

ANALYSIS OF BUILDING STRUCTURES WITH SOFT STORIES

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ABSTRACT

ANALYSIS OF BULDING STRUCTURES WITH SOFT STORIES

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Past earthquakes in Turkey and around the World have shown that soft story irregularity in building structures pose a serious threat to their integrity and stability. Heavy damaging or collapse of numerous buildings with soft story irregularity during the recent earthquakes have prompted a concentrated research effort into linear and nonlinear analysis methods to evaluate the behaviour and capacity of such buildings under seismic actions.

The objective of this thesis is to determine the nonlinear behaviour of the building structures having soft first stories by nonlinear static pushover and time-history analyses and to evaluate the accuracy and effectiveness of these methods. Several two dimensional analytical models with various number of stories and spans are investigated with nonlinear static pushover and nonlinear time history analysis methods by considering various first story heights and deformation levels. The investigation procedure as a summary consists of (a) creating finite element

models representative of the building stock in Turkey, (b) determining the nonlinear member behaviours, (c) performing the nonlinear analysis procedures on these models, and finally (d) evaluating the results obtained from these nonlinear analyses methods. In view of these analysis results, the soft story behaviour is investigated and the facts, reasons and results of this irregularity are explained in detail. In addition, various codes are evaluated considering the soft story irregularity and the provisions of these codes are summarised.

Key words: Pushover Analysis, Nonlinear Time-History Analysis, Soft Story Irregularity

ÖZ

YUMUŞAK KAT DÜZENSİZLİĞİNE SAHİP BİNALARIN ANALİZİ

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Ülkemizde ve dünyada oluşan depremlerde görüldüğü üzere yumuşak kat düzensizliği, yapıların güvenilirliği ve stabilitesi açısından oldukça ciddi bir tehdit oluşturmaktadır. Yumuşak kat düzensizliğine sahip sayısız binanın bu depremlerde ağır hasar alması veya yıkılması, bu tip yapıların sismik hareketler altındaki davranış ve kapasitelerinin belirlenmesine yönelik doğrusal veya doğrusal olmayan analiz metodlarının araştırılmasına yol açmıştır.

Bu tezin amacı, yumuşak katlı binaların doğrusal olmayan davranışlarını artımsal itme ve zaman tanım alanında doğrusal olmayan analizler ile belirleyip, bu analizlerin bu tür katlı binalar için etkinlik ve doğruluklarını değerlendirmektir. İki boyutlu, değişik kat ve açıklık sayısına sahip analitik modeller, değişken hasar seviyeleri ve ilk kat yükseklikleri dikkate alınarak artımsal itme ve zaman tanım alanında doğrusal olmayan analiz yöntemleriyle incelenmiştir. Özet olarak, yapılan incelemeler (a) Sonlu elemanlar yöntemi kullanarak Türk yapı stoğunu temsil eden modeller oluşturmak, (b) elemanların doğrusal olmayan davranışlarını belirlemek,

(c) bu modeller üzerinde doğrusal olmayan analizler yürütmek, ve son olarak (d) bu analizlerin sonuçlarını değerlendirmek şeklindedir. Bu analizlerin sonucunda, yumuşak kat düzensizliği incelenerek bu düzensizliğin sebep ve sonuçları detaylı bir şekilde açıklanmıştır. Bunlara ilaveten değişik yönetmeliklerdeki yumuşak kat düzensizliği tanımları değerlendirilmiş ve ilgili yönetmeliklerdeki bu düzensizliğe sahip yapıların tasarımında uyulması gereken kurallar özetlenmiştir.

Anahtar Kelimeler: Artımsal İtme Analizi, Zaman Tanım Alanında Doğrusal Olmayan Analiz, Yumuşak Kat Düzensizliği

To My Brother Diğer

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TABLE OF CONTENTS

ABSTRACT.....	iii
ÖZ.....	v
DEDICATION.....	vii
ACKNOWLEDGEMENTS.....	viii
TABLE OF CONTENTS.....	ix
LIST OF TABLES.....	xii
LIST OF FIGURES.....	xiv
LIST OF ABBREVIATIONS.....	xvii
CHAPTER	
1. INTRODUCTION.....	1
1.1. Problem Statement.....	1
1.2. Objectives and Scope.....	2
1.3. Thesis Organization.....	3
2. REVIEW OF PREVIOUS RESEARCH.....	5
2.1. General.....	5
2.2. Past Studies.....	6
3. NONLINEAR ANALYSIS METHODS.....	15
3.1. General.....	15
3.2. Nonlinear Behaviour of Structural Elements.....	15
3.3. Nonlinear Static Pushover Analysis.....	17
3.4. Nonlinear Time History Analysis.....	22

4.	SOFT STORY IRREGULARITY.....	26
4.1.	General.....	26
4.2.	Soft Story Behaviour.....	27
4.3.	Soft Story Irregularity in Various Earthquake Codes.....	29
4.3.1.	FEMA-310.....	29
4.3.2.	EUROCODE-8.....	29
4.3.3.	Indian Earthquake Code.....	30
4.3.4.	Turkish Earthquake Code-1998.....	30
4.3.4.	Turkish Earthquake Code-2007.....	31
5.	ANALYTICAL MODELS.....	33
5.1.	General.....	33
5.2.	Description of Analytical Models.....	33
5.3.	Pushover Analyses on the Analytical Models.....	44
5.3.1.	Code Lateral Load Pattern.....	44
5.3.2.	Uniform Lateral Load Pattern.....	44
5.3.3.	Elastic First Mode Lateral Load Pattern.....	45
5.3.4.	Description of Deformation Levels.....	45
5.4.	Nonlinear Time History Analyses on the Models.....	47
6.	EVALUATION AND COMPARISON	51
6.1.	General.....	51
6.2.	Evaluation of the Global Behaviour of the Models.....	52
6.3.	Evaluation of Story Pushover Curves.....	56
6.4.	Story Displacements.....	58
6.5.	Inter-Story Drift Ratios.....	61
6.6.	The Ratio of the First Story Displacement to the Last Story Displacement.....	64
6.7.	Soft Story Irregularity Checks.....	66
6.8.	Residual Capacity Table.....	81
7.	SUMMARY AND CONCLUSION.....	83
7.1.	Summary.....	83

7.2. Conclusions.....	84
7.3. Recommendations for Future Study.....	87
REFERENCES.....	88

APPENDIX CD

APPENDIX - A

Global Pushover Curves with Nonlinear Time History Analyses Results

APPENDIX-B

Story Pushover Curves for Various Lateral Load Patterns

APPENDIX-C

Story Displacement Diagrams

APPENDIX-D

Inter-Story Drift Ratio Diagrams

APPENDIX-E

RFLD Diagrams

APPENDIX-F

Soft Story Checks

LIST OF TABLES

TABLES	page
3.1 Moment-rotation relationships of the hinge properties which are used in the analytical models	17
5.1. Parameters used in the design of the models.....	38
5.2.A. Dimensions and reinforcements of the columns used in the models..	40
5.2.B. Dimensions and reinforcements of the beams used in the models....	41
5.3. A typical beam's moment capacity values of the models 3-2-1-6.....	43
5.4. Predetermined roof displacements and corresponding maximum base shear values and ground motion scale factors.....	49
6.1. Soft story irregularity checks which are done in the design phase....	68
6.2. Soft story irregularity checks for the code lateral load pattern at the deformation level-1.....	69
6.3. Soft story irregularity checks for the code lateral load pattern at the deformation level-2.....	70
6.4. Soft story irregularity checks for the code lateral load pattern at the deformation level-3.....	71
6.5. Soft story irregularity checks for the uniform lateral load pattern at the deformation level-1.....	72

6.6.	Soft story irregularity checks for the uniform lateral load pattern at the deformation level-2.....	73
6.7.	Soft story irregularity checks for the uniform lateral load pattern at the deformation level-3.....	74
6.8.	Soft story irregularity checks for the 1st mode lateral load pattern at the deformation level-1.....	75
6.9.	Soft story irregularity checks for the 1st mode lateral load pattern at the deformation level-2.....	76
6.10.	Soft story irregularity checks for the 1st mode lateral load pattern at the deformation level-3.....	77
6.11.	Soft story irregularity checks for the time history analyses at the deformation level-1.....	78
6.12.	Soft story irregularity checks for the time history analyses at the deformation level-2.....	79
6.13.	Soft story irregularity checks for the time history analyses at the deformation level-3.....	80
6.14	Residual capacity table for the building models.....	82

LIST OF FIGURES

FIGURES	page
1.1 A building that has been collapsed in an earthquake as a result of soft story behaviour.....	2
3.1 The generalized load deformation relation while exhibiting nonlinear behaviour of a structural member.....	16
3.2 Acceptance criteria on a force vs. deformation diagram.....	17
3.3 An example pushover curve of a building structure.....	18
3.4 User graphic face of Sap2000 while assigning initial pushover case.....	20
3.5 User graphic face of Sap2000 while assigning displacement controlled lateral pushover case to a model.....	21
3.6 User graphic face of Sap2000 while assigning nonlinear time history analysis case to a model.....	23
3.7 User interface of Sap2000 while assigning nonlinear parameters of the nonlinear history analysis to a model.....	25
4.1 Soft story behaviour of a building structure under lateral loading.....	27
4.2 Collapse mechanism of a building structure having a soft story.....	28
5.1 The 2 span analytical models and member dimensions.....	35

5.2	The 4 span analytical models and member dimensions.....	36
5.3	The 6 span analytical models and member dimensions.....	37
5.4	Assigned slab loads on the analytical models.....	38
5.5	Beam and column reinforcement details of the model 3-2-1-6.....	42
5.6	A typical column's interaction diagram of the model 3-2-1-6.....	43
5.7	The deformation levels on a pushover curve.....	46
5.8	North-South acceleration record of El Centro Earthquake.....	47
5.9	Base shear vs time diagram of model 5-4-HOM for def. lev.-3.....	48
5.10	Roof displacement vs time diagram of model 5-4-HOM for def. lev.-3.....	48
6.1	Pushover curves of the model 8-2-HOM.....	52
6.2	Pushover curves of the model 8-2-1-4.5.....	53
6.3	Pushover curves of the model 8-2-1-6.....	53
6.4	Story pushover curves of the model 8-2-HOM for code lateral load pattern.....	56
6.5	Story pushover curves of the model 8-2-1-6 for code lateral load pattern.....	57
6.6	Distribution of plastic hinges for the models 8-2-1-6 and 8-6-HOM....	58
6.7	Story displacements of the model 8-6-1-4.5 for deformation level-1...	59
6.8	Story displacements of the model 8-6-1-4.5 for deformation level-2...	60
6.9	Story displacements of the model 8-6-1-4.5 for deformation level-3...	60

6.10	Inter-story drift ratio profile of the model 5-4-HOM for def. level-1...	61
6.11	Inter-story drift ratio profile of the model 5-4-HOM for def. level-2....	61
6.12	Inter-story drift ratio profile of the model 5-4-HOM for def. level-3....	62
6.13	Inter-story drift ratio profile of the model 8-6-1-6 for def. level-1.....	62
6.14	Inter-story drift ratio profile of the model 8-6-1-6 for def. level-2.....	62
6.15	Inter-story drift ratio profile of the model 8-6-1-6 For def. level-3.....	63
6.16	RFLD values for the model 3-4-HOM.....	65
6.17	RFLD values for the model 8-4-1-6.....	65

LIST OF ABBREVIATIONS

- | | | |
|-----------|---|--|
| ABYYHY-98 | - | Turkish Earthquake Code-1998 |
| DBYYHY-07 | - | Turkish Earthquake Code-2007 |
| FEMA | - | Federal Emergency Management Agency |
| RFLD | - | The ratio of the first story's displacement to the roof story's displacement |

CHAPTER I

INTRODUCTION

1.1 Problem Statement

The poor performance level, and hence the high level of structural damage in the stock of building structures during the frequent earthquakes happened in our country by the last decade, increased the need to the determination and evaluation of the damages in the building type of structures, so much more than ever before.

The most destructive and unfortunately the most general irregularity in Turkish stock of building structures that lead to collapse is certainly the soft story irregularity. The commercial and parking areas with higher story heights and less infill walls reduce the stiffness of the lateral load resisting system at that story and progressive collapse becomes unavoidable in a severe earthquake for such buildings. This situation has been verified for all of the building structures with soft stories, independently from good quality of construction and design. Figure 1.1 displays a building structure that has been collapsed in an earthquake as a result of soft story behaviour.

In order to prevent such collapse mechanisms in the building structures, seismic demands must be determined accurately. For this reason, many evaluation and retrofiting methods are proposed for the accurate determination of the inelastic behaviours and seismic demands of the building structures. Furthermore, the earthquake codes of many countries such as the recent Turkish Earthquake Code-2007 [39] recommend these methods in the analysis of the buildings.



Figure 1.1. A building that has been collapsed in an earthquake as a result of soft story behaviour.

1.2 Objectives and Scope

Determination of the displacement and ductility demands of a building structure, which may exhibit inelastic behaviour during an earthquake, is quite important. If these mentioned demands are not estimated accurately during the design or evaluation phase of the building structure, a local or a progressive collapse becomes unavoidable in a severe earthquake. The evaluation of irregular structures, such as building structures with soft stories, becomes more important as they have been seriously damaged or collapsed in the earthquakes due to their special collapse mechanisms.

The soft story irregularity, which is one of the most hazardous vertical irregularities, is investigated in this thesis. The main objectives of this study can be listed as follows:

- Determination of the nonlinear behaviour of building structures with soft stories by utilizing nonlinear static pushover and time-history analyses for various deformation levels.
- Evaluation of the accuracy and efficiency of the nonlinear static pushover analysis by considering various lateral load patterns.
- Evaluation of the provisions that are defined in various earthquake codes for soft story irregularity.

In order to investigate the above-mentioned topics, several two-dimensional reinforced concrete analytical models are formed and designed according to the current Turkish Earthquake Code-2007 [39]. These models are then evaluated by utilizing nonlinear static pushover analyses with employing various lateral load patterns and nonlinear time-history analyses. The results obtained by these two methods are classified by considering three deformation levels, which are defined based on the performance of the building structures.

1.3 Thesis Organization

This thesis is composed of seven chapters and six appendices. Chapter 1 includes the general summary of the study. In Chapter 2, the review of the previous research on the nonlinear pushover analysis and soft story behaviour is given. The nonlinear member behaviour used in the analyses, the nonlinear pushover method and the nonlinear time history method is given in details in Chapter 3. In Chapter 4, the soft story irregularity is explained and the definition of this irregularity in various current earthquake codes is presented. In Chapter 5, the detailed information about (a) the analytical models used in the analyses, (b) pushover lateral load patterns, (c) deformation levels and (d) the time history analyses, which are performed on the model buildings, are given. The evaluation and comparison of the analyses results are given in Chapter 6. Finally, Chapter 7 contains the summary and the conclusions of the study, and the recommendations for future studies.

The appendices are given in an Appendix CD attached to this thesis. In Appendix A, global pushover diagrams of the analysed models for different lateral load patterns are given together with the nonlinear time history analyses results. In Appendix B, the story pushover curves of each analytical model for different lateral load patterns are given. The story displacement diagrams of the models for the three deformation levels obtained by nonlinear pushover and time history analysis are given in Appendix C. Appendix D contains the inter-story drift ratio diagrams of each model for the three deformation levels. In Appendix E, the RFLD diagrams of the models for various deformation levels are given. Finally, Appendix F contains the soft story irregularity evaluation tables for various earthquake codes.

CHAPTER II

REVIEW OF PREVIOUS RESEARCH

2.1 General

Observations made in the damaged and collapsed buildings after earthquakes and technological advancements in structural and computer engineering make it possible to determine the inelastic behaviour of the building structures, material properties, errors due to the irregularities, exact reason of each error and the information required on the numerical modelling of building structures for the future projects.

The displacement and ductility demands on a building structure during an earthquake may push its behaviour beyond the elastic range. If these mentioned demands are not met in the design of the structure, local or progressive collapse is unavoidable in a destructive earthquake. Irregular buildings, either in vertical or in plan view, are definitely the most vulnerable structures for the severe earthquakes. In order to evaluate the seismic demands of such building structures, the inelastic behaviour must be efficiently evaluated in the design process.

In the recent years, it has been clearly understood that the elastic analysis does not exactly represent the inelastic (post-elastic) behaviour of the building structures. Due to this fact, the inelastic behaviour of such structures has been a subject of many research studies. For determining the post-elastic behaviour of a building structure, the nonlinear time history analysis has been accepted to be the best method for obtaining accurate and reliable predictions of the actual behaviour of the structure,

however due to modelling restrictions, this type of analysis is considered to be quite impractical. That is why a large number of simplified analysis procedures are proposed. The nonlinear static pushover analysis, which is also widely used in this study, has been the most commonly and effectively used simplified method for the determination of the seismic demands due to its practical usage.

In the following section, studies on the nonlinear static pushover method will be presented. In addition, recent studies on the soft story irregularity will be summarized.

2.2 Past Studies

In the evaluation of the inelastic behaviour of the building structures, there are two common methods, which are based on the nonlinear static pushover analysis. Capacity Spectrum Method, which is also referred in ATC-40 [2], is one of the most popular methods utilized for the evaluation of buildings. It was developed by Freeman et.al. [23]. In the method, the structural capacity curve is calculated and compared with the demand spectrum. A performance point that lies on both the capacity spectrum and the demand spectrum is obtained for performance evaluation of the structure. The second method, which is called Displacement Coefficient Method that is described in FEMA-356 [21], is based on the displacement modification factors used for modifying the elastic spectral displacement of an equivalent SDOF system.

The approximations made for these methods bring some weaknesses such as not considering the higher mode effects and invariant lateral load patterns. In the literature, many researchers investigated and tried to improve these weaknesses. For example, Fajfar and Fischinger [19] offered using invariant story forces proportional to the deflected shape of the structure. On the same subject, Eberhard and Sozen [16] offered load patterns based on mode shapes derived from secant stiffness at each load step. In a similar study, Park and Eom [44] proposed a new design method using secant stiffness. It is stated that the new method directly calculates the inelastic strength and deformation demands more effectively. In their study, they emphasized

that the soft-story can only be prevented by energy dissipation among the structure and only spreading the plastic hinges along the building height can maximize it.

Moghaddam [40] studied a method to determine the higher mode effects in tall buildings. A series of pushover analysis is performed on the buildings in which the elastic mode shapes are used as load patterns.

Sasaki, Freeman and Paret [50] proposed a multimodal procedure to predict high mode effects. The proposed procedure is said to be successful in predicting in high mode effects but it cannot provide exact seismic response of such structures.

Different from the above-mentioned procedures, Chopra and Goel [12] formed a procedure for pushover analysis and named it as Modal Pushover Analysis (MPA). Comparing the results obtained by this procedure with various load patterns indicated that the MPA is more accurate than all pushover analysis methods in estimating floor displacements, story drifts, plastic hinge rotations and plastic hinge locations as the other pushover methods underestimate the story drift demands and lead to large errors in plastic hinge rotations. In addition, it was stated that MPA results were found to be similar to the time history analysis results. In another study by Chintanapakdee and Chopra [9], the accuracy of MPA procedure is evaluated and it was stated that the MPA results were in good correlation with nonlinear dynamic analyses. In that study, the MPA procedure is also used to estimate seismic demand of inelastic systems with seismic demand being defined by an elastic design spectrum. The same authors investigated the accuracy of modal pushover analysis procedure for irregular frames [10]. It is stated in that study that, the MPA is found to be more reliable than FEMA-356 [21] force distributions for all irregular frames. It is also expressed that if sufficient modes are taken into account, MPA gives very close results to the time history analysis results while compared with the other load distributions. Furthermore, it is added that the irregularities influence the variation of story drifts, with the effects of strength irregularity larger than stiffness irregularity, and the combination of both has the largest among them.

Attard and Fafitis [6] studied a modified method of MPA in which a variant load pattern is obtained from a mode shape of a yielding point. It is stated in that study that, after iteration on the parameters obtained from time history analysis, the proposed method gives almost the same results.

In another study by Chopra and Goel [13], the role of higher mode effects in pushover analysis is investigated. It is found out that the higher mode pushover curves lead to plastic hinge mechanisms that are not detected by the effective first mode load pattern or other force distributions given by FEMA-356. On the other hand, it is stated that these mechanisms do not develop during ground motion in a regular building without a soft and/or weak story. It is also shown in that study that reversals in a higher mode pushover curve occurs after formation of a mechanism if the resultant force above the bottom of the mechanism is in the direction that moves the roof in a direction opposite to that prior to formation of the mechanism. Reversals can occur only in higher mode pushover analyses but not in the pushover analyses for the first mode or other FEMA-273 [22] force distributions. In case of soft and/or weak story it is stated that the story drift demands in the modified and neighbouring stories is increased and the drift demands in other stories is decreased. On the other hand, a stiff and/or strong story decreases the drift demand in the modified and neighbouring stories and increases the drift demands in other stories. Additionally, it is expressed that while the roof displacement is usually insensitive to vertical irregularity, it is significantly different for frames that are stiffness-and-strength irregular in their lower half. Irregularity in the base story or lower stories has significant influence on the height-wise distribution of floor displacements.

Gupta and Kunnath [24] investigated the FEMA-356 procedures and offered a new procedure called Adaptive Pushover Procedure (APM) to account for the higher mode effects and to overcome the shortcomings of the FEMA-356 procedure. It is noted that the FEMA 356 procedure fails in accurate determination of ductility demands, and APM is more accurate in determining seismic demands.

Jan et al. [31] proposed a new form of pushover analysis procedure, which considers higher mode effects, called Upper Bound Pushover Analysis Procedure. It is stated that the triangular load patterns and MPA procedure is better in predicting the

seismic demands than the proposed method in low rise structures but these procedures underestimate the responses in high and mid-rise structures, for which the proposed method makes reasonable predictions. It is also added that, their proposed method overestimates the demands in upper stories and underestimates the demands in lower ones.

Kalkan and Kunnath [32] focused on the prediction of seismic demands of structures and the results of time history analysis results are compared with various nonlinear pushover static loadings. It is stated that, the FEMA-356 method and Upper-Bound Pushover Procedure give poor predictions of demands when higher mode effects are significant and MPA procedure leads to more accurate predictions. However, the MPA method is found to be misleading in determining the demands in upper stories as it ignores the inelastic contribution of higher modes. They noted that the best method for predicting the seismic demands of a building structure is the Adaptive Modal Combination Procedure, which integrates the capacity spectrum, modal combination and adaptive loading patterns. In another study by the same authors [36], the local component demands of FEMA-356 are investigated. The pushover methods are mentioned as an improvement over existing elastic force-based procedures and provide critical information on potential collapse mechanisms and the vulnerability for soft stories. It is also stated that, for the structures responding primarily in the first mode, nonlinear static methods may be a reliable option to estimate inelastic demands but may also be misleading in the determination of the seismic demands of upper stories in mid-rise structures.

In addition to the studies on the nonlinear static pushover procedures mentioned above, the studies on various load patterns have also been carried out. Mwafy and Elnashai [42] investigated the applicability and accuracy of inelastic static pushover analysis in predicting the seismic response of reinforced concrete buildings. It is stated that, if the load pattern is chosen carefully, the model may represent the inelastic response of the low and mid-rise buildings. For high-rise buildings, due to the problem of predicting the higher mode effects, it is recommended to use more load patterns. In addition, the uniform load pattern is found to be very conservative in prediction of seismic demands in that study.

Krawinkler and Seneviratna [35] summarized basic concepts on which the pushover analysis can be based. In addition, they assessed the accuracy of pushover predictions and identified the conditions under which the pushover will provide adequate information. They also identified the cases in which the pushover predictions will be inadequate or even misleading. It is noted that carefully performed pushover analysis may provide insight into structural aspects that control performance during severe earthquakes. It is also stated that the structures for which the primary mode of vibration is the fundamental mode, demands will be obtained better with pushover analysis. Weaknesses such as story mechanisms, excessive deformation demands, strength irregularities and overloads on columns and connections that may remain hidden in an elastic analysis will be made obvious with this analysis. However, for structures in which higher mode effects are significant and in which the applied load pattern affects the story shear versus story drift relations, the deformation estimates obtained from a pushover analysis may be very inaccurate. A possible solution to overcome this problem is to several load patterns including ones that can account for the higher mode effects. Another critical aspect for the pushover analysis is that although the first local mechanism that will form in an earthquake will be detected through this analysis, other weaknesses that occur when the structure's dynamic characteristics change after formation of the first local mechanism may not be reflected.

Moghaddam and Hajirasouliha [41] investigated the potentialities of the pushover analysis to estimate the seismic deformation demands of concentrically braces steel frames. It is stated that the results of a pushover analysis is quite sensitive to the applied load pattern and generally inaccurate demands are obtained in such analysis.

Inel et. al. [27] evaluated various load patterns used in pushover analysis. The work also covered buildings with a soft-story. It was found out that simplified inelastic procedures provide very good estimates of peak displacement response for both regular and weak-story buildings. It is added that the results of inter-story drift and story shear were generally improved when multiple modes are taken into account. The results also indicated that simplifications in the first mode lateral load pattern might easily be applied with a negligible loss of accuracy.

Korkmaz and Sarı [34] evaluated the performance of the frame structures for various load patterns by performing pushover and nonlinear dynamic time history analysis. According to this paper, for high-rise frame structures, first yielding and shear failure of the columns is experienced at the larger story displacements and uniform distribution always give the higher base shear-weight ratio comparing to other load distributions for the corresponding story displacement. Also it's found that results of nonlinear static pushover analysis do not match with nonlinear dynamic time history analysis results especially for long period high-rise reinforced concrete frame structures. It was added that the pushover analyses results for uniform load distribution estimate maximum seismic demands during the given earthquakes more reasonable than the other load distributions.

Kömür and Elmas [33], evaluated the reinforced concrete frame systems which are designed according to current Turkish Codes by nonlinear pushover analyses utilizing various multimodal processes and inverted triangle loadings. It is found out that the pushover curves of multimodal loading process and inverted triangle loading are practically same so as the collapse limits. Due to this, multimodal procedure is not found to be very effective in the evaluation of such building structures.

Oğuz [43] evaluated the pushover analysis method for various load patterns and procedures. It is found out that, the variation in the results of all the modal load patterns and the triangle load patterns is negligible for low and mid-rise structures. It is also added that the triangular load patterns predict displacements and inter-story drift ratios between the results of MPA and Elastic First Mode load patterns in low and mid-rise structures. In the analyses, none of the load patterns can capture the exact demands and hinge locations obtained by time history analysis but the accuracy of the results may be reasonable depending on the load patterns for low and mid-rise structures. The accuracy is found to be decreasing in high-rise buildings. Moreover, in their study, no improvement was observed for the usage of FEMA-273 and MPA procedures, which consider higher mode effects. She suggested using elastic first mode load pattern in the pushover analyses and to avoid using uniform load pattern in view of the results on real demands and accuracy obtained in her study.

Bayülke et. al. [7] studied on the earthquake damaged and undamaged reinforced concrete buildings by non-linear pushover analysis method, in order to determine lateral force displacement relations and to compare the limit lateral forces with the lateral load level as calculated from elastic acceleration spectrums for the analytically calculated R factors. It is concluded that the buildings with symmetric shear walls in plan do not loose their lateral stiffness' in a dangerous way like the ones without shear walls after the limit lateral force level and it is added that the formation of the collapse mechanism is found to be very quick and progressive for the buildings without shear walls.

Polat et.al. [45], presented a case study on the of conventional retrofitting with linear analysis. Evaluating the seismic demands and cost requirements obtained by linear analysis is found to be irrational and the usage of more realistic analysis methods are strongly recommended in such cases. By a similar study, Hasgür et al. [25] studied the level of expected damages due to destructive earthquakes and determined the relations and propriety of seismic damage indices with the results of non-linear analysis for RC building structures having elements of various bending, shear and yield capacities and corresponding curvatures before and after strengthening. Just like Polat et. al. [45], it is stated that retrofitting by using the results of the nonlinear analysis methods are more accurate and better in cost concerns.

