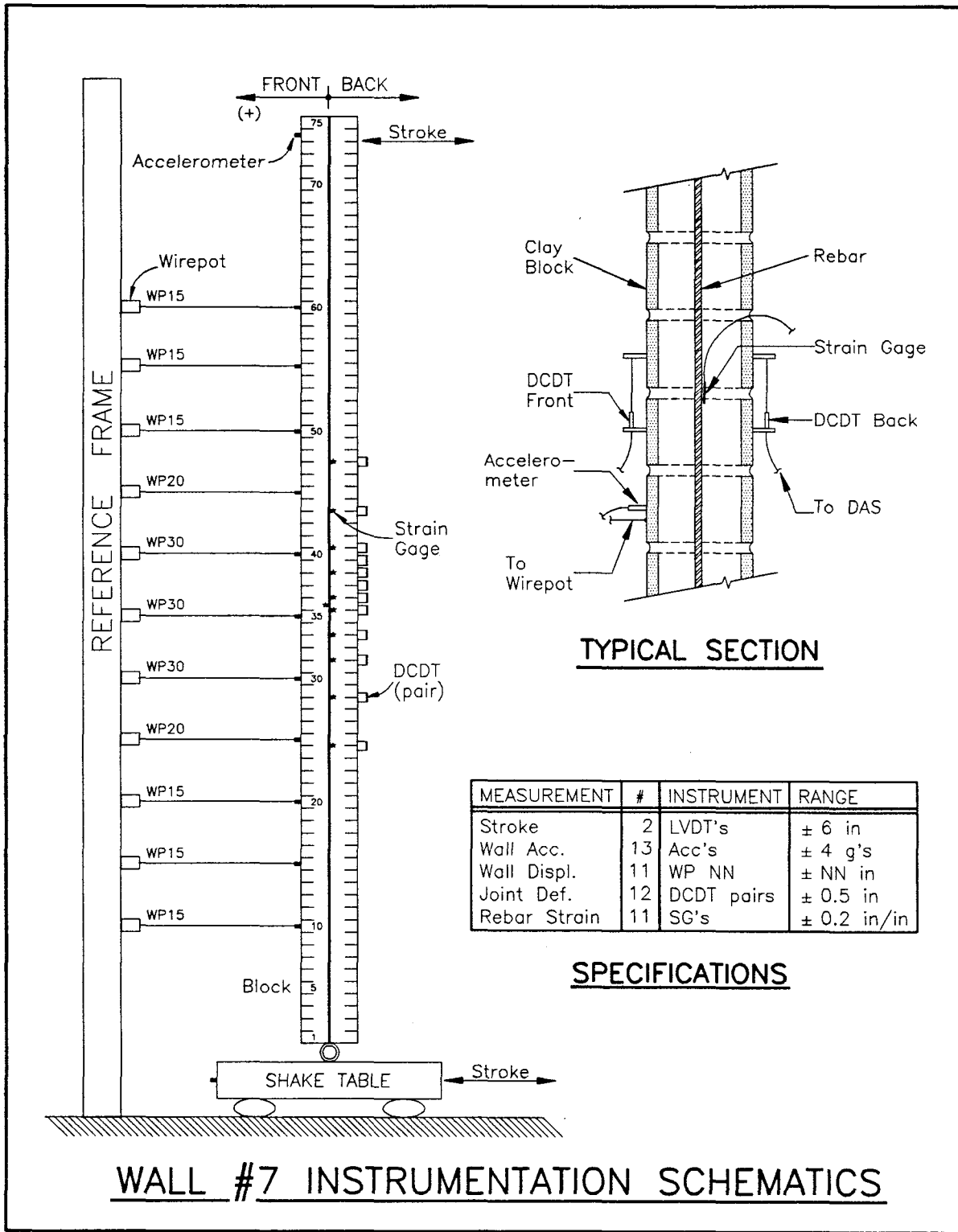




Wall Height: 25 ft  
 Nominal Thickness: 6"  
 $H/t = 50$   
 Vertical Reinf.: 3 #7  
 No Splices  
 Full Grouting  
 Dead Load: 300 lb/ft

**SPECIFICATIONS**

**WALL # 7 CONSTRUCTION DRAWINGS**



Wall No. 7: Test Sequence & Peak Measurements

Run		EPA	Diaphragm	Displacement (in)			Acceleration (g)			Rebar Strain (in/in)
No	ID			Bottom	Center	Top	Bottom	Center	Top	
1	MS1	0.10	Flexible	1.24	1.72	1.64	0.07	0.33	0.28	0.0003
2	MS2	0.10	Stiff	0.25	0.58	0.31	0.09	0.39	0.33	0.0004
3	TAFT1	0.10	Flexible	1.15	1.80	1.55	0.09	0.42	0.23	0.0006
4	ELC1	0.10	Stiff	0.86	1.50	1.05	0.19	0.32	0.30	0.0003
5	TAFT2	0.20	Flexible	2.39	4.49	3.20	0.16	0.58	0.31	0.0008
6	ELC2	0.20	Stiff	1.60	3.36	1.95	0.16	0.64	0.45	0.0006
7	BONDC	0.40	Flexible	2.28	8.59	3.89	0.29	1.02	0.44	0.0017
8	ELC	0.40	Flexible	3.05	11.53	5.74	0.31	1.20	0.64	0.0020
9	BONDCH	0.40	Stiff	2.29	5.22	3.06	0.29	0.88	0.73	0.0010
10	TAFTS	0.40	Stiff	4.67	6.85	3.78	0.33	0.80	0.72	0.0009
11	BONDCH	0.80	Flexible	2.65	20.81	5.69	0.60	2.61	1.30	0.0092
12	BONDCHSH	0.80	Stiff	3.98	18.40	4.88	1.03	2.45	2.12	0.0090

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TCCMAR PROJECT

WALL No 7 DYNAMIC TEST Run No 1: MS1 0.10 EPA

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Wall Weight: 6.85 kips	H/t Ratio: 50
Vert. Reinf: 3 # 7	Grouting : Full
Dead Load: 300 lb/ft	Splices : No

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	1.64 in	Acc Top	0.28 g
Disp Cent	1.72 in	Acc Cent	0.33 g
Disp Bot	1.24 in	Acc Bot	0.07 g
Peak Defl	0.61 in		
Inertia Force	1.45 kips	Eqv Load	70.0 lb/ft
Bending Mt	64.45 kip-in	Seismic C	0.25
		C/Acc Bot	3.41

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in <sup>4</sup>	EmIg	2269000 kip-in <sup>2</sup>
Avg Freq	2.37 Hz	EIEqv	991000 kip-in <sup>2</sup>
		EmIg/EIEqv	2.29

LOCAL RESPONSE

	Peak	Joint	36
Rebar Strain	0.0003	0.0003	in/in
Strain Ductility	0.12	0.12	in
Avg Joint Opening	0.0023	0.0003	in
Faceshell Comp. Strain	0.0012	0.0001	in/in
Faceshell Opening	0.0064	0.0009	in
Curvature	0.4500	0.0595	(1/in)*10 <sup>-3</sup>
EI joint		1059000	kip-in <sup>2</sup>

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October 9, 1989

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TCCMAR PROJECT

WALL No 7 DYNAMIC TEST Run No 2: MS2 0.10 EPA

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Wall Weight: 6.85 kips	H/t Ratio: 50
Vert. Reinf: 3 # 7	Grouting : Full
Dead Load: 300 lb/ft	Splices : No

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	0.31 in	Acc Top	0.33 g
Disp Cent	0.58 in	Acc Cent	0.39 g
Disp Bot	0.25 in	Acc Bot	0.09 g
Peak Defl	0.53 in		
Inertia Force	1.06 kips	Eqv Load	70.0 lb/ft
Bending Mt	64.68 kip-in	Seismic C	0.25
		C/Acc Bot	2.80

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in4	EmIg	2269000 kip-in2
Avg Freq	2.56 Hz	EIeqv	1144000 kip-in2
		EmIg/EIeqv	1.98

LOCAL RESPONSE

	Peak	Joint 36	
Rebar Strain	0.0004	0.0003	in/in
Strain Ductility	0.16	0.12	in
Avg Joint Opening	0.0011	0.0004	in
Faceshell Comp. Strain	0.0012	0.0001	in/in
Faceshell Opening	0.0062	0.0010	in
Curvature	0.5100	0.0534	(1/in)*10-3
EI joint		1180000	kip-in2

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TCCMAR PROJECT

WALL No 7 DYNAMIC TEST Run No 3: TAFT1 0.10 EPA

---

Wall Weight: 6.85 kips	H/t Ratio: 50
Vert. Reinf: 3 # 7	Grouting : Full
Dead Load: 300 lb/ft	Splices : No

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	1.55 in	Acc Top	0.23 g
Disp Cent	2.00 in	Acc Cent	0.42 g
Disp Bot	1.15 in	Acc Bot	0.09 g
Peak Defl	2.69 in		
Inertia Force	1.71 kips	Eqv Load	90.0 lb/ft
Bending Mt	84.13 kip-in	Seismic C	0.33
		C/Acc Bot	3.63

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in <sup>4</sup>	EmIg	2269000 kip-in <sup>2</sup>
Avg Freq	1.75 Hz	EIeqv	293000 kip-in <sup>2</sup>
		EmIg/EIeqv	7.74

LOCAL RESPONSE

	Peak	Joint	36
Rebar Strain	0.0010	0.0006	in/in
Strain Ductility	0.40	0.24	in
Avg Joint Opening	0.0126	0.0021	in
Faceshell Comp. Strain	0.0039	0.0029	in/in
Faceshell Opening	0.0275	0.0023	in
Curvature	0.7700	0.2700	(1/in)*10 <sup>-3</sup>
EI joint		311000	kip-in <sup>2</sup>

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October 9, 1989

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TCCMAR PROJECT

WALL No 7 DYNAMIC TEST Run No 4: ELC1 0.10 EPA

---

Wall Weight: 6.85 kips	H/t Ratio: 50
Vert. Reinf: 3 # 7	Grouting : Full
Dead Load: 300 lb/ft	Splices : No

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	1.05 in	Acc Top	0.30 g
Disp Cent	1.50 in	Acc Cent	0.32 g
Disp Bot	0.86 in	Acc Bot	0.19 g
Peak Defl	0.76 in		
Inertia Force	1.10 kips	Eqv Load	50.0 lb/ft
Bending Mt	48.77 kip-in	Seismic C	0.19
		C/Acc Bot	1.00

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in4	EmIg	2269000 kip-in2
Avg Freq	2.12 Hz	EIeqv	602000 kip-in2
		EmIg/EIeqv	3.77

LOCAL RESPONSE

	Peak	Joint 36
Rebar Strain	0.0003	0.0003 in/in
Strain Ductility	0.12	0.12 in
Avg Joint Opening	0.0024	0.0004 in
Faceshell Comp. Strain	0.0012	0.0002 in/in
Faceshell Opening	0.0065	0.0008 in
Curvature	0.5200	0.0514 (1/in)*10-3
EI joint		934000 kip-in2

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October 9, 1989

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TCCMAR PROJECT

WALL No 7 DYNAMIC TEST Run No 5: TAFT2 0.20 EPA

---

Wall Weight: 6.85 kips H/t Ratio: 50  
Vert. Reinf: 3 # 7 Grouting : Full  
Dead Load: 300 lb/ft Splices : No

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	3.20 in	Acc Top	0.31 g
Disp Cent	4.49 in	Acc Cent	0.58 g
Disp Bot	2.39 in	Acc Bot	0.16 g
Peak Defl	2.81 in		
Inertia Force	2.45 kips	Egv Load	120.0 lb/ft
Bending Mt	114.31 kip-in	Seismic C	0.45
		C/Acc Bot	2.78

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in <sup>4</sup>	EmIg	2269000 kip-in <sup>2</sup>
Avg Freq	1.30 Hz	EIEqv	381000 kip-in <sup>2</sup>
		EmIg/EIEqv	5.96

LOCAL RESPONSE

Rebar Strain	Peak 0.0008	Joint 36 0.0008	in/in
Strain Ductility	0.32	0.32	in
Avg Joint Opening	0.0052	0.0026	in
Faceshell Comp. Strain	0.0016	0.0005	in/in
Faceshell Opening	0.0164	0.0058	in
Curvature	1.0400	0.3000	(1/in)*10 <sup>-3</sup>
EI joint		377000	kip-in <sup>2</sup>

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TCCMAR PROJECT

WALL No 7 DYNAMIC TEST Run No 6: ELC2 0.20 EPA

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Wall Weight: 6.85 kips	H/t Ratio: 50
Vert. Reinf: 3 # 7	Grouting : Full
Dead Load: 300 lb/ft	Splices : No

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	1.95 in	Acc Top	0.45 g
Disp Cent	3.36 in	Acc Cent	0.64 g
Disp Bot	1.60 in	Acc Bot	0.16 g
Peak Defl	1.84 in		
Inertia Force	1.37 kips	Eqv Load	80.0 lb/ft
Bending Mt	72.78 kip-in	Seismic C	0.28
		C/Acc Bot	1.77

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in4	EmIg	2269000 kip-in2
Avg Freq	1.24 Hz	EIeqv	371000 kip-in2
		EmIg/EIeqv	6.12

LOCAL RESPONSE

	Peak	Joint	36
Rebar Strain	0.0006	0.0006	in/in
Strain Ductility	0.24	0.24	in
Avg Joint Opening	0.0038	0.0019	in
Faceshell Comp. Strain	0.0014	0.0003	in/in
Faceshell Opening	0.0092	0.0044	in
Curvature	0.6700	0.2200	(1/in)*10-3
EI joint		323000	kip-in2

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October 9, 1989

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TCCMAR PROJECT

WALL No 7 DYNAMIC TEST Run No 7: BONDC 0.40 EPA

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Wall Weight: 6.85 kips H/t Ratio: 50  
Vert. Reinf: 3 # 7 Grouting : Full  
Dead Load: 300 lb/ft Splices : No

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	3.89 in	Acc Top	0.44 g
Disp Cent	8.59 in	Acc Cent	1.02 g
Disp Bot	2.28 in	Acc Bot	0.29 g
Peak Defl	7.42 in		
Inertia Force	4.24 kips	Eqv Load	220.0 lb/ft
Bending Mt	209.79 kip-in	Seismic C	0.82
		C/Acc Bot	2.82

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in4	EmIg	2269000 kip-in2
Avg Freq	0.89 Hz	EIeqv	265000 kip-in2
		EmIg/EIeqv	8.56

LOCAL RESPONSE

	Peak	Joint	36
Rebar Strain	0.0017	0.0017	in/in
Strain Ductility	0.68	0.68	in
Avg Joint Opening	0.0096	0.0061	in
Faceshell Comp. Strain	0.0020	0.0010	in/in
Faceshell Opening	0.0254	0.0156	in
Curvature	1.5200	0.8600	(1/in)*10-3
EI joint		243000	kip-in2

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October 9, 1989

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TCCMAR PROJECT

WALL No 7 DYNAMIC TEST Run No 8: ELC 0.40 EPA

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Wall Weight: 6.85 kips	H/t Ratio: 50
Vert. Reinf: 3 # 7	Grouting : Full
Dead Load: 300 lb/ft	Splices : No

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	5.74 in	Acc Top	0.64 g
Disp Cent	11.53 in	Acc Cent	1.20 g
Disp Bot	3.05 in	Acc Bot	0.31 g
Peak Defl	9.24 in		
Inertia Force	4.91 kips	Eqv Load	250.0 lb/ft
Bending Mt	237.23 kip-in	Seismic C	0.92
		C/Acc Bot	2.98

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in4	EmIg	2269000 kip-in2
Avg Freq	1.02 Hz	EIeqv	241000 kip-in2
		EmIg/EIeqv	9.41

LOCAL RESPONSE

	Peak	Joint 36
Rebar Strain	0.0020	0.0020 in/in
Strain Ductility	0.80	0.80 in
Avg Joint Opening	0.0115	0.0070 in
Faceshell Comp. Strain	0.0020	0.0012 in/in
Faceshell Opening	0.0295	0.0177 in
Curvature	1.7000	0.9900 (1/in)*10-3
EI joint		238000 kip-in2

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CES

October 9, 1989

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TCCMAR PROJECT

WALL No 7 DYNAMIC TEST Run No 9: BONDCS 0.40 EPA

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Wall Weight: 6.85 kips	H/t Ratio: 50
Vert. Reinf: 3 # 7	Grouting : Full
Dead Load: 300 lb/ft	Splices : No

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	3.06 in	Acc Top	0.73 g
Disp Cent	5.22 in	Acc Cent	0.88 g
Disp Bot	2.29 in	Acc Bot	0.29 g

Peak Defl 4.16 in

Inertia Force	2.32 kips	Eqv Load	120.0 lb/ft
Bending Mt	111.67 kip-in	Seismic C	0.43
		C/Acc Bot	1.50

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in4	EmIg	2269000 kip-in2
Avg Freq	1.04 Hz	EIeqv	252000 kip-in2
		EmIg/EIeqv	9.00

LOCAL RESPONSE

	Peak	Joint 36
Rebar Strain	0.0010	0.0010 in/in
Strain Ductility	0.40	0.40 in
Avg Joint Opening	0.0054	0.0031 in
Faceshell Comp. Strain	0.0014	0.0006 in/in
Faceshell Opening	0.0146	0.0082 in
Curvature	0.9200	0.4600 (1/in)*10-3
EI joint		241000 kip-in2

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CES

October 9, 1989

10:22:46 am

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TCCMAR PROJECT

WALL No 7 DYNAMIC TEST Run No 10: TAFTS 0.40 EPA

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Wall Weight: 6.85 kips H/t Ratio: 50 <sup>8</sup>  
Vert. Reinf: 3 # 7 Grouting : Full  
Dead Load: 300 lb/ft Splices : No

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SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	3.78 in	Acc Top	0.72 g
Disp Cent	6.85 in	Acc Cent	0.80 g
Disp Bot	4.67 in	Acc Bot	0.33 g
Peak Defl	4.58 in		
Inertia Force	2.12 kips	Eqv Load	120.0 lb/ft
Bending Mt	110.92 kip-in	Seismic C	0.43
		C/Acc Bot	1.31

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in <sup>4</sup>	EmIg	2269000 kip-in <sup>2</sup>
Avg Freq	0.96 Hz	EIeqv	227000 kip-in <sup>2</sup>
		EmIg/EIeqv	10.00

LOCAL RESPONSE

	Peak	Joint	36
Rebar Strain	0.0009	0.0009	in/in
Strain Ductility	0.36	0.36	in
Avg Joint Opening	0.0063	0.0032	in
Faceshell Comp. Strain	0.0014	0.0006	in/in
Faceshell Opening	0.0147	0.0081	in
Curvature	0.9000	0.4700	(1/in)*10 <sup>-3</sup>
EI joint		232000	kip-in <sup>2</sup>

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CES

October 9, 1989

10:22:53 am

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TCCMAR PROJECT

WALL No 7 DYNAMIC TEST Run No 11: BONDCH 0.80 EPA

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Wall Weight: 6.85 kips	H/t Ratio: 50
Vert. Reinf: 3 # 7	Grouting : Full
Dead Load: 300 lb/ft	Splices : No

---

SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	5.69 in	Acc Top	1.30 g
Disp Cent	20.81 in	Acc Cent	2.61 g
Disp Bot	2.65 in	Acc Bot	0.60 g
Peak Defl	19.08 in		
Inertia Force	6.28 kips	Eqv Load	320.0 lb/ft
Bending Mt	302.74 kip-in	Seismic C	1.18
		C/Acc Bot	1.96

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in4	EmIg	2269000 kip-in2
Avg Freq	0.66 Hz	EIeqv	149000 kip-in2
		EmIg/EIeqv	15.23

LOCAL RESPONSE

Rebar Strain	Peak	Joint	36
Strain Ductility	0.0108	0.0092	in/in
	4.32	3.68	in
Avg Joint Opening	0.0458	0.0266	in
Faceshell Comp. Strain	0.0035	0.0034	in/in
Faceshell Opening	0.1100	0.0612	in
Curvature	5.4900	3.3800	(1/in)*10-3
EI joint		88000	kip-in2

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CES

October 9, 1989

10:23:00 am

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TCCMAR PROJECT

WALL No 7 DYNAMIC TEST Run No 12: BONDCSH 0.80 EPA

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Wall Weight: 6.85 kips	H/t Ratio: 50
Vert. Reinf: 3 # 7	Grouting : Full
Dead Load: 300 lb/ft	Splices : No

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SUMMARY OF EXTREME VALUES

GLOBAL WALL RESPONSE

Disp Top	4.88 in	Acc Top	2.12 g
Disp Cent	18.40 in	Acc Cent	2.45 g
Disp Bot	3.98 in	Acc Bot	1.03 g
Peak Defl	18.46 in		
Inertia Force	5.80 kips	Eqv Load	260.0 lb/ft
Bending Mt	245.32 kip-in	Seismic C	0.96
		C/Acc Bot	0.93

MATERIAL & MECHANICAL PROPERTIES

f'm	4540 psi	Em (Code)	3410 ksi
Ig	666 in4	EmIg	2269000 kip-in2
Avg Freq	0.56 Hz	EIeqv	125000 kip-in2
		EmIg/EIeqv	18.15

LOCAL RESPONSE

	Peak	Joint	36
Rebar Strain	0.0102	0.0090	in/in
Strain Ductility	4.08	3.60	in
Avg Joint Opening	0.0510	0.0257	in
Faceshell Comp. Strain	0.0038	0.0034	in/in
Faceshell Opening	0.1200	0.0604	in
Curvature	6.0000	3.3700	(1/in)*10-3
EI joint		73000	kip-in2