Türker et. al. [51] evaluated a set of models considering the effects of the in-fills. It is found out that including effects of the in-fills to the nonlinear pushover analysis the building structures show better performances. It is recommended that the new Turkish Code should give more detailed information on such analysis methods.

İrtem et. al. [30] evaluated the seismic demands of the Turkish Code. It is stated that the performance criteria depends on the height of the structure. The low-rise buildings meet the performance criteria but mid and high-rise buildings are stated to be not sufficient on meeting the performance demands of the code. Just like Türker et. al., it is again recommended that the new Turkish Code should give more detailed information on such analysis methods.

Inel et.al. [26] studied the evaluation of the buildings reflecting existing construction practise. The paper also covered some models with a soft story. It is concluded in that study that, (a) the increase in the confinement level increases the sustained level of damage, (b) the affect of infills are significant in low rise buildings with weaker members, (c) the main reason for a collapse is found to be weak columns and strong beams, (c) the structural irregularities like short column, soft story and heavy overhangs are quite dangerous but the soft story irregularity with a heavy overhang is the most dangerous one, (d) the irregularity effect are found to be more significant in mid rise structures that the low rise ones, (e) the soft story irregularity formed by the absence of infills at the ground story is found to be more dangerous than the stiffness based ones.

İnel and Özmen [28] studied the effects of default and user defined nonlinear component properties. Pointing out that the confinement amount has direct affect on the displacement capacity of a structure, it is stated that the default hinge models must be avoided, as the response of a structure may not be accurately determined.

Athanassiadou [5] studied multi-story analytical models, which are irregular in vertical, and compared the ductility levels and pushover analysis results. High ductility and normal ductility demands are concluded to be not effective in cost and their seismic performance is found to be equally satisfactory. Although the beams of normal ductile structures said to have some weakness in shear capacity the over strength of the both ductility levels found to be similar. It is also added that inelastic pushover procedures are found to be in accurate in demand predictions as they ignore higher mode effects.

Among the studies on soft story behaviour and irregularities in the building structures, Ruiz and Diederich [48] studied a set of analytical models with a weak story and investigated the local ductility demands. It's found that the performances of the frames depend on the resistance factors and closeness of the dominant response period and dominant period of earthquake. In addition to these, the ductility demands while P- Δ effects considered are found to be bigger.

Esteva [17] studied the nonlinear response of buildings with excessive stiffness and strength above the first story. It is stated that the response of a building is quite sensitive to the stiffness variation along the height of the structure and the $p-\Delta$ effects are significant on the response. The use of a safety factor to meet the local ductility demands in a soft story, which is dependent to the natural period of a structure, is offered.

Chang and Kim [8] investigated a 20-story building with a soft story by nonlinear time-history and nonlinear pushover analysis. It is stated that low strength reduction factor with perfectly yielding mechanisms are required for effective protection and it is also advised that an amplification factor must be applied to soft stories for which the displacements might be reduced by this way.

Chopra et al. [11] investigated the yielding point of a soft first story for the adequate protection of upper stories from significant yielding. It is concluded that, to limit the force transmitted to the adjacent story above, an elastic-perfectly plastic mechanism is needed as any residual stiffness increase the shear force transmitted. Even if the first story limits the forces transmitted to upper stories, the resulting shear wave propagates and any weakness of strength in an upper story may lead to collapse. In this paper it is also stated that the first soft story mechanisms must be designed according to very large displacements.

Mezzi [37] studied the retrofitting choices of buildings with a soft story and stated that although passive control systems are very effective solutions for retrofitting, base isolation is the most economic one.

CHAPTER III

NONLINEAR ANALYSIS METHODS

3.1 General

In order to investigate the nonlinear behavior of the building structures having soft stories, nonlinear static pushover and nonlinear time history analyses are performed on the analytical models, which will be introduced in Chapter 5. In this chapter, the nonlinear material properties used in this study and the underlying principles on the nonlinear static pushover analysis and nonlinear time history analysis methods is explained.

3.2 Nonlinear Behavior of Structural Elements

The nonlinear behavior of a building structure depends on the nonlinear responses of the elements that are used in the lateral force resisting system. Therefore, before applying any nonlinear analysis method on a building structure, the nonlinear behavior of such elements must be clearly described and evaluated.

In FEMA-356 [21], the generalized load deformation relation of a structural member while exhibiting nonlinear behavior is shown in Figure 3.1. After the member yields (when applied load/yield load proportion (Q/Q_y) is equal to 1), the subsequent strain hardening accommodates the strain hardening in the load-deformation relation as the member deforms toward the expected strength. The horizontal axis of this diagram may either express curvature or strain.

The load-deformation relation is defined by linear response (or elastic response) until point B. At point B, the member yields and again a linear response is observed with a reduced stiffness between the points B and C. At point C, a sudden reduction in the load resistance of the element occurs and the graph drops to point D. The residual resistance is observed until point E, where the final loss of resistance takes place. The initial slope of this diagram between points A and B defines the elastic stiffness of the structure. In the analyses carried out in this study, the second slope between points B and C is taken as 10% of the initial slope. Point C in this diagram represents the ultimate strength of the element where the significant stiffness degradation begins.

The above-mentioned nonlinear response of the structural member is called hinge property which is defined symmetrically in order to include the reversals to the calculations. For the modeling of nonlinear response of an element, ATC-40 [2] and FEMA-356 [21] express the parameters A, B and C in Figure 3.1 by defining plastic rotation angles.

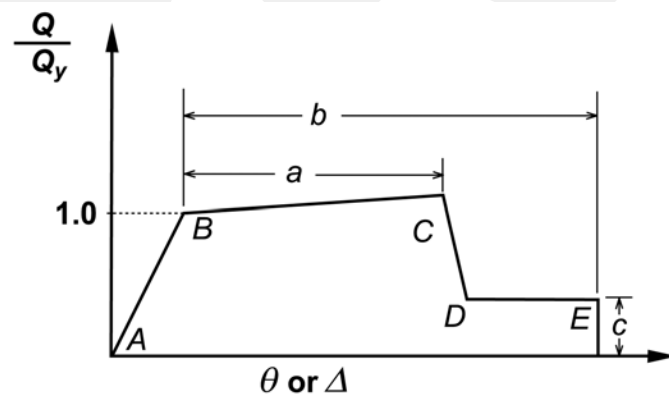


Figure 3.1. The generalized load deformation relation while exhibiting nonlinear behavior of a structural member [21]

ATC-40 and FEMA-356 codes also define the acceptance criteria depending on the plastic hinge rotations by considering various performance levels. In Figure 3.2, the acceptance criteria on a force versus deformation diagram are given. In this diagram, points marked as IO, LS and CP represent immediate occupancy, life safety and collapse prevention, respectively.

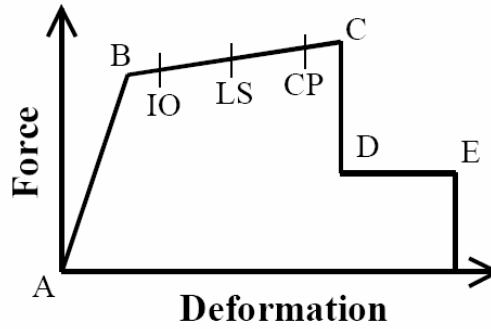


Figure 3.2. Acceptance criteria on a force versus deformation diagram

In this study, the hinge properties are determined according to ATC-40 [2] and FEMA-356 [21]. The tabulated forms of the moment-rotation relationships of the hinges at the beams and at the columns that are used in the analytical models are given in Table 3.1.

Table 3.1. Moment-rotation relationships of the hinge properties which are used in the analytical models (SF: yield value)

		BEAMS	COLUMNS
Point	Moment/SF	Rotation/SF	Rotation/SF
-E	-0.20	-0.035	-0.025
-D	-0.20	-0.020	-0.015
-C	-1.10	-0.020	-0.015
-B	-1.00	0.000	0.000
A	0.00	0.000	0.000
B	1.00	0.000	0.000
C	1.10	0.020	0.015
D	0.20	0.020	0.015
E	0.20	0.035	0.025

3.3 Nonlinear Static Pushover Analysis

Nonlinear static pushover analysis has become the most commonly used method to determine the nonlinear behavior of the building structures in the recent years. In this

simplified method, a capacity curve is obtained which shows the relation of base shear and roof displacement. This curve represents the behavior of the building structure under increasing base shear forces. As the capacities of the members of the lateral force resisting system exceed their yield limits during the increasing of the base shear forces, the slope of the force-deformation curve will change, and hence the nonlinear behavior can be represented.

In the pushover analysis, the applied lateral forces to a model are increased in a regular manner depending on the initial load pattern. Member forces are calculated for each step and the stiffness of the members whose capacities are exceeded is changed according to the hinge properties in the next step of the analysis. This process ends when the structure becomes unstable. Figure 3.3 displays a typical pushover curve as an example.

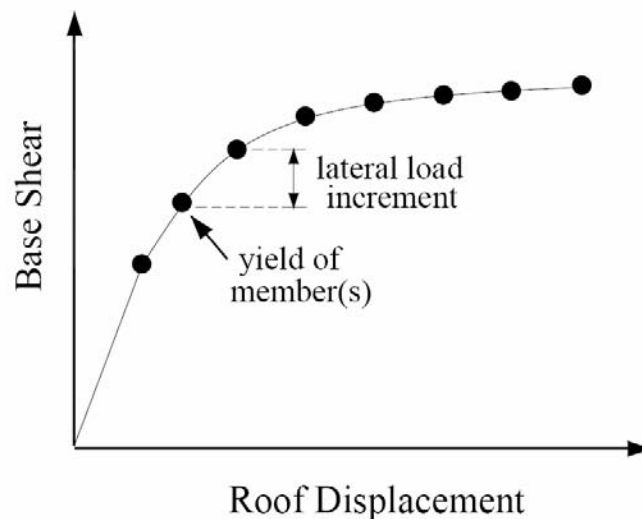


Figure 3.3. An example pushover curve of a building structure

The pushover analysis can be performed considering the control over the force or displacement. Force control option is useful when the magnitude of the load is known clearly, and the structure is expected to support that load. The displacement control is useful when the magnitude of the load is unknown and displacements are searched.

In this study, due to its simplicity and its computation power SAP2000 [15] computer software is utilized to carry out the pushover analyses. While performing the pushover analysis of a building structure by SAP2000, the following steps are done:

- The model representing the building structure is created and vertical loads (dead load and live load), member properties and member nonlinear behaviors are defined and assigned to the model.
- Hinge properties are defined and these properties are assigned to the member ends considering end-offsets.
- Lateral load patterns to be used in the pushover analyses are assigned.
- An initial force controlled pushover loading to be used for the lateral load increment analyses, is applied to the model as a pushover case. This pushover load case is composed of the dead loads and reduced live loads.
- A new displacement controlled pushover case is defined considering the lateral load pattern which was defined above for the incremental pushover analysis starting from the initial pushover case.

Figures 3.4 and 3.5 display the user graphic face of SAP2000 while assigning initial pushover case and displacement controlled lateral pushover case to the model are shown. In these figures, “minimum and maximum saved step” options provide control over the saved steps in the pushover analysis. “Iteration tolerance” and “maximum iteration/step” options are the control parameters that are used in each step of the pushover analyses to check the equation equilibriums. The “maximum null steps” option is a counter during the analysis accounting for the non-convergence. Geometric nonlinearity effects may also be considered during the pushover analyses performed by SAP2000, considering P-Delta and P-Delta and large displacements affects.[49]

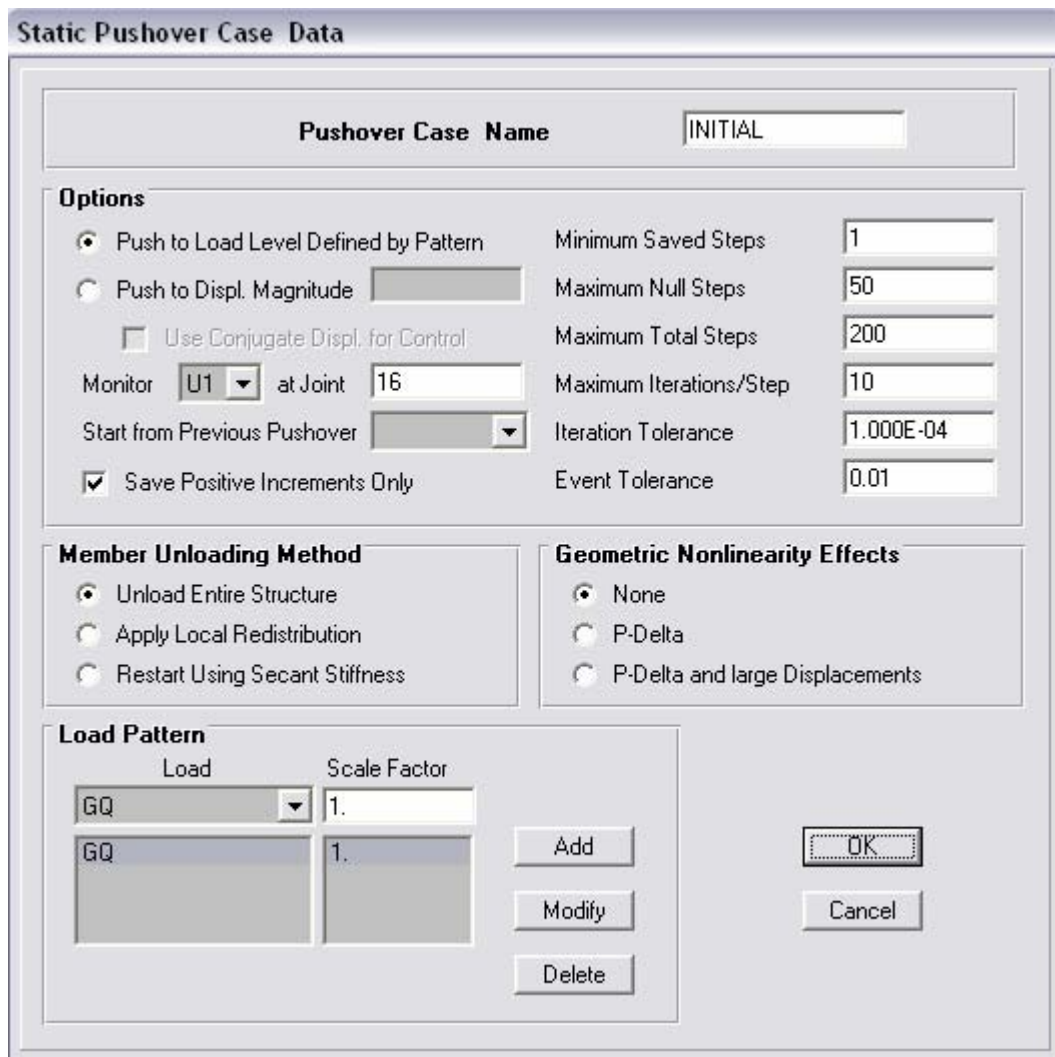


Figure 3.4. User graphic face of SAP2000 while assigning initial pushover case

While performing a nonlinear static pushover analysis to a building type structure, the members of the lateral force resisting system are expected to exceed their capacities and hence the redistribution of the loads on these members to the rest of the structure becomes an important issue. SAP2000 provides three options for this redistribution process. In the “unload entire structure” option, when a hinge reaches to point “C” (see Figure 3.1 for the point locations), the base shear of the model is reduced until the force on that hinge becomes consistent with the value at point “D” and the base shear is again increased afterwards. In the “apply local distribution” option, only the element containing the hinge is unloaded by utilizing a temporary internal load to be used after the reduction of the base shear until the hinge is fully unloaded. In the “restart using secant stiffness” option, the formed nonlinear hinges

are reformed by secant stiffness properties. In the analyses, “Unload Entire Structure” option is used while performing nonlinear static pushover analyses considering the convergence problems.[49]

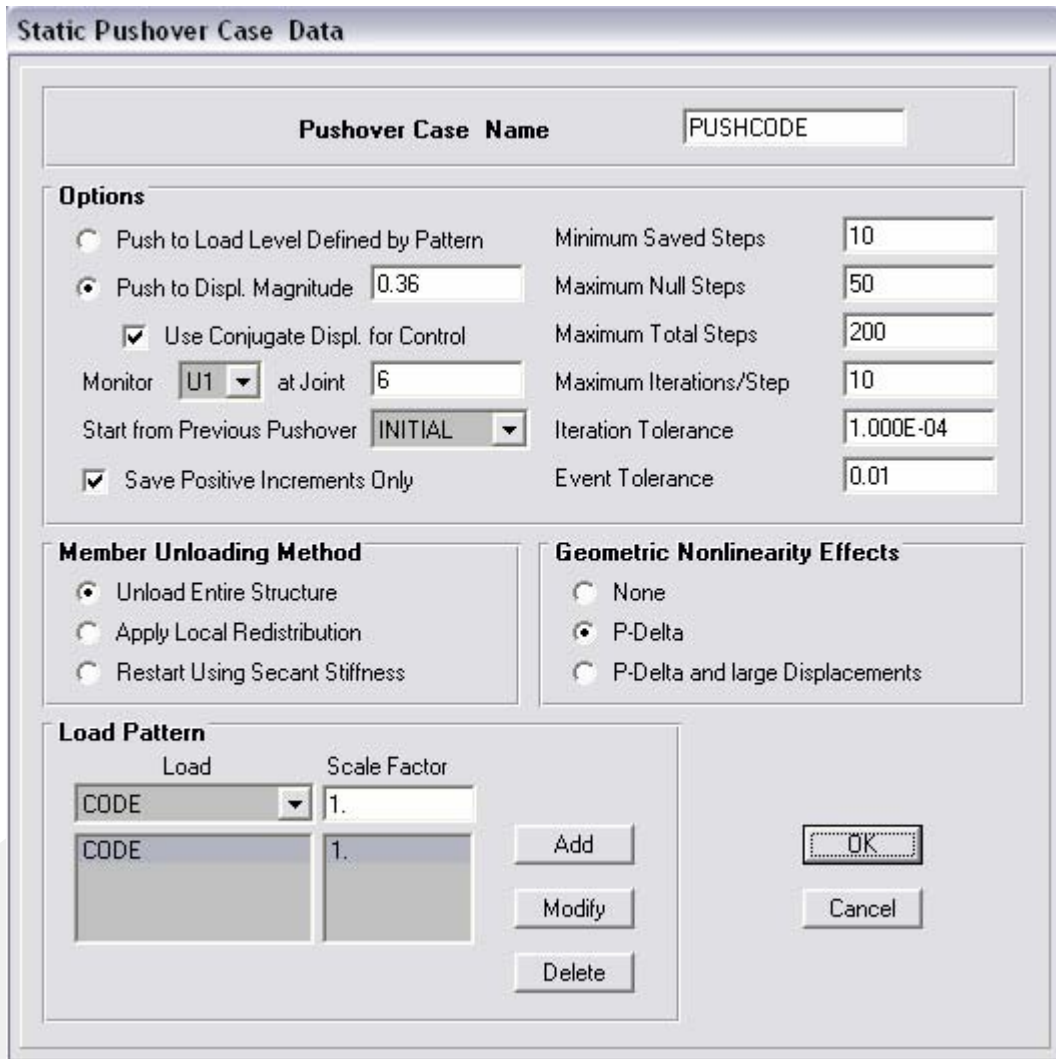


Figure 3.5. User graphic face of SAP2000 while assigning displacement controlled lateral pushover case to a model

3.4 Nonlinear Time History Analysis

In order to examine the exact nonlinear behavior of building structures, nonlinear time history analysis has to be carried out. In this method, the structure is subjected to real ground motion records. This makes this analysis method quite different from all of the other approximate analysis methods as the inertial forces are directly determined from these ground motions and the responses of the building either in deformations or in forces are calculated as a function of time, considering the dynamic properties of the building structure.

In SAP2000, the nonlinear time-history analysis can be carried out as follows:

- The model representing the building structure is created and vertical loads (dead load and live load), member properties and member nonlinear behaviors are defined and assigned to the model.
- Floor masses are assigned to the model.
- Hinge properties are defined and these properties are assigned to the member ends considering end-offsets.
- The ground motion record is defined as a function of acceleration versus time.
- An initial loading is applied to the model like it is done in the pushover analyses to represent the initial case. This case must be composed of the dead loads and reduced live loads.

Hereafter, the analysis and the time history parameters are defined in order to perform a nonlinear time history analysis. In Figure 3.6, the user graphic face of SAP2000 while assigning nonlinear time history analysis case to a model is given.

In ‘time history type’ option, the ‘direct-integration’ time-history analysis solves equations for the entire structure at each time step while ‘modal’ time-history analysis uses the method of mode superposition. In this study direct integration method is used for the analyses.[49]

Analysis Case Data - Nonlinear Direct Integration History

Analysis Case Name: TH-2 [Set Def Name]

Analysis Case Type: Time History

Initial Conditions:

- Zero Initial Conditions - Start from Unstressed State
- Continue from State at End of Nonlinear Case: DEAD

 Important Note: Loads from this previous case are included in the current case

Modal Analysis Case:

- Use Modes from Case: EIGENMODES

Loads Applied

Load Type	Load Name	Function	Scale Factor
Accel	U1	ELCENT	10.7
Accel	U1	ELCENT	10.7

[Add] [Modify] [Delete]

Show Advanced Load Parameters

Time Step Data:

- Number of Output Time Steps: 1350
- Output Time Step Size: 0.02

Other Parameters:

- Damping: Proportional Damping [Modify/Show...]
- Time Integration: Hilber-Hughes-Taylor [Modify/Show...]
- Nonlinear Parameters: User Defined [Modify/Show...]

[OK] [Cancel]

Figure 3.6. User graphic face of SAP2000 while assigning nonlinear time history analysis case to a model

The total time of the analysis is the number of output time steps multiplied by the output time-step size. The results are saved at time is equal to zero and at the given subsequent output time steps; although during the analysis intermediate results are computed at every time step of every applied-load time-history function.[49]

For the damping calculations, there are three options in SAP2000. These are; ‘direct specification’, ‘specifying modal damping by period’ and ‘specifying damping by frequency’ options. In ‘direct specification’ option, the damping values are entered

considering mass and stiffness proportional coefficients. In ‘specify modal damping by period’ option, the damping values with the first and second periods are assigned. Using these values, the program calculates the mass proportional and stiffness proportional coefficients. ‘specify modal damping by frequency’ has the same interface but this time frequency values instead of periods are assigned. In the analyses of the analytical models ‘specify modal damping by period’ option is used.[49]

There is a variety of common methods that are available for performing direct-integration time-history analysis, but SAP2000 suggest the using ‘Hilbert-Hughes-Taylor alpha’ method. Considering the variant alpha values between 0 and $-1/3$, it is stated that solution is not too dependent upon these parameters. For this reason, this method is selected in the analyses of the analytical models.

In addition to these, the nonlinear parameters must be entered to the program. Figure 3.7 displays the interface of the nonlinear parameters. In this figure, “maximum total steps” is the maximum number of steps allowed in the analysis. It may include saved steps as well as the intermediate sub steps, whose results are not saved. “Maximum null steps” is the total number of the null steps that occur during the nonlinear solution procedure when a frame hinge is trying to unload and iteration does not converge and a smaller step size is attempted. “Maximum iterations per step iteration” is used to make sure that equilibrium is achieved at each step of the analysis and the “iteration convergence tolerance” is used to make sure that equilibrium is achieved at each step of the analysis.

The analysis stops at every output time step, and at every time step where one of the input time-history function is defined. In addition, an upper limit on the step size used for integration may be set. “maximum substep size” used for this option while the “minimum substep size” is used when the nonlinear iteration cannot converge within the specified maximum number of iterations.[49]

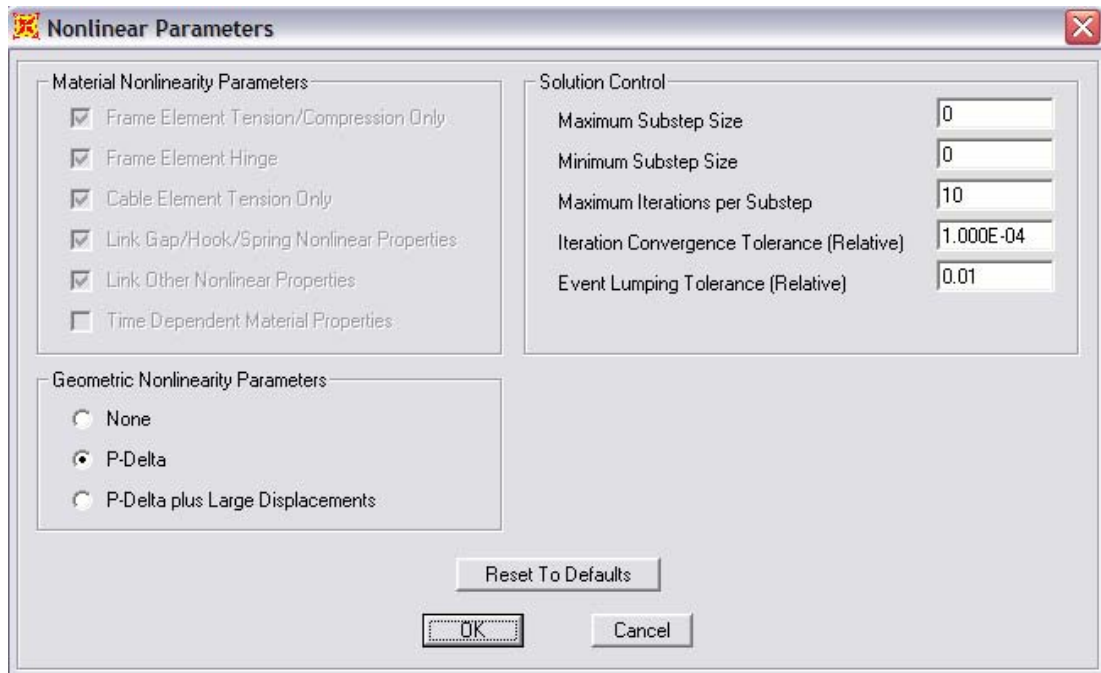


Figure 3.7. User interface of SAP2000 while assigning nonlinear parameters of the nonlinear history analysis to a model

The nonlinear behaviour of the structural elements that are used in the evaluation of building models are presented in this chapter. The next chapter contains the soft story irregularity and behaviour of buildings having a soft story irregularity.

CHAPTER IV

SOFT STORY IRREGULARITY

4.1 General

Good quality of construction will never be enough if the irregularities of a building are not taken into account in the design phase. Even if an irregular building structure satisfies the requirements of a code, it might never show the performance of a regular building designed by the same code.

One of the main purposes of current building codes is to spread the plastic hinges, which are formed at the structural members especially due to the lateral loading, among the structural system in order to increase the energy dissipating level of the building system. On the other hand, if a structural system contains irregularities, concentration of plastic hinges may be formed in definite locations during an earthquake.

In general, the vertical irregularities of building structures may be categorized as weak story, soft story, discontinuity of vertical elements and mass irregularity. The first three of these irregularities are also defined in the old and current Turkish Earthquake Codes [38, 39] as well. Depending on the soft story criteria in the recent Turkish codes, it is obvious that the mass irregularity is also taken into account within the soft story irregularity definition.

Although weak and soft story irregularities may cause similar structural damages in an earthquake, these two irregularity types are quite different in definition. A weak story is defined by comparing the effective shear areas of the lateral force resisting systems of adjacent stories, on the other hand, the soft story irregularity is defined by

comparing the stiffnesses of the lateral force resisting systems of adjacent stories. In other words, the difference between the soft and weak story irregularity can be explained by considering the difference between stiffness and strength. Moreover, the changes in the element dimensions may affect both.

In the following sections of this chapter, the behaviour of the building structures having soft stories is presented and the provisions about this irregularity in different building codes are summarized.

4.2 Soft Story Behaviour

Many building structures having parking or commercial areas in their first stories, suffered major structural damage and collapsed in the recent earthquakes. Large open areas with less infill and exterior walls and higher floor levels at the ground level result in soft stories and hence damage. In such buildings, the stiffness of the lateral load resisting systems at those stories is quite less than the stories above or below. In Figure 4.1, the lateral displacement diagram of a building with a soft story under lateral loading is shown.

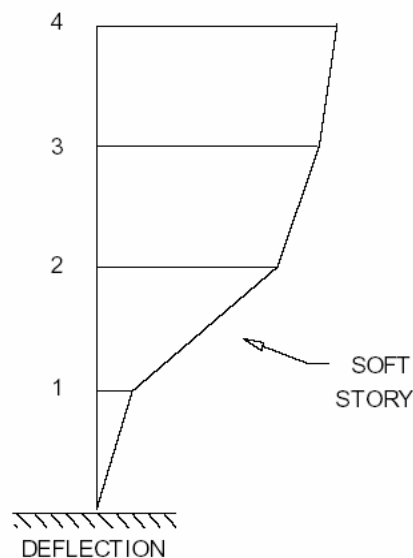


Figure 4.1. Soft story behaviour of a building structure under lateral loading [20]

During an earthquake, if abnormal inter-story drifts between adjacent stories occur, the lateral forces cannot be well distributed along the height of the structure. This situation causes the lateral forces to concentrate on the story (or stories) having large displacement(s). In addition, if the local ductility demands are not met in the design of such a building structure for that story and the inter-story drifts are not limited, a local failure mechanism or, even worse, a story failure mechanism, which may lead to the collapse of the system, may be formed due to the high level of load-deformation ($P-\Delta$) effects. Figure 4.2 displays the collapse mechanism of such a building structure with a soft story under both earthquake and gravity loads.

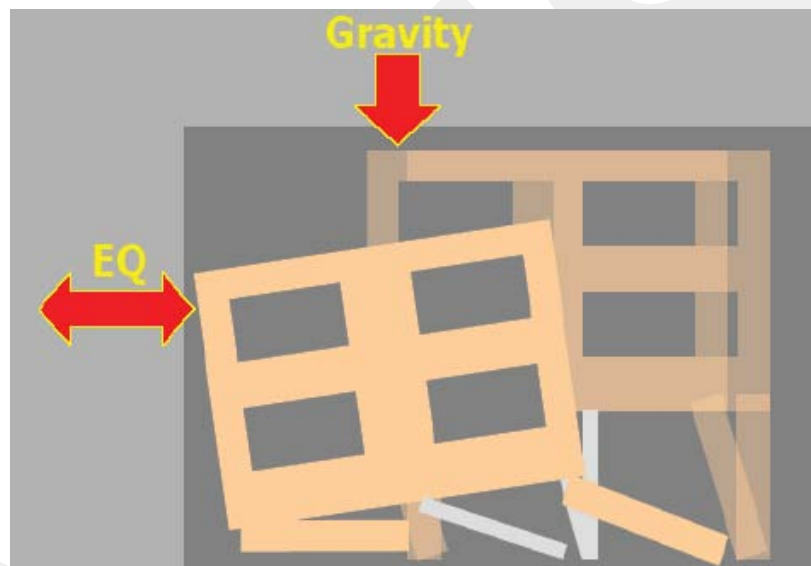


Figure 4.2. Collapse mechanism of a building structure having a soft story [4].

Lateral displacement of a story is a function of stiffness, mass and lateral force distributed on that story. It is also known that the lateral force distribution along the height of a building is directly related to mass and stiffness of each story. If the $P-\Delta$ effect is considered to be the main reason for the dynamic collapse of building structures during earthquakes, accurately determined lateral displacements calculated in the elastic design process may provide very important information about the structural behaviour of the system. Therefore dynamic analysis procedure is required in many of the actual codes for accurate distribution of the earthquake forces along the building height, determining modal effects and local ductility demands

efficiently. Although some of the current codes define soft story irregularity by stiffness comparison of adjacent floors, displacement based criteria for such irregularity determination is more efficient, since it covers all the mass, stiffness and force distribution concepts. In the next section, the definitions and the requirements in the design of building structures with a soft story in various earthquake codes are presented.

4.3 Soft Story Irregularity in Various Earthquake Codes

4.3.1 FEMA-310

FEMA-310 [20] is a guiding document for the codes like IBC-2006 [29], ACI [1], Corps. of Engineers [3], FEMA-356 [21] and ATC-40 [2] for the determination of the irregularities and design requirements of the building structures having such irregularities. According to this code, if the stiffness of a story is less than 70% of adjacent stories below or above, or less than 80% of the average stiffness of the three stories above or below, the “Life Safety” and “Immediate Occupancy” performance levels, which are explained in the code in details, can not be met. For such structures, dynamic analysis should be performed and the strong column weak beam behaviour should be checked.

4.3.2 EUROCODE-8

In the current EUROCODE-8 [18], it is stated that the soft story mechanisms must be prevented, otherwise the local ductility demands in the soft story columns may be exceeded. As a counter measure, this code requires the following provision in all of the main beams and columns:

$$\sum M_{Rc} \geq 1.3 \sum M_{Rb} \quad (4.1)$$

Here, $\sum M_{Rc}$ is the sum of the columns that are connected to the considered joint and $\sum M_{Rb}$ is the sum of the design moments of the beams connected to the same joint. It

is also stated that, in the calculation of M_{RC} , the minimum column moment values within the range of column axial forces produced by seismic design procedure should be used.

EUROCODE-8 requires the provision given in Eq.(4.1) to be verified for both orthogonal earthquake directions and for their reversals. In addition, similar to FEMA-310 [20], dynamic analysis procedure is recommended in the design of such structures.

4.3.3 Indian Earthquake Code

With some modifications and additions made, Indian Earthquake Code [47] is based on FEMA-310 [20]. According to this code, the stiffness of a story should not be less than 60% of the adjacent story above or should not be less than 70% of the average stiffness of the three stories above. On the other hand, the Indian Earthquake Code requires the relative displacements in adjacent stories to be bigger than 1.3, in order to define the irregularity as a soft story.

The Indian Earthquake Code also requires pushover analysis by referring ATC-40 [2] for the determination of the ductility demands. However, accepting that this method may not be very applicable, it suggests an amplification factor of 2.5 to be used for amplifying the member forces to be used for the design of the soft story's columns and beams. Alternatively, an amplification factor of 1.5 to be used for the same purpose is suggested if symmetric shear walls are arranged in plan of such buildings.

4.3.4 Turkish Earthquake Code-1998

Turkish Earthquake Code-1998 [38] contains vertical and plan (horizontal) irregularity definitions and provisions as counter measures against these irregularities. Concepts like strong column-weak beam and shear safety of beam and column joints are introduced for the first time by this code in Turkey.

In the Turkish Earthquake Code-1998 [38], it is suggested that the vertical irregularities like weak and soft story should be avoided in the design of structures. Due to this, in this version of the Turkish Earthquake Code, soft story irregularity is defined to be existing in the structure, if the stiffness irregularity factor, η_{ki} , which is the ratio of the relative average lateral drift at any story $((\Delta_i)_{av})$ to the relative average lateral drift at the adjacent story above $((\Delta_{i+1})_{av})$, is greater than 1.5 for any orthogonal earthquake direction. This condition can be expressed as

$$\eta_{ki} = (\Delta_i)_{av} / (\Delta_{i+1})_{av} > 1.5 \quad (4.2)$$

where

$$\Delta_i = d_i - d_{i-1} \quad (4.3)$$

Here, d_i is the total drift of the i -th floor. The code limits the usage of Equivalent Earthquake Method, which only considers the effective first mode forces, in the buildings with soft stories higher than 25 m for the first and second earthquake zones. In addition, for all buildings higher than 75 m, independent from the above-mentioned irregularities, Equivalent Earthquake Method should not be used due to this code. For such structures, the code recommends performing dynamic analysis. In the dynamic analysis of these structures, the coefficient β , which is used to scale the total base shear obtained from dynamic analysis to the total base shear obtained from the Equivalent Earthquake Method for any of the orthogonal earthquake direction, should be taken as 1. The coefficient β is taken as 0.9 for the buildings regular in plan or in vertical. Although this coefficient has no physical meaning, it surely increases the capacity of the building structure by increasing the local ductility demands.

4.3.5 Turkish Earthquake Code-2007

The current Turkish Earthquake Code [39] that became active in our country in 2007 also contains vertical and plan irregularity definitions and provisions as counter measures against these irregularities like the previous Turkish Earthquake Code-1998

[38]. Similar to the previous one, this code prevents the vertical irregularities like weak and soft story. On the other hand, the soft story irregularity is redefined in this code. Different from the previous code, there is a soft story irregularity in the building structure, if the stiffness irregularity factor, η_{ki} , which is redefined as

$$\eta_{ki} = (\Delta_i / h_i)_{av} / (\Delta_{i+1} / h_{i+1})_{av} \quad (4.4)$$

or

$$\eta_{ki} = (\Delta_i / h_i)_{av} / (\Delta_{i-1} / h_{i-1})_{av} \quad (4.5)$$

is greater than 2 for any orthogonal earthquake direction. The code limits the use of Equivalent Earthquake Method in the buildings with a soft story higher than 25 m for the first and second earthquake zones similar the Turkish Earthquake Code-1998 [38]. Additionally, the building height limit of 75 m is dropped to 40 m for the building structures for which dynamics analysis is to be performed. In this code, the recommended value of the coefficient β is lowered to 0.9 in the dynamic analysis of such structures. For the buildings regular in plan or in vertical, β is recommended to be taken as 0.8.

Other requirements such as strong column-weak beam; shear safety of beam and column joints, and limiting the lateral displacements with little definition changes are kept the same as the previous code. [38].

CHAPTER V

ANALYTICAL MODELS

5.1 General

In order to investigate the soft story behaviour of the building structures, several two-dimensional analytical models are considered in this study. This chapter explains these analytical models in detail. In addition, information about the various pushover procedures and nonlinear time history analysis used in this study are given. Furthermore, three different deformation levels, which are based on the monitored roof displacements during the analyses, are introduced in this chapter for the determination of the collapse mechanisms of the considered building models.

5.2 Description of Analytical Models

During the development of the analytical models, several issues are taken into consideration. An important topic at this stage is to evaluate easily the existence of the soft story behaviour in the structure. For this reason, two dimensional shear frame models for which the soft story behaviour can easily be recognized are selected for investigation. Another important point is the representation of the building stock of Turkey by the models that are considered. In order to take this into account, 3, 5 and 8 story frames with 2, 4 and 6 bays are modelled since most of the framed structures in Turkey have number of stories ranging between three to eight with two-to-six bays.

The span length for the bays is chosen as 5m in all the models considered. The story height in the models is chosen as 3m for all the floors except the first floors. In order to carry out a parametric study to examine the soft story irregularity, the height of the first story (H1) of the models is kept as the selected variable. Three different heights that are considered for the first floor are: 3m, 4.5m and 6m. With these three different heights for the first floor the total number of analysed models reaches to 27.

In Figures 5.1, 5.2 and 5.3, the front views of the analytical models are given together with the dimensions of the beams and columns for each model.

Each model in this study is named according to the total number of stories, total number of spans and first story height of it. For example model name “5-4-1-4.5” refers to the model with 5 stories having 4 spans according to the first two numbers in the model name and the last two numbers “1-4.5” indicate that the height of the first story is 4.5 m. The expression “HOM” used for the height of the first story means that this story has the same height with the other stories, which is 3m (ex. 3-2-HOM).

The vertical design loads of the two dimensional analytical models are calculated as three dimensional frames. The sum of the vertical loads from the slabs are calculated as a uniformly distributed load of 25 kN/m (except the beams’ self weights) for the normal story beams and uniformly distributed load of 20 kN/m for the roof floor beams (except beams’ self weights). These mentioned loads cover the dead and reduced live loads together. Beam self-weights are calculated and assigned to the beams as uniformly distributed dead loads for the related beams. Additionally, column self weights are calculated and assigned as joint loads on the columns. In Figure 5.4, the slab loads on the analytical models is shown.

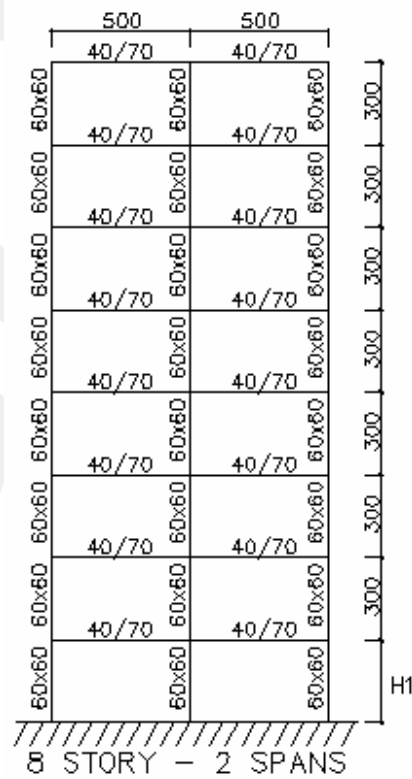
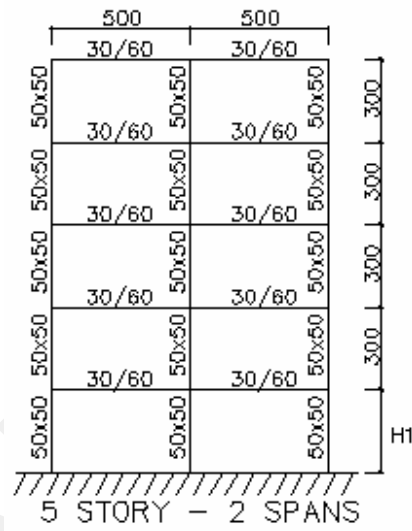
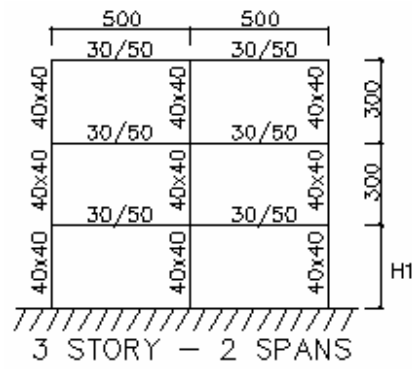


Figure 5.1. The 2 span analytical models and member dimensions

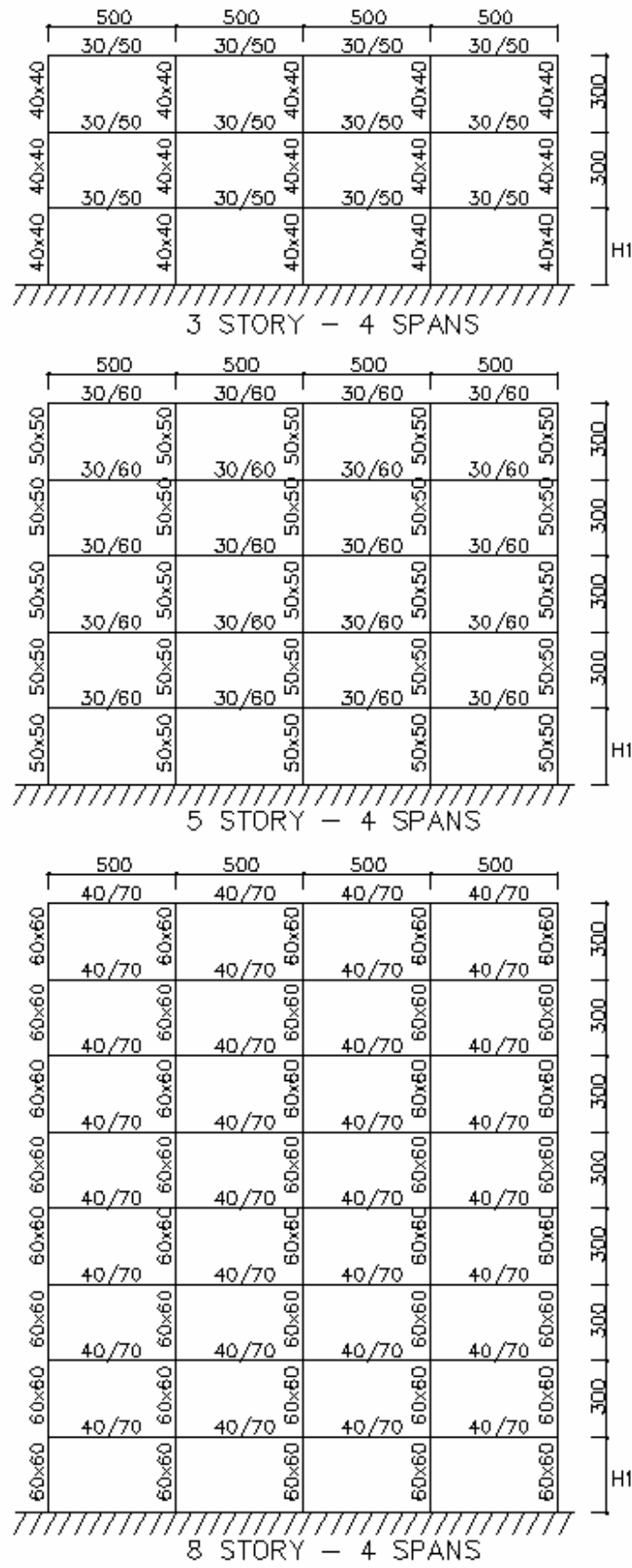


Figure 5.2. The 4 span analytical models and member dimensions

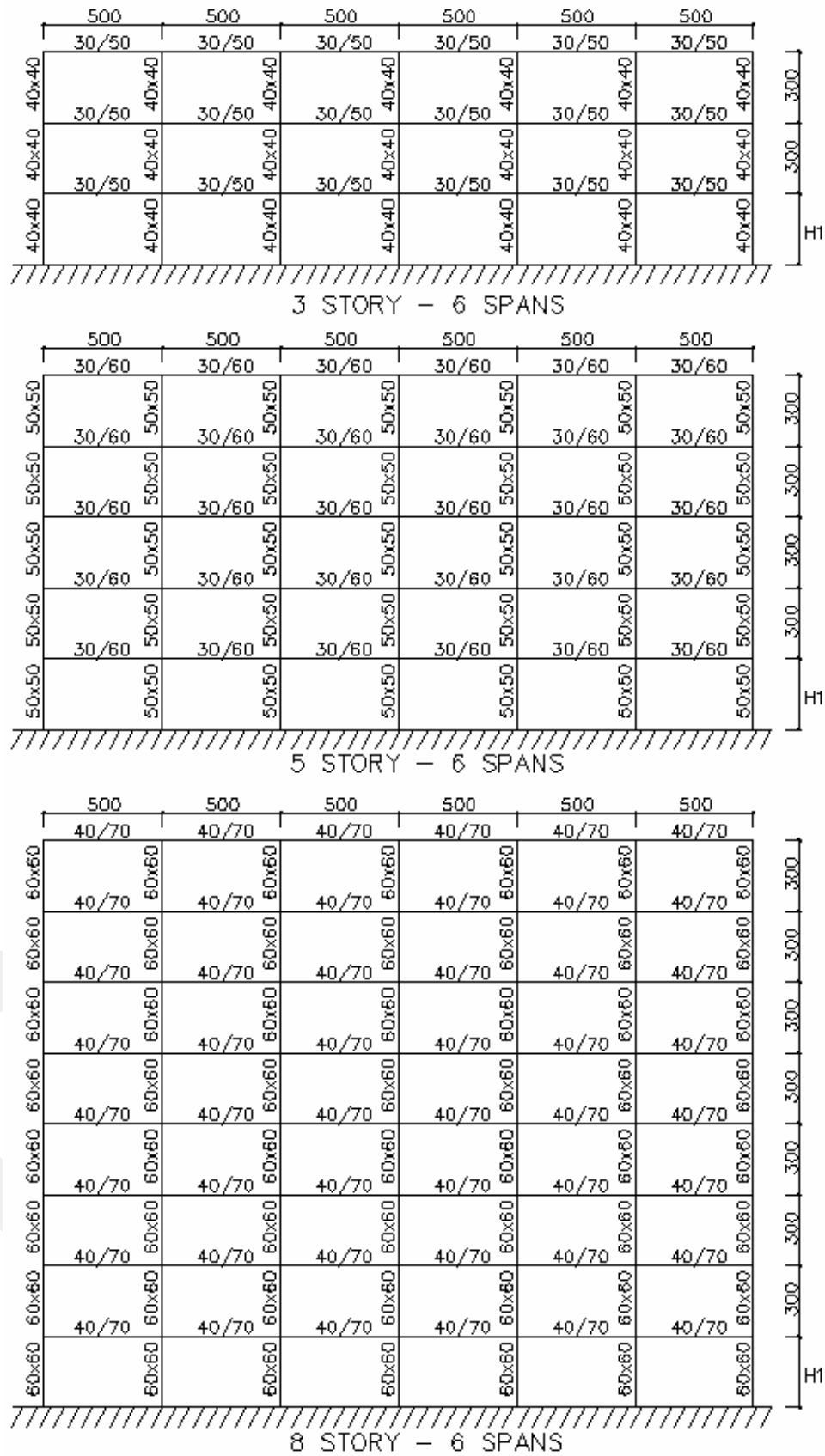


Figure 5.3. The 6 span analytical models and member dimensions

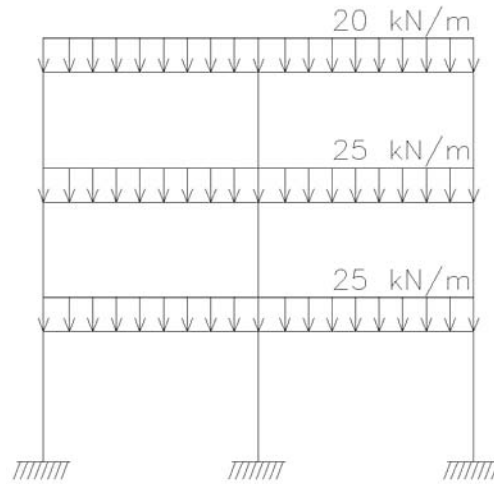


Figure 5.4. Assigned slab loads on the analytical models

In addition to these, all of the analytical models are designed according to the requirements of the current Turkish Earthquake Code-2007 [39]. During this design phase Probina-V14 Structural Analysis Programme [46] is used, which has common usage in the design of reinforced concrete building structures in Turkey due to its practicality. The dimensions and the reinforcements of the members are calculated by this software and the other displacement requirements, which are defined in the Turkish Earthquake Code-2007, are taken into account. The parameters, which are used in the design of the models, are given in the Table 5.1.

Table 5.1. Parameters used in the design of the models

Effective Ground Acceleration Coefficient	(A_0)	0.40g
Building Importance Factor	(I)	1.00
Local Site Class		Z-4
Live Load Participation Factor	(n)	0.3
Structural Behaviour Factor	(R)	8
Concrete		C-20
Steel		S-420

From the chosen parameters and the geometries of the models, it can easily be stated that these analytical models represent the possible Turkish stock of building

structures. The column and beam dimensions and their reinforcements which are calculated with Probina-V14 Structural Analysis Programme are given in Tables 5.2.A and 5.2.B, respectively. Additionally, in Figure 5.5, the reinforcement details of a typical beam and column of the model 3-2-1-6 are given as an example. It should be noted that, the models are designed in order to meet the high level of ductility demands, which are defined and required by the Turkish Earthquake Code-2007.

After obtaining the dimensions and the reinforcements of the members, the nonlinear hinge properties are calculated and compared with the SAP2000 programme's default hinge properties.

For determining the nonlinear hinge properties of a column, the axial force vs. moment interaction diagram must be calculated and plotted. When an axial force and corresponding moment value of a loading is formed outside the plotted interaction diagram, this column exhibits nonlinear behaviour. The interaction diagrams calculated with both programmes are plotted on each other. Here, some deviation has been determined for high level of axial forces in the interaction diagrams, but the current Turkish Earthquake Code 2007 prohibits this axial force level, hence this variation does not affect the results.

For determining the nonlinear hinge properties of a beam, the moment capacity values must be calculated. When the moment value at that beam exceeds the calculated capacity moment, this beam exhibits nonlinear behaviour. The calculated capacity moment values are approximately the same for both of the programmes.

As an example, the interaction diagrams for columns of the model 3-2-1-6 determined by SAP2000 and Probina-V14 are given in Figure 5.6. and moment hinge values for beams are tabulated in Table 5.3 . As seen in the figure and the table, obtained results are quite similar.