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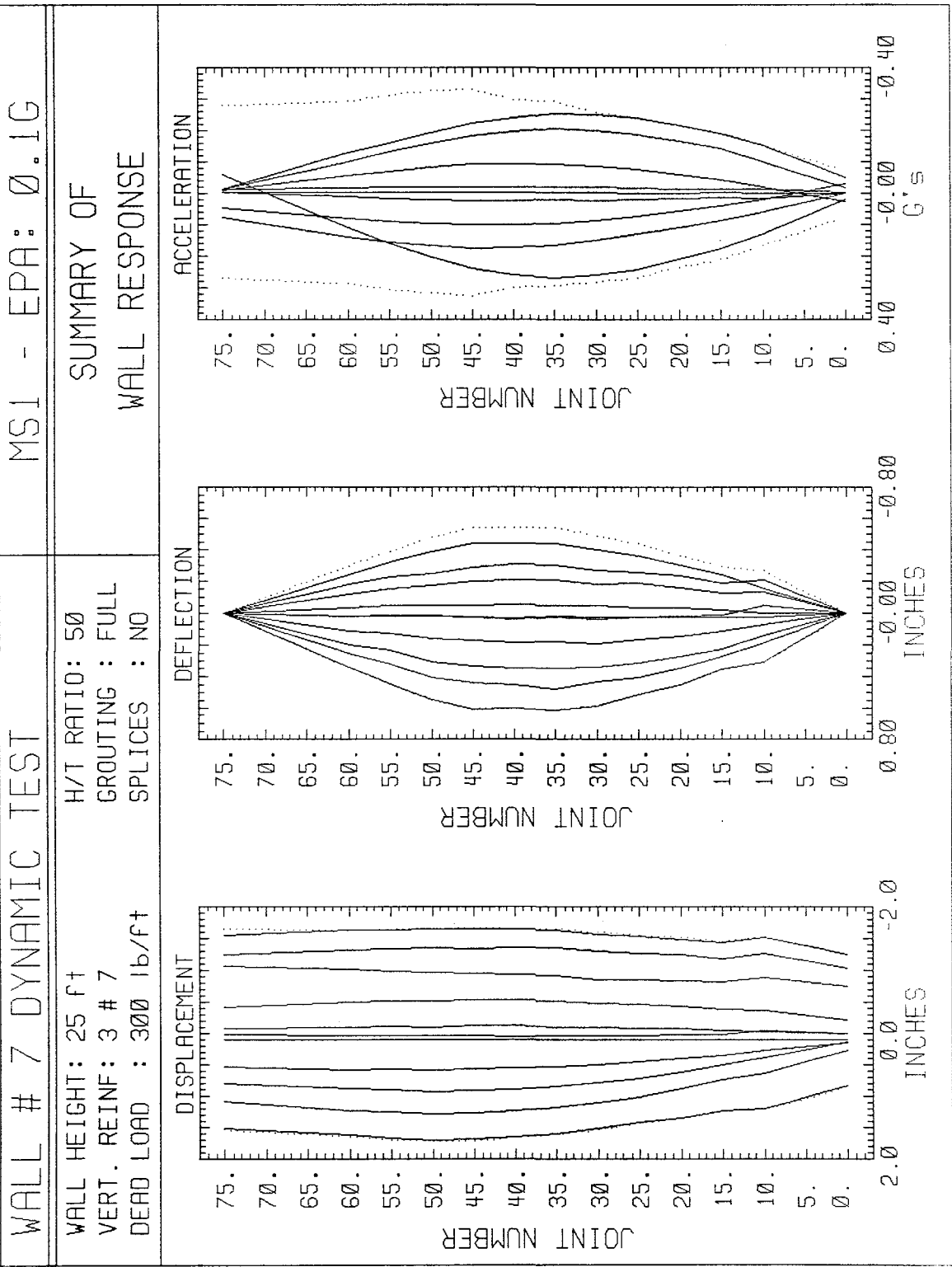
CES

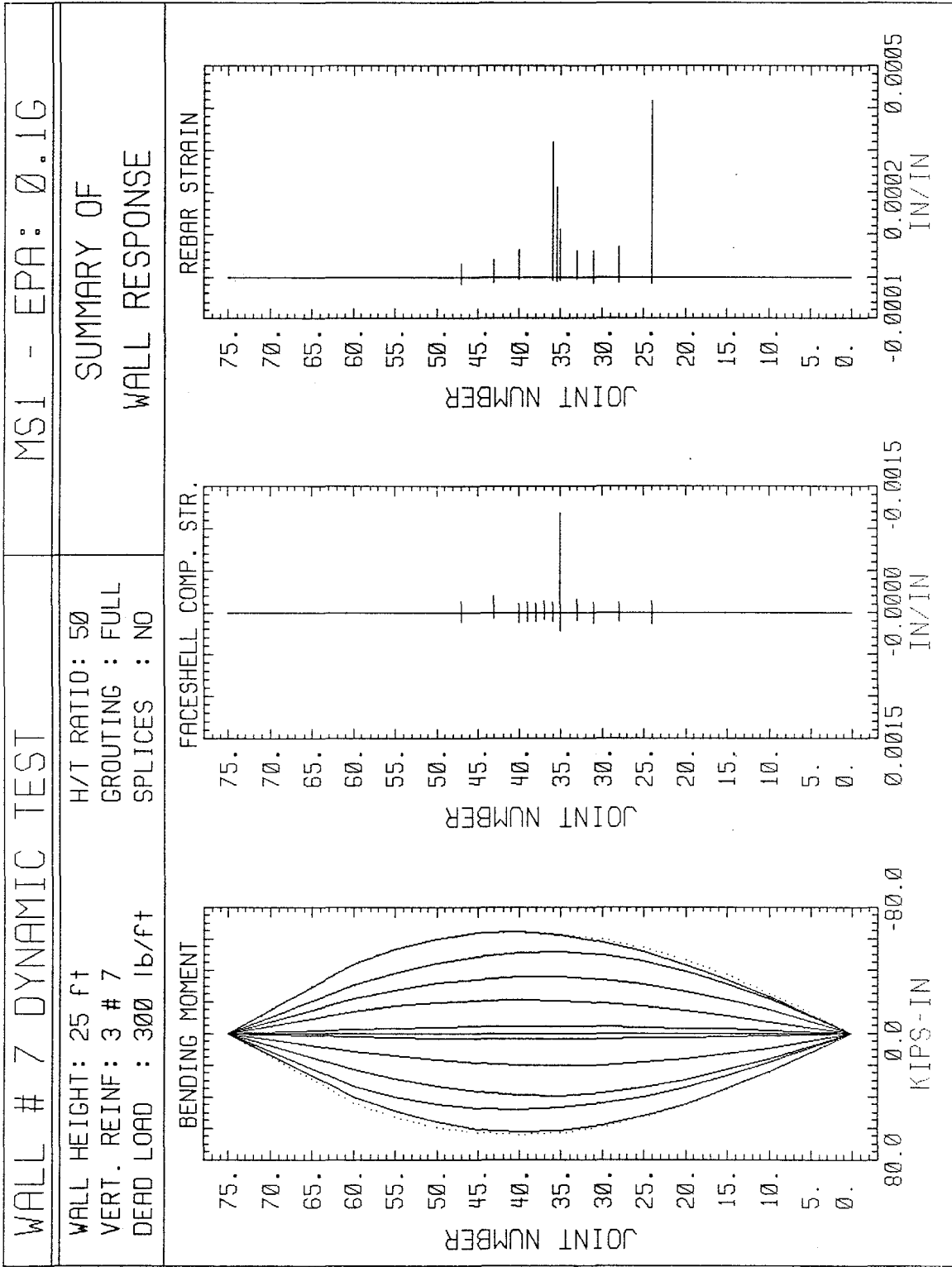
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10:23:08 am

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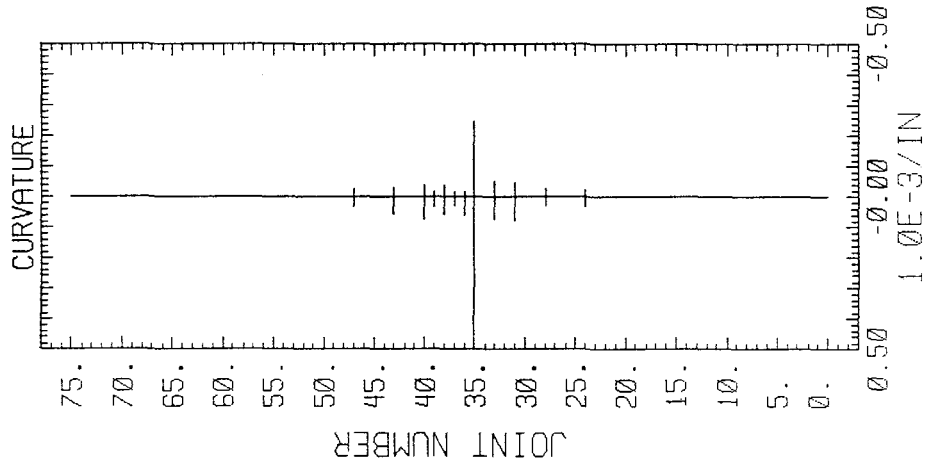
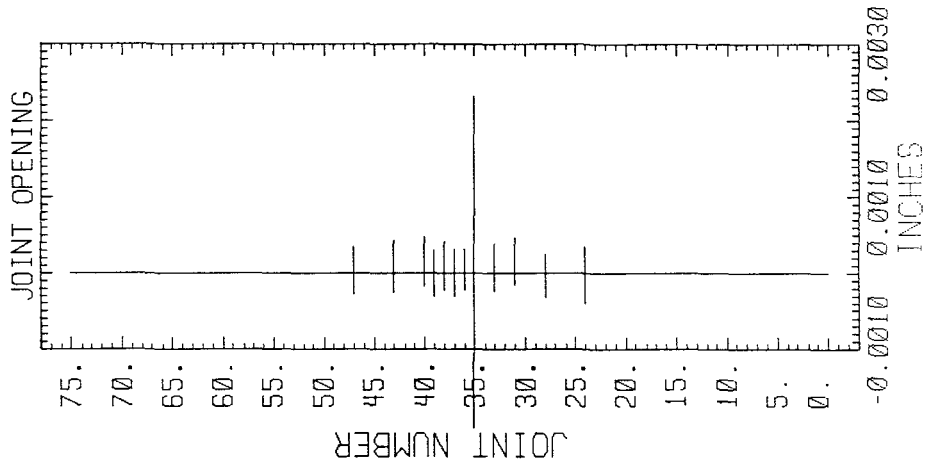
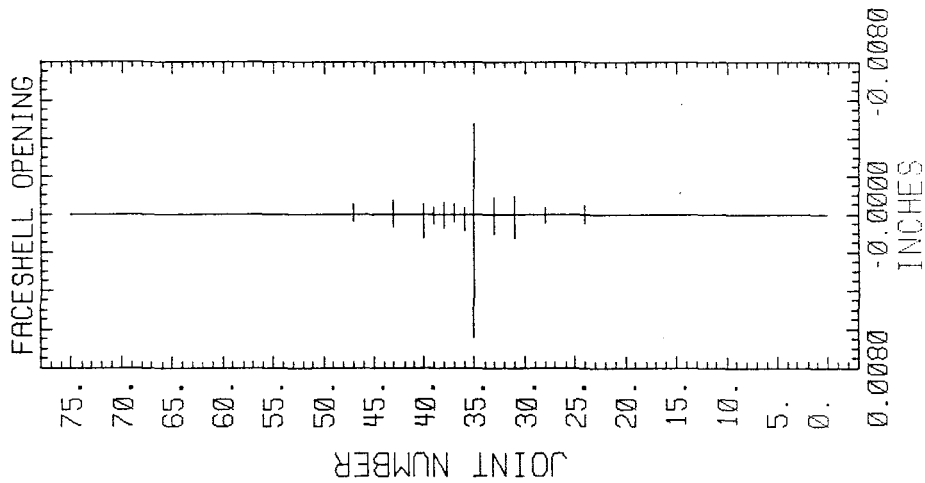
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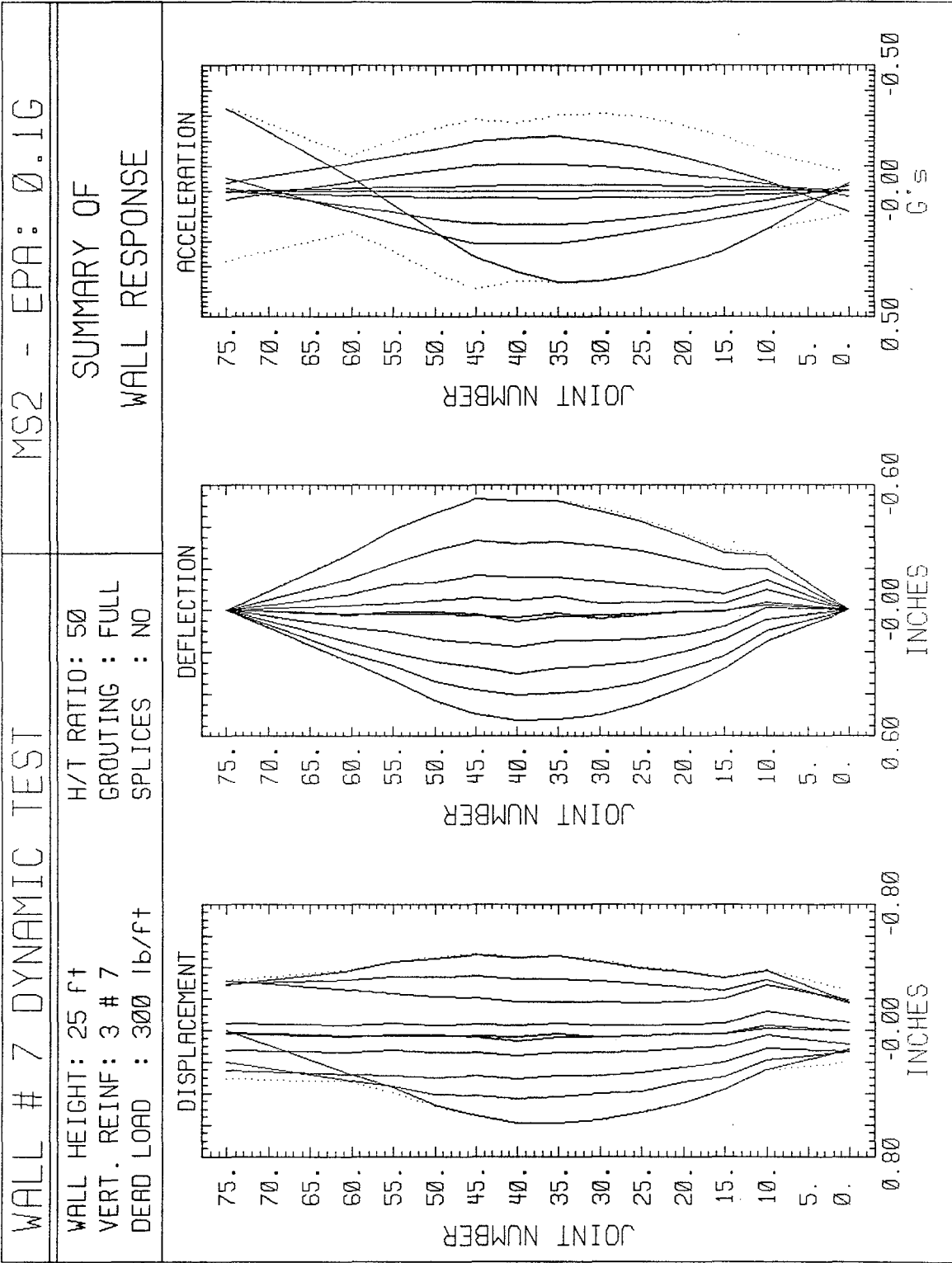
MSI - EPA: 0.1G

WALL HEIGHT: 25 ft  
 VERT. REINF: 3 # 7  
 DEAD LOAD : 300 lb/ft

H/T RATIO: 50  
 GROUTING : FULL  
 SPLICES : NO

SUMMARY OF  
 WALL RESPONSE





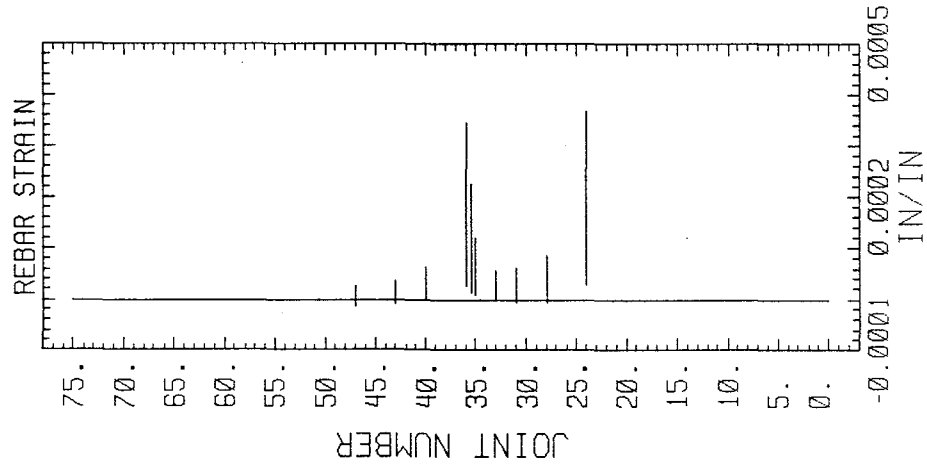
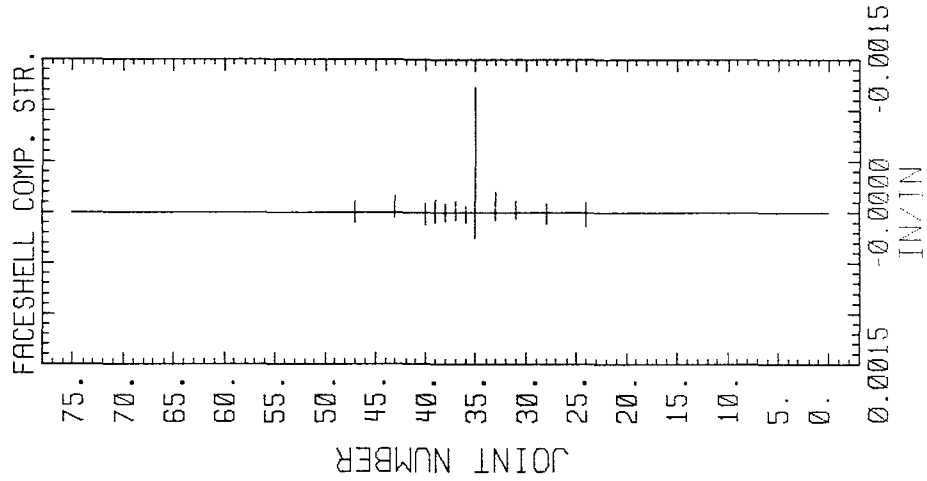
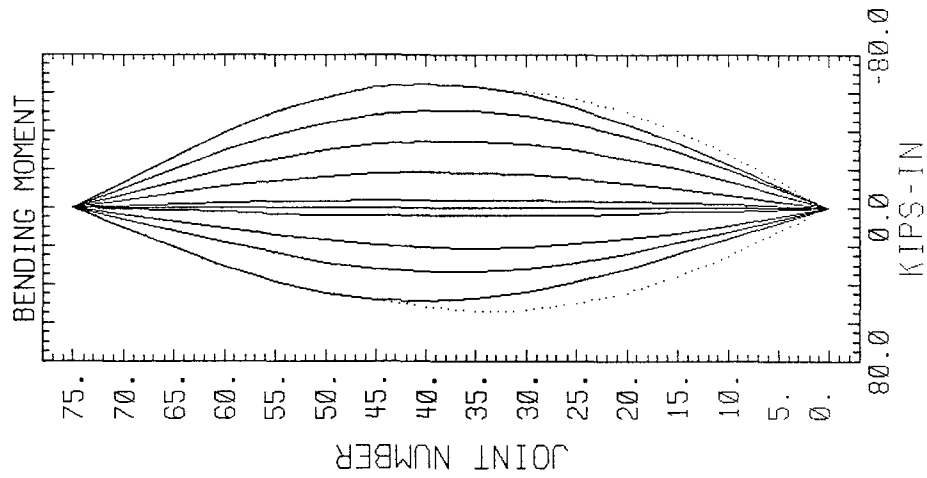
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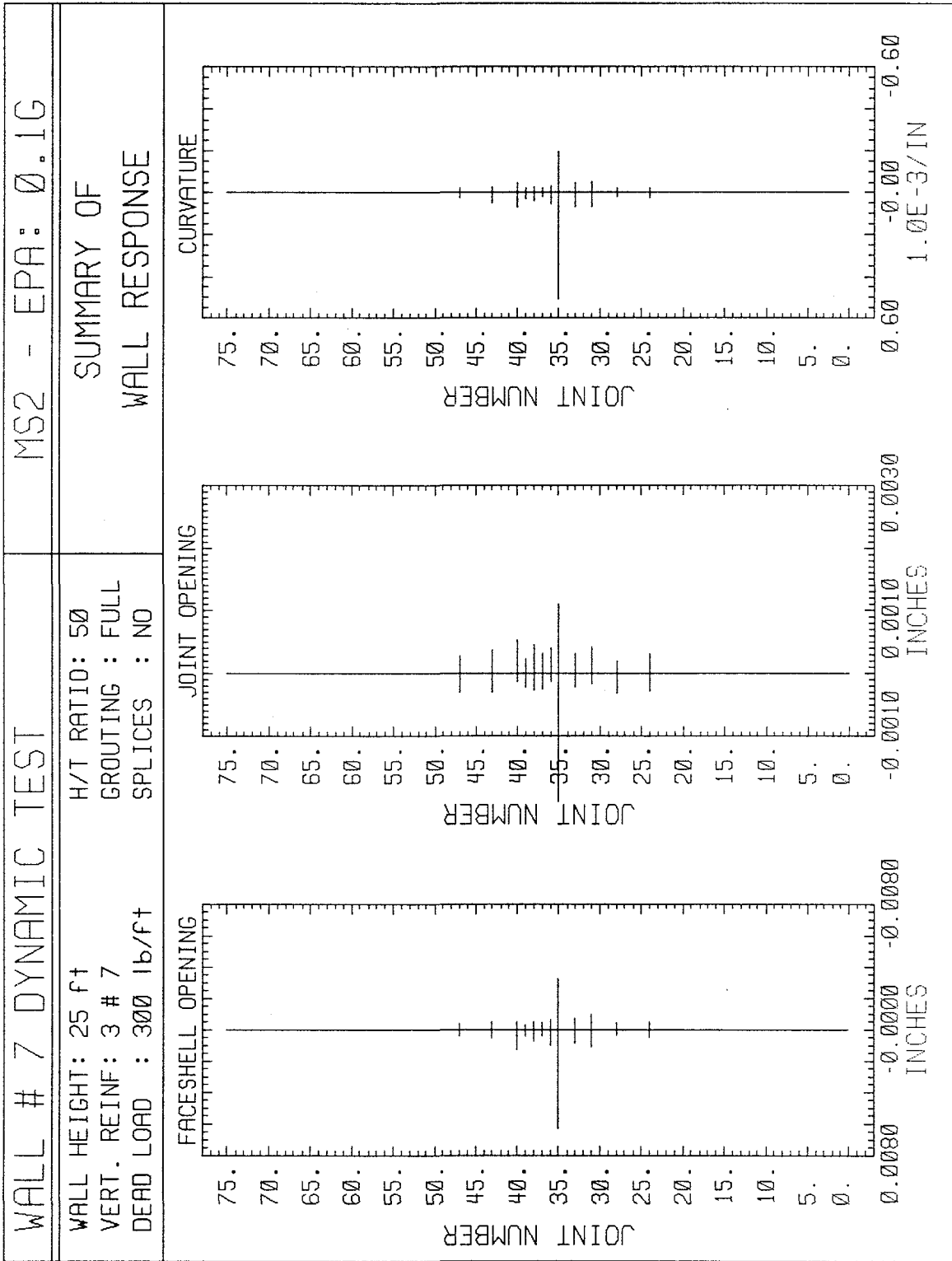
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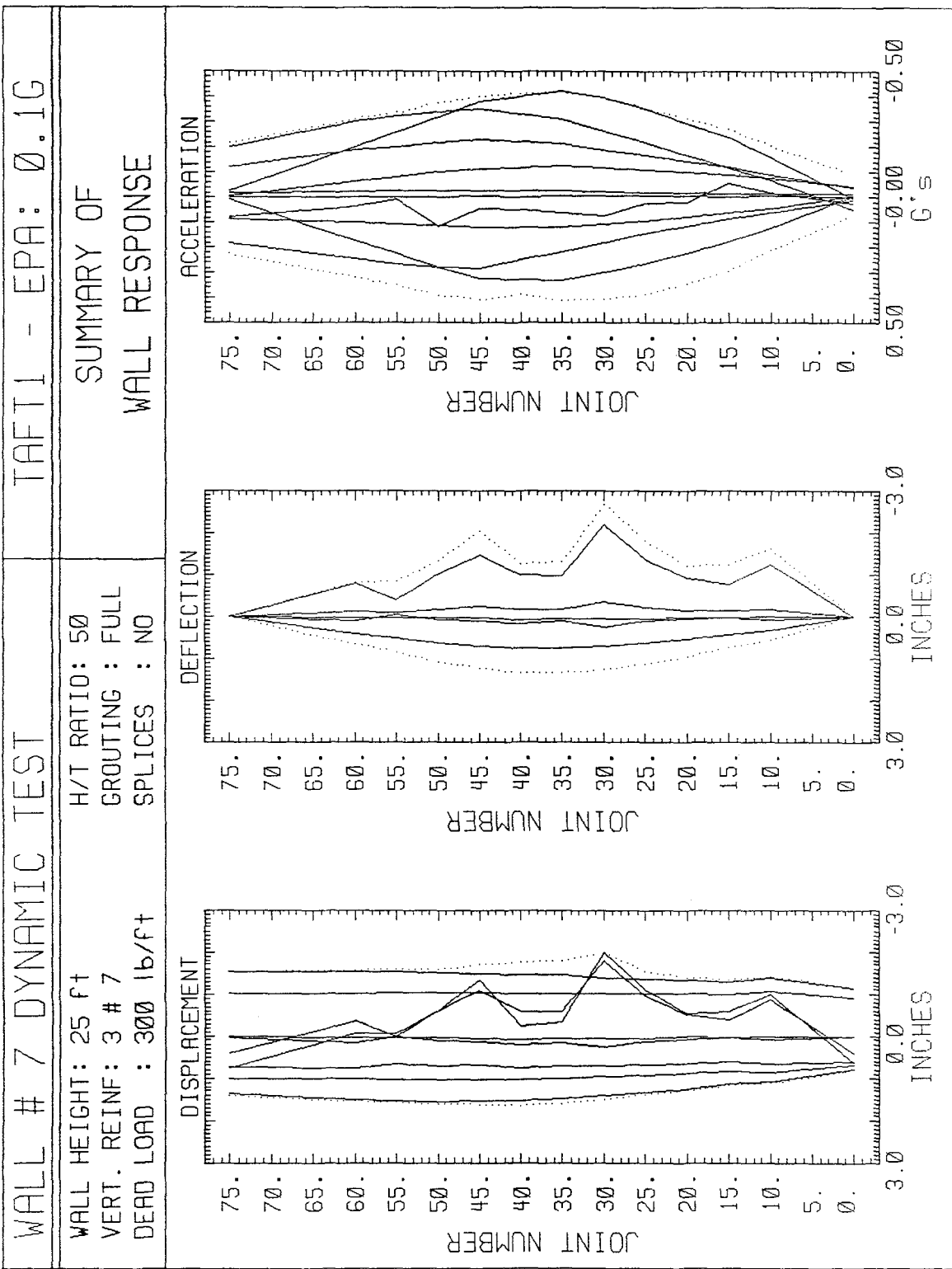
WALL HEIGHT: 25 ft  
 VERT. REINF: 3 # 7  
 DEAD LOAD : 300 lb/ft