Table 5.2.A. Dimensions and reinforcements of the columns used in the models

Model Name	Column Dimensions		Column Longitudinal Reinforcement
	bx (cm)	By (cm)	
3-2-HOM	40	40	8Φ16
3-2-1-4.5	40	40	8Φ16
3-2-1-6	40	40	8Φ16
3-4-HOM	40	40	8Φ16
3-4-1-4.5	40	40	8Φ16
3-4-1-6	40	40	8Φ20
3-6-HOM	40	40	8Φ16
3-6-1-4.5	40	40	8Φ16
3-6-1-6	40	40	8Φ20
5-2-HOM	50	50	16Φ16
5-2-1-4.5	50	50	16Φ16
5-2-1-6	50	50	16Φ16
5-4-HOM	50	50	16Φ16
5-4-1-4.5	50	50	16Φ16
5-4-1-6	50	50	16Φ16
5-6-HOM	50	50	16Φ16
5-6-1-4.5	50	50	16Φ16
5-6-1-6	50	50	16Φ20
8-2-HOM	60	60	12Φ20
8-2-1-4.5	60	60	12Φ20
8-2-1-6	60	60	12Φ20
8-4-HOM	60	60	12Φ20
8-4-1-4.5	60	60	12Φ20
8-4-1-6	60	60	12Φ20
8-6-HOM	60	60	12Φ20
8-6-1-4.5	60	60	12Φ20
8-6-1-6	60	60	20Φ20

Table 5.2.B. Dimensions and reinforcements of the beams used in the models

Model Name	Beam Dimensions		Beam Reinforcement	
	bw (cm)	h (cm)	Top	Bottom
3-2-HOM	30	50	3Φ14+2Φ16 = 8.64 cm ²	3Φ14 = 4.62 cm ²
3-2-1-4.5	30	50	3Φ14+2Φ16 = 8.64 cm ²	3Φ14 = 4.62 cm ²
3-2-1-6	30	50	3Φ14+3Φ16 = 10.65 cm ²	3Φ14+1Φ16 = 6.63 cm ²
3-4-HOM	30	50	3Φ16+3Φ16 = 12.06 cm ²	3Φ16 = 6.03 cm ²
3-4-1-4.5	30	50	3Φ16+3Φ16 = 12.06 cm ²	3Φ16 = 6.03 cm ²
3-4-1-6	30	50	4Φ16+3Φ16 = 14.07 cm ²	4Φ16 = 8.04 cm ²
3-6-HOM	30	50	3Φ16+3Φ16 = 12.06 cm ²	3Φ16 = 6.03 cm ²
3-6-1-4.5	30	50	3Φ16+3Φ16 = 12.06 cm ²	3Φ16 = 6.03 cm ²
3-6-1-6	30	50	4Φ16+3Φ16 = 14.07 cm ²	4Φ16 = 8.04 cm ²
5-2-HOM	30	60	3Φ16+3Φ16 = 12.06 cm ²	3Φ16+1Φ20 = 9.17 cm ²
5-2-1-4.5	30	60	3Φ16+3Φ16 = 12.06 cm ²	3Φ16+1Φ20 = 9.17 cm ²
5-2-1-6	30	60	4Φ16+3Φ16 = 14.07 cm ²	4Φ16+1Φ16 = 14.07 cm ²
5-4-HOM	30	60	3Φ16+3Φ16 = 12.06 cm ²	3Φ16+1Φ16 = 8.04 cm ²
5-4-1-4.5	30	60	3Φ16+3Φ16 = 12.06 cm ²	3Φ16+1Φ16 = 8.04 cm ²
5-4-1-6	30	60	4Φ16+3Φ20 = 17.46 cm ²	4Φ16+2Φ16 = 12.06 cm ²
5-6-HOM	30	60	3Φ16+3Φ20 = 15.45 cm ²	3Φ16+2Φ16 = 10.05 cm ²
5-6-1-4.5	30	60	3Φ16+3Φ20 = 15.45 cm ²	3Φ16+2Φ16 = 10.05 cm ²
5-6-1-6	30	60	3Φ20+3Φ20 = 18.84 cm ²	3Φ20+2Φ16 = 13.44 cm ²
8-2-HOM	40	70	4Φ20+2Φ20 = 18.84 cm ²	4Φ20+1Φ20 = 15.70 cm ²
8-2-1-4.5	40	70	4Φ20+2Φ20 = 18.84 cm ²	4Φ20+1Φ20 = 15.70 cm ²
8-2-1-6	40	70	4Φ20+3Φ20 = 21.98 cm ²	4Φ20+2Φ20 = 18.84 cm ²
8-4-HOM	40	70	4Φ20+3Φ20 = 21.98 cm ²	5Φ20 = 15.70 cm ²
8-4-1-4.5	40	70	4Φ20+3Φ20 = 21.98 cm ²	5Φ20 = 15.70 cm ²
8-4-1-6	40	70	5Φ20+4Φ20 = 28.26 cm ²	5Φ20+1Φ20 = 18.84 cm ²
8-6-HOM	40	70	5Φ20+3Φ20 = 25.12 cm ²	5Φ20+2Φ16 = 19.72 cm ²
8-6-1-4.5	40	70	5Φ20+3Φ20 = 25.12 cm ²	5Φ20+2Φ16 = 19.72 cm ²
8-6-1-6	40	70	5Φ20+4Φ20 = 28.26 cm ²	5Φ20+2Φ20 = 21.98 cm ²

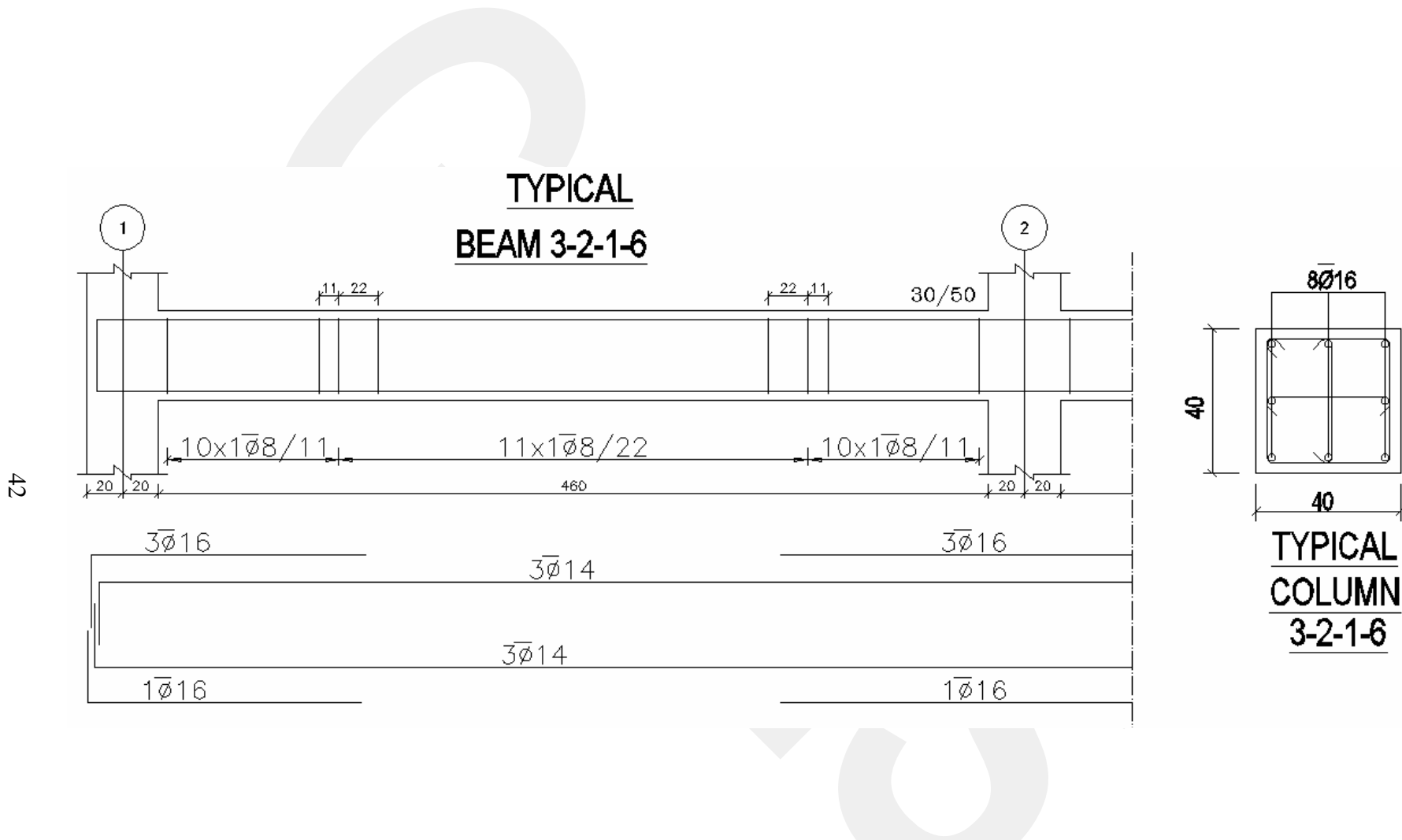


Figure 5.5. Beam and column reinforcement details of the model 3-2-1-6

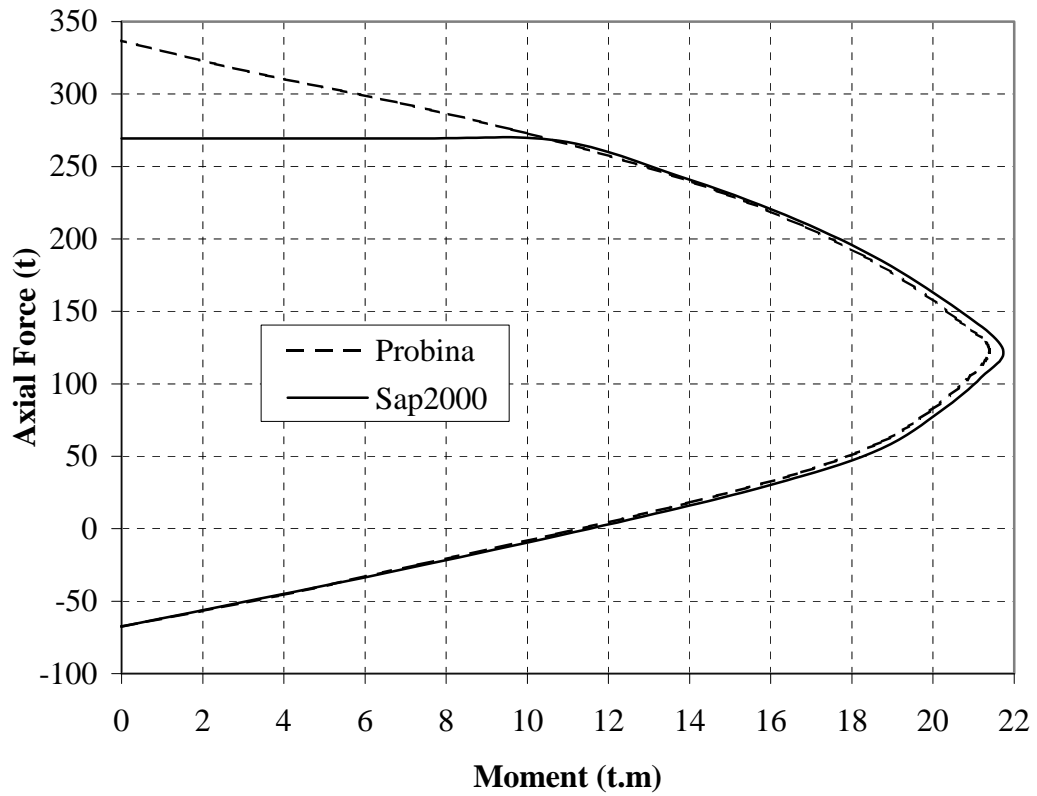


Figure 5.6. A typical column's interaction diagram of the model 3-2-1-6

Table 5.3. A typical beam's moment capacity values of the model 3-2-1-6 calculated by SAP2000 and Probina-V14 (Msf = Moment Capacity Value)

SAP2000 DEFAULT		PROBINA V14	
Msf + (kNm)	Msf - (kNm)	Msf + (kNm)	Msf - (kNm)
121.882	188.379	120.327	190.540

5.3 Pushover Analyses on the Analytical Models

As stated before, the pushover analyses are performed on the analytical models in order to investigate the inelastic behaviour of building structures having soft stories using SAP2000. In the analyses, three different load patterns (code, uniform and elastic first mode) are applied on the structural systems. These load patterns are briefly explained in the following sections. In addition, the three deformation levels that are used in the evaluation of the building models are presented in detail.

5.3.1 Code Lateral Load Pattern

This lateral load pattern is defined in Turkish Earthquake Code 2007 [39]. The lateral force at any story (F_i) is calculated by

$$F_i = (V_t - \Delta F_N) \frac{w_i H_i}{\sum_{j=1}^N w_j H_j} \quad (5.1)$$

where

$$\Delta F_N = 0.0075 N V_t \quad (5.2)$$

In the above equations, V_t is the total base shear obtained by the effective first mode forces, H_i is the height of i -th story above the base, N is the total number of stories, ΔF_N is the additional earthquake load added to the N -th story and w_i is the weight of the i -th story.

Hence, the total base shear V_t , can be calculated by

$$V_t = \Delta F_N + \sum_{i=1}^N F_i \quad (5.3)$$

5.3.2 Uniform Lateral Load Pattern

In this load pattern, the lateral force at any story level is proportional to the mass at that story. The lateral force at any story is calculated by the following formula:

$$F_i = \frac{w_i}{\sum_1^N w} * V_t \quad (5.4)$$

Here, V_t is the total base shear obtained by the effective first mode forces, w_i is the weight of the i -th story and N is the number of stories.

5.3.3 Elastic First Mode Lateral Load Pattern

In this load pattern, the lateral force at any story is proportional to the product of the amplitude of the elastic first mode and the mass at that story. It may be formulated as follows:

$$F_i = m_i \Phi_i / \sum_1^N m_i \Phi_i \quad (5.5)$$

In this equation, Φ_i is the amplitude of the elastic first mode at i -th story and m_i is the mass at i -th story.

5.3.4 Description of Deformation Levels

In this study, three inelastic deformation levels are defined according to the monitored roof displacement of the analytical models. These displacements are determined from the base shear versus roof displacement curves obtained by the nonlinear pushover analysis of the analytical models where the 'code' lateral load pattern is used.

For the first deformation level (def-lev-1), the roof displacement value is obtained for the design earthquake force. It is obvious that, at this deformation level the failure of the plastic hinges is not expected. Above this level of deformation, plastic deformation may begin as the load increases.

The roof displacement in the second deformation level (def-lev-2) is obtained by taking the arithmetic mean of the roof displacements calculated at the time of the

formation of the first plastic hinge and the last plastic hinge in the model for which the curve becomes nearly horizontal after that hinge. This level of deformation is considered to be an intermediate stage of damage where a small number of plastic hinges are observed on the structural members.

The third deformation level (def-lev-3) is determined according to the roof displacement calculated as the sum of the roof displacement in the second deformation level plus the sum of the two roof displacement values, which are calculated (a) when the first hinge in the structure is formed and (b) when the last hinge formed before the structure that leads to collapse, divided by five. This level of deformation is considered to be a critical level of damage where above this level of deformation, the collapse mechanism may start. In Figure 5.7, the deformation levels are shown on an example pushover curve.

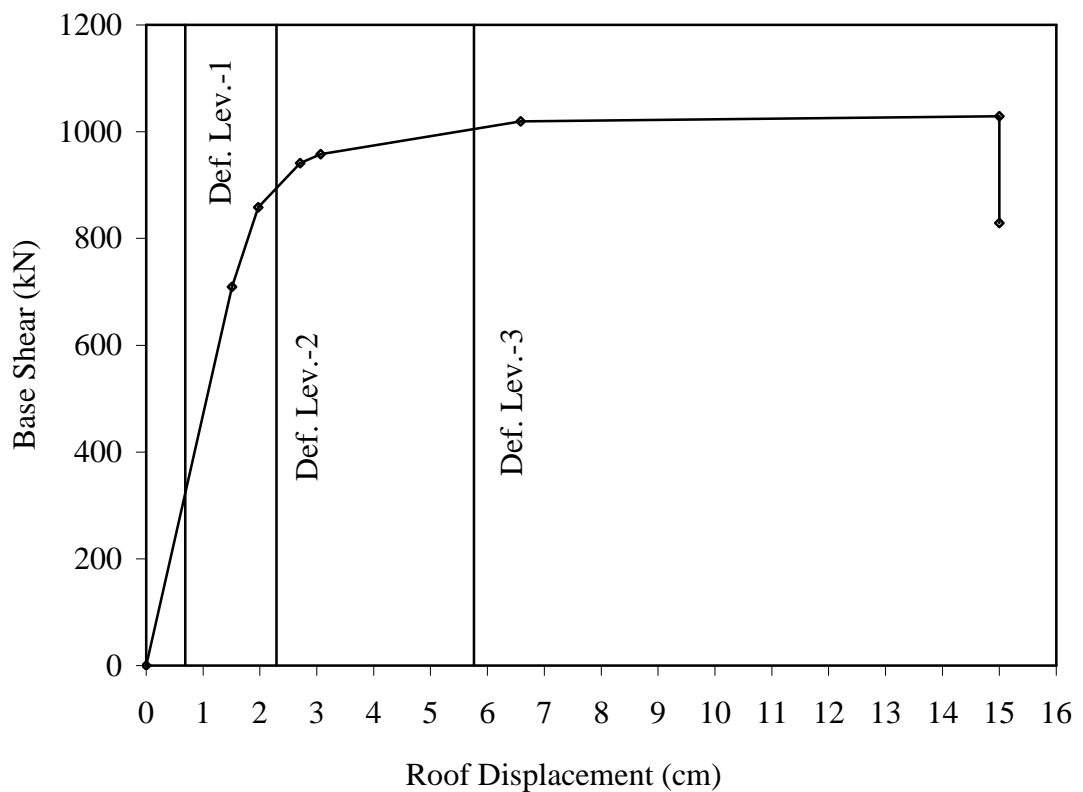


Figure 5.7. The deformation levels on a pushover curve.

5.4 Nonlinear Time-History Analyses on the Models

Besides various pushover analyses, the nonlinear time history analysis have been carried out on the same analytical models (with the same hinge properties) in order to simulate the actual nonlinear behaviour of the structural systems. In the analyses, north-south component acceleration record of the El Centro Earthquake has been utilized as it is a well known and commonly used record. In Figure 5.8, the north-south component of the acceleration record of the El Centro Earthquake is given.

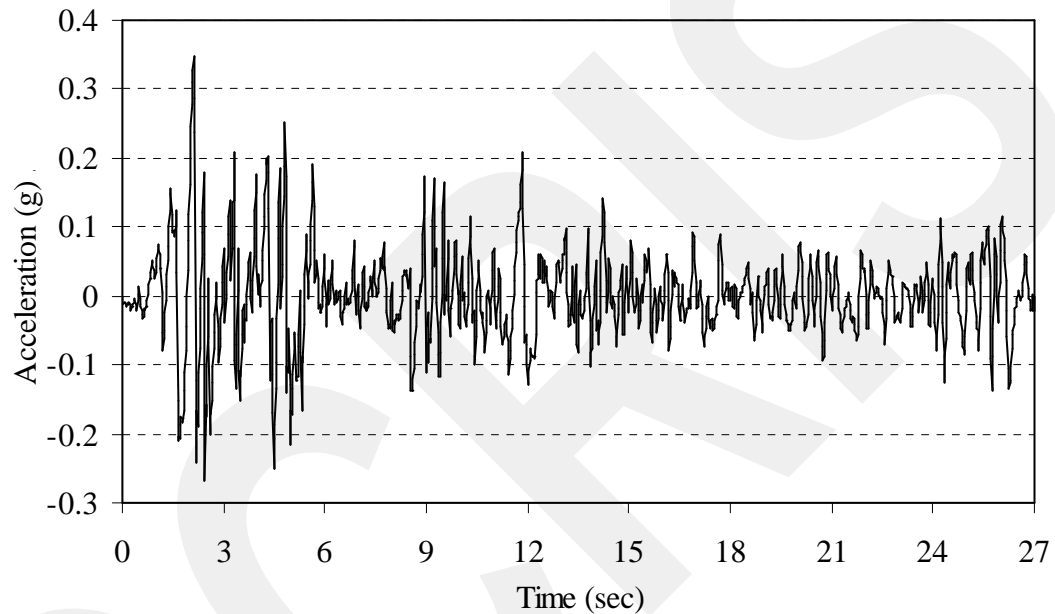


Figure 5.8. North-south acceleration record of El Centro Earthquake

In order to compare the base shear values obtained by the pushover and time history analysis at the defined deformation levels (see 5.3.4), the nonlinear time history analyses carried out for each model are scaled up or down until the desired roof displacements are obtained. While obtaining the total base shear and roof displacement values from the nonlinear time history analyses results, absolute maximum values are taken into account in the time series by means of enveloping. That is to say, the absolute maximum deformation at the roof may occur at the eighteenth second while the absolute maximum base shear is formed at the fifth

second. In Figures 5.9 and 5.10, the base shear and roof displacement diagrams, which are obtained from the nonlinear time history analysis of the model 5-4-HOM at the third deformation level (def-lev-3), are given as examples. For this model, the absolute maximum base shear ($V = 1584 \text{ kN}$) occurs at $t = 12.2\text{s}$, while the absolute maximum roof displacement ($d = 5.46 \text{ cm}$) occurs at $t = 1.96\text{s}$.

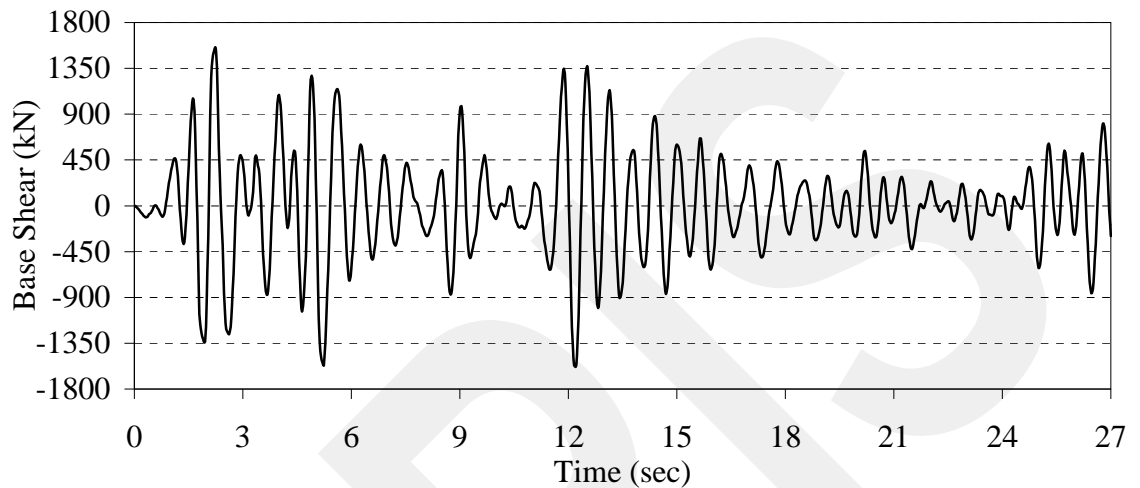


Figure 5.9. Base shear-time diagram of model 5-4-HOM for def-lev-3

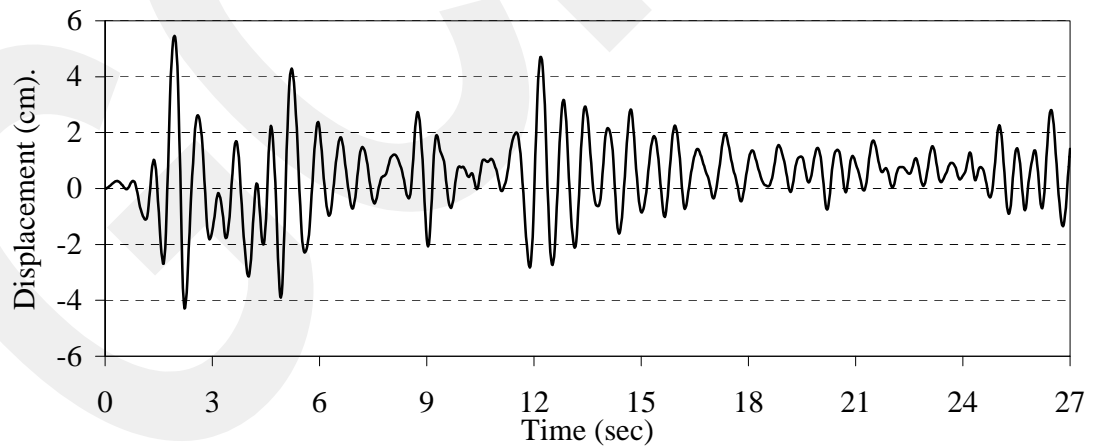


Figure 5.10. Roof displacement-time diagram of model 5-4-HOM for def-lev-3

TABLE 5.4. Predetermined roof displacements and corresponding maximum base shear values and ground motion scale factors obtained by the nonlinear time history analyses

MODEL NAME	Def.Lev.-1			Def.Lev.-2			Def.Lev.-3		
	δx	ΣFx	S.F.	δx	ΣFx	S.F.	δx	ΣFx	S.F.
	(cm)	(kN)		(cm)	(kN)		(cm)	(kN)	
3-2-HOM	0,43	93,9	3,10	1,54	293,2	12,05	4,04	395,8	18,70
3-2-1-4.5	0,73	99,4	2,65	2,20	222,7	7,53	4,87	308,1	13,93
3-2-1-6	1,29	97,4	1,80	2,63	170,0	3,75	5,15	225,6	10,00
3-4-HOM	0,45	185,4	3,14	1,92	684,0	14,33	4,01	896,2	21,47
3-4-1-4.5	0,78	198,2	2,50	1,99	423,0	6,32	3,80	604,3	11,50
3-4-1-6	1,42	189,8	1,96	3,43	398,3	4,70	6,16	511,1	11,60
3-6-HOM	0,46	274,8	3,17	1,89	980,6	13,80	3,96	1278,0	20,58
3-6-1-4.5	0,80	293,8	2,38	1,92	596,6	5,77	3,72	820,5	10,87
3-6-1-6	1,47	282,9	2,00	3,35	565,6	4,60	6,07	739,2	11,35
5-2-HOM	0,69	183,9	3,40	2,14	475,6	10,00	5,65	701,1	18,28
5-2-1-4.5	0,92	190,8	2,59	2,05	377,6	5,63	5,44	531,5	13,38
5-2-1-6	1,36	180,0	1,79	2,71	305,6	3,64	5,74	401,5	11,20
5-4-HOM	0,69	355,7	3,45	2,29	998,4	10,63	5,76	1437,5	18,90
5-4-1-4.5	0,94	366,2	2,34	2,13	777,9	5,52	5,44	1079,7	13,50
5-4-1-6	1,42	348,0	1,92	3,38	702,0	4,55	6,08	925,8	11,77
5-6-HOM	0,69	528,2	3,43	2,28	1579,0	10,93	5,62	2272,0	19,62
5-6-1-4.5	0,94	540,5	2,35	2,19	1199,0	5,55	5,00	1673,0	13,13
5-6-1-6	1,45	515,5	1,90	3,52	1227,0	4,76	6,71	1573,0	13,00
8-2-HOM	1,02	354,9	2,98	3,46	988,1	10,34	8,32	1128,8	18,00
8-2-1-4.5	1,24	337,1	2,06	3,36	774,1	6,08	7,43	1108,7	14,60
8-2-1-6	1,62	317,9	1,92	3,17	591,3	3,93	6,12	842,0	11,90
8-4-HOM	0,94	669,4	3,11	3,07	1981,0	10,81	7,47	2800,3	17,00
8-4-1-4.5	1,15	644,5	2,13	3,28	1552,0	6,47	6,47	2044,4	15,40
8-4-1-6	1,54	609,8	1,91	2,85	1078,1	3,70	5,54	1606,9	10,70
8-6-HOM	0,92	975,6	3,16	3,21	3354,0	11,98	6,93	4408,2	14,00
8-6-1-4.5	1,12	958,2	2,21	2,67	2184,0	5,50	4,88	2893,8	11,00
8-6-1-6	1,52	899,7	1,99	3,94	2134,0	5,14	7,02	2783,9	13,00

Table 5.4 shows the predetermined roof displacements for the three deformation levels from pushover analysis (δx), the corresponding total base shear values obtained by the time history analyses at these deformation levels (ΣFx), and the scale

factors (S.F.) which are used to scale the earthquake record in order to obtain the desired roof displacement values in the nonlinear time history for each analytical model. For example, for the building model 3-6-1-6, in order to obtain the total base shear at the first deformation level, which is obtained as 1.47 cm from the pushover analysis, the earthquake record is multiplied by 2.0. The result of this evaluation gives the maximum base shear as 282.9 kN from time history analysis. In the comparisons that will be presented in the next chapter, these time history analysis results will be used as 'exact' results.

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CHAPTER VI

EVALUATION AND COMPARISON

6.1 General

A database that consists of the results obtained by the nonlinear static pushover analyses and by the nonlinear time history analyses is created in this study in order to investigate the soft story behaviour. The story height of the first floor (H1), the total number of stories and the total number of spans are used as parameters in the evaluation process. In addition, the results obtained by the nonlinear pushover analyses where three different lateral load patterns are used and by the nonlinear time history analyses are compared by considering the three deformation levels established as described in Chapter 5.

In this chapter, the results of the evaluation and comparison studies, which are mentioned above, are presented. The global behaviour of the building models is introduced first. Then, the comparison of story pushover curves, story displacements and inter-story drift ratios are given. The ratio of the displacement of the first story, which is the soft story displacement for the buildings having soft story irregularities, to the displacement of the top floor for the considered models are given next. Finally, the soft story irregularity checks using different earthquake codes and the residual capacities of the considered models are presented in the last two sections.

6.2 Evaluation of the Global Behaviour of the Models

The global pushover curves of all analytical models are given in Appendix-A. As mentioned before, three lateral load patterns are utilized in the nonlinear static pushover analyses. Roof displacement versus base shear diagrams for each load pattern (which will be called as the “pushover curve” from now on) is plotted on the same graph to represent global behaviour of the building models. These graphs also show the nonlinear time history analyses results, which are obtained by considering the three deformation levels described in Chapter 5. As an example, the pushover curves of the building models 8-2-HOM, 8-2-1-4.5 and 8-2-1-6 are given in Figures 6.1, 6.2 and 6.3, respectively. In these figures, the results obtained by the nonlinear time history analyses for the first, second and third deformation levels are indicated as th-1, th-2 and th-3, respectively.