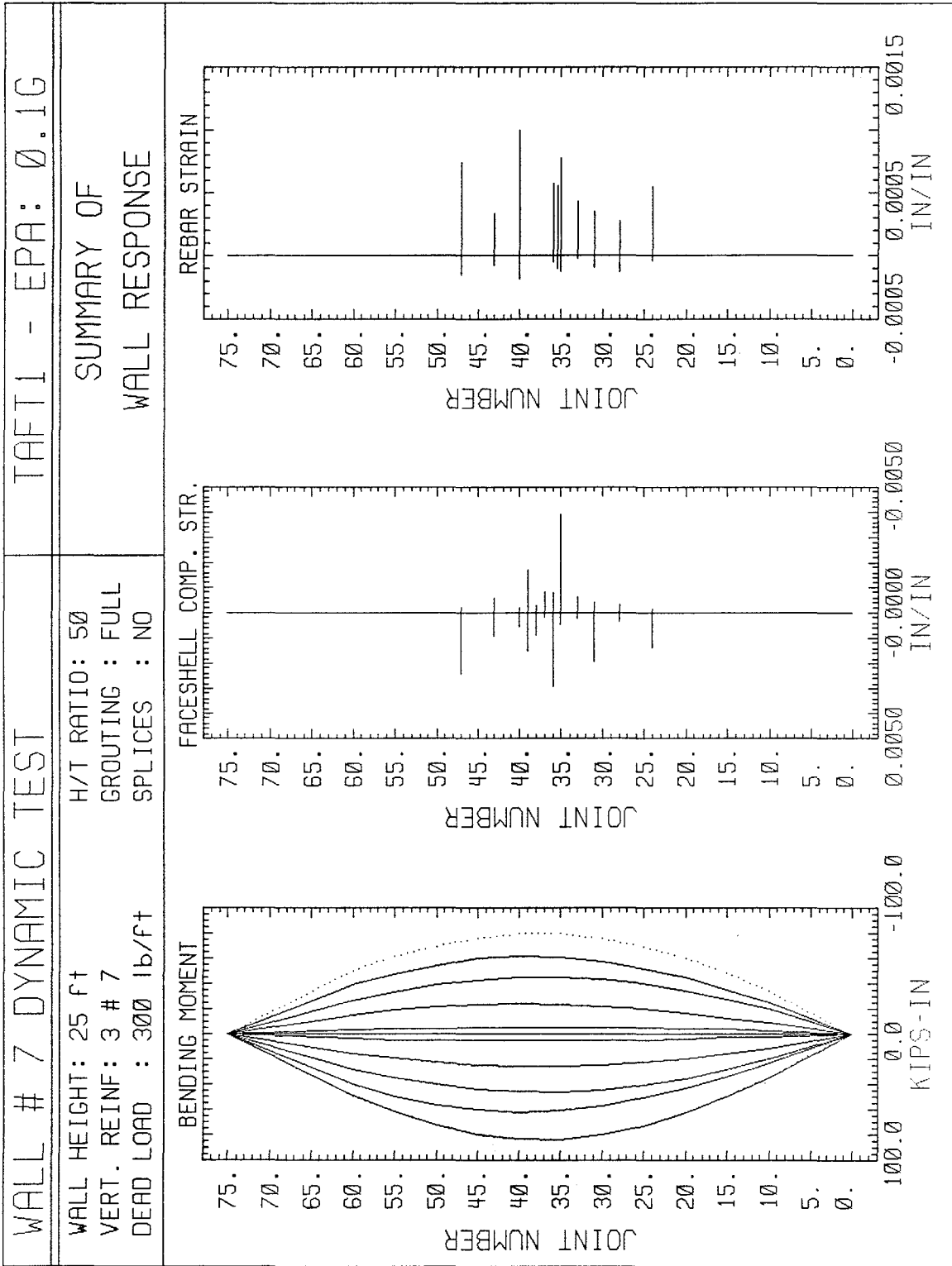
H/T RATIO: 50  
 GROUTING : FULL  
 SPLICES : NO

SUMMARY OF  
 WALL RESPONSE

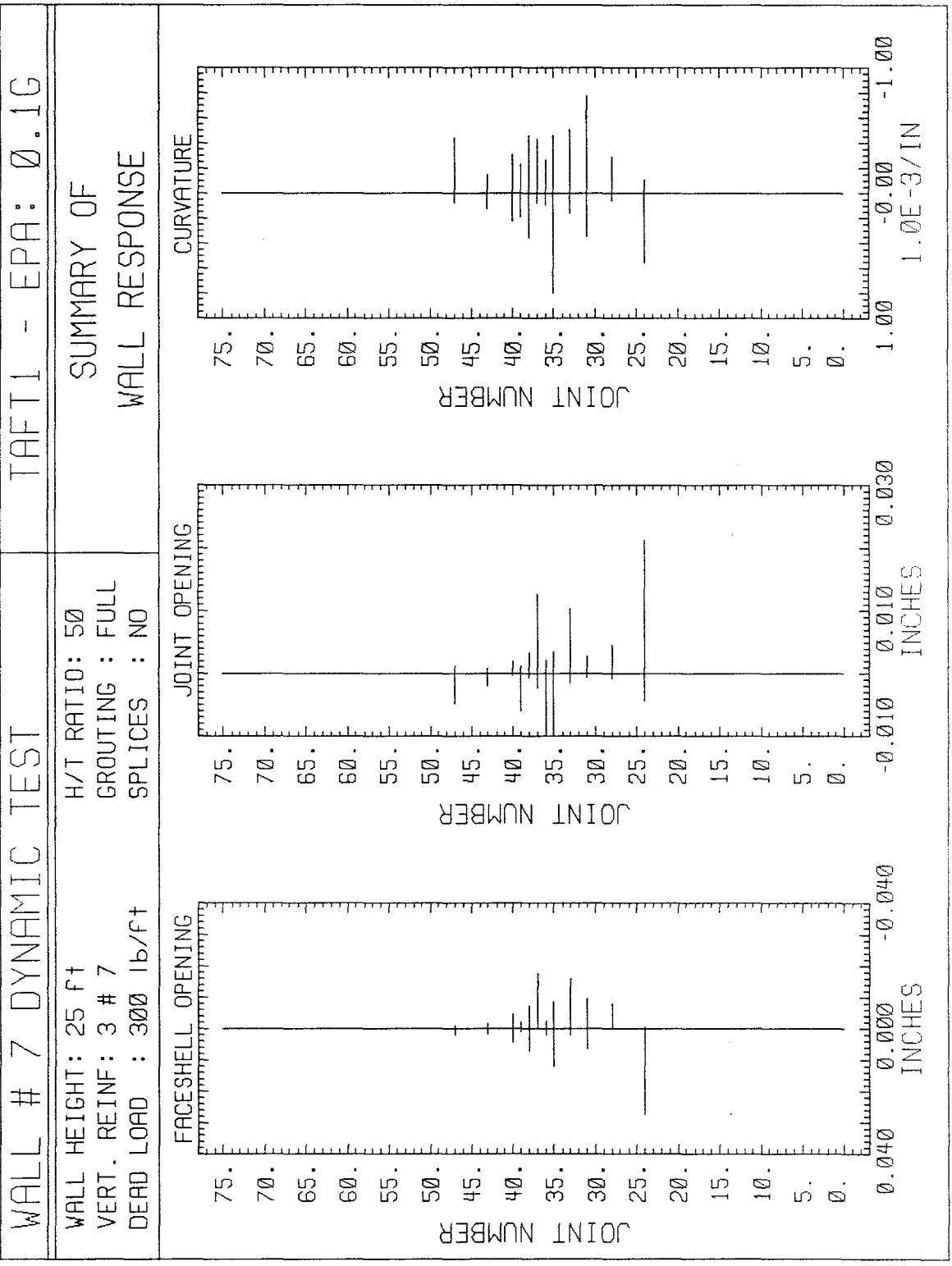


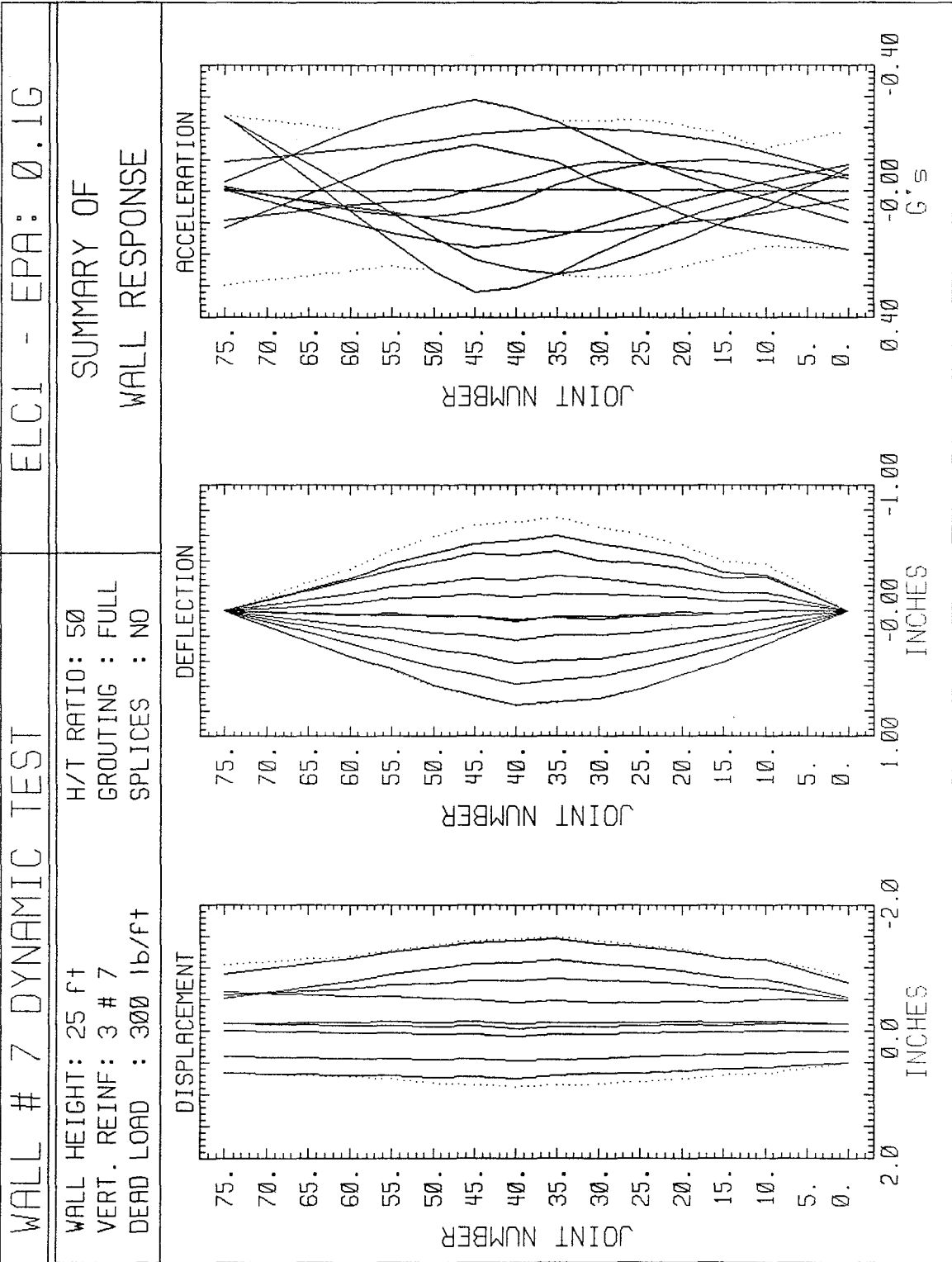


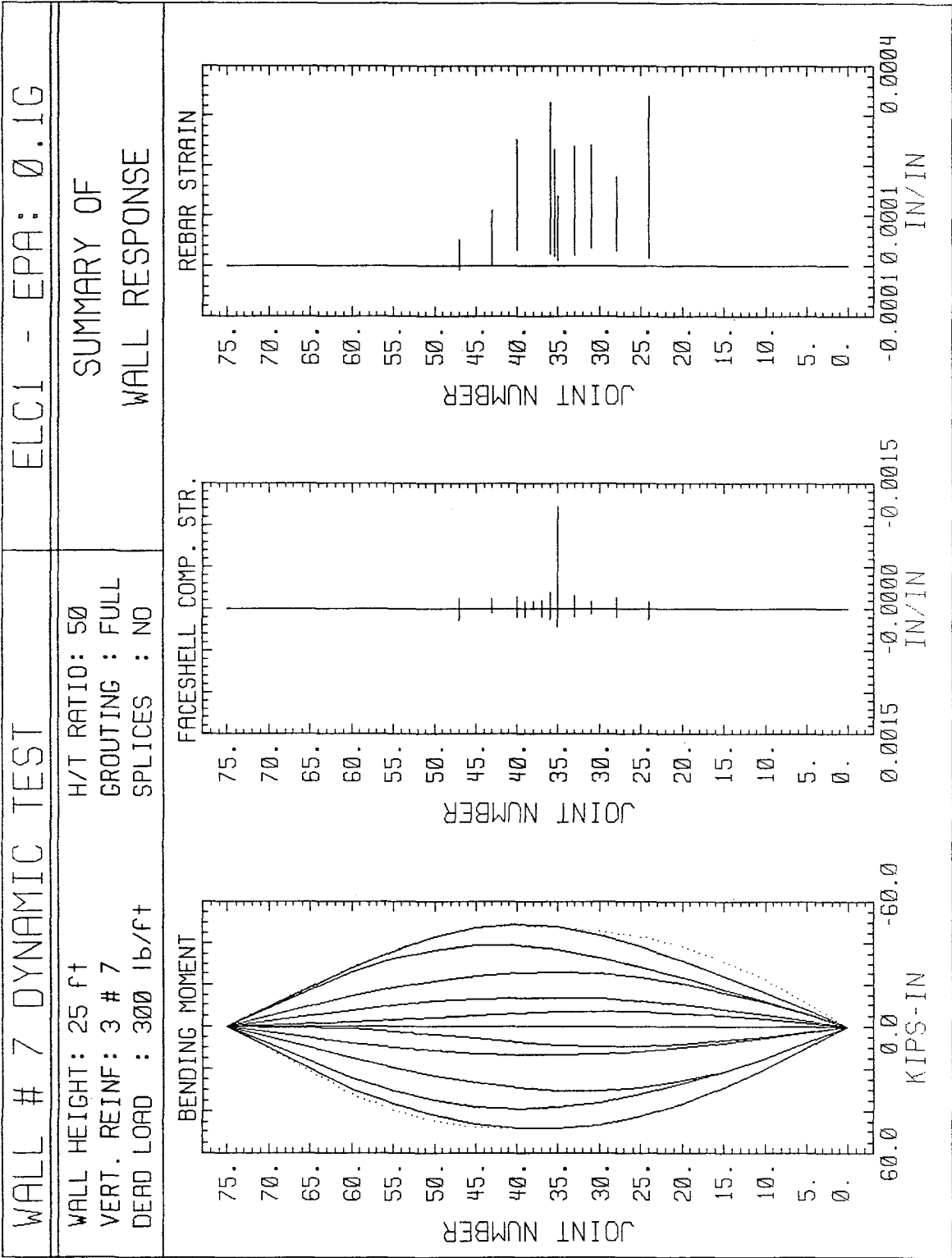


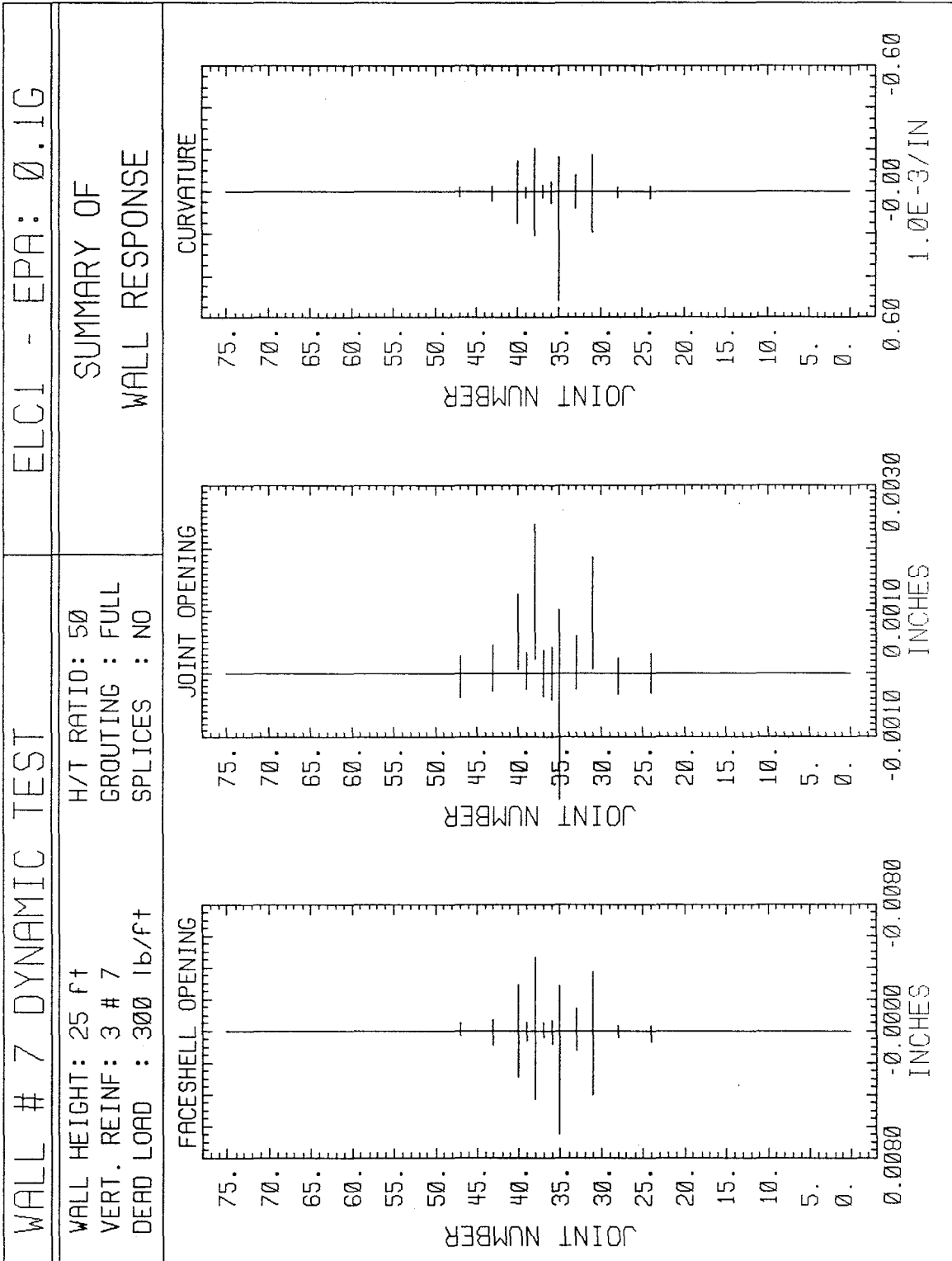


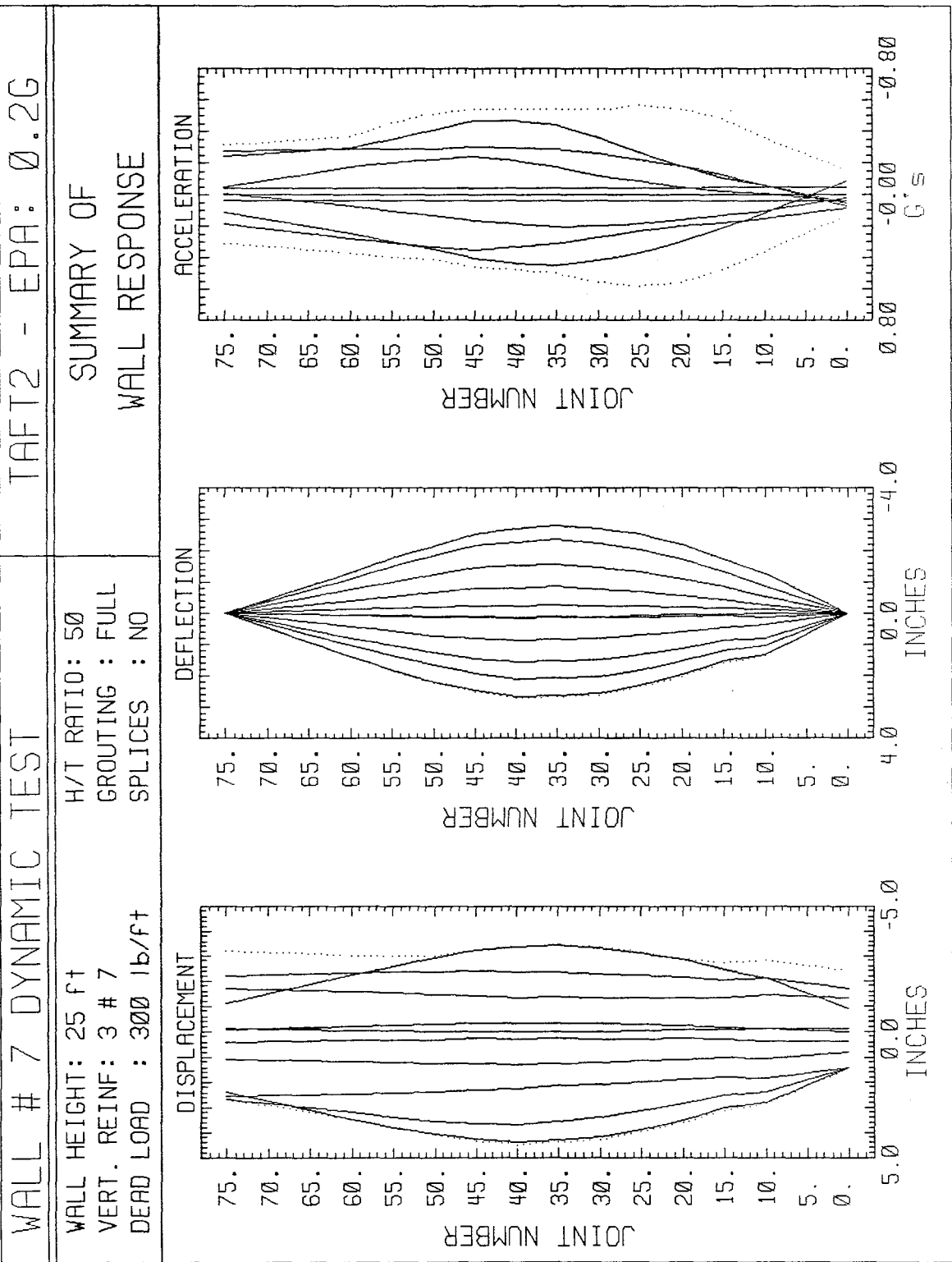


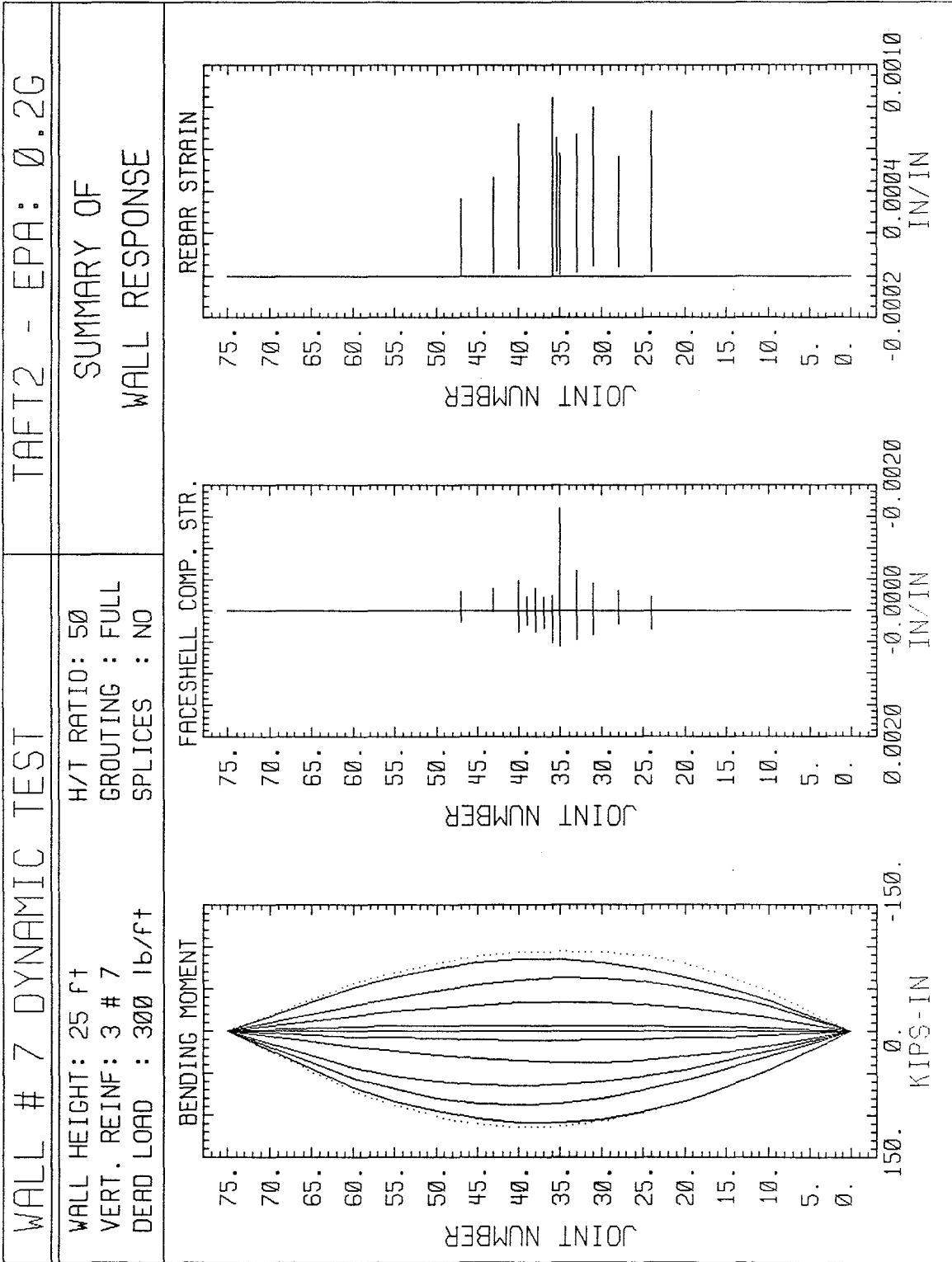


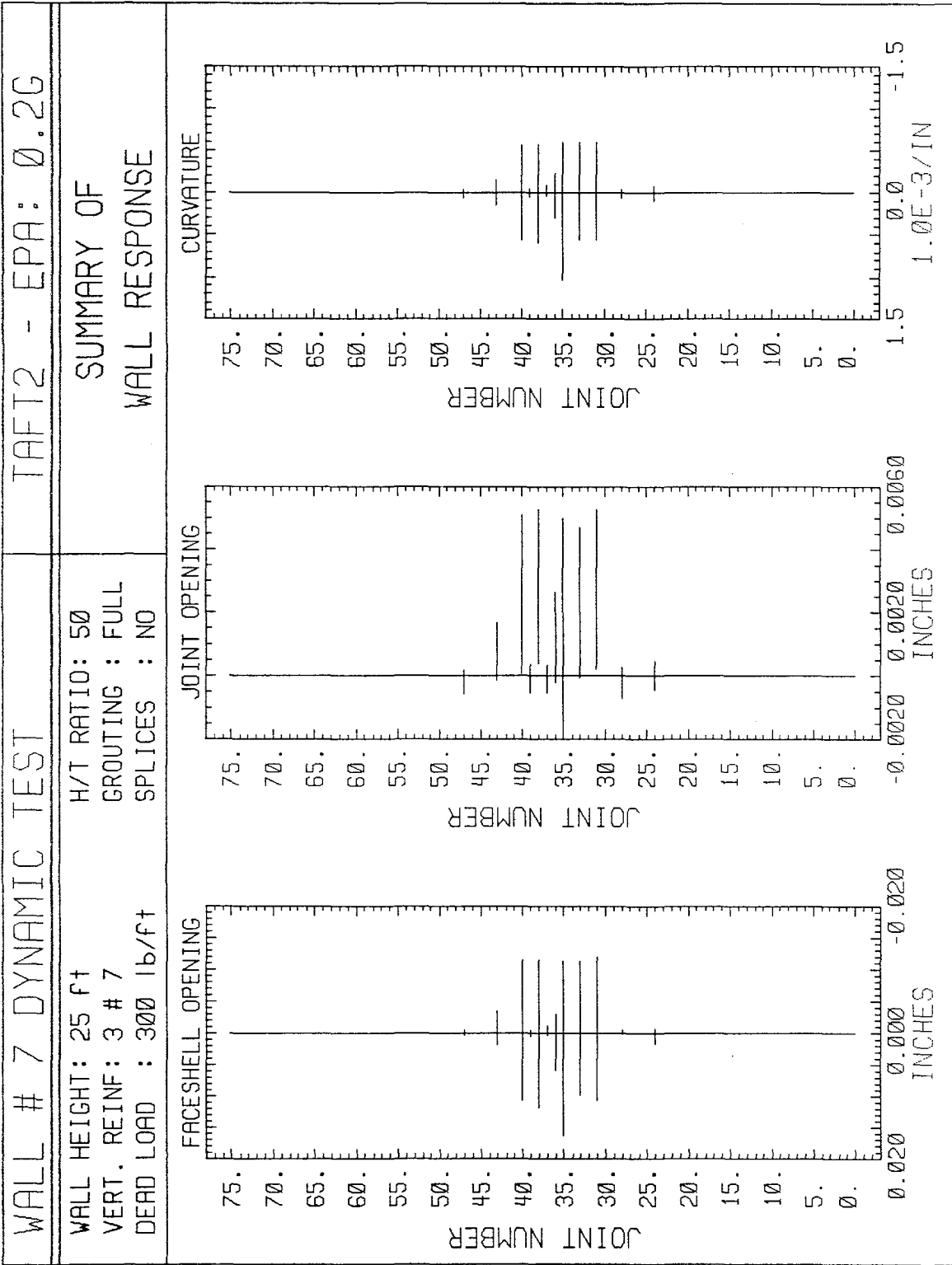


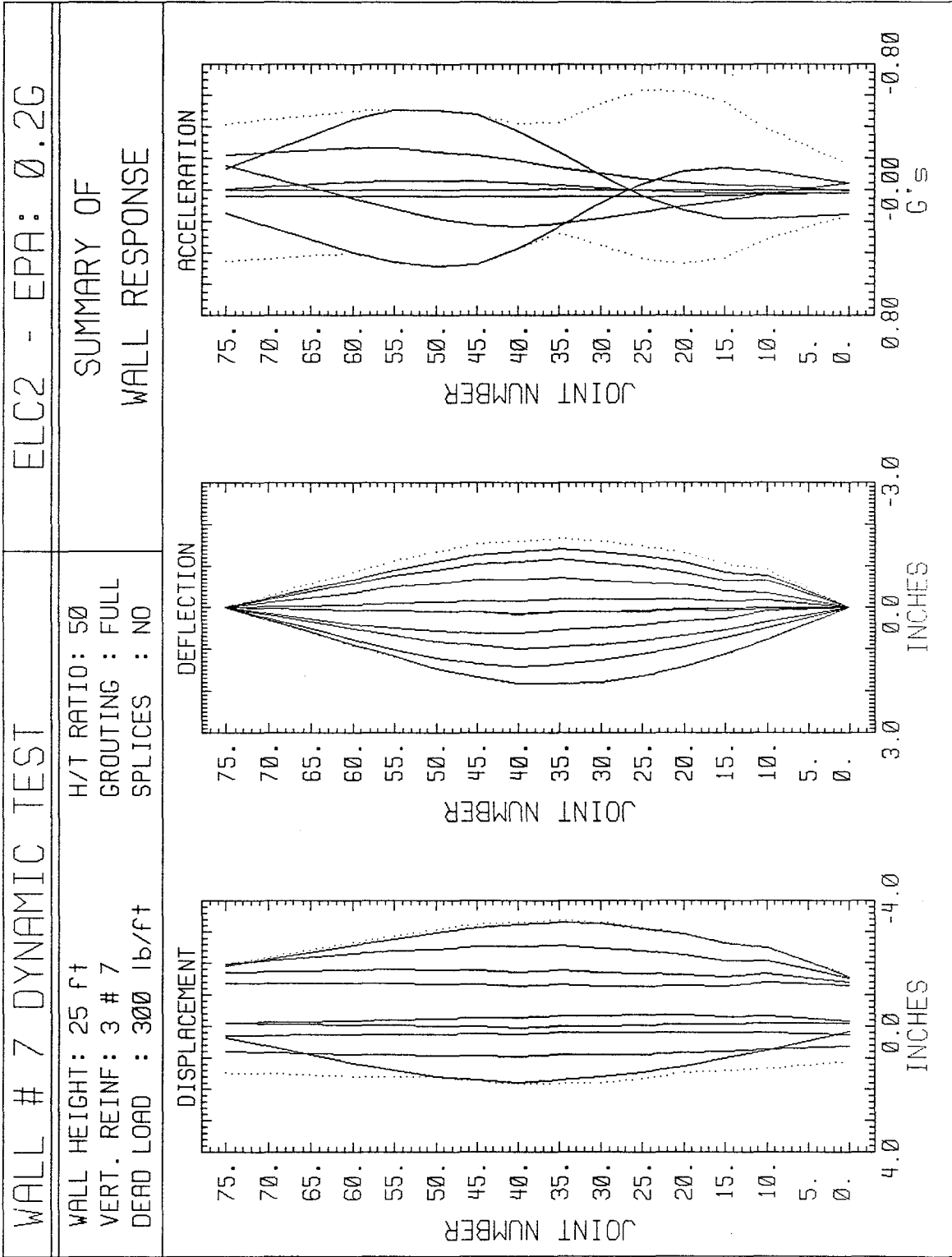




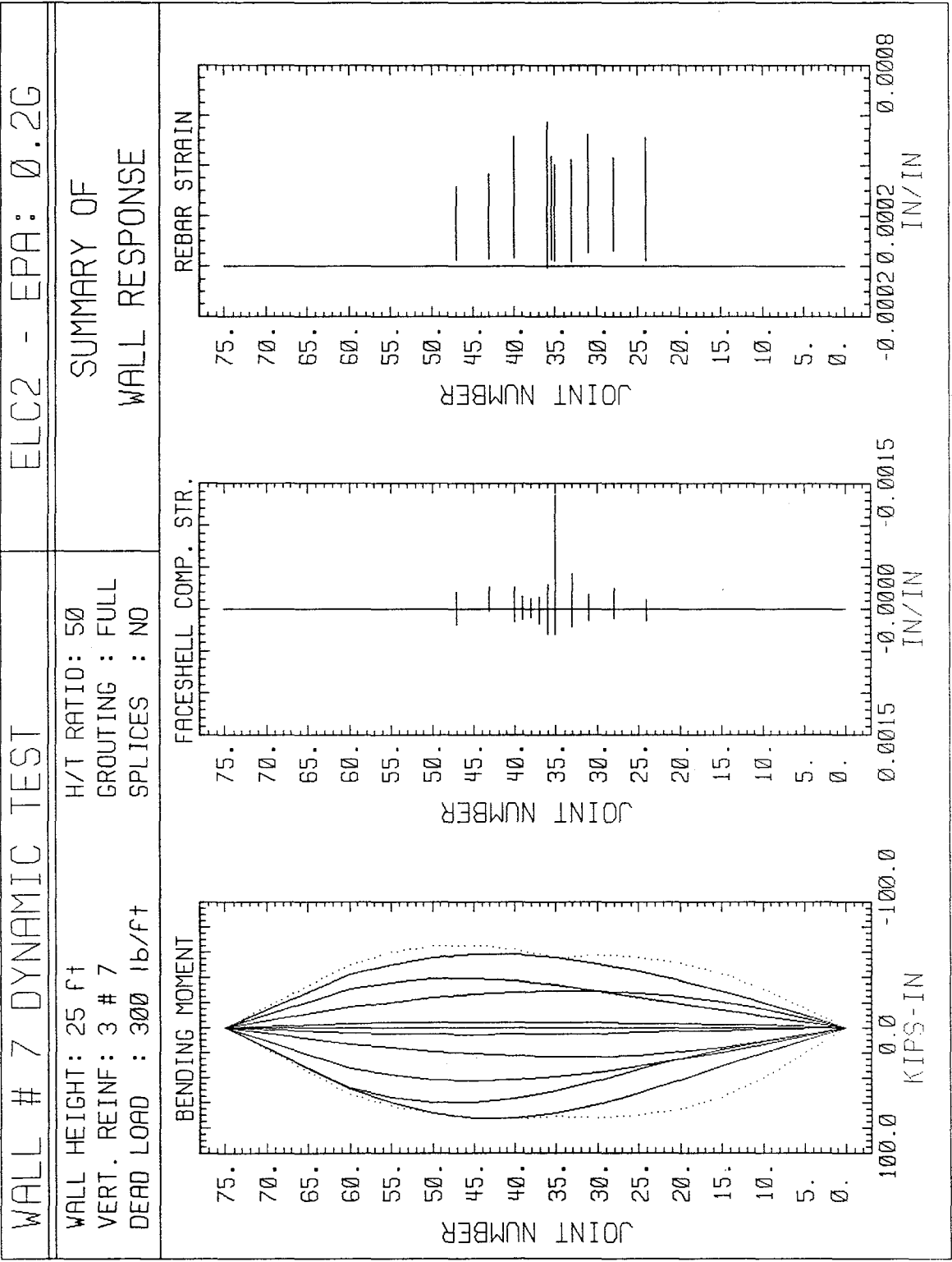


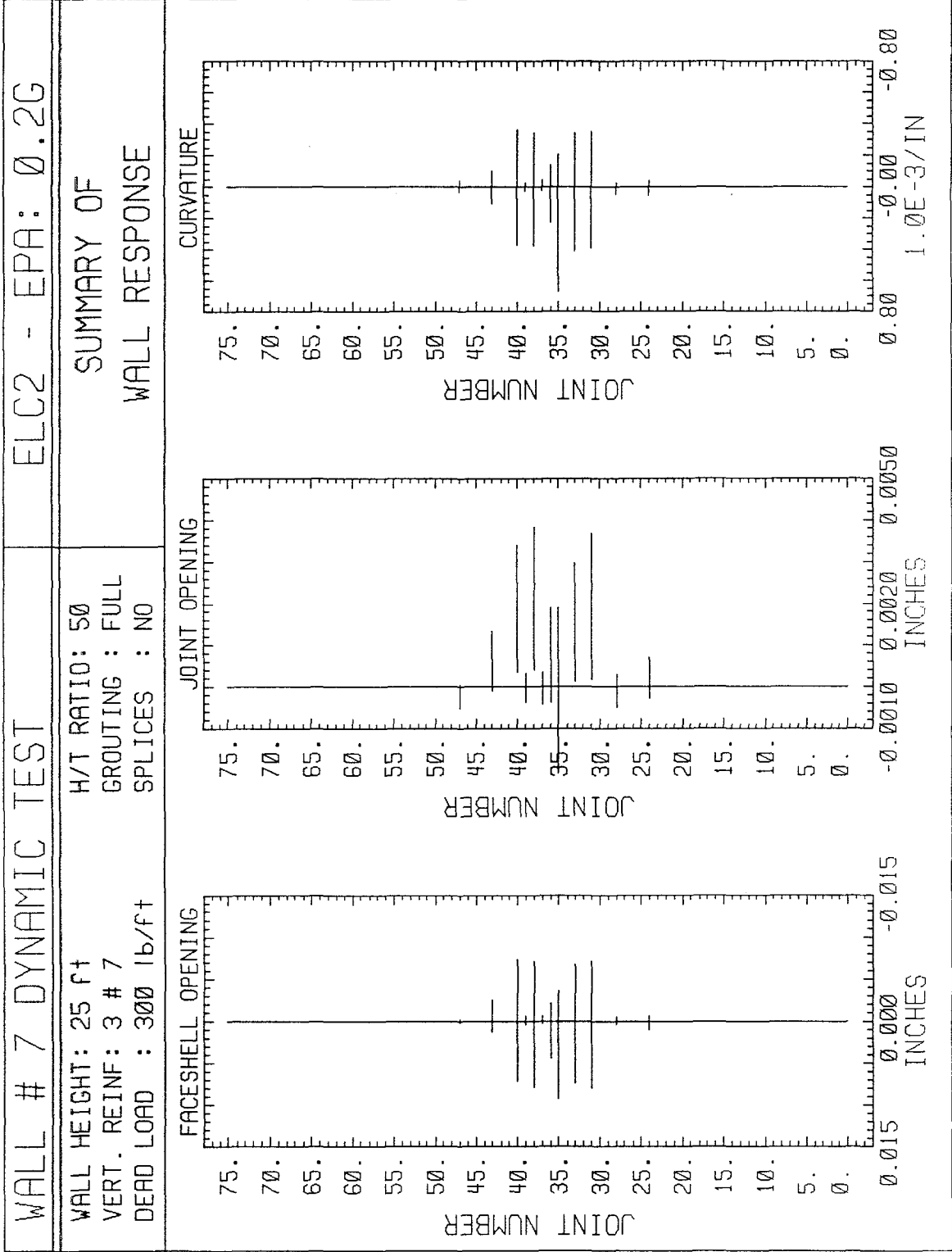












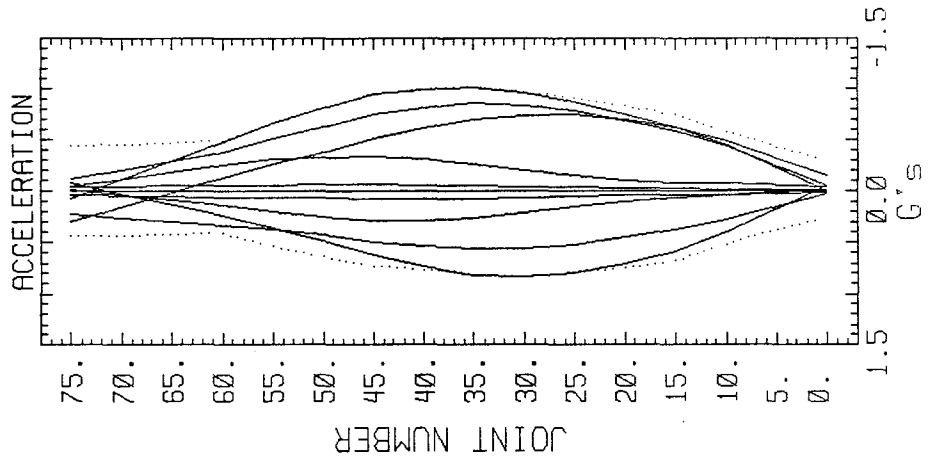
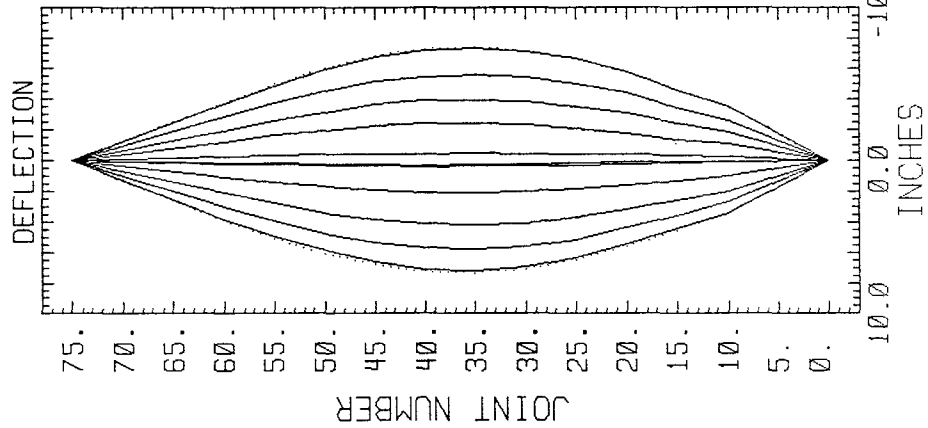
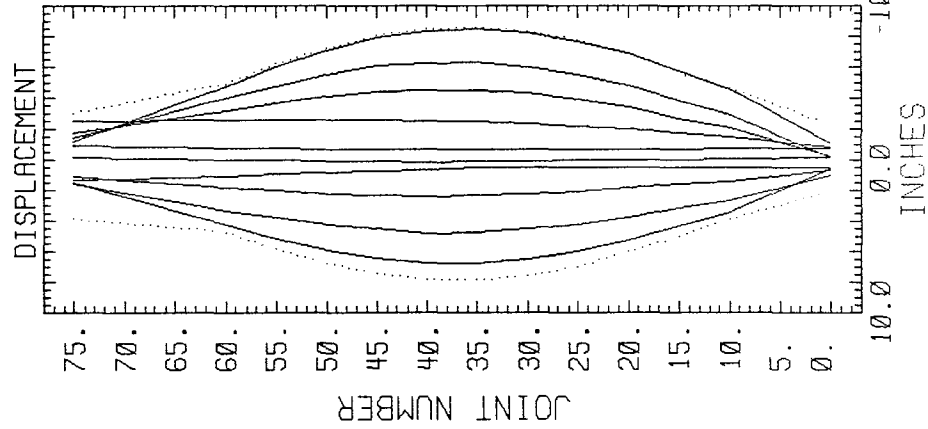