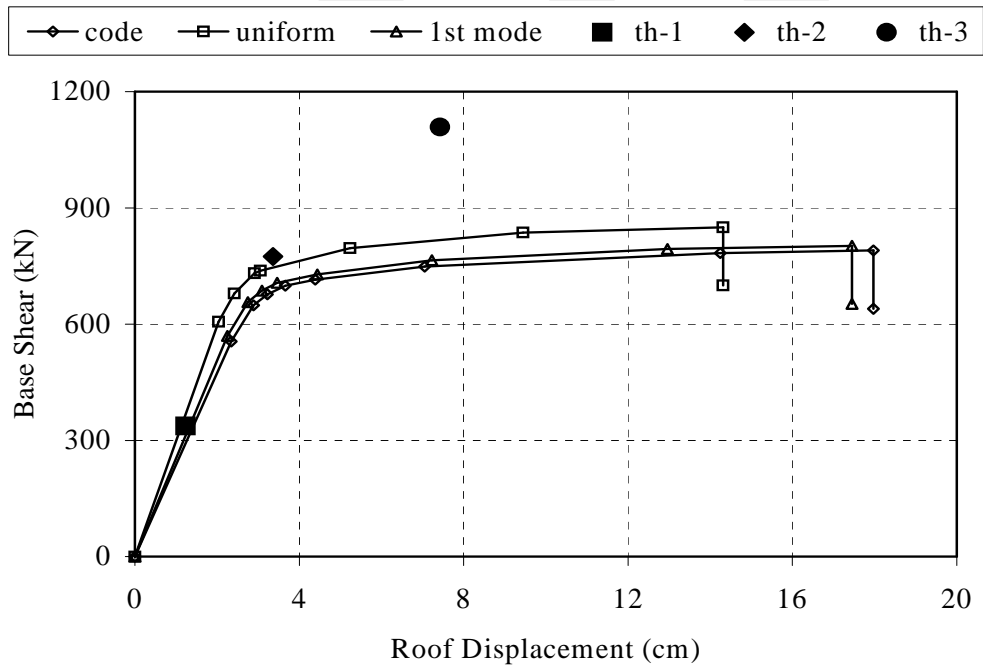


Figure 6.1. Pushover curves of the model 8-2-HOM

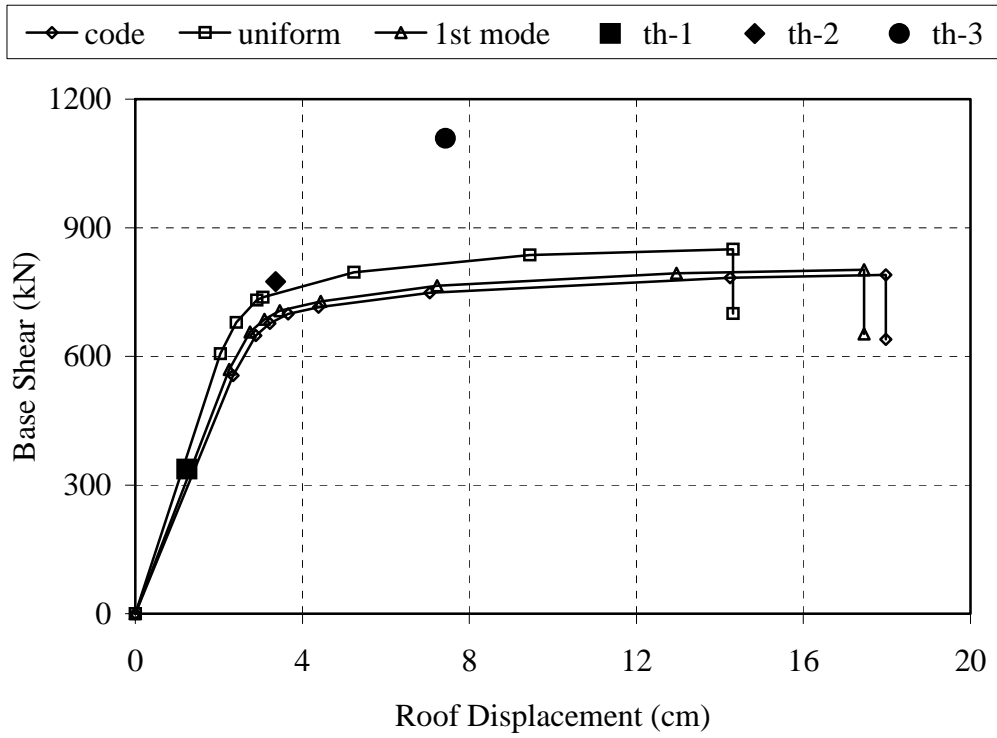


Figure 6.2. Pushover curves of the model 8-2-1-4.5

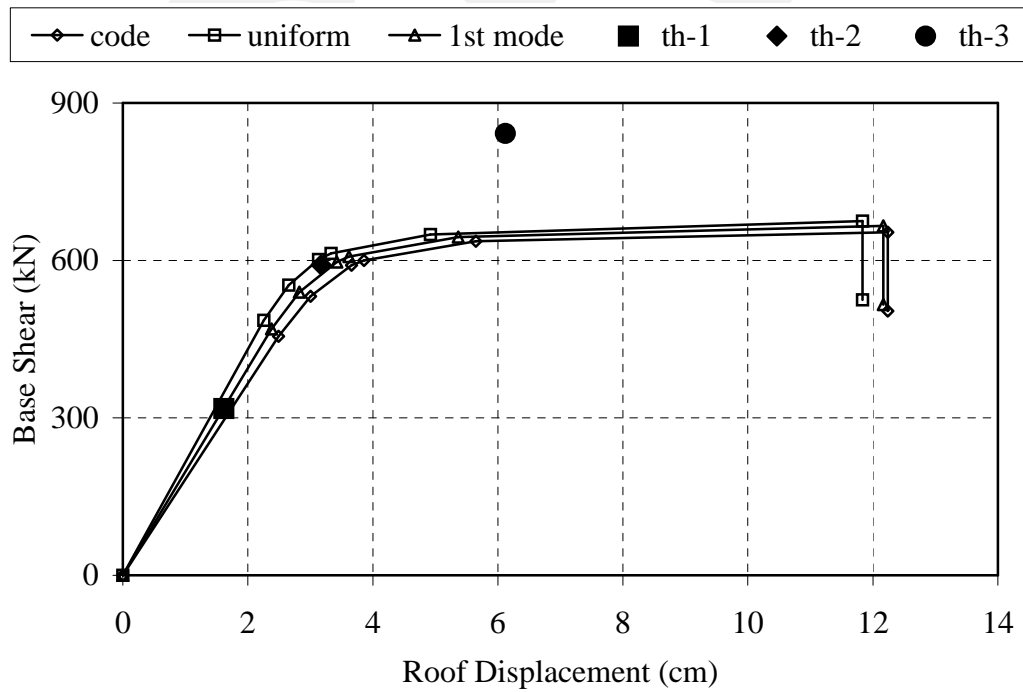


Figure 6.3. Pushover curves of the model 8-2-1-6

In the evaluation of the global behaviours of the analytical models, the pushover curves are compared by considering the span numbers, story numbers, and the first story height.

In the comparisons made according to the span numbers, it has been found that as the number of spans increases the ultimate lateral force level also increases. This increase is proportional to the increase in the energy dissipation capacity since the number of the possible plastic hinges increases with the number of spans. Furthermore, the ultimate lateral displacements are observed to be higher in the models with fewer number of spans. It is also observed that the lateral displacement level at the formation of the first plastic hinge (which may also mean the elastic limit displacement) increases as the number of spans increases. Therefore, the plastic displacement ranges of the models which can be defined as the difference between the lateral displacements calculated when the first and last hinges are formed, are observed to be less in the models with more spans. In addition to these, the increase in the lateral force levels that lead to the first plastic hinges in the models are quite high. However this outcome is expected as all of the models are designed according to the Turkish Earthquake Code-2007 [39] before. Furthermore, the intermediate passage ranges, where the model behaviours changes from elastic to inelastic, is observed to be quite wider either in force or in displacement considerations for the models with higher number of spans.

In the comparison of the pushover curves obtained by the various lateral load patterns, it is observed that the force and deformation estimations for the models with homogenous story heights ($H_1=3\text{m}$) obtained by the uniform load pattern are quite different from the results obtained by the other load patterns. This difference increases proportionally when the number of spans increases. It is also observed that, this difference in the load patterns lead to a difference in initial stiffness values. Furthermore, for the regular models in vertical, the variation of the first mode loading and the code loading is reduced by the increase in the number of spans. On the other hand, for the models with first story heights of 4.5 and 6m, the pushover curves obtained by various load patterns are observed to be the same. This behaviour

is due to the soft story's governing displacement and force behaviours on the global structure.

Additionally, it is observed that the increase in span number for the soft story models lead to increase in the ultimate deformation which is observed to be just the opposite for the regular models. This outcome is determined to be due to increased stiffness of such models. The last observation is that, the lateral displacement level calculated when the first plastic hinge is formed remains same independently from variation in the span numbers.

If the variation in the story numbers is considered, it is observed that as the number of floors increases, the ultimate force and deformation levels of the models increase. Also, the intermediate passage ranges, for which the behaviour of the models change from elastic to inelastic, is observed to be quite wider either in force or in displacement considerations for the models with higher number of stories. In addition to this, it is also observed that, the calculated lateral displacements when the first plastic hinge is formed are increasing proportionally with the number of floors.

In view of the results of the analyses, the deviation of the uniform load pattern from the other lateral load cases increases as the number of stories increase. Also, the initial stiffness of the models reacting to various lateral load patterns becomes clearer when the story numbers increases.

The results of the nonlinear time history analyses are also evaluated according to the deformation levels. At the first deformation level, the results of the nonlinear time history analyses are in accordance with pushover analyses results. The results obtained for the second deformation level by nonlinear time history analyses display some deviation from the pushover analyses results. Pushover analyses results are observed to be lower than the results of the nonlinear time history analyses. In other words, they are more conservative. This deviation is observed to be more pronounced for the third deformation level.

6.3 Evaluation of Story Pushover Curves

In this study, different from the global pushover curves, story pushover curves are obtained for each story including the roof displacements. Similar to the global pushover curves, the story pushover curves are plotted for each lateral load pattern.

The story pushover curves of the analytical models are given in Appendix-B. In Figures 6.4 and 6.5, the story pushover curves of the building models 8-2-HOM and 8-2-1-6 obtained from code lateral load pattern are given as examples. In these diagrams, the numbers written above indicate the story numbers.

Using these diagrams, the variation of the story displacements according to the applied lateral load pattern can be monitored easily. In addition, the lateral displacements of each story, which are used in the soft story investigations and in finding inter-story drift ratios along the elastic and inelastic range, are obtained from these story pushover curves by linear interpolation.

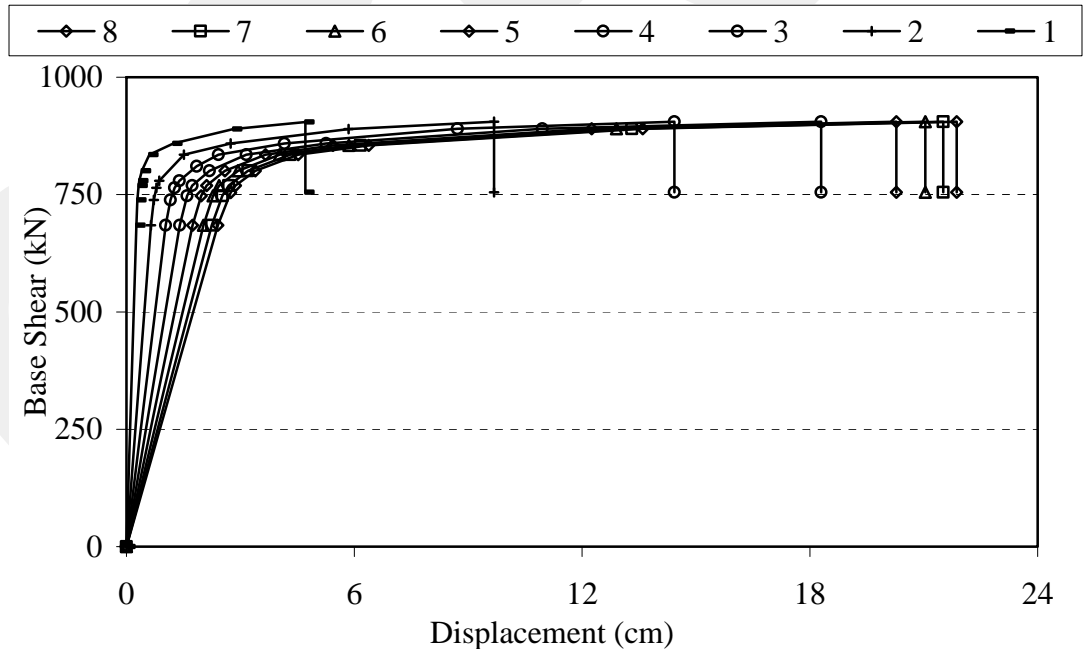


Figure 6.4. Story pushover curves of the model 8-2-HOM for code lateral load pattern

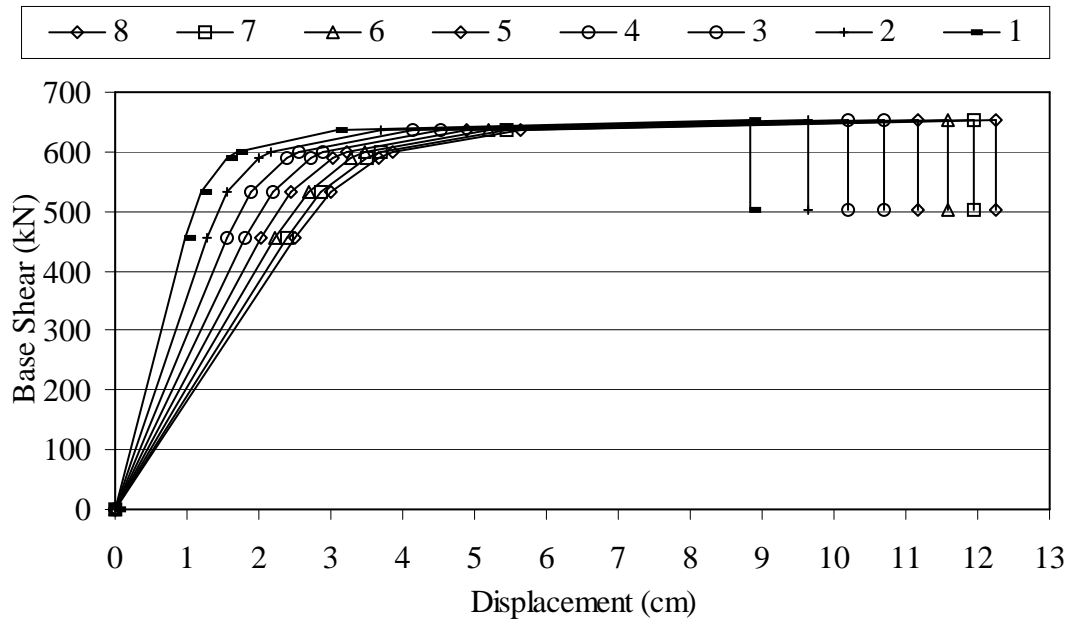


Figure 6.5. Story pushover curves of the model 8-2-1-6 for code load pattern

Investigating the story pushover curves obtained for various lateral load patterns, the ultimate lateral displacement values are observed to be distributed regularly among the inelastic range for the first two or three stories for the regular models. This shows that the lateral forces are transmitted to the stories above. For the models having a soft story, the displacements are observed to be concentrated to the first story due to the dominant first story behaviour. The structure cannot transmit the lateral forces and due to this, lateral loads concentrate of that first story.

Additionally, in the regular analytical models, the plastic hinges which are formed at the first story, are not very effective on the other stories responses and on the collapse mechanism especially for the 6 span models. This situation becomes very effective if the analysed model has less span numbers and has a soft story irregularity. For such models, the concentration of the lateral loads on that story, quickly leads to other hinges on that soft story. For an example, the distribution of the plastic hinges on the building structures 8-2-1-6 and 8-6-HOM just before collapse are given in Figure 6.6. As seen from the figure, for the homogenous model the plastic hinges are distributed among the first four stories but for the building with the first story height is 6 m, the plastic hinges are concentrated at the first story.

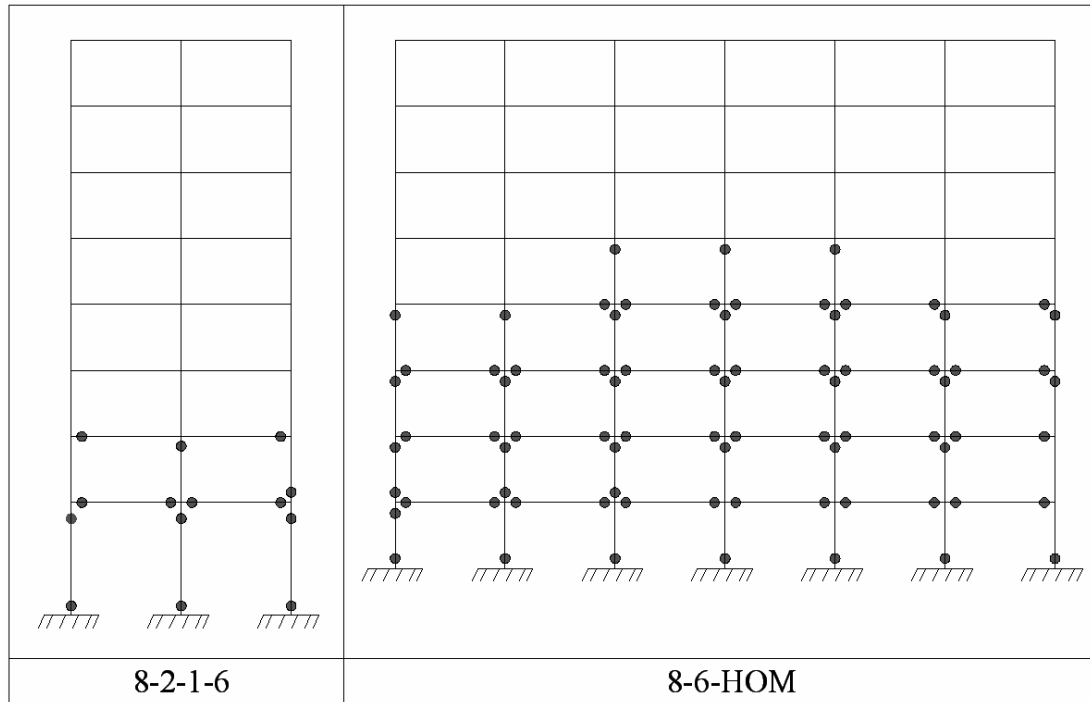


Figure 6.6. Distribution of plastic hinges for the models 8-2-1-6 and 8-6-HOM

6.4 Story Displacements

After performing the pushover analyses using the three load patterns, the obtained story displacements are plotted on the same graph for each deformation level. Using these curves, comparisons and investigations on the results can be made. The story displacement diagrams of the analytical models are given in Appendix-C. As an example, in Figures 6.7, 6.8 and 6.9, the story displacement diagrams obtained for the building model 8-6-1-4.5 are given for the three deformation levels.

It is observed from the analyses results that the story displacements obtained from the pushover and nonlinear time history analyses are generally close to each other for the first deformation level. As a general behaviour, the uniform lateral load pattern leads to overestimations while code and first mode lateral load patterns lead to underestimations considering the nonlinear time history analyses results; but these mentioned deviations are quite small as shown in Figure 6.7. The most likely pushover curve to represent the nonlinear time history analyses results considering

the story displacements is the one obtained by first mode pushover lateral load pattern for the first deformation level.

For the second deformation level, this observation is still valid for results obtained by the first mode pushover lateral load pattern but at this deformation level, the story displacements obtained by uniform lateral load pattern is observed to be very close to the nonlinear time history analyses results. In addition to these, the deviations between the results of pushover and nonlinear time history analyses are increased. The story displacements obtained by the code lateral load pattern are generally observed to be smaller (Figure 6.8).

For the third deformation level, the results are not consistent throughout the models. The results of the pushover lateral load patterns are quite variable in representing the pushover curve or none of these patterns are adequate to represent the nonlinear time history analyses results. The story displacements obtained from the pushover analyses tend to overestimate the story displacements as shown in Figure 6.9.

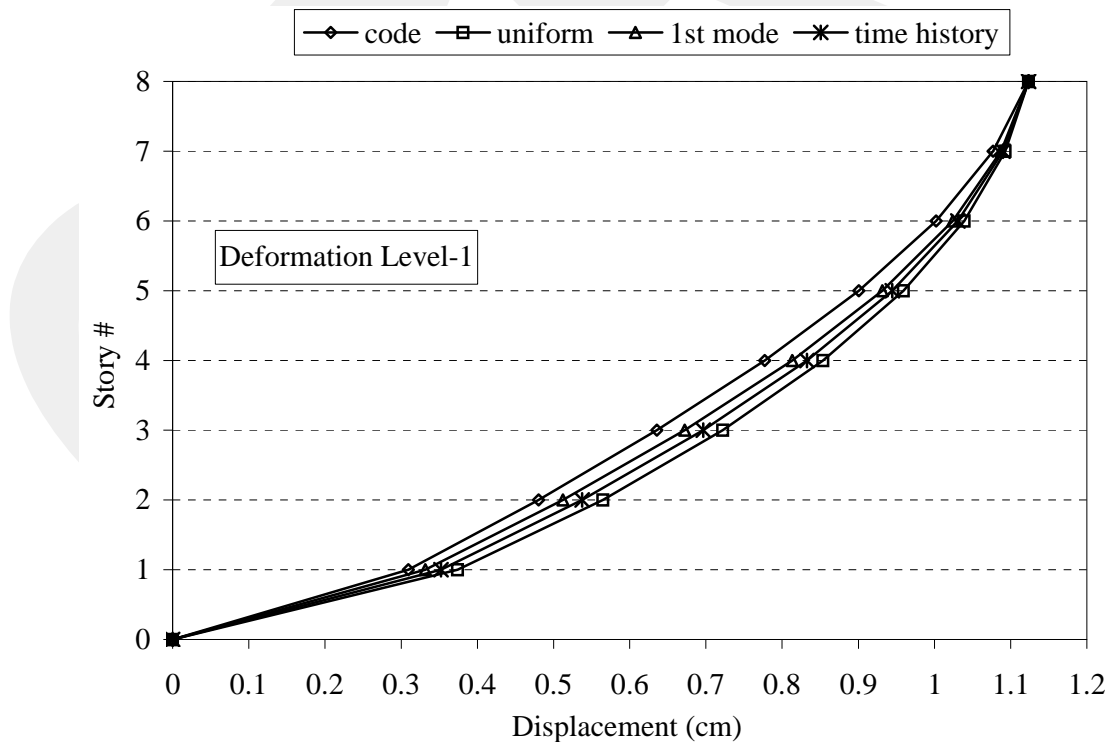


Figure 6.7. Story displacements of the model 8-6-1-4.5 for deformation level-1

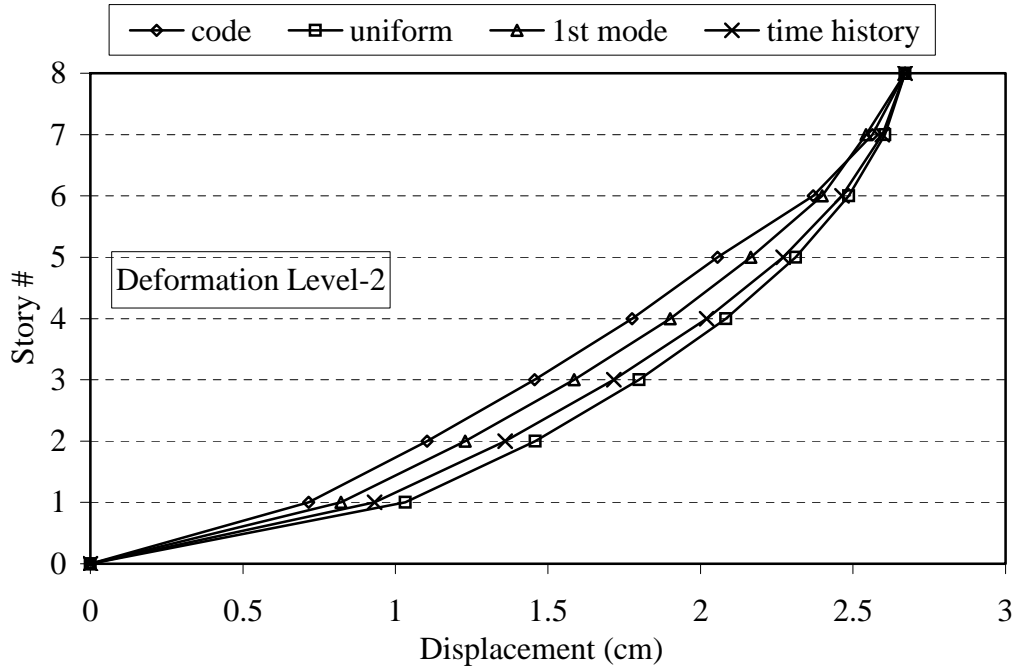


Figure 6.8. Story displacements of the model 8-6-1-4.5 for deformation level-2

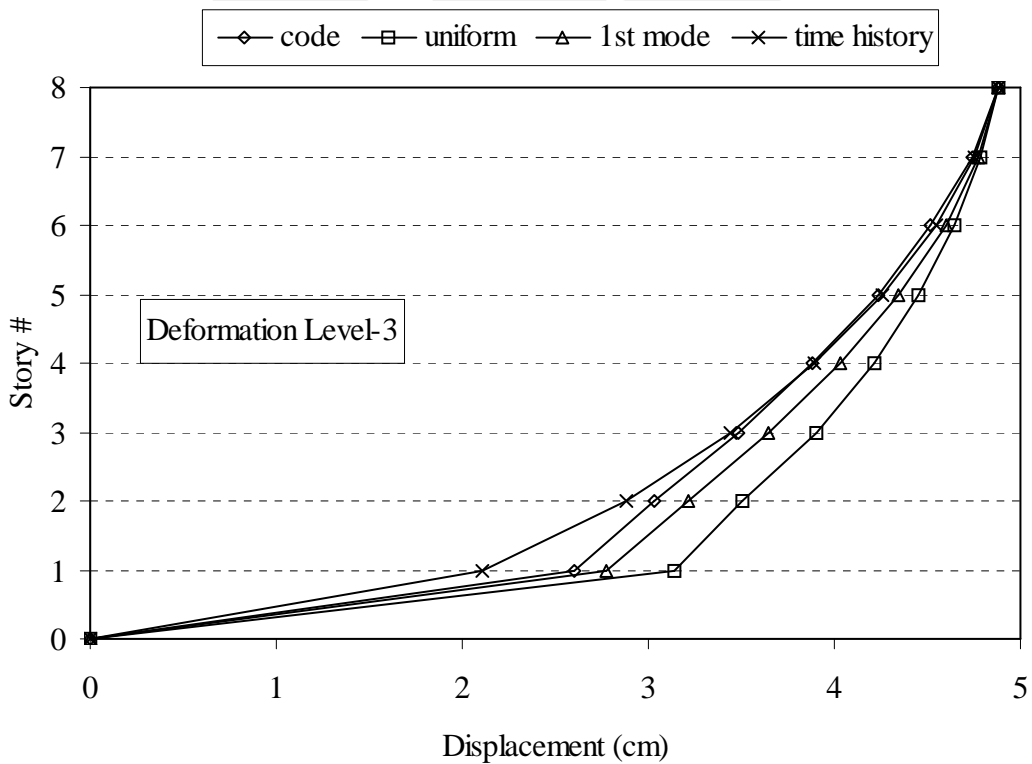


Figure 6.9. Story displacements of the model 8-6-1-4.5 for deformation level-3

6.5 Inter-Story Drift Ratios

The inter-story drift ratio is defined as the inter-story displacement divided by the story height. This definition is same in all of the current earthquake codes. In this study, after obtaining the story lateral displacements of each model according to the three deformation levels, the inter-story drift ratios for each model are calculated and plotted. It is intended to view the lateral displacements and hence soft story irregularity easily. The inter-story drift ratio diagrams of the analytical models are given in Appendix-D. As an illustration, the inter-story drift ratio profiles of the models 5-4-HOM and 8-6-1-6 are given for three deformation levels in Figures 6.10 - 6.15, respectively.

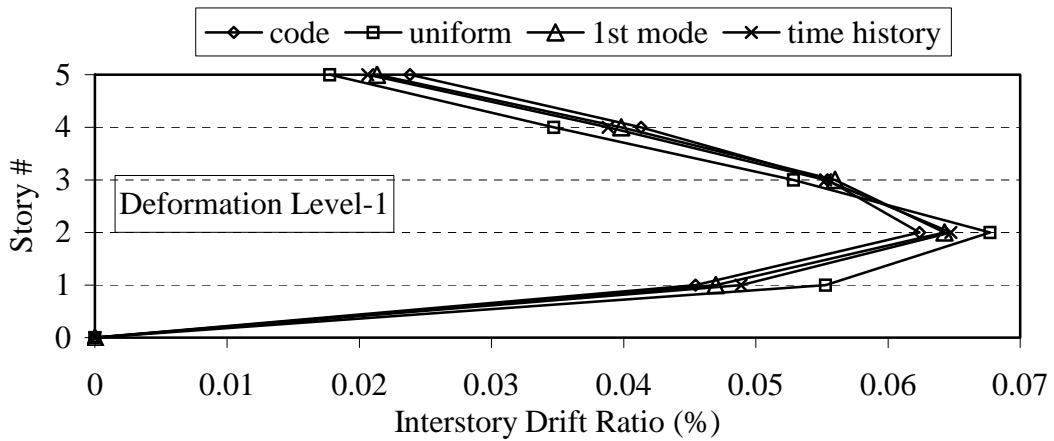


Figure 6.10. Inter-story drift ratio profile of the model 5-4-HOM for def. level-1

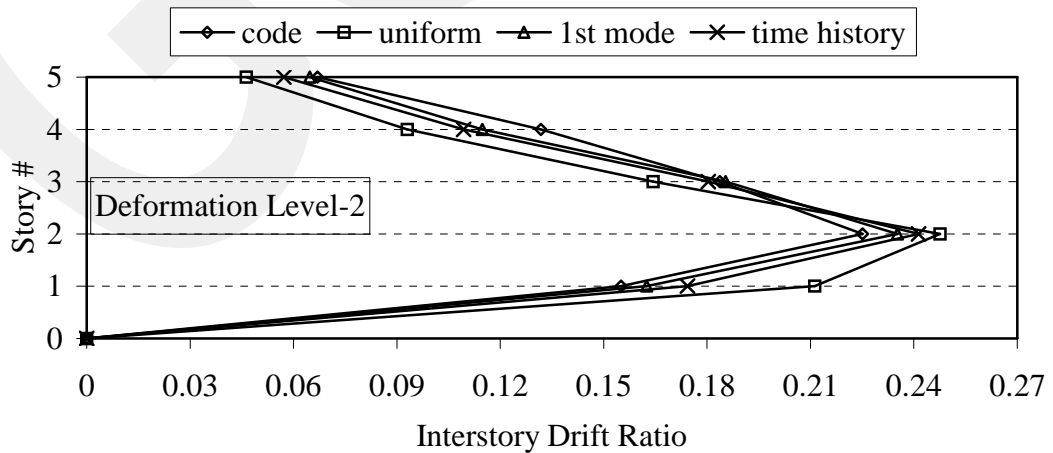


Figure 6.11. Inter-story drift ratio profile of the model 5-4-HOM for def. level-2

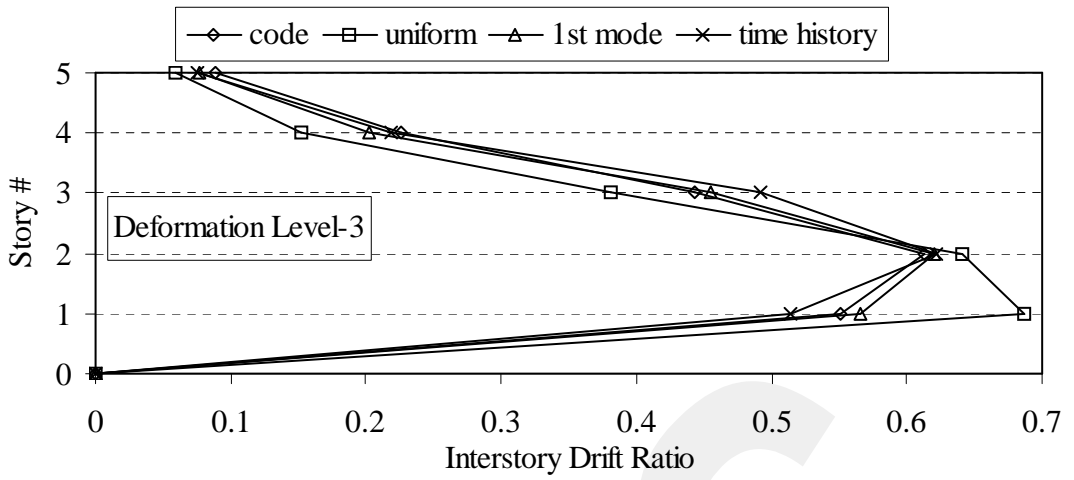


Figure 6.12. Inter-story drift ratio profile of the model 5-4-HOM for def. level-3

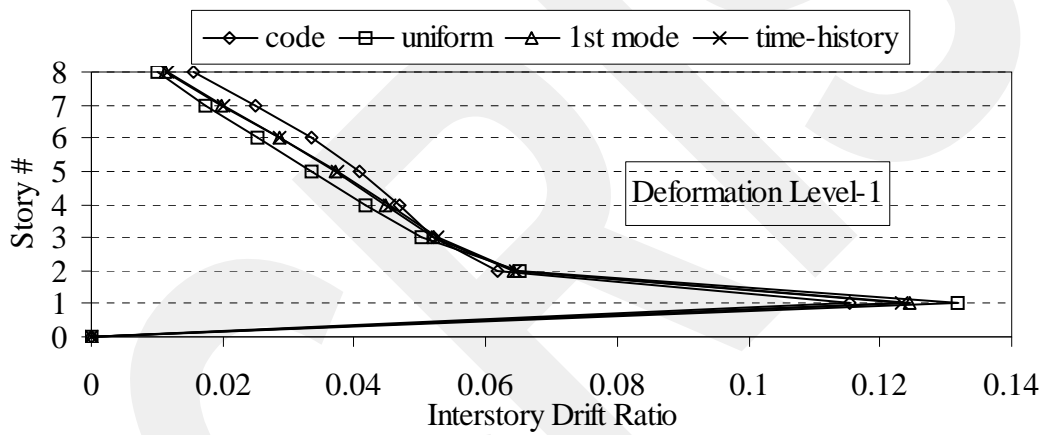


Figure 6.13. Inter-story drift ratio profile of the model 8-6-1-6 for def. level-1

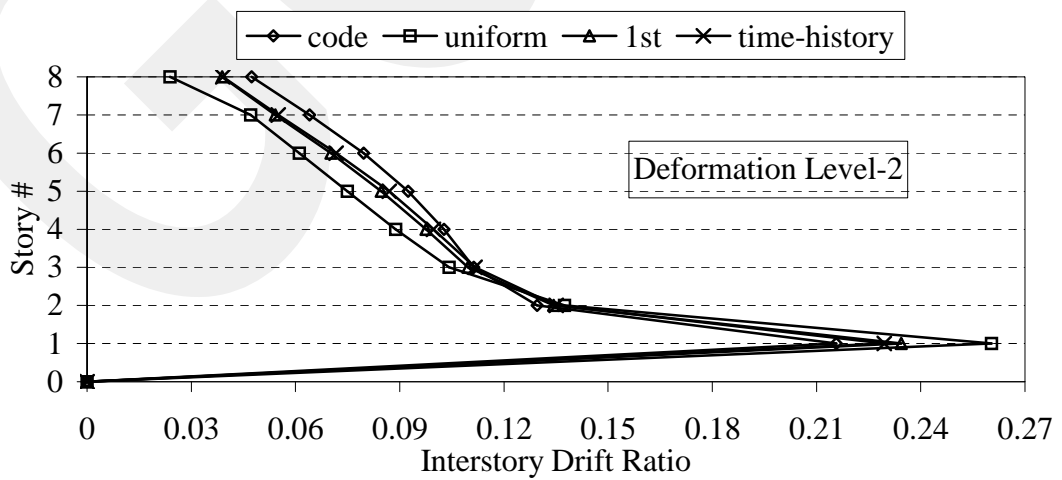


Figure 6.14. Inter-story drift ratio profile of the model 8-6-1-6 for def. level-2

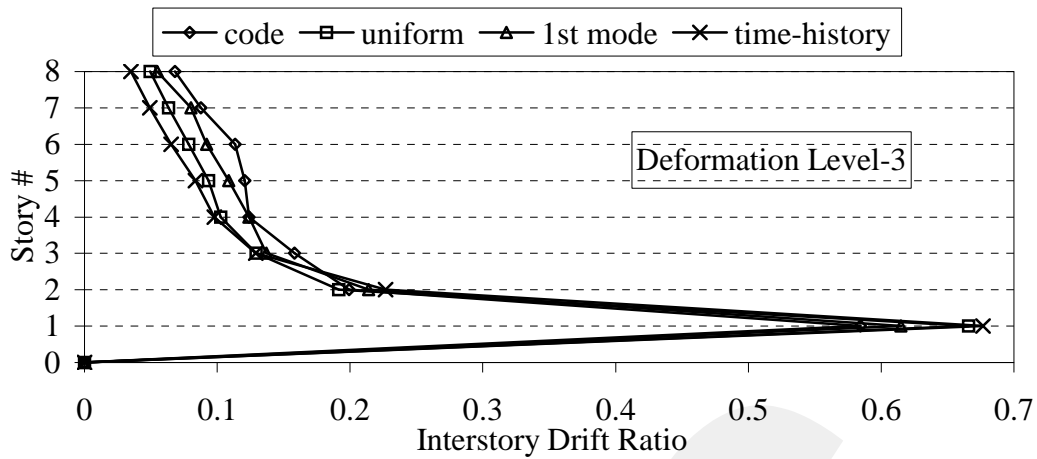


Figure 6.15. Inter-story drift ratio profile of the model 8-6-1-6 for def. level-3

The most influential and accurate parameter to demonstrate the structural behaviour is the inter-story drift ratio. Comparing the graphs of inter-story drift ratios, very important results are obtained which are valid for all of the models. An important finding obtained as a result of this investigation is that the inter-story drift ratios obtained by code lateral load pattern are always underestimated for the lower stories and over estimated for the upper stories, while compared with those obtained by nonlinear time history analyses in all of the deformation levels as shown in Figures 6.10 to 6.15. In general, the first mode lateral load pattern predicts the inter-story drift ratios appropriate to the nonlinear time history analyses. In the models with the height of the first stories 4.5m and 6m, the nonlinear time history analyses results are observed to be between the results of first mode and uniform load pattern especially for the second and third deformation levels. Another important observation is that the inter-story drift ratio graphs become closer with the time history analyses for such building models. Conversely, for the regular models ($H1 = 3m$), the uniform lateral load pattern always has big deviations than the rest of the lateral load patterns and time history results.

It is also observed that, for the models with the height of the first stories 4.5m and 6m, maximum interstory drift ratios are observed in the first story and these values are quite higher from the floor above, as expected. On the other hand, the maximum interstory drift ratios for the regular models ($H1 = 3m$) are observed in the first and second stories which are close to each other.

6.6 The Ratio of the First Story Displacement to the Last Story Displacement

For each model, the ratio of the first story displacement to the last (roof) story displacement is calculated for the three deformation levels. This criterion is named as RFLD (Ratio of the First Story Displacement to the Last Story Displacement). The RFLD graphs of the analytical models are given in Appendix-E. As examples, the RFLD diagrams of the models 3-4-HOM and 8-4-1-6 are given in Figures 6.16 and 6.17, respectively.

As the investigated irregularity is the soft story behaviour, the results obtained from the RFLD graphs give very important information about this irregularity, because the models especially having first stories of 4.5m and 6m heights are potential soft story buildings. From the global behaviour point of view, for the models with higher first stories, the RFLD values for the first two deformation levels are observed to be at appropriate levels, but for the third deformation level, this ratio increases to higher values.

For the regular models, this RFLD ratio is observed to be increasing proportionally to the deformation level for the five and eight storey models. For the three storey regular models, this ratio increases in the first and second deformation levels, but decreasing for the third deformation level. Finally, as an expected observation, RFLD ratio is observed to be higher for the models with a soft story irregularity. In general, RFLD ratio is between 40% and 85% for the models having a soft story for the first deformation level, which clearly indicates that the force, hence the deformations concentrate on these soft stories. On the other hand this ratio is between 10% and 45% in the regular building models for the first deformation level.

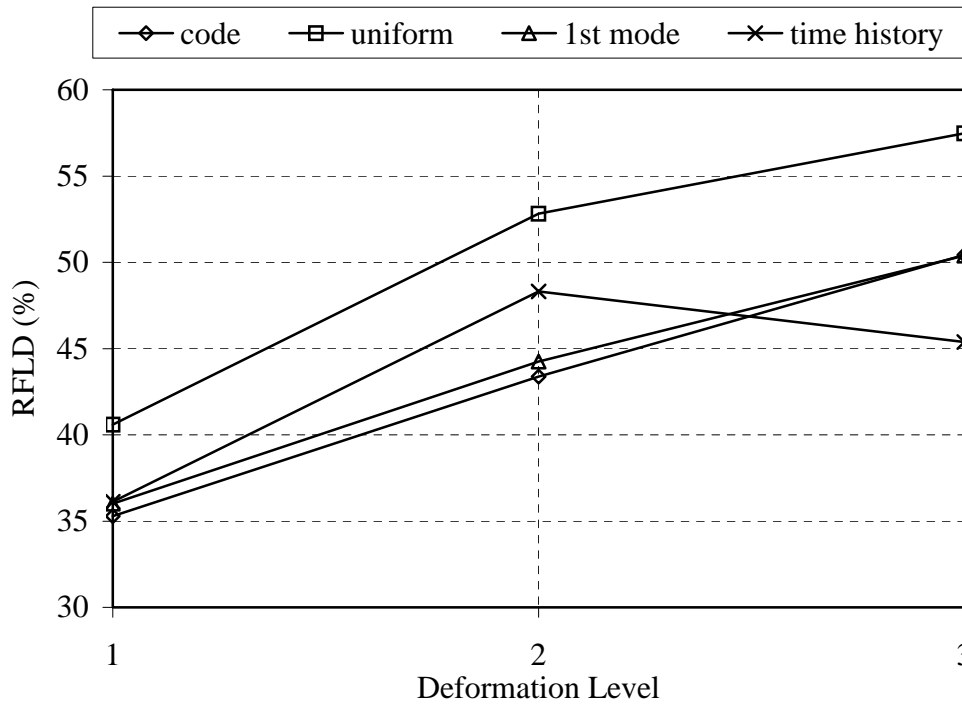


Figure 6.16. RFLD values for the model 3-4-HOM

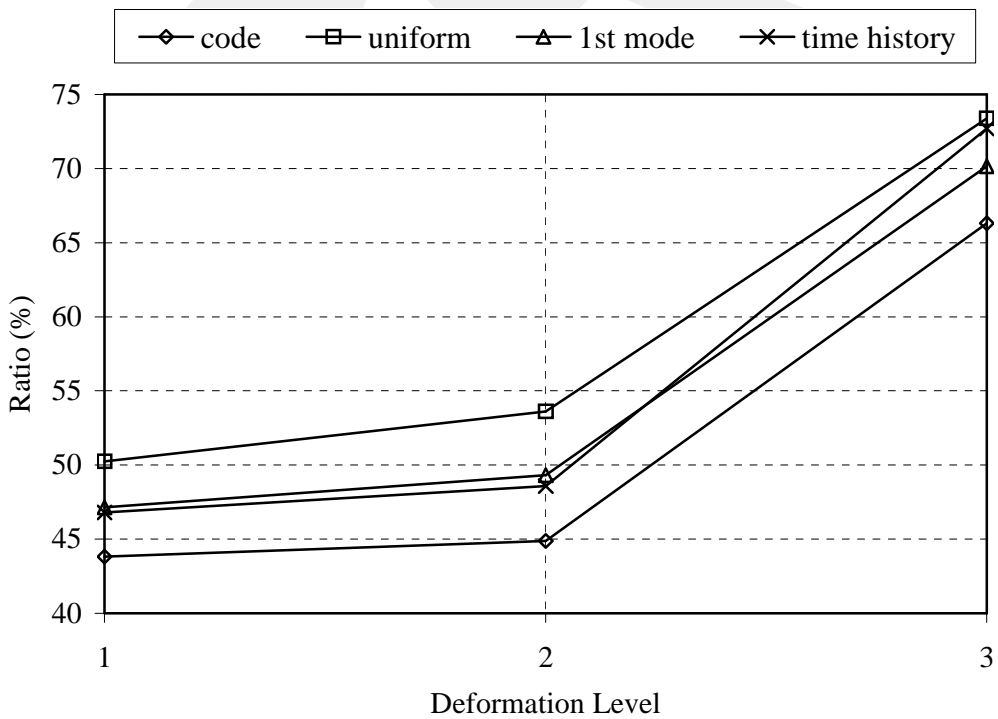


Figure 6.17. RFLD values for the model 8-4-1-6

The code lateral load pattern generally underestimates this ratio for the first and second deformation levels for all kind of models, but for the third deformation level, this load pattern overestimates this ratio for the regular models and underestimates for the models having higher first stories. Furthermore, the uniform load pattern leads to overestimated ratios in most of the models depending on the span numbers. On the other hand, the first mode lateral loading is generally observed to be more accurate than the other load patterns in predicting this ratio with small deviations.

6.7 Soft Story Irregularity Checks

In order to examine the accuracy of the linear analyses that are performed during the design phase of the building models, the soft story irregularity parameters are investigated according to the previous and current Turkish Earthquake Codes [38, 39] considering linear member behaviour. In Table 6.1, the soft story checks that are made during the elastic design phase are given. The results are obtained by Probina V14 [46] programme. In this table, the story numbers at which the soft story irregularity exists are also determined ('Story #' abbreviation indicates the stories with a soft story).

Additionally, after obtaining the inelastic displacement data from the nonlinear analyses, the above mentioned soft story irregularity parameters are re-investigated according to the three deformation levels mentioned before. FEMA-310 [20] earthquake code is taken into account together with the previous and current Turkish Earthquake Codes [38,39]. The comparisons also cover the linear elastic analysis results because of the first deformation level, which is always defined in the elastic range. In the tables between 6.2 to 6.13, the soft story checks that are done in the inelastic range are given considering the analysis type, lateral load pattern and deformation levels according to the old Turkish Earthquake Code-1998, the current Turkish Earthquake Code-2007 and FEMA-310 Code . "St #." abbreviation indicates the stories with a soft story.

In the soft story irregularity checks Indian Earthquake Code [47] and EUROCODE [18] are neglected as the Indian Earthquake Code has almost same parameters for determining the soft story irregularity and EUROCODE does not contain parameters for determining soft story irregularity.

Comparison between the values obtained by Probina V14 programme and the values obtained by the first deformation level of inelastic analyses almost give similar results and this verifies the accuracy of the analytical models used in the nonlinear analyses.

In the Tables 6.2 to 6.13, it is generally observed that the Turkish Earthquake Code-2007 do not determine the soft story irregularity, especially in the models with higher first stories ($H_1=4.5$ and $H_1=6m$) for which the soft story irregularity is obvious. From this point of view, the old Turkish Earthquake Code-1998 is observed to be more realistic in determining the soft story irregularity especially for such building structures.

Table 6.1. Soft story irregularity checks, which are done in the design phase with
 Probina V14 [46]

SOFT STORY IRREGULARITY CHECKS FOR THE ANALYTICAL MODELS DESIGNED BY PROBINA V-14				
MODEL	ABYYHY-98	Story #	DBYYHY-07	Story #
3-2-HOM	S.STORY	2	NO S.STORY	—
3-2-1-4.5	S.STORY	1-2	NO S.STORY	—
3-2-1-6	S.STORY	1-2	S.STORY	1
3-4-HOM	S.STORY	2	NO S.STORY	—
3-4-1-4.5	S.STORY	1-2	NO S.STORY	—
3-4-1-6	S.STORY	1-2	S.STORY	1
3-6-HOM	S.STORY	2	NO S.STORY	—
3-6-1-4.5	S.STORY	1-2	NO S.STORY	—
3-6-1-6	S.STORY	1-2	S.STORY	1
5-2-HOM	S.STORY	4	NO S.STORY	—
5-2-1-4.5	S.STORY	1-4	NO S.STORY	—
5-2-1-6	S.STORY	1-4	NO S.STORY	—
5-4-HOM	S.STORY	4	NO S.STORY	—
5-4-1-4.5	S.STORY	1-4	NO S.STORY	—
5-4-1-6	S.STORY	1-4	NO S.STORY	—
5-6-HOM	S.STORY	4	NO S.STORY	—
5-6-1-4.5	S.STORY	1-4	NO S.STORY	—
5-6-1-6	S.STORY	1-4	NO S.STORY	—
8-2-HOM	NO S.STORY	—	NO S.STORY	—
8-2-1-4.5	S.STORY	1	NO S.STORY	—
8-2-1-6	S.STORY	1	NO S.STORY	—
8-4-HOM	NO S.STORY	—	NO S.STORY	—
8-4-1-4.5	S.STORY	1	NO S.STORY	—
8-4-1-6	S.STORY	1	NO S.STORY	—
8-6-HOM	S.STORY	7	NO S.STORY	—
8-6-1-4.5	S.STORY	1-7	NO S.STORY	—
8-6-1-6	S.STORY	1-7	NO S.STORY	—

Table 6.2. Soft story irregularity checks for the code lateral load pattern at the deformation level-1

CODE LATERAL LOAD PATTERN DEF. LEVEL-1						
MODEL	DBYYHY-07	ST.#	ABYYHY-98	ST.#	FEMA-310	ST.#
3-2-HOM	NO SOFT S.	-	SOFT S.	2	NO SOFT S.	-
3-2-1-4.5	NO SOFT S.	-	SOFT S.	1-2	SOFT S.	1
3-2-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-4-HOM	NO SOFT S.	-	SOFT S.	2	NO SOFT S.	-
3-4-1-4.5	NO SOFT S.	-	SOFT S.	1-2	SOFT S.	1
3-4-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-6-HOM	NO SOFT S.	-	SOFT S.	2	NO SOFT S.	-
3-6-1-4.5	NO SOFT S.	-	SOFT S.	1-2	SOFT S.	1
3-6-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
5-2-HOM	NO SOFT S.	-	SOFT S.	4	NO SOFT S.	-
5-2-1-4.5	NO SOFT S.	-	SOFT S.	1-4	SOFT S.	1
5-2-1-6	NO SOFT S.	-	SOFT S.	1-4	SOFT S.	1
5-4-HOM	NO SOFT S.	-	SOFT S.	4	NO SOFT S.	-
5-4-1-4.5	NO SOFT S.	-	SOFT S.	1-4	SOFT S.	1
5-4-1-6	NO SOFT S.	-	SOFT S.	1-4	SOFT S.	1
5-6-HOM	NO SOFT S.	-	SOFT S.	4	NO SOFT S.	-
5-6-1-4.5	NO SOFT S.	-	SOFT S.	1-4	SOFT S.	1
5-6-1-6	NO SOFT S.	-	SOFT S.	1-4	SOFT S.	1
8-2-HOM	NO SOFT S.	-	NO SOFT S.	-	NO SOFT S.	-
8-2-1-4.5	NO SOFT S.	-	SOFT S.	1	SOFT S.	1
8-2-1-6	NO SOFT S.	-	SOFT S.	1	SOFT S.	1
8-4-HOM	NO SOFT S.	-	SOFT S.	7	NO SOFT S.	-
8-4-1-4.5	NO SOFT S.	-	SOFT S.	1-7	SOFT S.	1
8-4-1-6	SOFT S.	7	SOFT S.	1-7	SOFT S.	1
8-6-HOM	NO SOFT S.	-	SOFT S.	7	NO SOFT S.	-
8-6-1-4.5	NO SOFT S.	-	SOFT S.	1-7	SOFT S.	1
8-6-1-6	NO SOFT S.	-	SOFT S.	1-7	SOFT S.	1

Table 6.3. Soft story irregularity checks for the code lateral load pattern at the deformation level-2

CODE LATERAL LOAD PATTERN DEF.LEVEL-2						
MODEL	DBYYHY-07	ST#	ABYYHY-98	ST#	FEMA-310	ST#
3-2-HOM	NO SOFT S.	-	SOFT S.	2	NO SOFT S.	-
3-2-1-4.5	SOFT S.	2	SOFT S.	1-2	SOFT S.	1
3-2-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-4-HOM	SOFT S.	2	SOFT S.	2	NO SOFT S.	-
3-4-1-4.5	NO SOFT S.	-	SOFT S.	1-2	SOFT S.	1
3-4-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-6-HOM	SOFT S.	2	SOFT S.	2	NO SOFT S.	-
3-6-1-4.5	SOFT S.	1	SOFT S.	1-2	SOFT S.	1
3-6-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
5-2-HOM	NO SOFT S.	-	SOFT S.	3-4	NO SOFT S.	-
5-2-1-4.5	NO SOFT S.	-	SOFT S.	1-4	SOFT S.	1
5-2-1-6	NO SOFT S.	-	SOFT S.	1-2-4	SOFT S.	1
5-4-HOM	NO SOFT S.	-	SOFT S.	3-4	NO SOFT S.	-
5-4-1-4.5	NO SOFT S.	-	SOFT S.	1-4	SOFT S.	1
5-4-1-6	SOFT S.	1	SOFT S.	1-4	SOFT S.	1
5-6-HOM	NO SOFT S.	-	SOFT S.	4	NO SOFT S.	-
5-6-1-4.5	NO SOFT S.	-	SOFT S.	1-4	SOFT S.	1
5-6-1-6	NO SOFT S.	-	SOFT S.	1-4	SOFT S.	1
8-2-HOM	NO SOFT S.	-	NO SOFT S.	-	NO SOFT S.	-
8-2-1-4.5	NO SOFT S.	-	SOFT S.	1	SOFT S.	1
8-2-1-6	NO SOFT S.	-	SOFT S.	1	SOFT S.	1
8-4-HOM	NO SOFT S.	-	SOFT S.	7	NO SOFT S.	-
8-4-1-4.5	NO SOFT S.	-	SOFT S.	1-7	SOFT S.	1
8-4-1-6	NO SOFT S.	-	SOFT S.	1-7	SOFT S.	1
8-6-HOM	NO SOFT S.	-	SOFT S.	6-7	NO SOFT S.	-
8-6-1-4.5	NO SOFT S.	-	SOFT S.	1-6-7	SOFT S.	1
8-6-1-6	SOFT S.	1	SOFT S.	1-7	SOFT S.	1