WALL # 7 DYNAMIC TEST

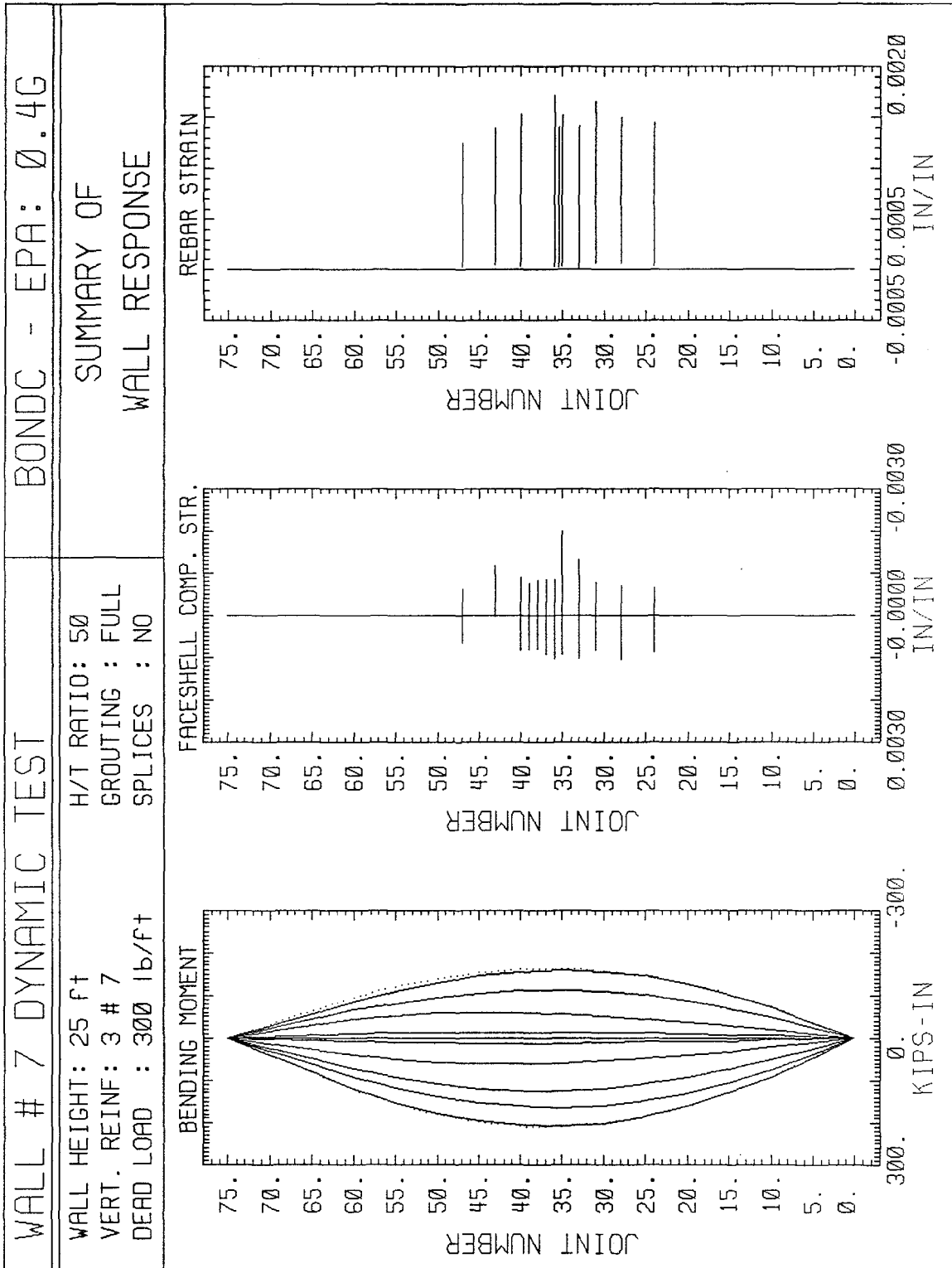
BOND C - EPA: 0.4G

WALL HEIGHT: 25 ft  
 VERT. REINF: 3 # 7  
 DEAD LOAD : 300 lb/ft

H/T RATIO: 50  
 GROUTING : FULL  
 SPLICES : NO

SUMMARY OF  
 WALL RESPONSE





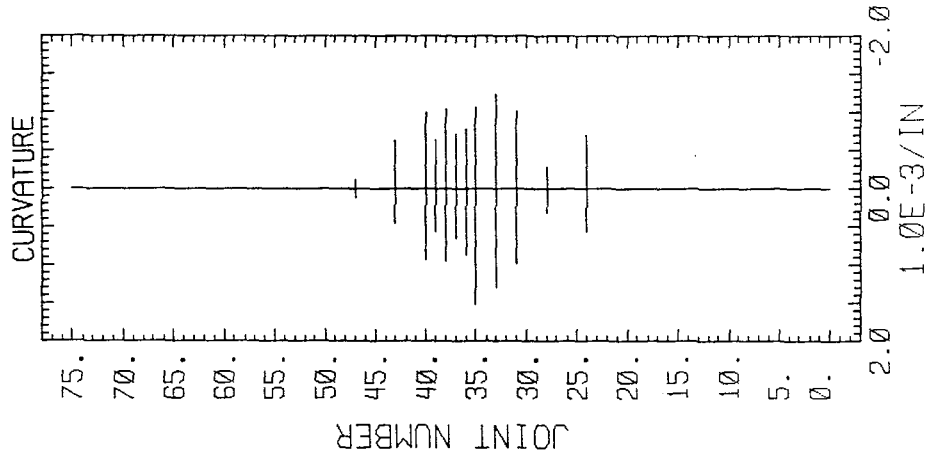
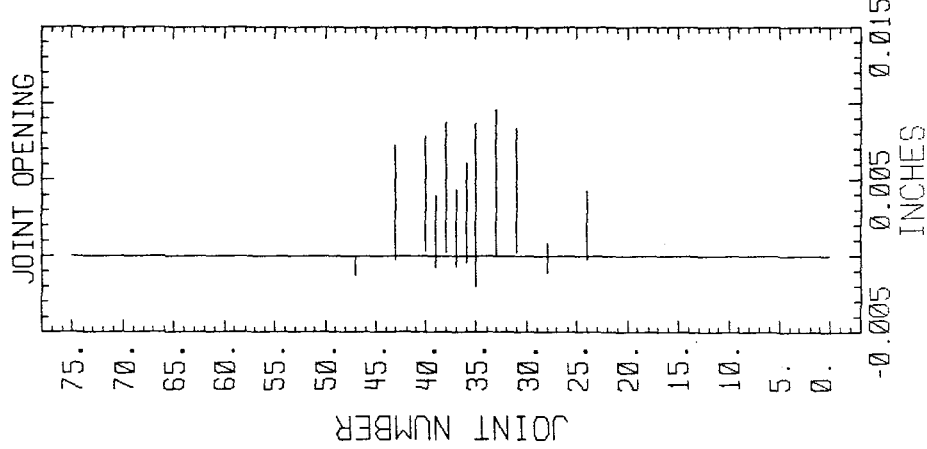
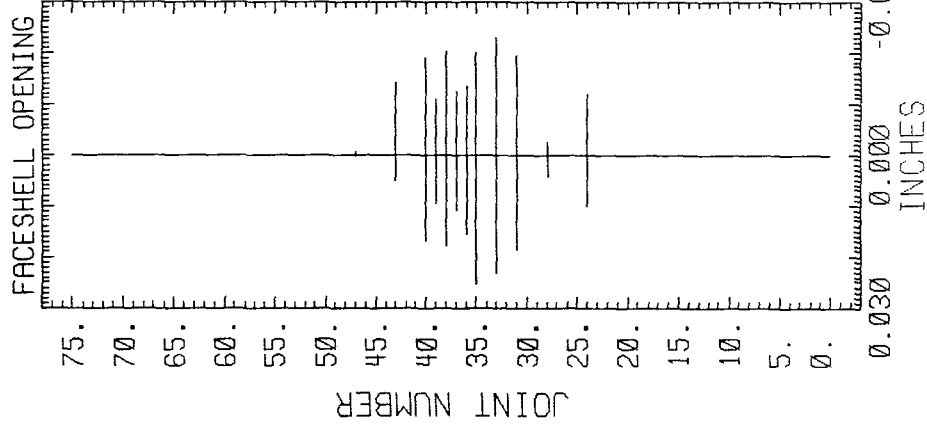
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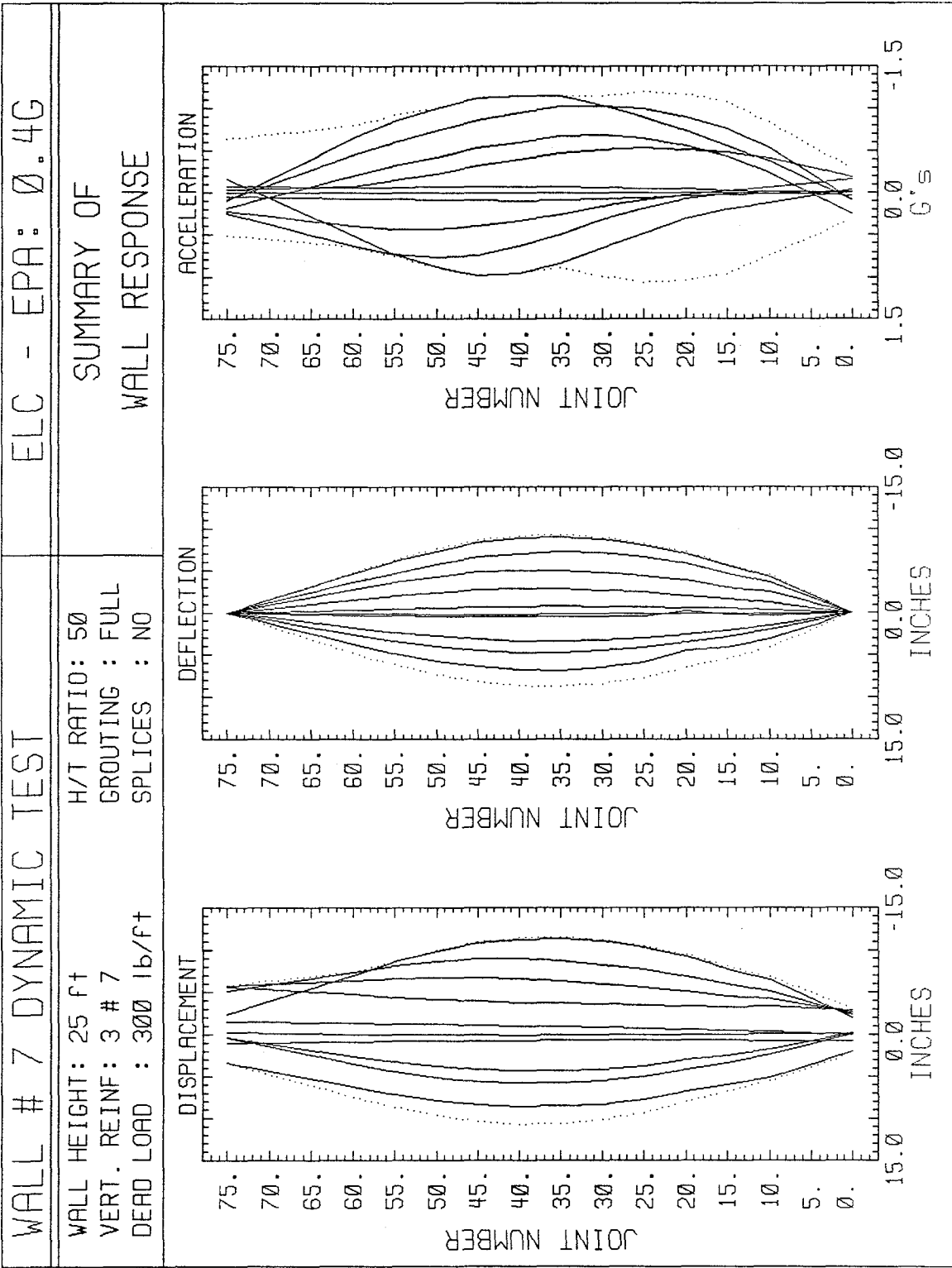
BOND - EPA: 0.4G

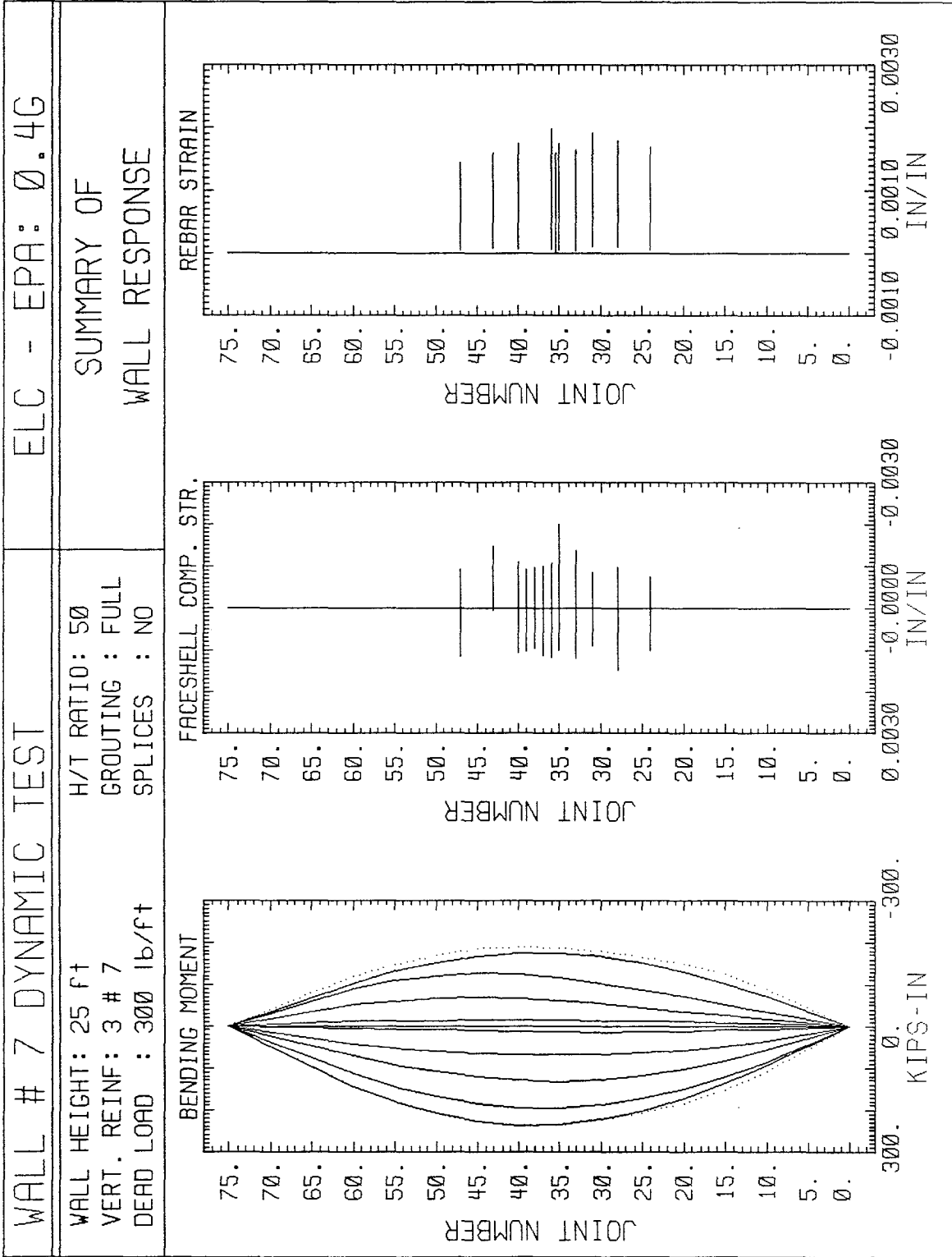
WALL HEIGHT: 25 ft  
 VERT. REINF: 3 # 7  
 DEAD LOAD : 300 lb/ft