Table 6.4. Soft story irregularity checks for the code lateral load pattern at the deformation level-3

CODE LATERAL LOAD PATTERN DEF. LEVEL-3						
MODEL	DBYYHY-07	ST.#	ABYYHY-98	ST.#	FEMA-310	ST.#
3-2-HOM	SOFT S.	2	SOFT S.	2	NO SOFT S.	-
3-2-1-4.5	SOFT S.	1	SOFT S.	1-2	SOFT S.	1
3-2-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-4-HOM	SOFT S.	2	SOFT S.	2	NO SOFT S.	-
3-4-1-4.5	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-4-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-6-HOM	SOFT S.	2	SOFT S.	2	NO SOFT S.	-
3-6-1-4.5	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-6-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
5-2-HOM	SOFT S.	4	SOFT S.	3-4	NO SOFT S.	-
5-2-1-4.5	SOFT S.	3	SOFT S.	ALL	SOFT S.	1
5-2-1-6	SOFT S.	3	SOFT S.	ALL	SOFT S.	1
5-4-HOM	SOFT S.	4	SOFT S.	3-4	NO SOFT S.	-
5-4-1-4.5	SOFT S.	3-4	SOFT S.	ALL	SOFT S.	1
5-4-1-6	SOFT S.	1	SOFT S.	1-4	SOFT S.	1
5-6-HOM	SOFT S.	3-4	SOFT S.	3-4	NO SOFT S.	-
5-6-1-4.5	NO SOFT S.	-	SOFT S.	ALL	SOFT S.	1
5-6-1-6	SOFT S.	1-2	SOFT S.	1-3-4	SOFT S.	1
8-2-HOM	SOFT S.	5	SOFT S.	5	NO SOFT S.	-
8-2-1-4.5	NO SOFT S.	-	SOFT S.	1-3-4	SOFT S.	1
8-2-1-6	SOFT S.	1	SOFT S.	1	SOFT S.	1
8-4-HOM	NO SOFT S.	-	SOFT S.	4-5	NO SOFT S.	-
8-4-1-4.5	SOFT S.	3	SOFT S.	1-2-3-7	SOFT S.	1
8-4-1-6	SOFT S.	1	SOFT S.	1	SOFT S.	1
8-6-HOM	NO SOFT S.	-	SOFT S.	3-7	NO SOFT S.	-
8-6-1-4.5	SOFT S.	1	SOFT S.	1-7	SOFT S.	1
8-6-1-6	SOFT S.	1	SOFT S.	1-3	SOFT S.	1

Table 6.5. Soft story irregularity checks for the uniform lateral load pattern at the deformation level-1

UNIFORM LATERAL LOAD PATTERN DEF. LEVEL-1						
MODEL	DBYYHY-07	ST.#	ABYYHY-98	ST.#	FEMA-310	ST.#
3-2-HOM	NO SOFT S.	-	SOFT S.	2	NO SOFT S.	-
3-2-1-4.5	SOFT S.	1	SOFT S.	1-2	SOFT S.	1
3-2-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-4-HOM	NO SOFT S.	-	SOFT S.	2	NO SOFT S.	-
3-4-1-4.5	SOFT S.	1	SOFT S.	1-2	SOFT S.	1
3-4-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-6-HOM	SOFT S.	2	SOFT S.	2	NO SOFT S.	-
3-6-1-4.5	SOFT S.	2	SOFT S.	1-2	SOFT S.	1
3-6-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
5-2-HOM	NO SOFT S.	-	SOFT S.	4	NO SOFT S.	-
5-2-1-4.5	NO SOFT S.	-	SOFT S.	1-3-4	SOFT S.	1
5-2-1-6	NO SOFT S.	-	SOFT S.	1-3-4	SOFT S.	1
5-4-HOM	NO SOFT S.	-	SOFT S.	3-4	NO SOFT S.	-
5-4-1-4.5	NO SOFT S.	-	SOFT S.	1-2-4	SOFT S.	1
5-4-1-6	SOFT S.	1	SOFT S.	1-3-4	SOFT S.	1
5-6-HOM	NO SOFT S.	-	SOFT S.	3-4	NO SOFT S.	-
5-6-1-4.5	NO SOFT S.	-	SOFT S.	1-3-4	SOFT S.	1
5-6-1-6	SOFT S.	1	SOFT S.	ALL	SOFT S.	1
8-2-HOM	NO SOFT S.	-	SOFT S.	7	NO SOFT S.	-
8-2-1-4.5	NO SOFT S.	-	SOFT S.	1	SOFT S.	1
8-2-1-6	NO SOFT S.	-	SOFT S.	1	SOFT S.	1
8-4-HOM	NO SOFT S.	-	SOFT S.	7	NO SOFT S.	-
8-4-1-4.5	NO SOFT S.	-	SOFT S.	1-7	SOFT S.	1
8-4-1-6	NO SOFT S.	-	SOFT S.	1-7	SOFT S.	1
8-6-HOM	NO SOFT S.	-	SOFT S.	7	NO SOFT S.	-
8-6-1-4.5	NO SOFT S.	-	SOFT S.	1-7	SOFT S.	1
8-6-1-6	SOFT S.	1	SOFT S.	1-7	SOFT S.	1

Table 6.6. Soft story irregularity checks for the uniform lateral load pattern at the deformation level-2

UNIFORM LATERAL LOAD PATTERN DEF.LEVEL-2						
MODEL	DBYYHY-07	ST.#	ABYYHY-98	ST.#	FEMA-310	ST.#
3-2-HOM	SOFT S.	2	SOFT S.	2	NO SOFT S.	-
3-2-1-4.5	SOFT S.	2	SOFT S.	1-2	SOFT S.	1
3-2-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-4-HOM	SOFT S.	2	SOFT S.	1-2	NO SOFT S.	-
3-4-1-4.5	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-4-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-6-HOM	SOFT S.	2	SOFT S.	1-2	NO SOFT S.	-
3-6-1-4.5	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-6-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
5-2-HOM	NO SOFT S.	-	SOFT S.	3-4	NO SOFT S.	-
5-2-1-4.5	NO SOFT S.	-	SOFT S.	ALL	SOFT S.	1
5-2-1-6	NO SOFT S.	-	SOFT S.	ALL	SOFT S.	1
5-4-HOM	SOFT S.	4	SOFT S.	3-4	NO SOFT S.	-
5-4-1-4.5	NO SOFT S.	-	SOFT S.	ALL	SOFT S.	1
5-4-1-6	SOFT S.	1	SOFT S.	ALL	SOFT S.	1
5-6-HOM	NO SOFT S.	-	SOFT S.	2	NO SOFT S.	-
5-6-1-4.5	NO SOFT S.	-	SOFT S.	1-3-4	SOFT S.	1
5-6-1-6	SOFT S.	1	SOFT S.	ALL	SOFT S.	1
8-2-HOM	NO SOFT S.	-	NO SOFT S.	-	NO SOFT S.	-
8-2-1-4.5	NO SOFT S.	-	SOFT S.	1	SOFT S.	1
8-2-1-6	NO SOFT S.	-	SOFT S.	1	SOFT S.	1
8-4-HOM	NO SOFT S.	-	SOFT S.	7	NO SOFT S.	-
8-4-1-4.5	NO SOFT S.	-	SOFT S.	1-7	SOFT S.	1
8-4-1-6	SOFT S.	1	SOFT S.	1-7	SOFT S.	1
8-6-HOM	NO SOFT S.	-	SOFT S.	7	NO SOFT S.	-
8-6-1-4.5	NO SOFT S.	-	SOFT S.	1-7	SOFT S.	1
8-6-1-6	SOFT S.	1	SOFT S.	1-7	SOFT S.	1

Table 6.7. Soft story irregularity checks for the uniform lateral load pattern at the deformation level-3

UNIFORM LATERAL LOAD PATTERN DEF.LEVEL-3						
MODEL	DBYYHY-07	ST.#	ABYYHY-98	ST.#	FEMA-310	ST.#
3-2-HOM	SOFT S.	2	SOFT S.	2	NO SOFT S.	-
3-2-1-4.5	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-2-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-4-HOM	SOFT S.	2	SOFT S.	1-2	NO SOFT S.	-
3-4-1-4.5	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-4-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-6-HOM	SOFT S.	1-2	SOFT S.	1-2	NO SOFT S.	-
3-6-1-4.5	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-6-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
5-2-HOM	SOFT S.	3-4	SOFT S.	2-3-4	NO SOFT S.	-
5-2-1-4.5	SOFT S.	2-3-4	SOFT S.	ALL	SOFT S.	1
5-2-1-6	SOFT S.	1-2	SOFT S.	ALL	SOFT S.	1
5-4-HOM	SOFT S.	3-4	SOFT S.	2-3-4	NO SOFT S.	-
5-4-1-4.5	SOFT S.	2-3-4	SOFT S.	ALL	SOFT S.	1
5-4-1-6	SOFT S.	1	SOFT S.	ALL	SOFT S.	1
5-6-HOM	SOFT S.	2-3-4	SOFT S.	2-3-4	NO SOFT S.	-
5-6-1-4.5	SOFT S.	1-3	SOFT S.	ALL	SOFT S.	1
5-6-1-6	SOFT S.	1-2	SOFT S.	ALL	SOFT S.	1
8-2-HOM	NO SOFT S.	-	SOFT S.	4-5	NO SOFT S.	-
8-2-1-4.5	NO SOFT S.	-	SOFT S.	1-2-3	SOFT S.	1
8-2-1-6	SOFT S.	1	SOFT S.	1	SOFT S.	1
8-4-HOM	SOFT S.	3	SOFT S.	3-7	NO SOFT S.	-
8-4-1-4.5	SOFT S.	1-2	SOFT S.	1-2-3	SOFT S.	1
8-4-1-6	SOFT S.	1	SOFT S.	1-2	SOFT S.	1
8-6-HOM	SOFT S.	2	SOFT S.	2-3-7	NO SOFT S.	-
8-6-1-4.5	SOFT S.	1	SOFT S.	1	SOFT S.	1
8-6-1-6	SOFT S.	1	SOFT S.	1-2-3-7	SOFT S.	1

Table 6.8. Soft story irregularity checks for the 1st mode lateral load pattern at the deformation level-1

1st MODE LATERAL LOAD PATTERN DEF. LEVEL-1						
MODEL	DBYYHY-07	ST.#	ABYYHY-98	ST.#	FEMA-310	ST.#
3-2-HOM	NO SOFT S.	-	SOFT S.	2	NO SOFT S.	-
3-2-1-4.5	NO SOFT S.	-	SOFT S.	1-2	SOFT S.	1
3-2-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-4-HOM	NO SOFT S.	-	SOFT S.	2	NO SOFT S.	-
3-4-1-4.5	SOFT S.	1	SOFT S.	1-2	SOFT S.	1
3-4-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-6-HOM	NO SOFT S.	-	SOFT S.	2	NO SOFT S.	-
3-6-1-4.5	SOFT S.	2	SOFT S.	1-2	SOFT S.	1
3-6-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
5-2-HOM	NO SOFT S.	-	SOFT S.	4	NO SOFT S.	-
5-2-1-4.5	NO SOFT S.	-	SOFT S.	1-4	SOFT S.	1
5-2-1-6	NO SOFT S.	-	SOFT S.	1-4	SOFT S.	1
5-4-HOM	NO SOFT S.	-	SOFT S.	4	NO SOFT S.	-
5-4-1-4.5	NO SOFT S.	-	SOFT S.	1-4	SOFT S.	1
5-4-1-6	NO SOFT S.	-	SOFT S.	1-4	SOFT S.	1
5-6-HOM	NO SOFT S.	-	SOFT S.	4	NO SOFT S.	-
5-6-1-4.5	NO SOFT S.	-	SOFT S.	1-4	SOFT S.	1
5-6-1-6	SOFT S.	1	SOFT S.	1-3-4	SOFT S.	1
8-2-HOM	NO SOFT S.	-	SOFT S.	7	NO SOFT S.	-
8-2-1-4.5	NO SOFT S.	-	SOFT S.	1	SOFT S.	1
8-2-1-6	NO SOFT S.	-	SOFT S.	1	SOFT S.	1
8-4-HOM	NO SOFT S.	-	SOFT S.	7	NO SOFT S.	-
8-4-1-4.5	NO SOFT S.	-	SOFT S.	1-7	SOFT S.	1
8-4-1-6	NO SOFT S.	-	SOFT S.	1-7	SOFT S.	1
8-6-HOM	NO SOFT S.	-	SOFT S.	7	NO SOFT S.	-
8-6-1-4.5	NO SOFT S.	-	SOFT S.	1-7	SOFT S.	1
8-6-1-6	NO SOFT S.	-	SOFT S.	1-7	SOFT S.	1

Table 6.9. Soft story irregularity checks for the 1st mode lateral load pattern at the deformation level-2

1st MODE LATERAL LOAD PATTERN DEF. LEVEL-2						
MODEL	DBYYHY-07	ST.#	ABYYHY-98	ST.#	FEMA-310	ST.#
3-2-HOM	NO SOFT S.	-	SOFT S.	2	NO SOFT S.	-
3-2-1-4.5	SOFT S.	2	SOFT S.	1-2	SOFT S.	1
3-2-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-4-HOM	SOFT S.	2	SOFT S.	2	NO SOFT S.	-
3-4-1-4.5	SOFT S.	1	SOFT S.	1-2	SOFT S.	1
3-4-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-6-HOM	SOFT S.	2	SOFT S.	2	NO SOFT S.	-
3-6-1-4.5	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-6-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
5-2-HOM	NO SOFT S.	-	SOFT S.	3-4	NO SOFT S.	-
5-2-1-4.5	NO SOFT S.	-	SOFT S.	1-4	SOFT S.	1
5-2-1-6	NO SOFT S.	-	SOFT S.	1-2-4	SOFT S.	1
5-4-HOM	NO SOFT S.	-	SOFT S.	3-4	NO SOFT S.	-
5-4-1-4.5	NO SOFT S.	-	SOFT S.	1-3-4	SOFT S.	1
5-4-1-6	SOFT S.	1	SOFT S.	ALL	SOFT S.	1
5-6-HOM	NO SOFT S.	-	SOFT S.	3-4	NO SOFT S.	-
5-6-1-4.5	NO SOFT S.	-	SOFT S.	1-4	SOFT S.	1
5-6-1-6	SOFT S.	1	SOFT S.	ALL	SOFT S.	1
8-2-HOM	NO SOFT S.	-	NO SOFT S.	-	NO SOFT S.	-
8-2-1-4.5	NO SOFT S.	-	SOFT S.	1	SOFT S.	1
8-2-1-6	NO SOFT S.	-	SOFT S.	1	SOFT S.	1
8-4-HOM	NO SOFT S.	-	SOFT S.	6-7	NO SOFT S.	-
8-4-1-4.5	NO SOFT S.	-	SOFT S.	1-7	SOFT S.	1
8-4-1-6	SOFT S.	1	SOFT S.	1-7	SOFT S.	1
8-6-HOM	NO SOFT S.	-	SOFT S.	7	NO SOFT S.	-
8-6-1-4.5	NO SOFT S.	-	SOFT S.	1-6	SOFT S.	1
8-6-1-6	SOFT S.	1	SOFT S.	1-7	SOFT S.	1

Table 6.10. Soft story irregularity checks for the 1st mode lateral load pattern at the deformation level-3

1st MODE LATERAL LOAD PATTERN DEF. LEVEL-3						
MODEL	DBYYHY-07	ST.#	ABYYHY-98	ST.#	FEMA-310	ST.#
3-2-HOM	SOFT S.	2	SOFT S.	2	NO SOFT S.	-
3-2-1-4.5	SOFT S.	1	SOFT S.	1-2	SOFT S.	1
3-2-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-4-HOM	SOFT S.	2	SOFT S.	2	NO SOFT S.	-
3-4-1-4.5	SOFT S.	1	SOFT S.	1	SOFT S.	1
3-4-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-6-HOM	SOFT S.	2	SOFT S.	2	NO SOFT S.	-
3-6-1-4.5	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-6-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
5-2-HOM	SOFT S.	3-4	SOFT S.	3-4	NO SOFT S.	-
5-2-1-4.5	SOFT S.	3	SOFT S.	ALL	SOFT S.	1
5-2-1-6	SOFT S.	1-2	SOFT S.	1-2-4	SOFT S.	1
5-4-HOM	SOFT S.	3-4	SOFT S.	3-4	NO SOFT S.	-
5-4-1-4.5	SOFT S.	3-4	SOFT S.	ALL	SOFT S.	1
5-4-1-6	SOFT S.	1	SOFT S.	ALL	SOFT S.	1
5-6-HOM	SOFT S.	3-4	SOFT S.	3-4	NO SOFT S.	-
5-6-1-4.5	SOFT S.	2	SOFT S.	ALL	SOFT S.	1
5-6-1-6	SOFT S.	1-2	SOFT S.	ALL	SOFT S.	1
8-2-HOM	NO SOFT S.	-	SOFT S.	4-5	NO SOFT S.	-
8-2-1-4.5	SOFT S.	3	SOFT S.	1-3	SOFT S.	1
8-2-1-6	SOFT S.	1	SOFT S.	1	SOFT S.	1
8-4-HOM	NO SOFT S.	-	SOFT S.	3-4-5-7	NO SOFT S.	-
8-4-1-4.5	NO SOFT S.	-	SOFT S.	1-2-3-7	SOFT S.	1
8-4-1-6	SOFT S.	1	SOFT S.	1-6	SOFT S.	1
8-6-HOM	SOFT S.	3	SOFT S.	3-7	NO SOFT S.	-
8-6-1-4.5	NO SOFT S.	-	SOFT S.	1-7	SOFT S.	1
8-6-1-6	NO SOFT S.	-	SOFT S.	1-7	SOFT S.	1

Table 6.11. Soft story irregularity checks for the time history analyses at the deformation level-1

TIME HISTORY ANALYSES DEFORMATION LEVEL-1						
MODEL	DBYYHY-07	ST.#	ABYYHY-98	ST.#	FEMA-310	ST.#
3-2-HOM	NO SOFT S.	-	SOFT S.	2	NO SOFT S.	-
3-2-1-4.5	NO SOFT S.	-	SOFT S.	1-2	SOFT S.	1
3-2-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-4-HOM	NO SOFT S.	-	SOFT S.	2	NO SOFT S.	-
3-4-1-4.5	SOFT S.	1	SOFT S.	1-2	SOFT S.	1
3-4-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-6-HOM	NO SOFT S.	-	SOFT S.	2	NO SOFT S.	-
3-6-1-4.5	SOFT S.	2	SOFT S.	1-2	SOFT S.	1
3-6-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
5-2-HOM	SOFT S.	4	SOFT S.	4	NO SOFT S.	-
5-2-1-4.5	NO SOFT S.	-	SOFT S.	1-4	SOFT S.	1
5-2-1-6	NO SOFT S.	-	SOFT S.	1-4	SOFT S.	1
5-4-HOM	NO SOFT S.	-	SOFT S.	4	NO SOFT S.	-
5-4-1-4.5	NO SOFT S.	-	SOFT S.	1-4	SOFT S.	1
5-4-1-6	NO SOFT S.	-	SOFT S.	1-3-4	SOFT S.	1
5-6-HOM	NO SOFT S.	-	SOFT S.	4	NO SOFT S.	-
5-6-1-4.5	NO SOFT S.	-	SOFT S.	1-4	SOFT S.	1
5-6-1-6	SOFT S.	1	SOFT S.	1-3-4	SOFT S.	1
8-2-HOM	NO SOFT S.	-	NO SOFT S.	-	NO SOFT S.	-
8-2-1-4.5	NO SOFT S.	-	SOFT S.	1	SOFT S.	1
8-2-1-6	NO SOFT S.	-	SOFT S.	1	SOFT S.	1
8-4-HOM	NO SOFT S.	-	SOFT S.	7	NO SOFT S.	-
8-4-1-4.5	NO SOFT S.	-	SOFT S.	1-7	SOFT S.	1
8-4-1-6	NO SOFT S.	-	SOFT S.	1-7	SOFT S.	1
8-6-HOM	NO SOFT S.	-	SOFT S.	7	NO SOFT S.	-
8-6-1-4.5	NO SOFT S.	-	SOFT S.	1-7	SOFT S.	1
8-6-1-6	NO SOFT S.	-	SOFT S.	1-7	SOFT S.	1

Table 6.12. Soft story irregularity checks for the time history analyses at the deformation level-2

TIME HISTORY ANALYSES DEFORMATION LEVEL-2						
MODEL	DBYYHY-07	ST.#	ABYYHY-98	ST.#	FEMA-310	ST.#
3-2-HOM	SOFT S.	2	SOFT S.	2	NO SOFT S.	-
3-2-1-4.5	SOFT S.	2	SOFT S.	1-2	SOFT S.	1
3-2-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-4-HOM	SOFT S.	2	SOFT S.	2	NO SOFT S.	-
3-4-1-4.5	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-4-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-6-HOM	SOFT S.	2	SOFT S.	2	NO SOFT S.	-
3-6-1-4.5	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-6-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
5-2-HOM	NO SOFT S.	-	SOFT S.	3-4	NO SOFT S.	-
5-2-1-4.5	NO SOFT S.	-	SOFT S.	ALL	SOFT S.	1
5-2-1-6	NO SOFT S.	-	SOFT S.	ALL	SOFT S.	1
5-4-HOM	NO SOFT S.	-	SOFT S.	3-4	NO SOFT S.	-
5-4-1-4.5	NO SOFT S.	-	SOFT S.	ALL	SOFT S.	1
5-4-1-6	SOFT S.	1	SOFT S.	1-2-4	SOFT S.	1
5-6-HOM	NO SOFT S.	-	SOFT S.	3-4	NO SOFT S.	-
5-6-1-4.5	NO SOFT S.	-	SOFT S.	1-3-4	SOFT S.	1
5-6-1-6	NO SOFT S.	-	SOFT S.	ALL	SOFT S.	1
8-2-HOM	NO SOFT S.	-	SOFT S.	7	NO SOFT S.	-
8-2-1-4.5	NO SOFT S.	-	SOFT S.	1	SOFT S.	1
8-2-1-6	NO SOFT S.	-	SOFT S.	1	SOFT S.	1
8-4-HOM	NO SOFT S.	-	SOFT S.	7	NO SOFT S.	-
8-4-1-4.5	NO SOFT S.	-	SOFT S.	1-7	SOFT S.	1
8-4-1-6	NO SOFT S.	-	SOFT S.	1-7	SOFT S.	1
8-6-HOM	NO SOFT S.	-	SOFT S.	7	NO SOFT S.	-
8-6-1-4.5	NO SOFT S.	-	SOFT S.	1-7	SOFT S.	1
8-6-1-6	SOFT S.	1	SOFT S.	1-7	SOFT S.	1

Table 6.13. Soft story irregularity checks for the time history analyses at the deformation level-3

TIME HISTORY ANALYSES DEFORMATION LEVEL-3						
MODEL	DBYYHY-07	ST.#	ABYYHY-98	ST.#	FEMA-310	ST.#
3-2-HOM	SOFT S.	2	SOFT S.	2	NO SOFT S.	-
3-2-1-4.5	SOFT S.	2	SOFT S.	1-2	SOFT S.	1
3-2-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-4-HOM	SOFT S.	2	SOFT S.	2	NO SOFT S.	-
3-4-1-4.5	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-4-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-6-HOM	SOFT S.	2	SOFT S.	2	NO SOFT S.	-
3-6-1-4.5	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
3-6-1-6	SOFT S.	1-2	SOFT S.	1-2	SOFT S.	1
5-2-HOM	SOFT S.	3-4	SOFT S.	3-4	NO SOFT S.	-
5-2-1-4.5	SOFT S.	3-4	SOFT S.	ALL	SOFT S.	1
5-2-1-6	SOFT S.	2	SOFT S.	1-2-3	SOFT S.	1
5-4-HOM	SOFT S.	3-4	SOFT S.	3-4	NO SOFT S.	-
5-4-1-4.5	SOFT S.	2-3-4	SOFT S.	ALL	SOFT S.	1
5-4-1-6	SOFT S.	1	SOFT S.	ALL	SOFT S.	1
5-6-HOM	SOFT S.	3-4	SOFT S.	3-4	NO SOFT S.	-
5-6-1-4.5	SOFT S.	2-4	SOFT S.	ALL	SOFT S.	1
5-6-1-6	SOFT S.	1-2	SOFT S.	ALL	SOFT S.	1
8-2-HOM	NO SOFT S.	-	NO SOFT S.	-	NO SOFT S.	-
8-2-1-4.5	NO SOFT S.	-	SOFT S.	1-2-3-4	SOFT S.	1
8-2-1-6	SOFT S.	1	SOFT S.	1	SOFT S.	1
8-4-HOM	NO SOFT S.	-	SOFT S.	2-3-4-7	NO SOFT S.	-
8-4-1-4.5	NO SOFT S.	-	SOFT S.	1-2-3-7	SOFT S.	1
8-4-1-6	SOFT S.	1	SOFT S.	1-7	SOFT S.	1
8-6-HOM	NO SOFT S.	-	SOFT S.	3-6-7	NO SOFT S.	-
8-6-1-4.5	NO SOFT S.	-	SOFT S.	1-7	SOFT S.	1
8-6-1-6	NO SOFT S.	-	SOFT S.	1-2	SOFT S.	1

6.8 Residual Capacity Table

For each analytical model, residual capacity values (the ratio of the ultimate lateral force level until which the building remains in elastic range and the design lateral force) are calculated and tabulated in Table 6.14. In view of these results, the models with soft stories are observed to have less residual capacities as expected. For example the residual capacity of the building model 3-2-1-6 is obtained as 1.55 while the residual capacity of the building model 3-2-HOM is calculated as 2.29.

In some of the models, this situation is not observed as all of the models are designed according to the current Turkish Earthquake Code-2007 [38] and the case of strong column-weak beam is obtained for the models in the design phase (for example building models 3-6-1-4.5 and 3-6-1-6). But these exceptions are negligible.

Another important observation is the increase of the residual capacity values of the models with eight stories. These models are designed by using dynamic analyses, as the current Turkish Earthquake Code-2007 [38] requires this method for the building structures higher than 25m. This situation clearly reveals the effectiveness of the dynamic analyses in the design of building structures with a soft story.

Table 6.14. Residual capacity table for the building models

MODEL NAME	DESIGN FORCE	ELASTIC LIMIT	RESIDUAL CAPACITY	<u>ELASTIC LIMIT</u> <u>DESIGN FORCE</u>
3-2-HOM	91.75	209.95	118.20	2.29
3-2-1-4.5	92.88	157.47	64.59	1.70
3-2-1-6	94.00	145.34	51.34	1.55
3-4-HOM	179.75	464.08	284.33	2.58
3-4-1-4.5	181.63	337.18	155.55	1.86
3-4-1-6	183.50	338.42	154.92	1.84
3-6-HOM	267.75	674.80	407.05	2.52
3-6-1-4.5	270.38	482.23	211.85	1.78
3-6-1-6	273.00	487.56	214.56	1.79
5-2-HOM	166.64	370.53	203.89	2.22
5-2-1-4.5	168.4	288.84	120.44	1.72
5-2-1-6	170.16	235.31	65.15	1.38
5-4-HOM	322.73	709.32	386.59	2.20
5-4-1-4.5	325.66	531.38	205.72	1.63
5-4-1-6	328.59	566.2	237.61	1.72
5-6-HOM	478.83	1249.1	770.27	2.61
5-6-1-4.5	482.93	931.79	448.86	1.93
5-6-1-6	487.03	962.01	474.98	1.98
8-2-HOM	290.44	684.44	394.00	2.36
8-2-1-4.5	292.97	555.16	262.19	1.89
8-2-1-6	295.5	455.38	159.88	1.54
8-4-HOM	555.56	1344.42	788.86	2.42
8-4-1-4.5	559.78	1044.17	484.39	1.87
8-4-1-6	564	838.34	274.34	1.49
8-6-HOM	820.69	1992.09	1171.40	2.43
8-6-1-4.5	826.59	1527.48	700.89	1.85
8-6-1-6	832.5	1726.66	894.16	2.07

CHAPTER VII

SUMMARY AND CONCLUSION

7.1 Summary

In this study, several two dimensional analytical models with various number of stories and spans are investigated with nonlinear static pushover and nonlinear time history analysis methods by considering different first story heights and deformation levels. The investigation procedure as a summary consists of (a) creating finite element models representative of the building stock in Turkey, (b) determining the nonlinear member behaviours, (c) performing the nonlinear analysis procedures on these models, and finally (d) evaluating the results obtained from these nonlinear analyses methods. In view of these analysis results, the soft story behaviour is investigated and the facts, reasons and results of this irregularity are presented in detail. In addition, various codes are evaluated considering the soft story irregularity and the provisions of these codes are summarised.