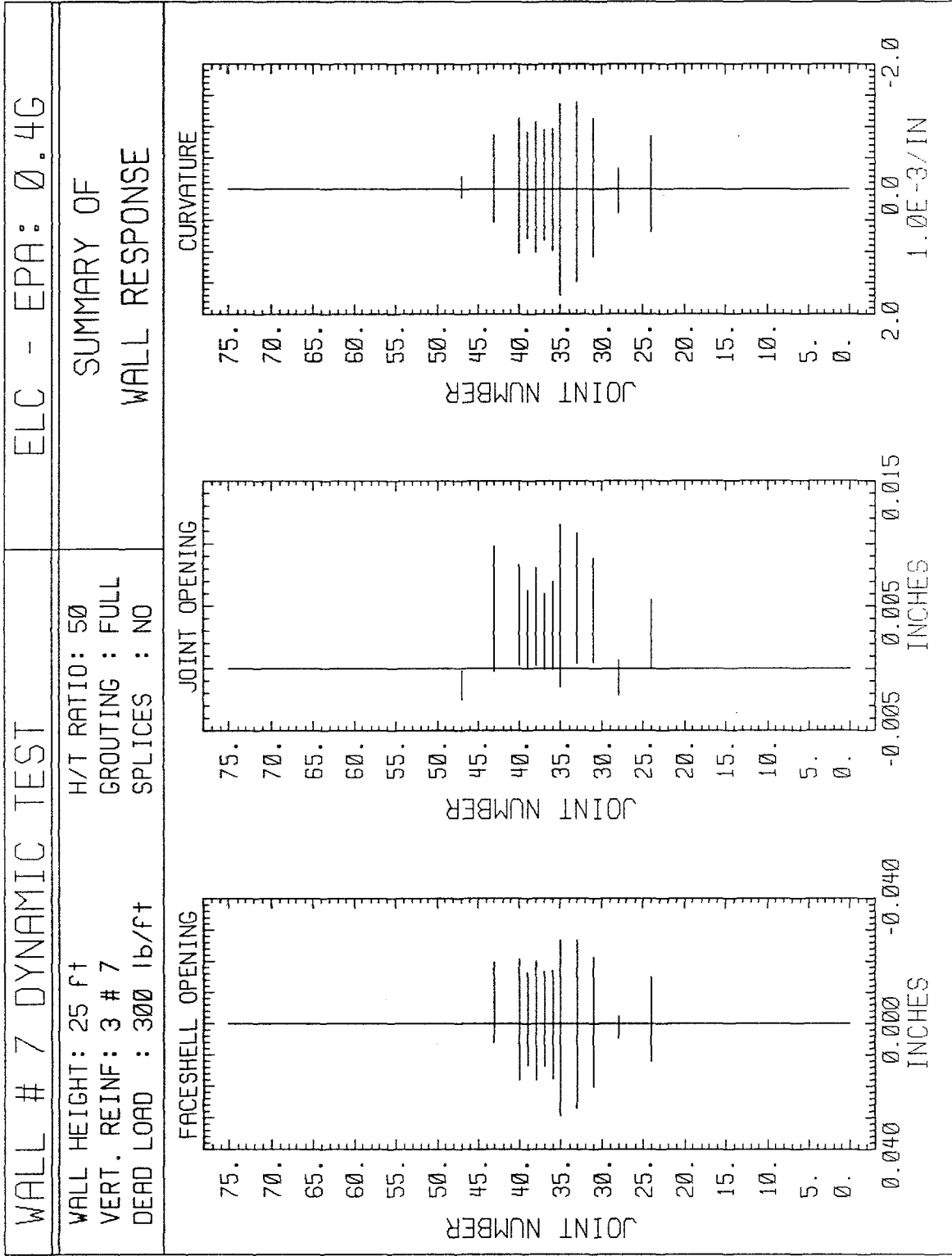
H/T RATIO: 50  
 GROUTING : FULL  
 SPLICES : NO

SUMMARY OF  
 WALL RESPONSE

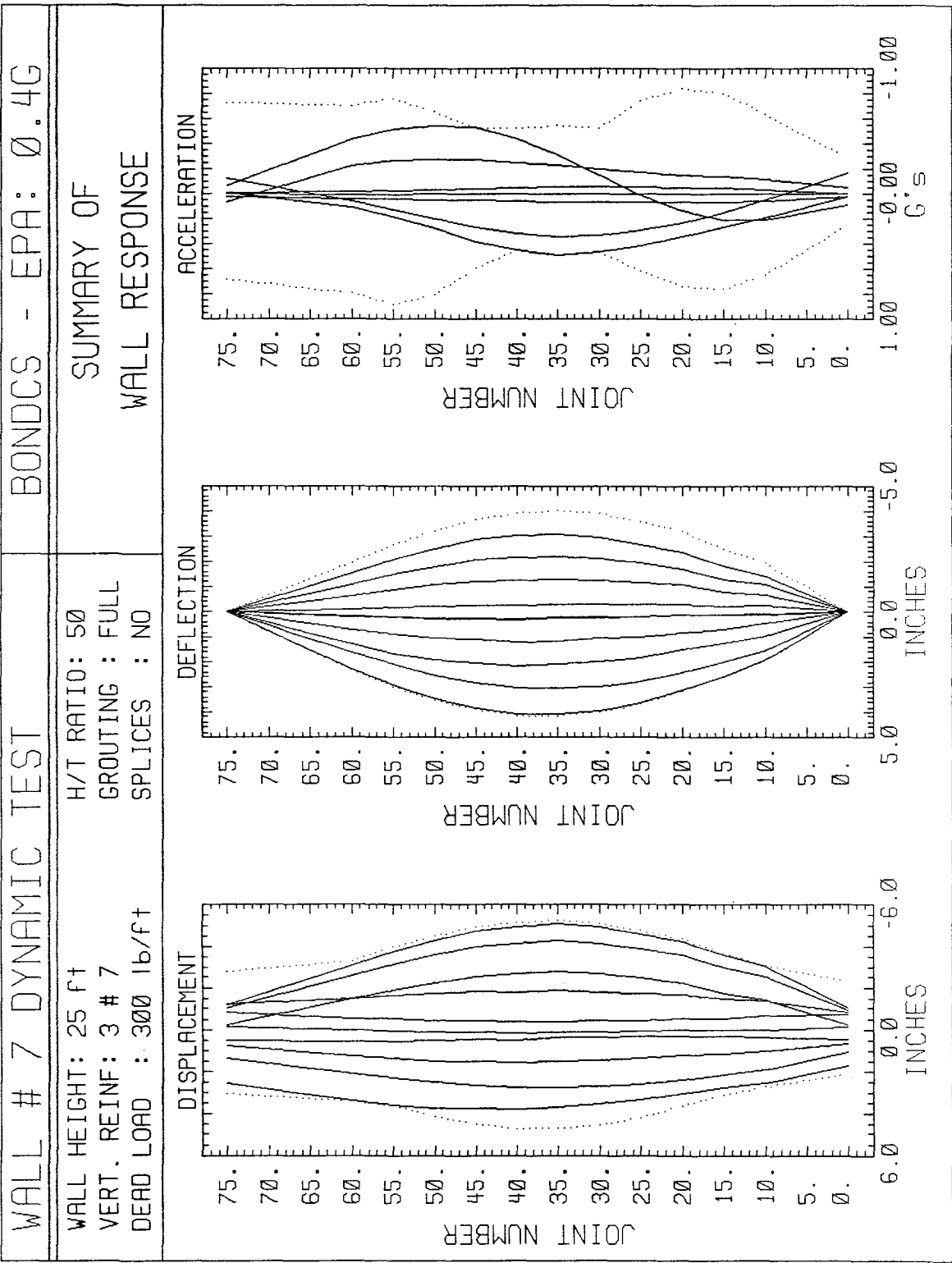


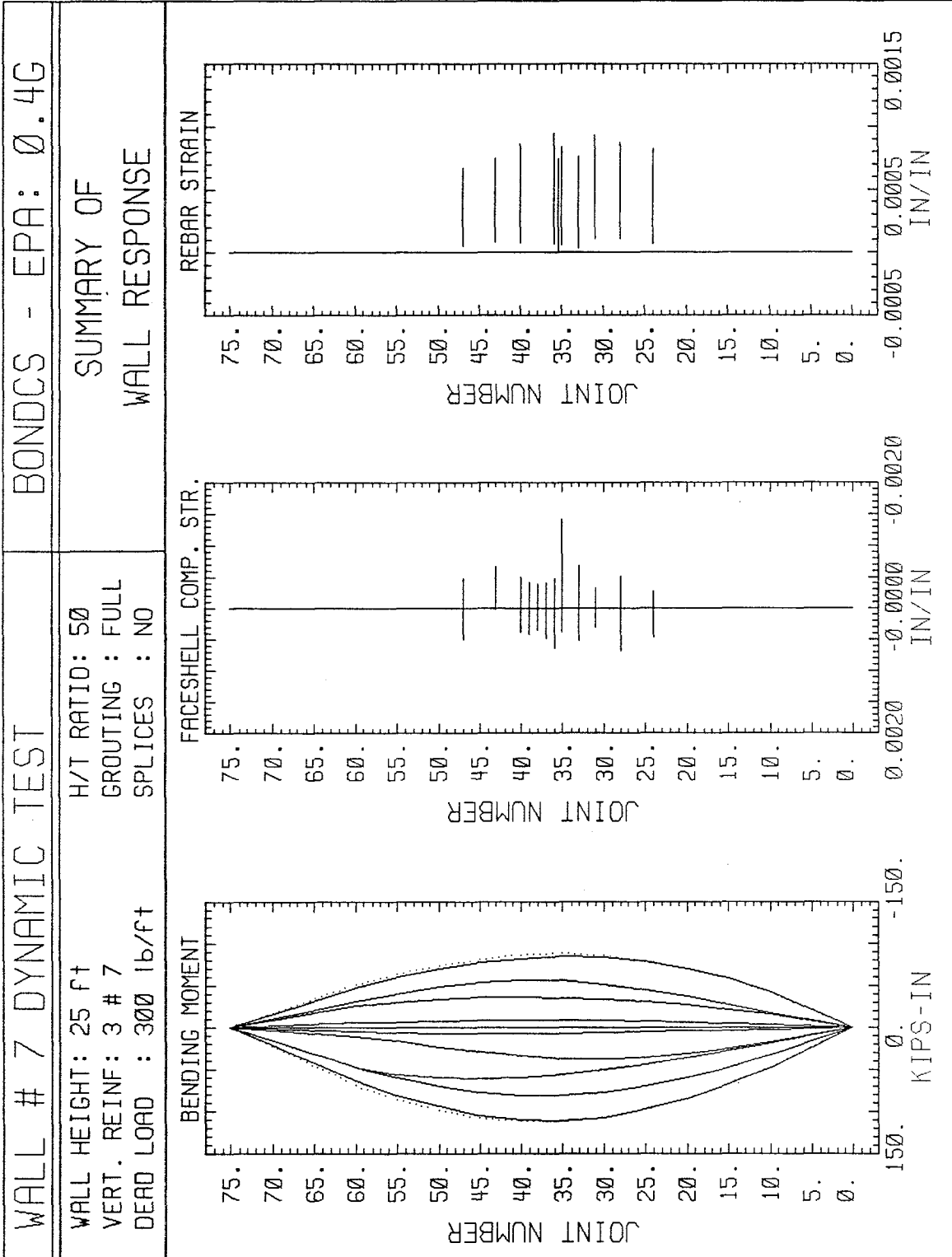












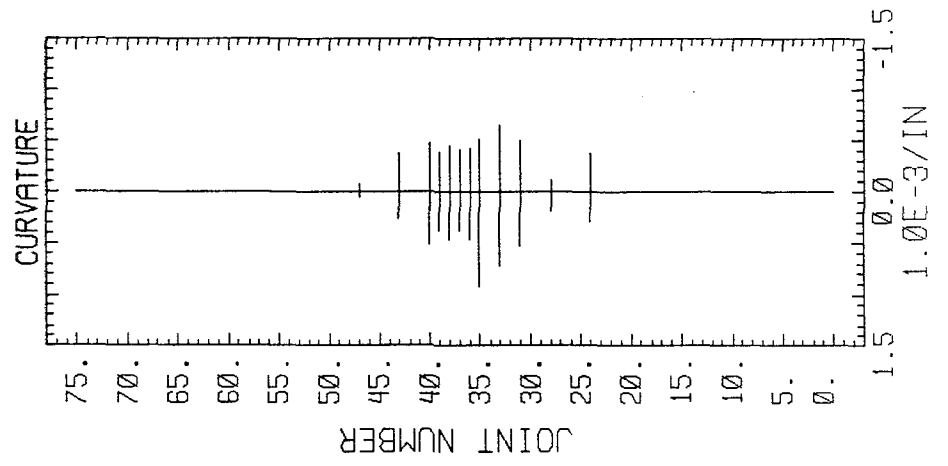
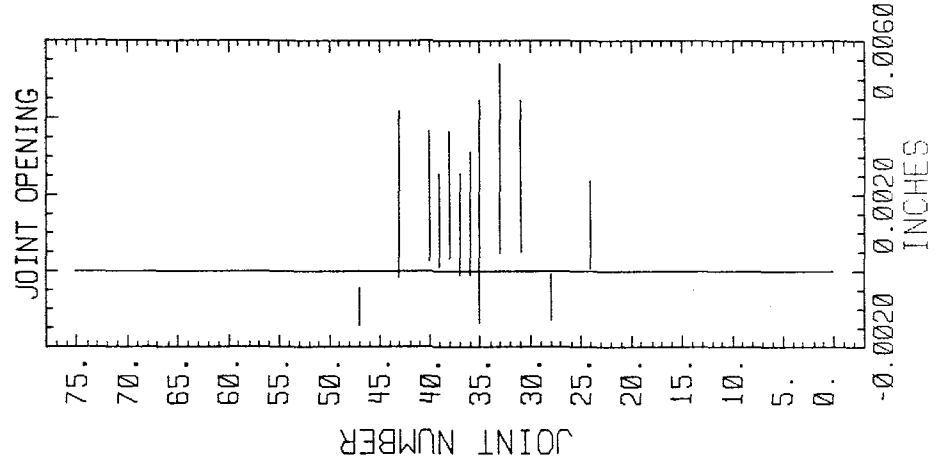
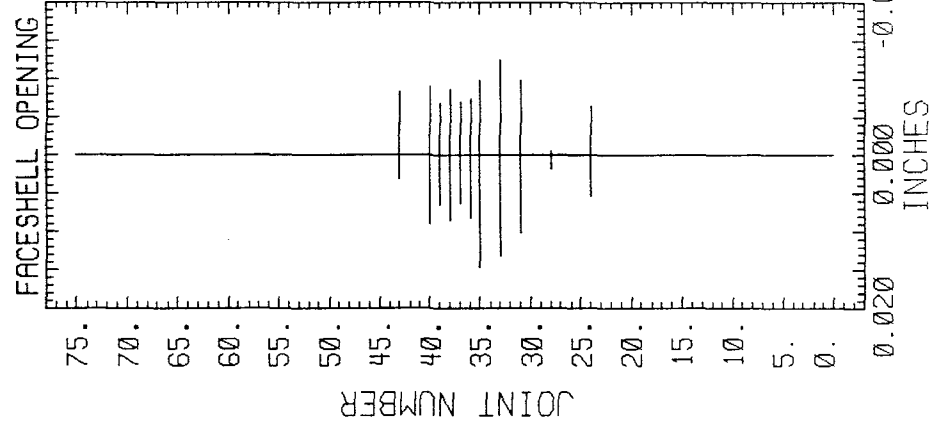
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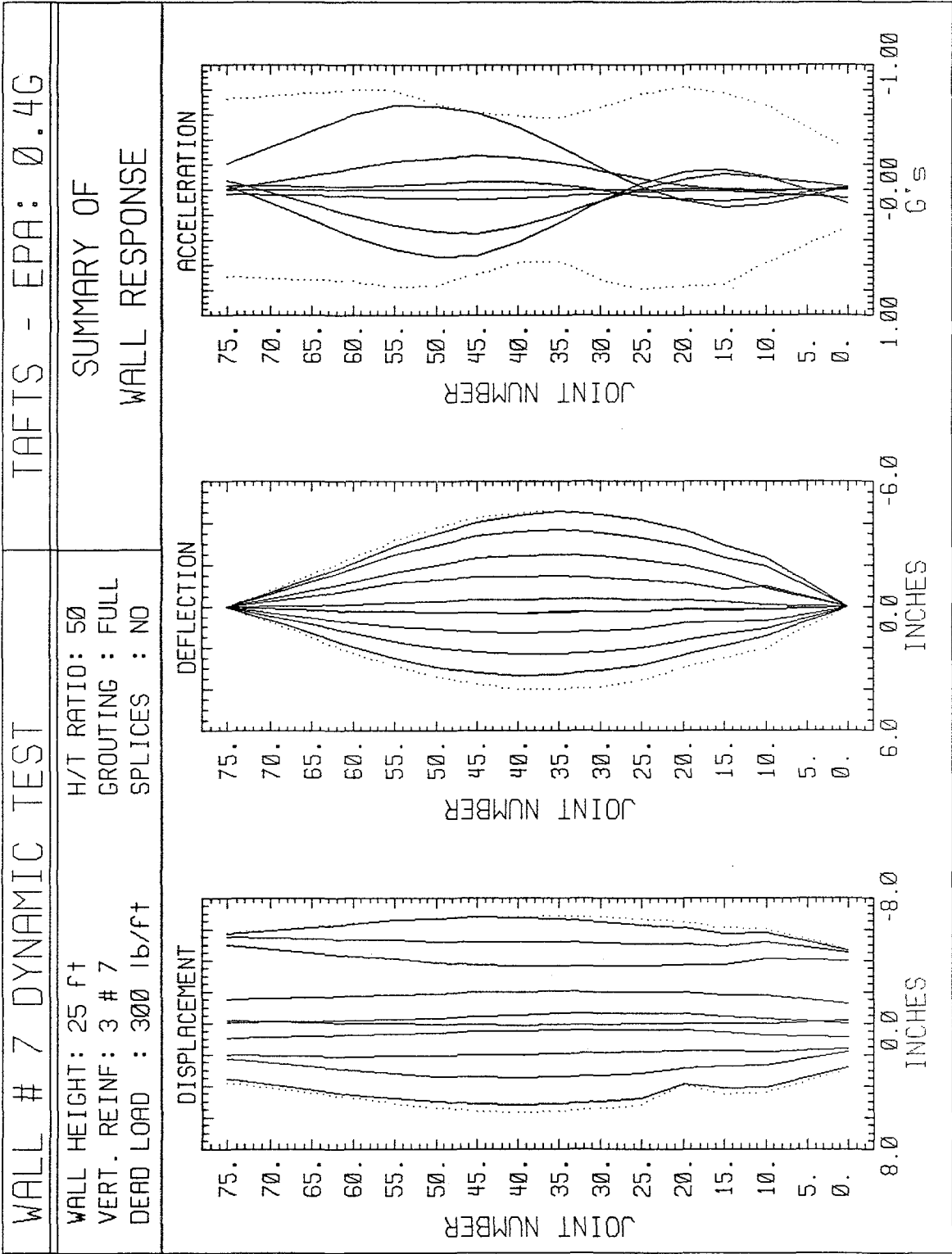
BONDCS - EPA: Ø.4G

WALL HEIGHT: 25 ft  
 VERT. REINF: 3 # 7  
 DEAD LOAD : 300 lb/ft

H/T RATIO: 50  
 GROUTING : FULL  
 SPLICES : NO

SUMMARY OF  
 WALL RESPONSE





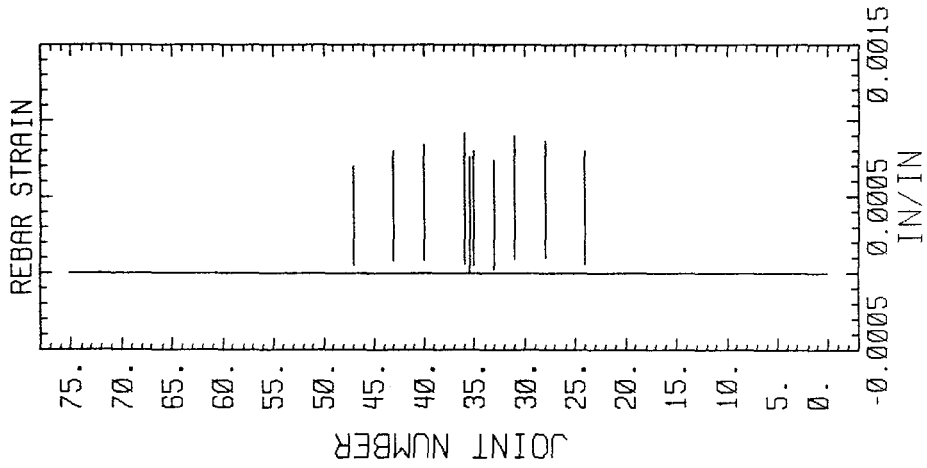
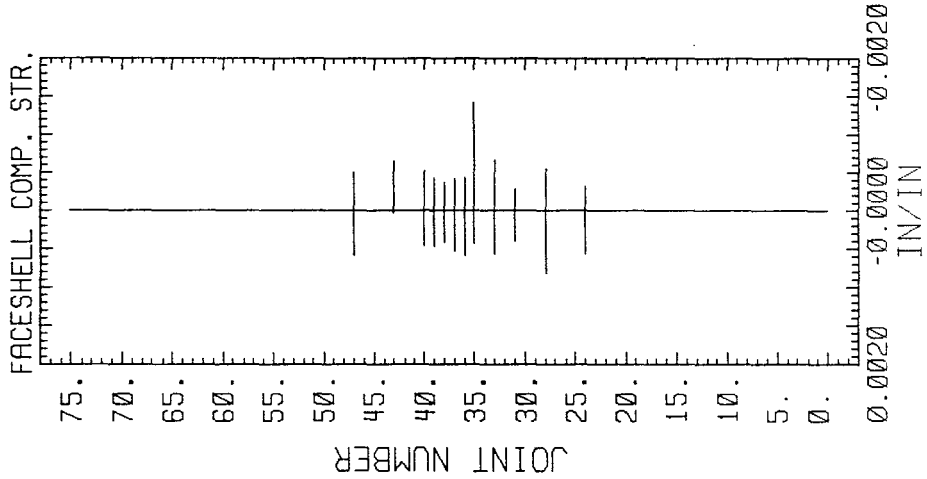
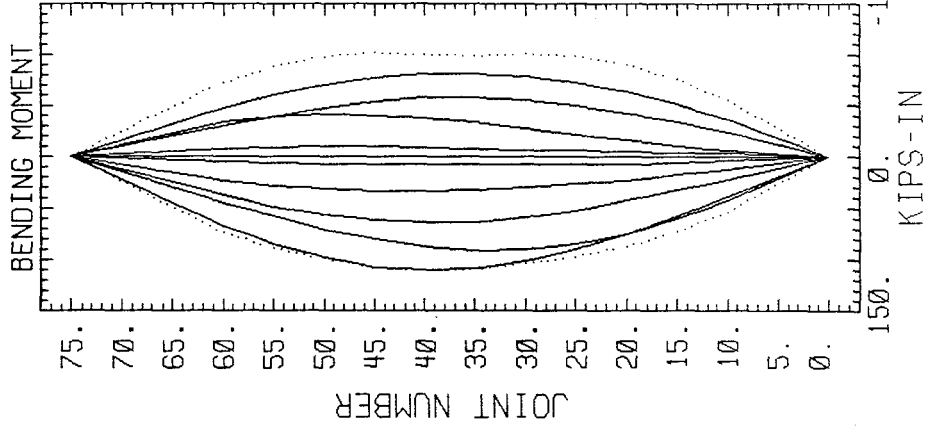
WALL # 7 DYNAMIC TEST

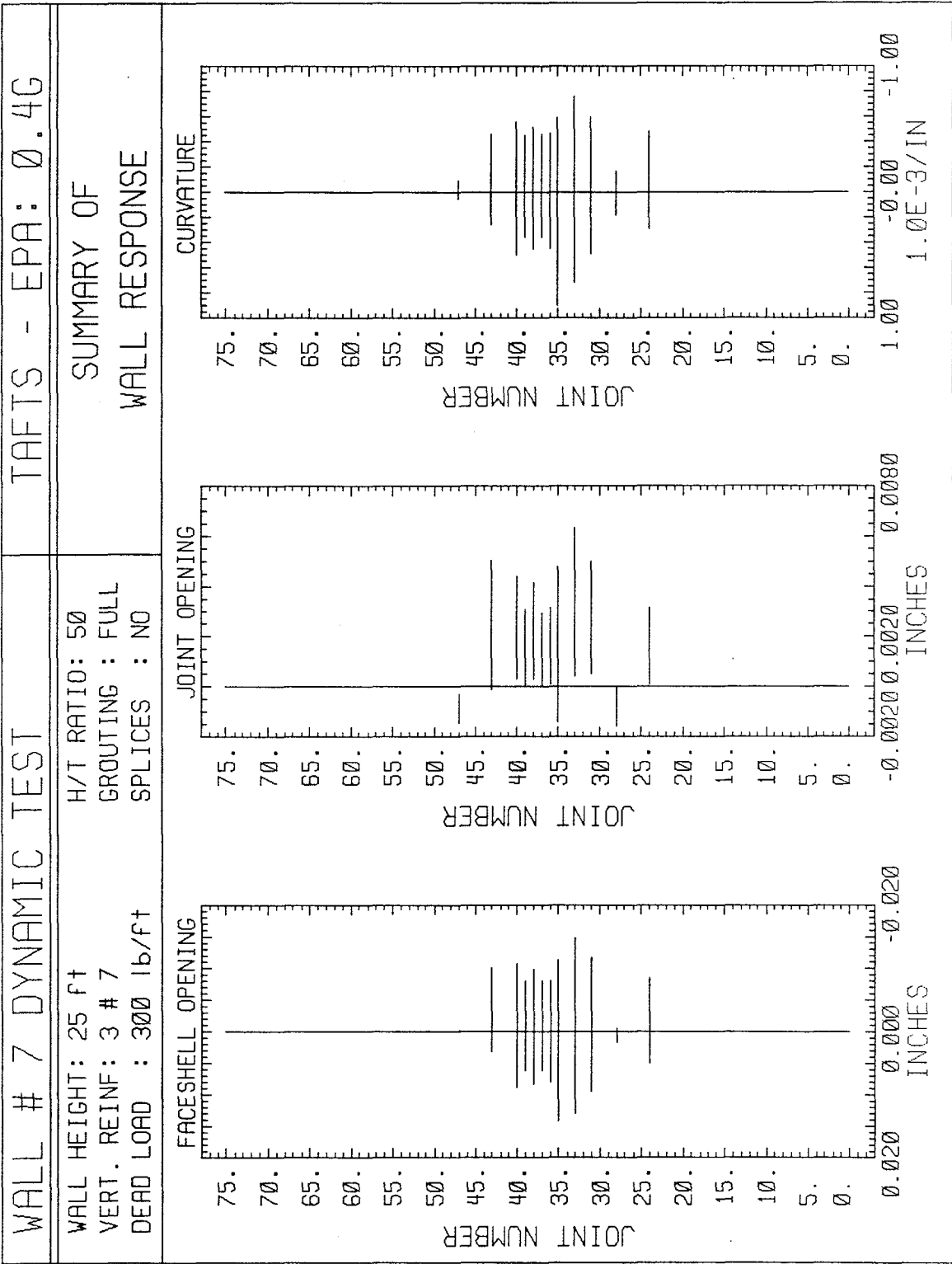
TAFTS - EPA: 0.4G

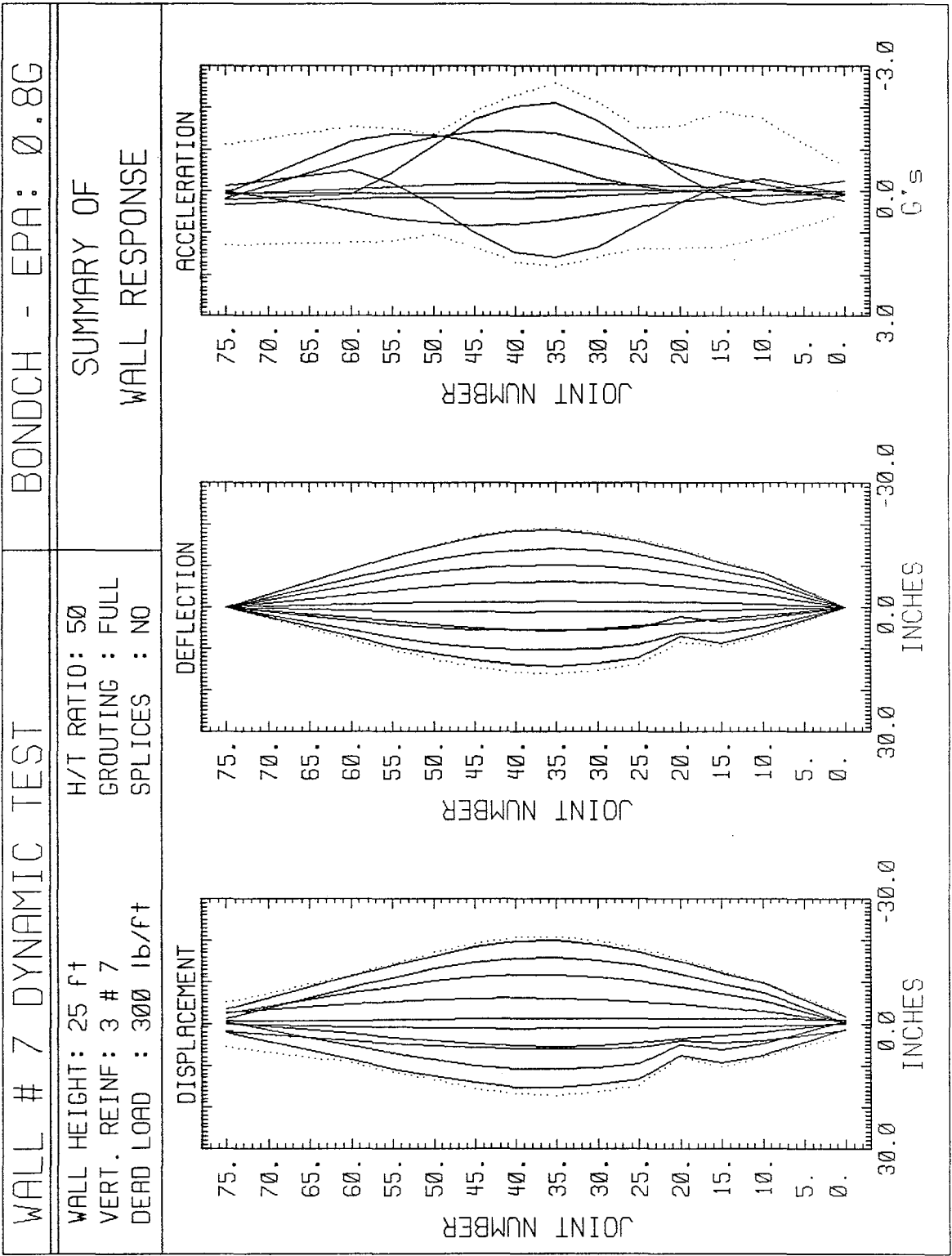
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 VERT. REINF: 3 # 7  
 DEAD LOAD : 300 lb/ft

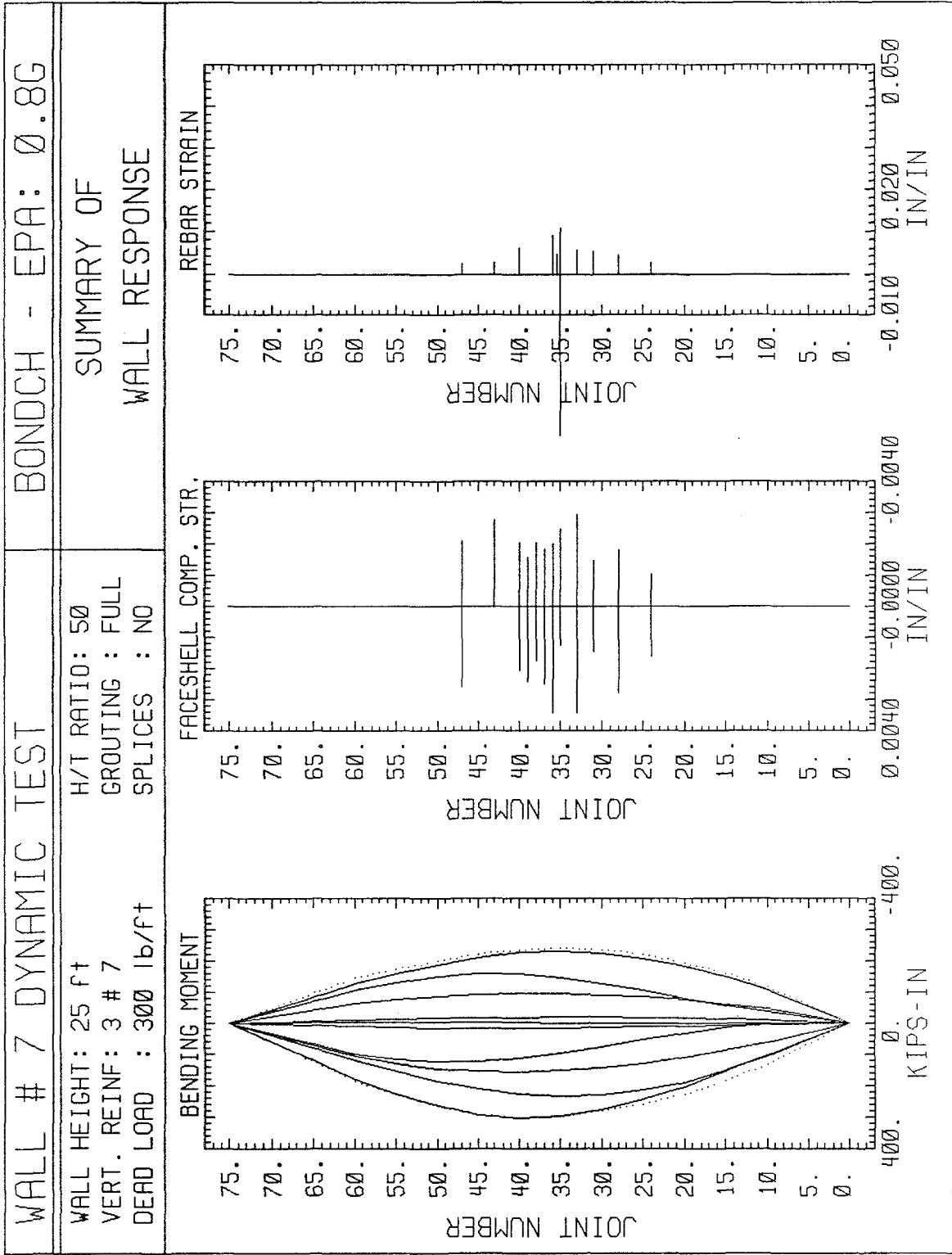
H/T RATIO: 50  
 GROUTING : FULL  
 SPLICES : NO

SUMMARY OF  
 WALL RESPONSE

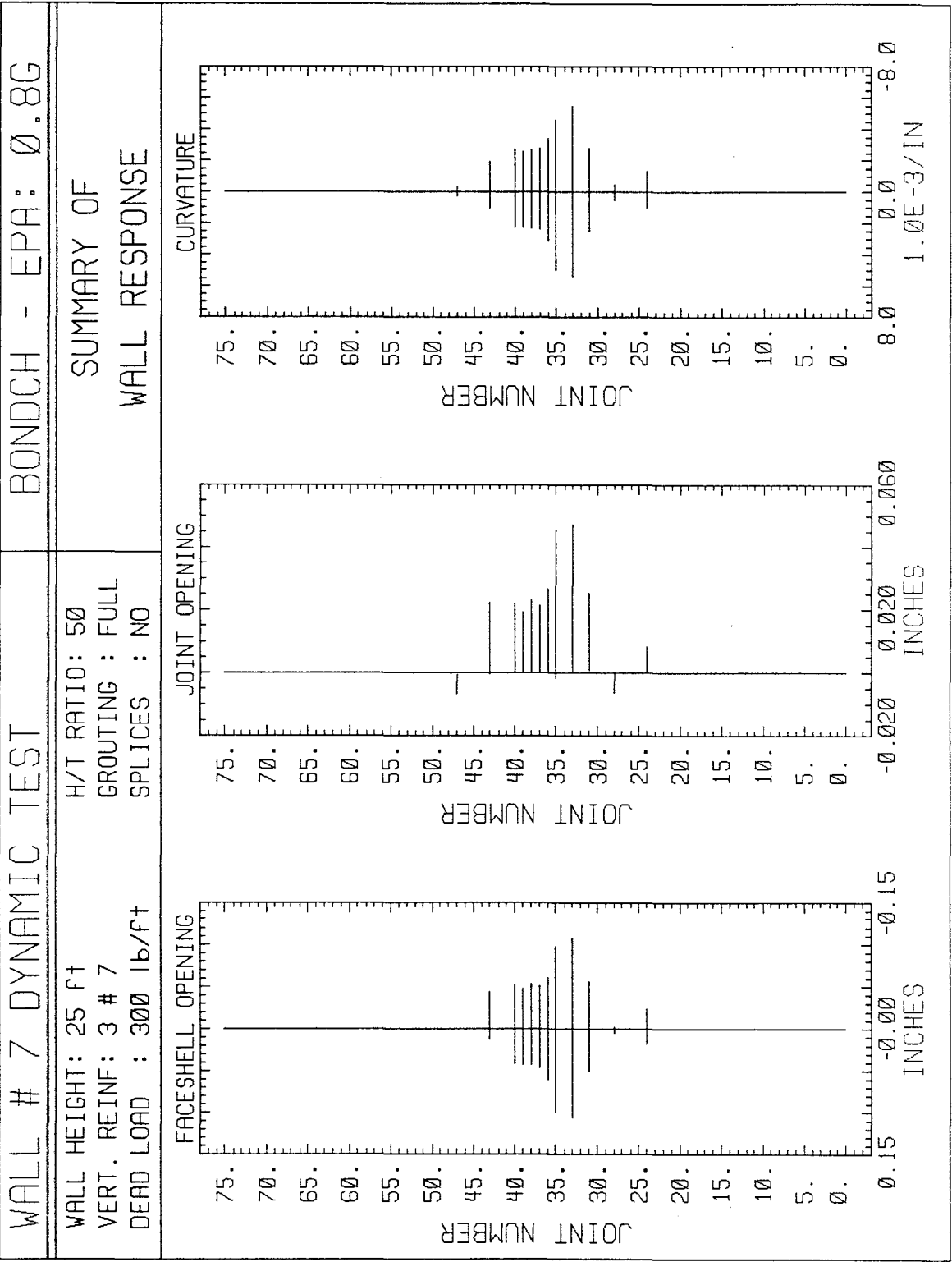


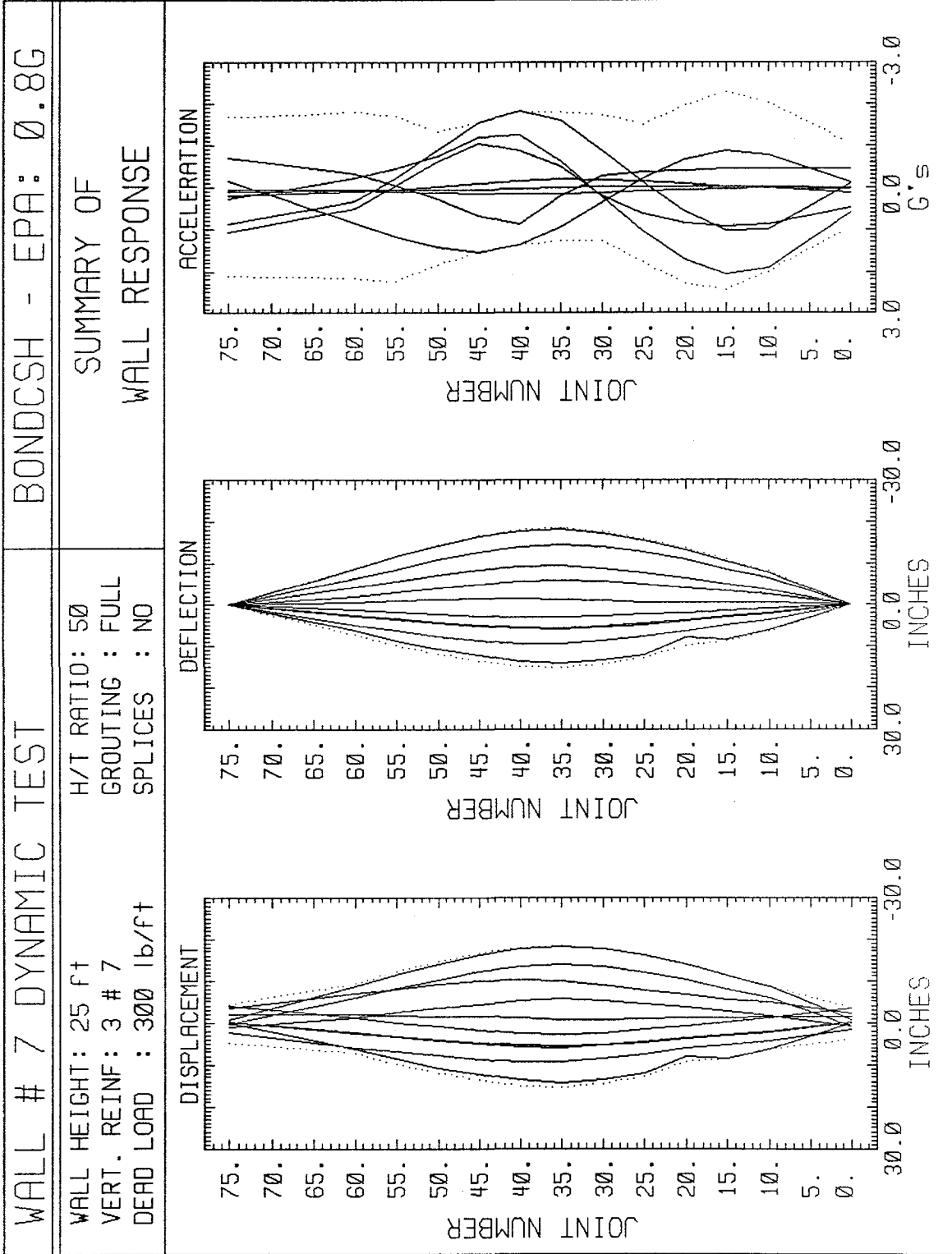


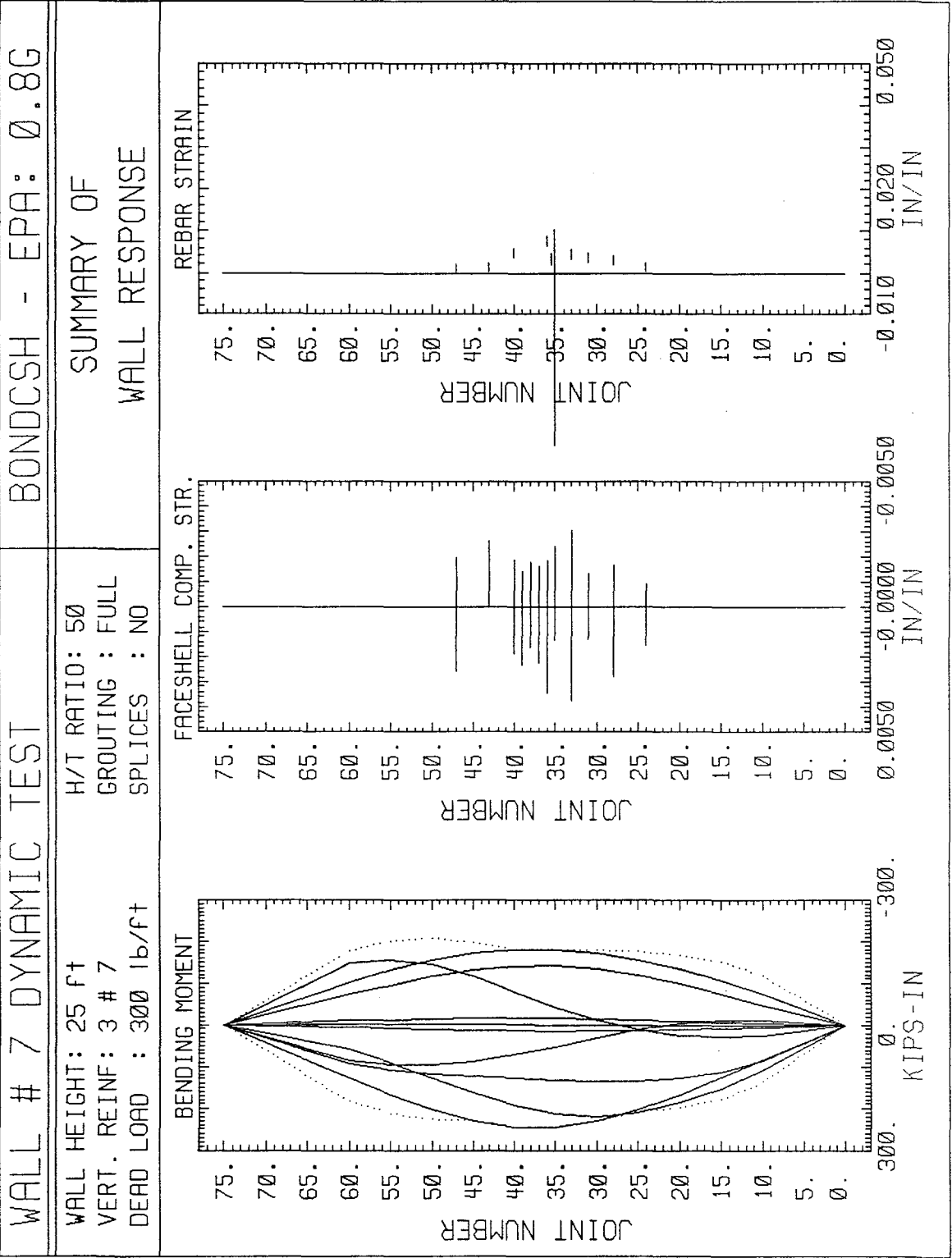


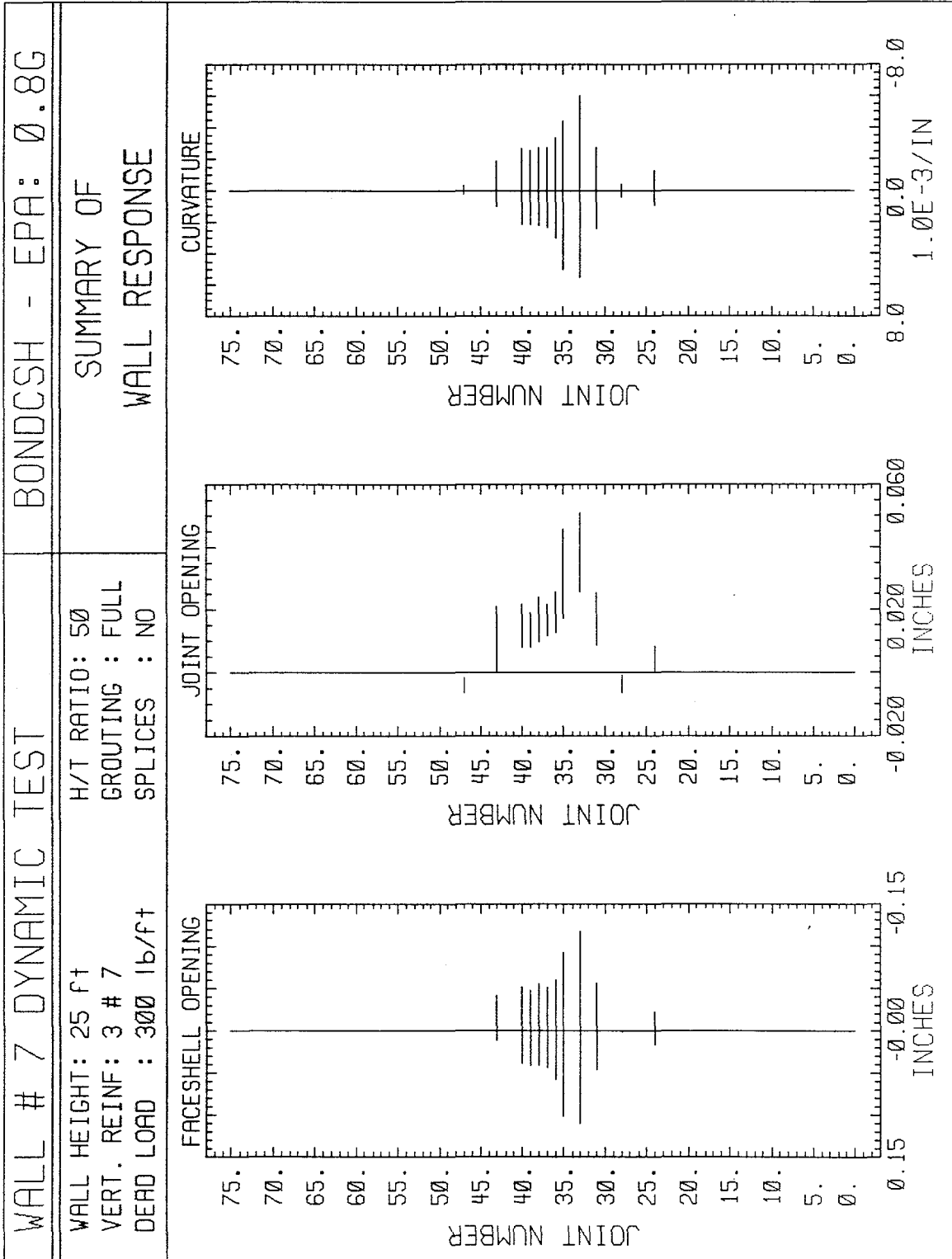


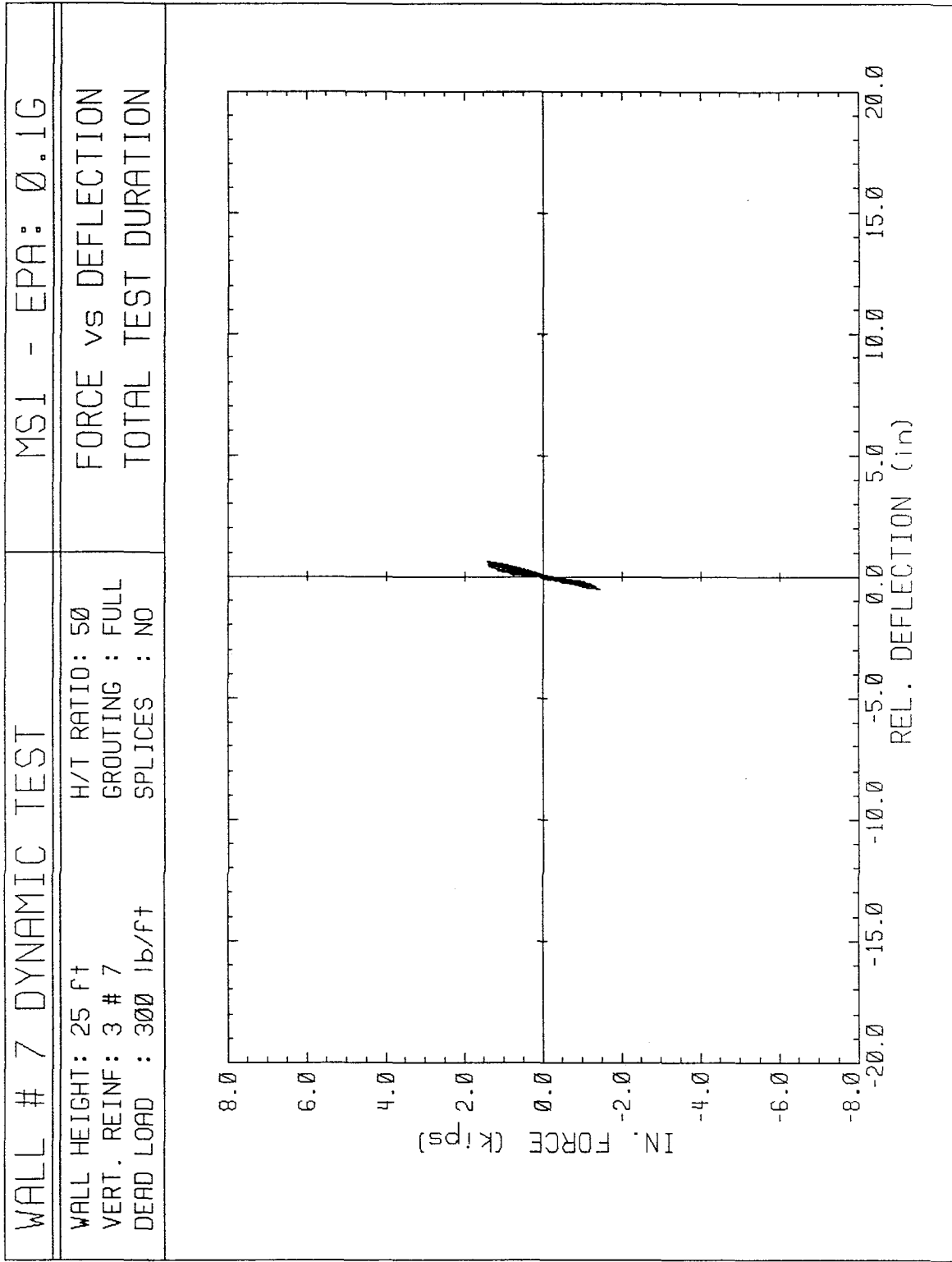


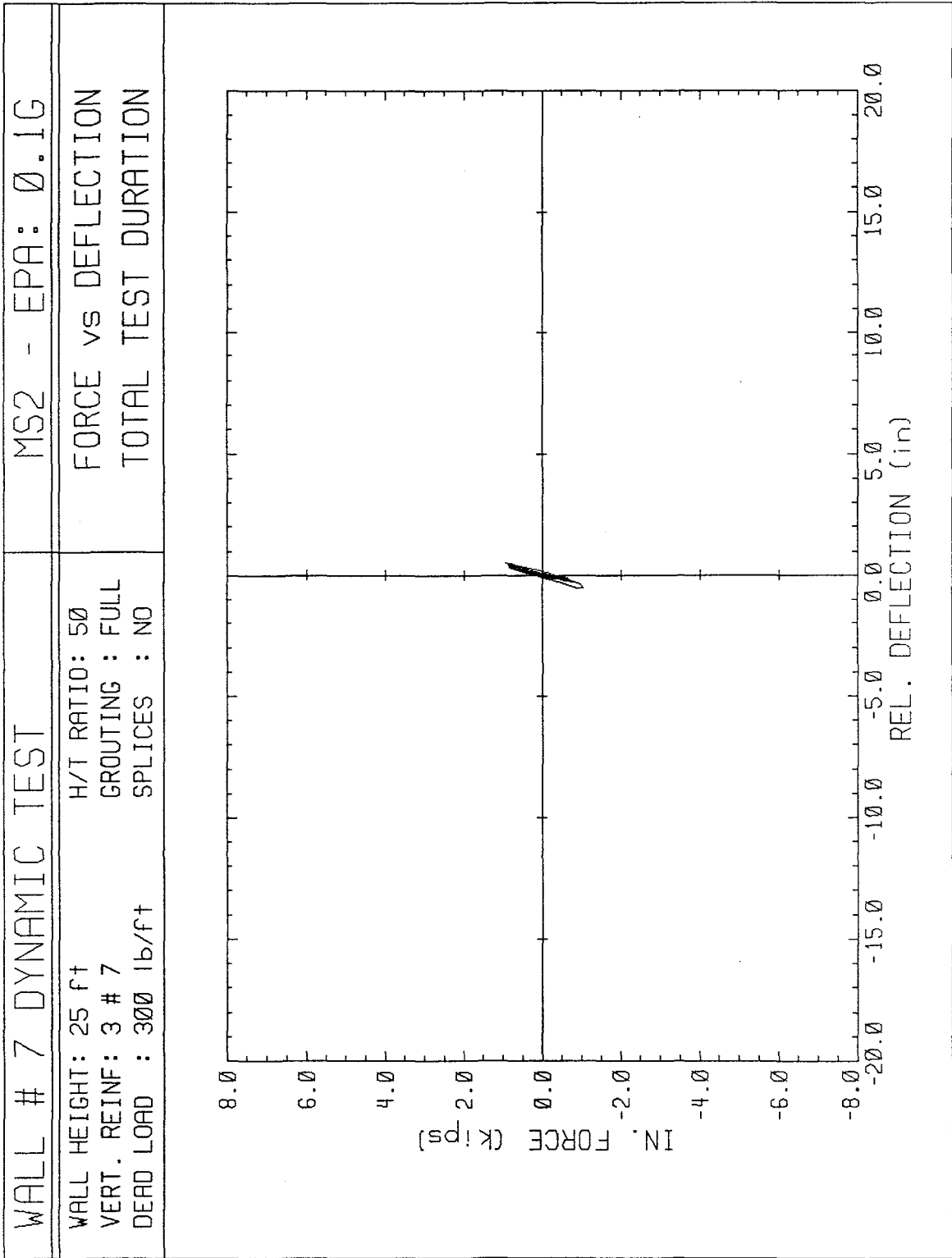


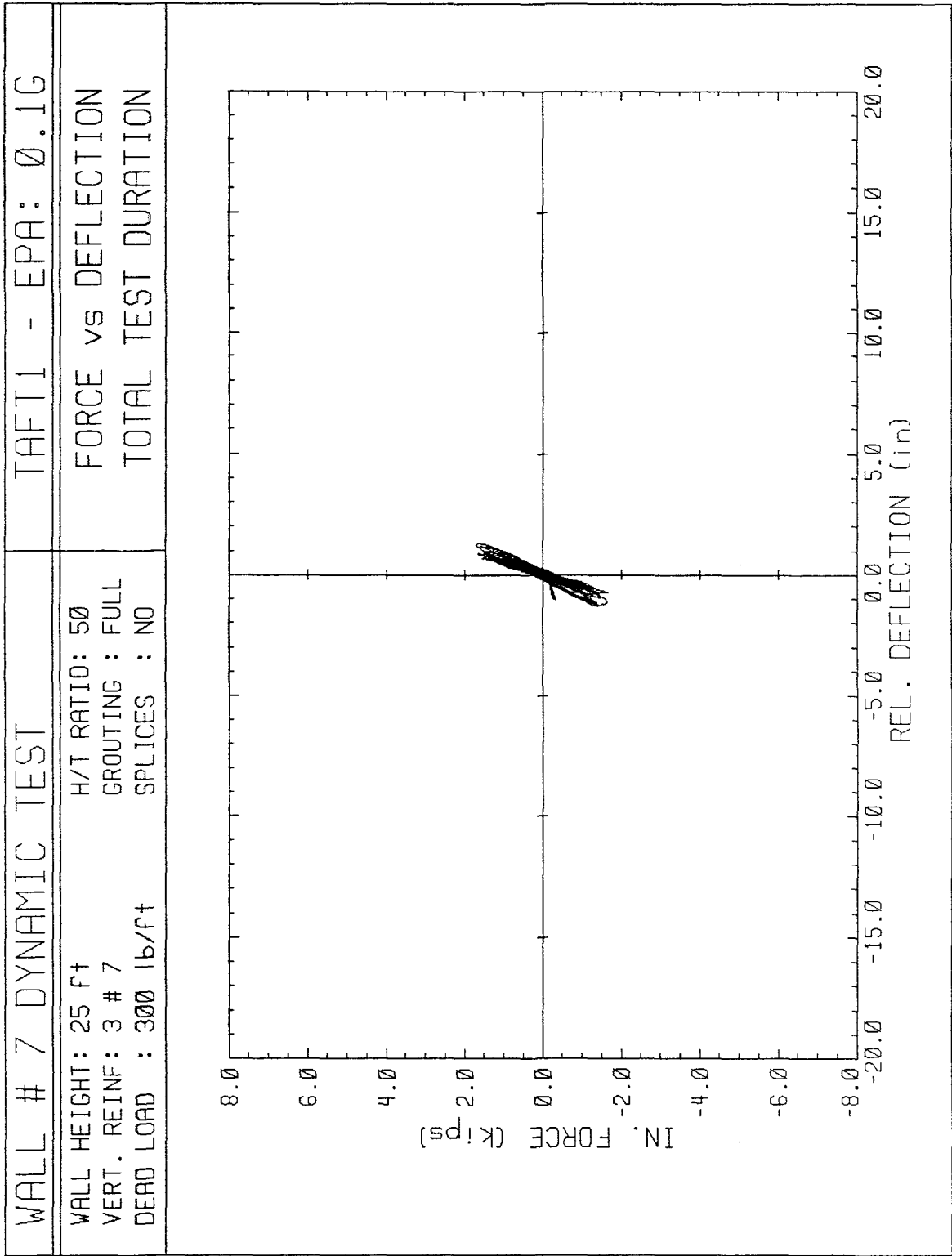


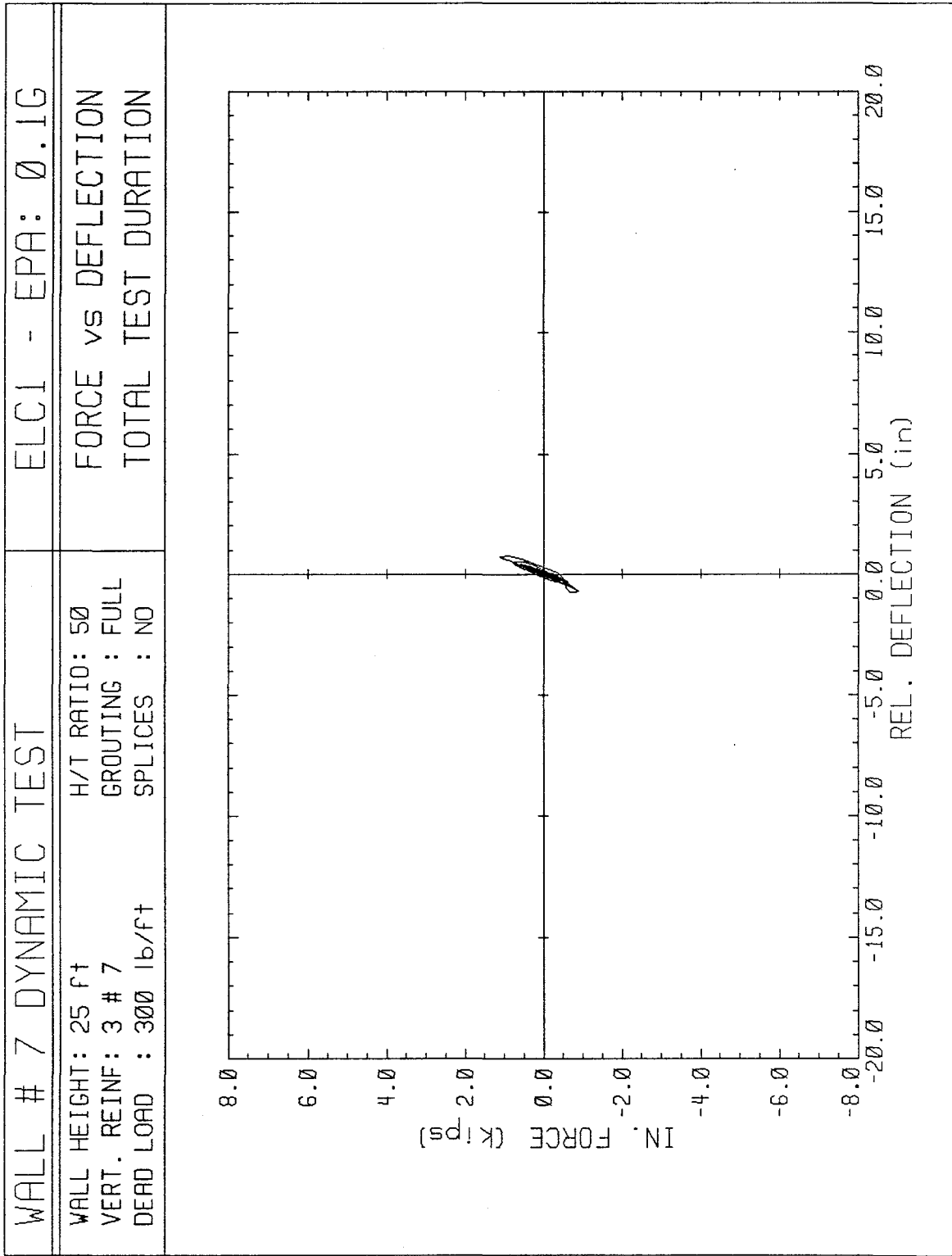




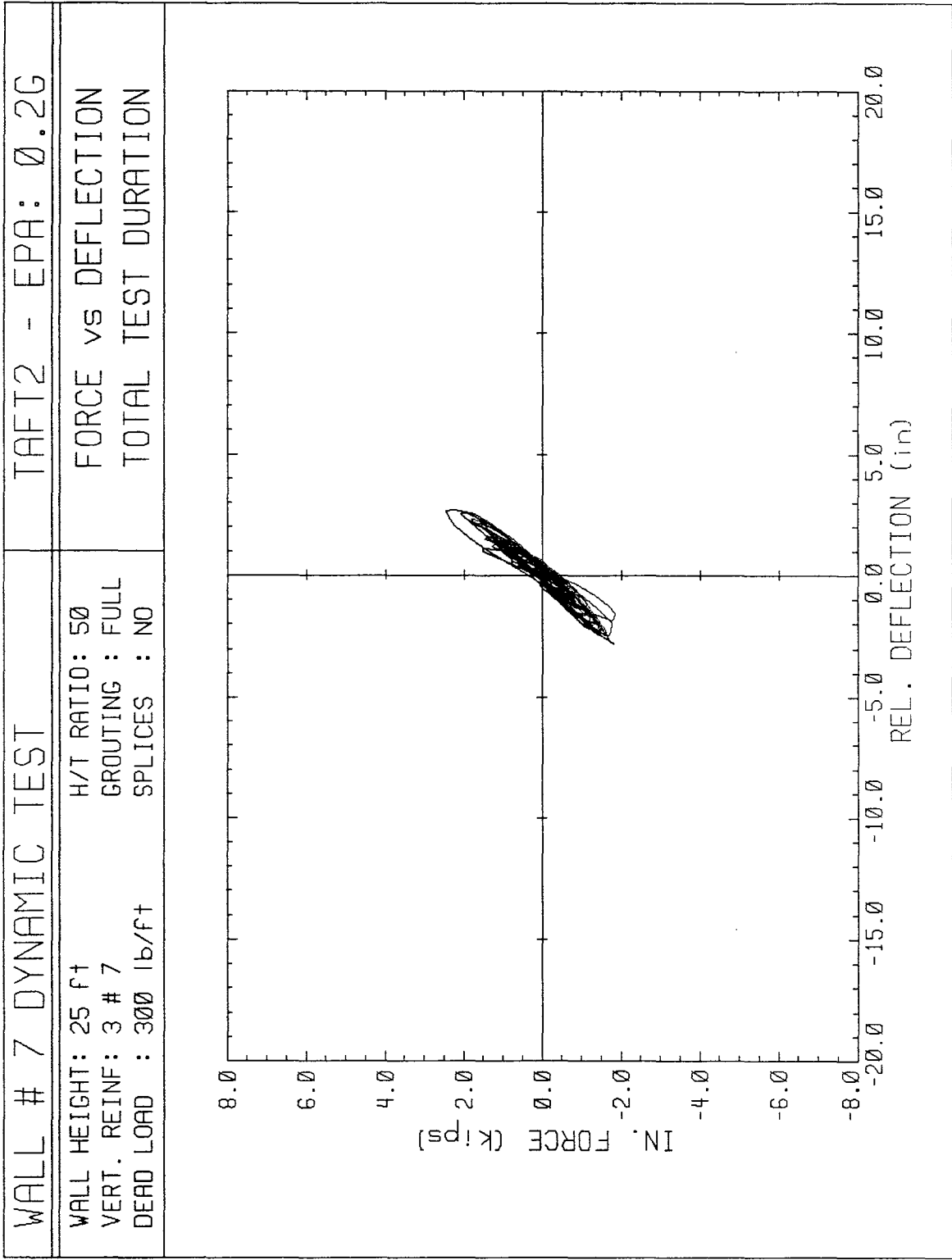












WALL # 7 DYNAMIC TEST		ELC2 - EPA: 0.2G
WALL HEIGHT: 25 ft	H/T RATIO: 50	FORCE vs DEFLECTION
VERT. REINF: 3 # 7	GROUTING : FULL	TOTAL TEST DURATION
DEAD LOAD : 300 lb/ft	SPLICES : NO	