For the nonlinear static pushover analyses, (a) code, (b) first mode, and (c) uniform load patterns are used. The results obtained by these lateral load patterns are compared with the exact results obtained by nonlinear time history analyses performed using selected time history records. The predictions of these pushover lateral load patterns are investigated for both regular and irregular models considering various deformation levels. In addition to these, the global linear and nonlinear behaviours of the analytical models are investigated with the help of the results of the nonlinear analyses.

7.2 Conclusions

In view of the results obtained by the nonlinear static pushover and nonlinear time history analyses of the considered building structures, following primary conclusions on the prediction of the nonlinear behaviour of the models are obtained:

- The displacement predictions of the code lateral load patterns are observed to be smaller for the lower stories and larger for the upper stories independent of the total number stories of the models.
- The uniform lateral load pattern leads to overestimations of displacements for all of the models and deformation levels.
- The predictions of the first mode lateral load pattern leads to more accurate displacement predictions, although this pattern leads to underestimations for lower stories and over estimations for the upper stories, the deviations on the results of this lateral load pattern decreases due to the existence of the soft stories as the number of stories and number of spans increase.
- The results obtained by the nonlinear time history analyses are observed to be between the predictions of the uniform and first mode lateral load patterns. The deviations are observed to be decreasing for higher deformation levels.
- Depending on the increase in the soft story irregularity level of the models, the results of the first mode, code and uniform lateral load patterns approach to the results of nonlinear time history analyses.
- Finally, none of the lateral load patterns can predict the exact demands obtained by nonlinear time-history analyses.

The soft story irregularity effects on the structures are observed to be very pronounced, although all of the models are designed according to the current design codes where weak beam-strong column concept is satisfied. As an expected behaviour, the force and displacement demands are concentrated at these soft stories. From this point of view, the following specific conclusions may be stated:

- On the models with soft story irregularity, the ultimate deformation capacities at the top (roof) stories are found to be considerably lower than models with no soft story irregularity (regular models). The ultimate deformation capacity

of the models with soft stories is found to be increasing when the number of spans increase and the height of the first story decrease. On the other hand, in any circumstance, a model with a soft story may never meet the displacement demands like a regular model. The residual force capacities of the models with soft stories are also observed to be lower than the regular.

- The models with fewer stories are found to be more vulnerable considering the soft story irregularity due to the design considerations. The ultimate deformation and force capacities are observed to be higher for the models with 8 stories as these models are designed by using dynamic analysis.
- Although the strong column-weak beam concept is applied for all of the models, the plastic hinges are not spread along all stories of these models. It is observed that for each building model, the plastic hinges along the height of the models are spread along the first two or three stories from the base. Even the weak beam-strong column concept affect the behaviour as we expected, the distribution of plastic hinges to even one more story, leads to very big amounts in increase of the ultimate force level.
- The lateral displacements are clearly seen to be in increasing order from zero to the ultimate displacement value for the regular, but in models with a soft story, the maximum lateral displacement values are observed to be quite close to the ultimate displacement value. This clearly shows that the collapse origin is the first story.
- Another important conclusion is that even if the shear frames do not reveal the soft story behaviour during the elastic range, however in the inelastic range soft story behaviour can easily be observed and collapses of these models always occur due to this behaviour.

Investigating the soft story criteria for various codes, the following conclusions may be derived,

- The current Turkish Earthquake Code-2007 [39] is insufficient in predicting the soft story behaviour, as large lateral displacements are divided by big story heights and the small lateral displacements are divided by small story

heights which does not lead to the actual variation of the stiffness irregularity factor among the height of the building structure.

- Although FEMA-310 [20] code proposes an easy method of soft story determination by comparing the stiffness, as the global displacement behaviour is not taken into account, this code is misleading for the evaluation inelastic behaviour of a building structure.
- When the building models having higher first stories are considered, the old Turkish Earthquake Code-1998 [38] is found to be better in determination of soft story irregularity.
- From the countermeasures point of view, the current Turkish Earthquake Code [39] is found to be insufficient in comparison to the other codes.

In view of the above-mentioned conclusions, the following final conclusions can be stated:

- All of the building structures, especially buildings having soft stories containing only frames as lateral load resisting systems are vulnerable during the earthquakes.
- The best method to overcome this problem may be to increase the stiffness of the lateral load resisting system by arranging symmetrical shear walls.
- Another method about increasing the stiffness of the lateral force resisting system is designing the columns and beams of the soft stories according to very high seismic demands by utilizing an amplification factor only for these stories.
- It is clearly revealed that the code lateral load pattern which is defined and required in the current Turkish Earthquake Code-2007 [39] either to be used in the design of the new buildings or in the evaluation and retrofitting of the old buildings is certainly insufficient in predicting the seismic demands accurately. For this reason, in the design phase of building structures with soft stories, dynamic analysis procedure must be used and the member forces must be carefully evaluated in order to obtain the required life safety performance level in all of the current codes.

7.3 Recommendations for Future Study

In this study, several two-dimensional analytical models with various story and span numbers are investigated with nonlinear static pushover and nonlinear time history analyses. An extensive study containing larger number of pushover analysis including different load patterns and procedures and several ground motion excitations would expose the soft story behaviour and improve the accuracy of the nonlinear static pushover analysis in predicting the actual behaviour of such building structures. Additionally, these above mentioned issues should be extended to the three-dimensional models of the building structures.

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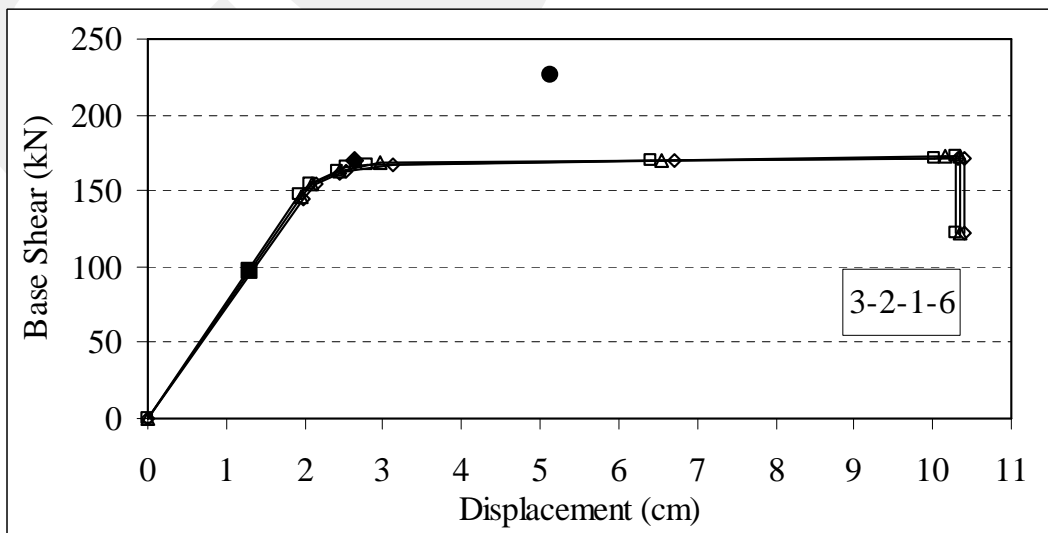
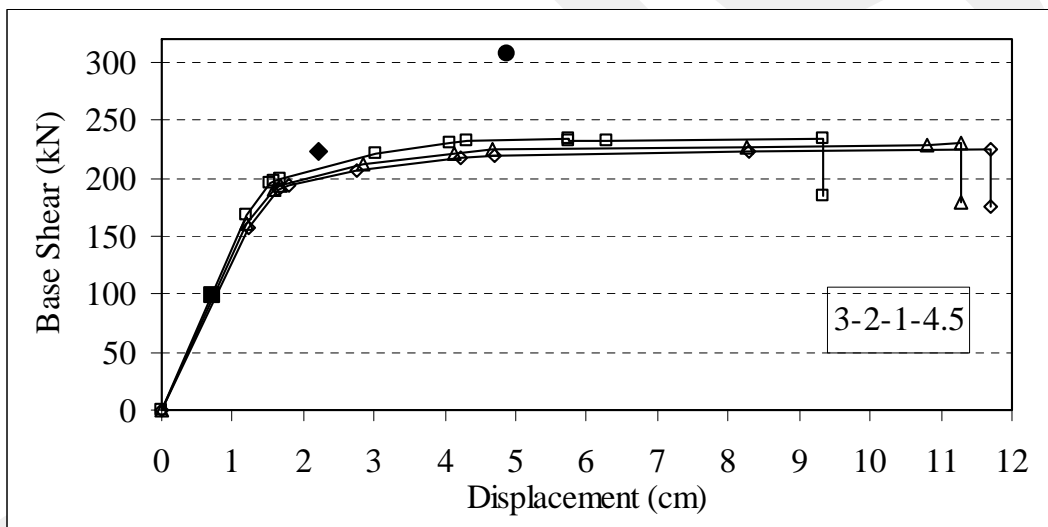
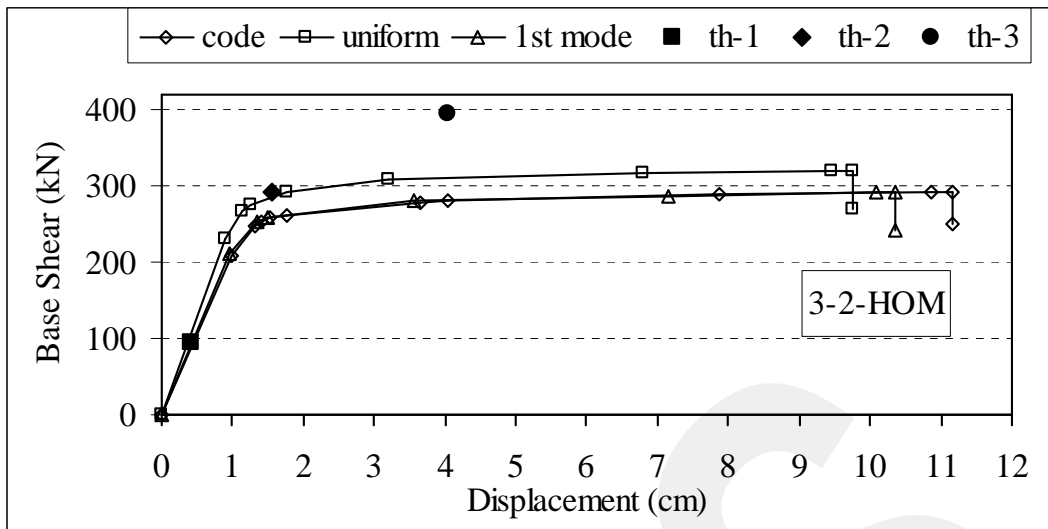
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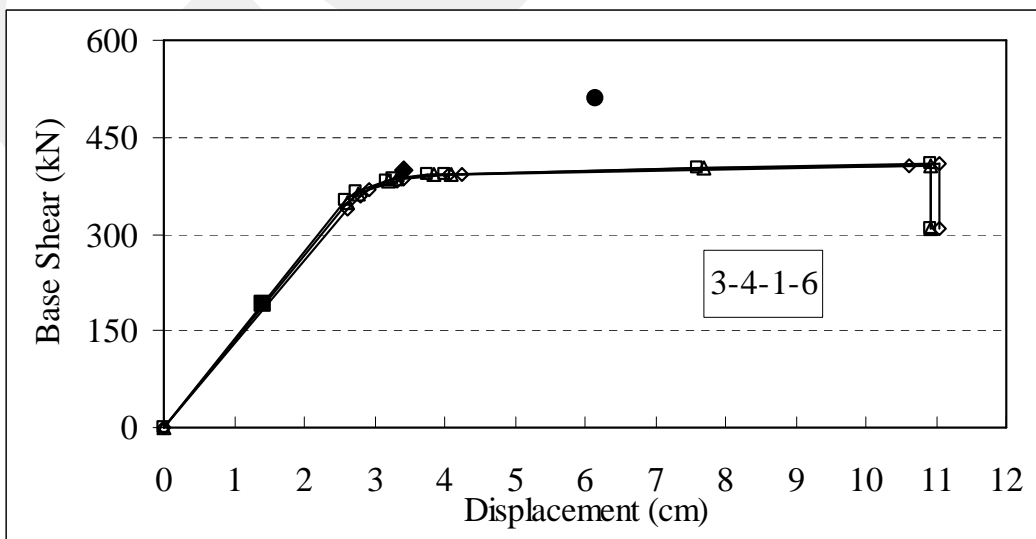
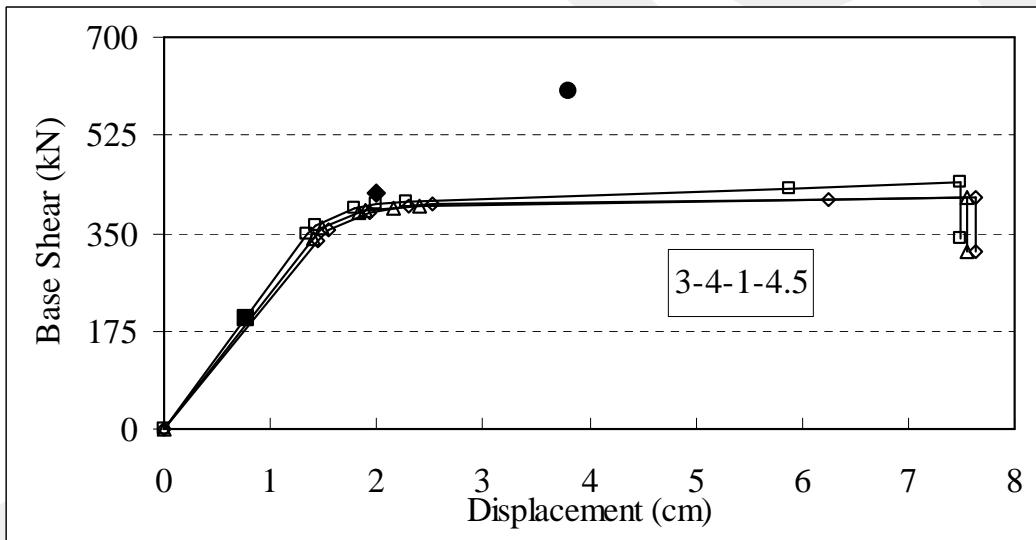
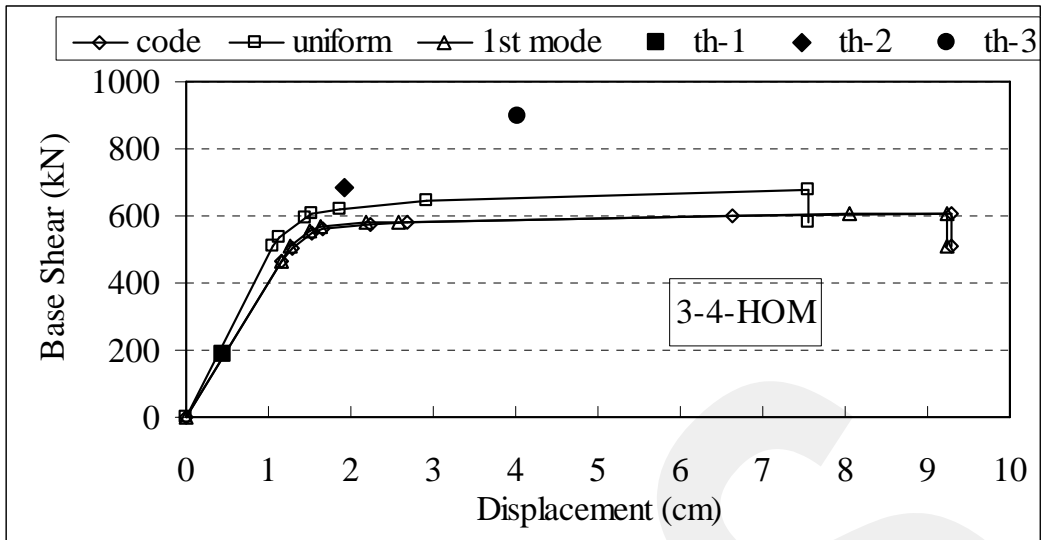
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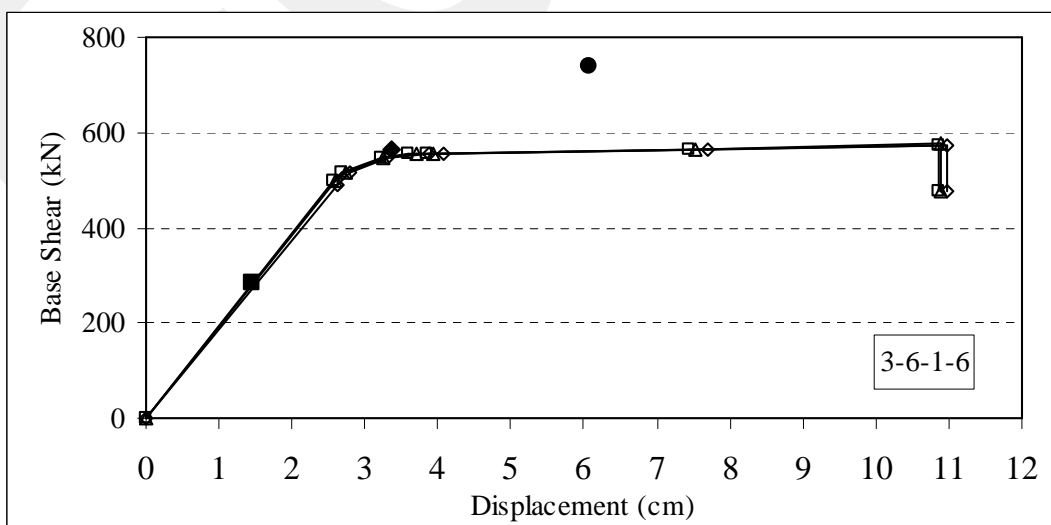
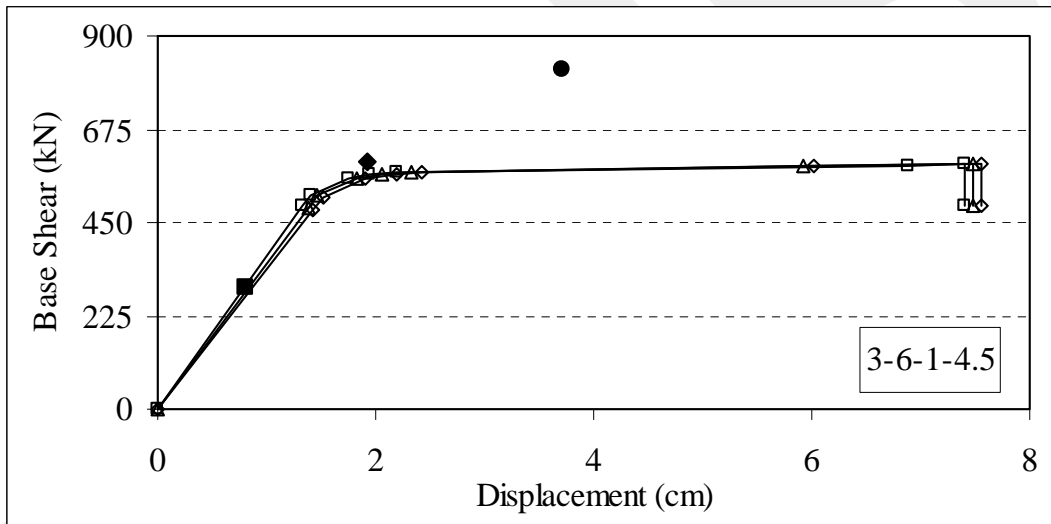
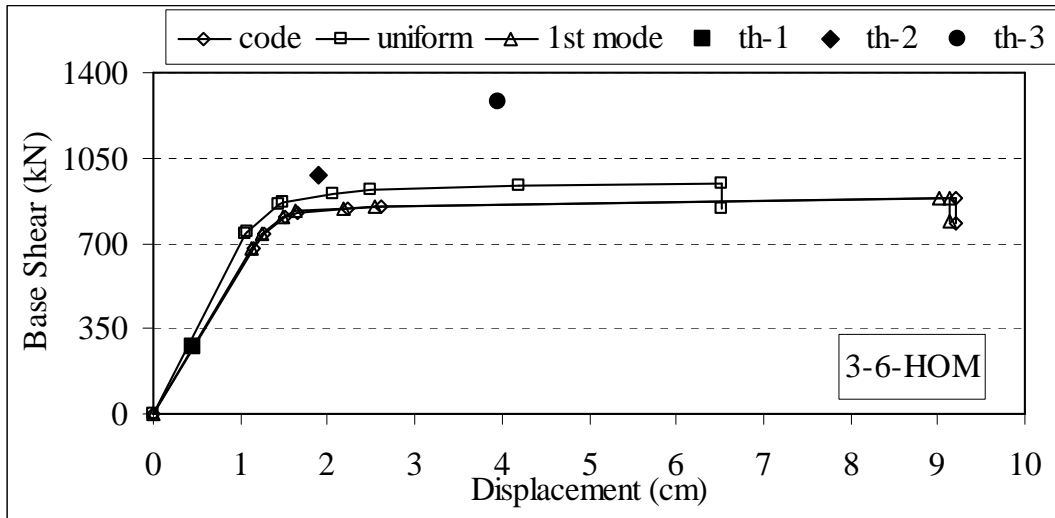
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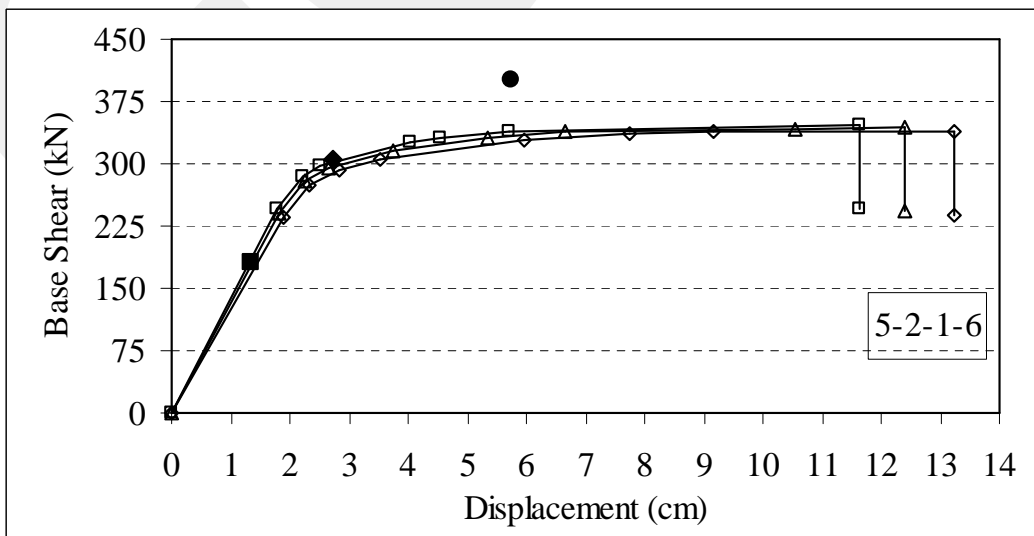
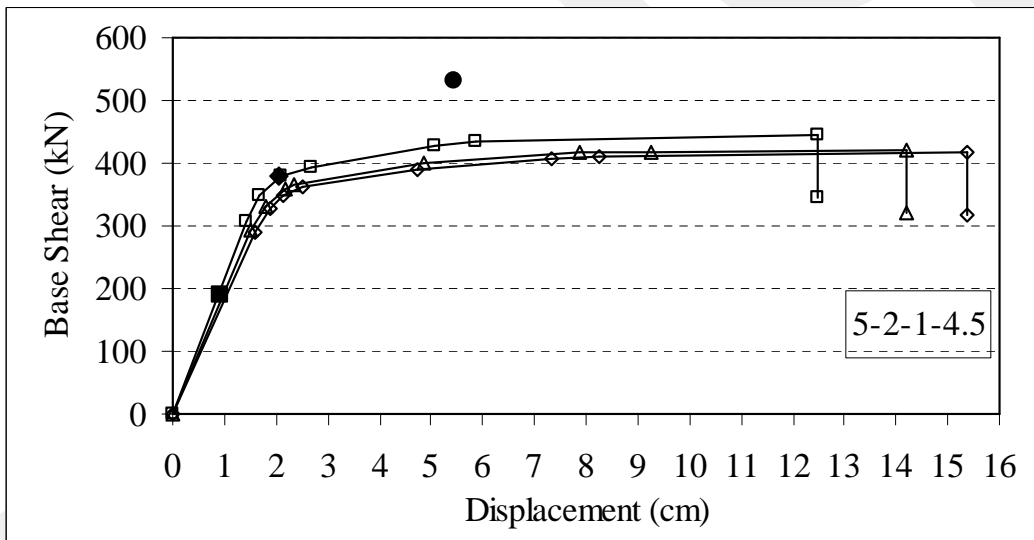
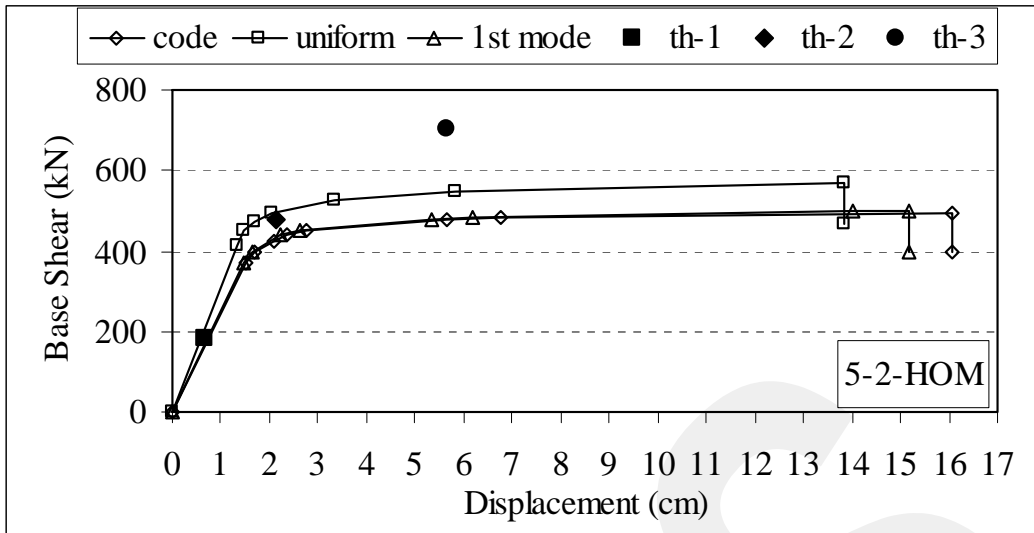
APPENDIX A

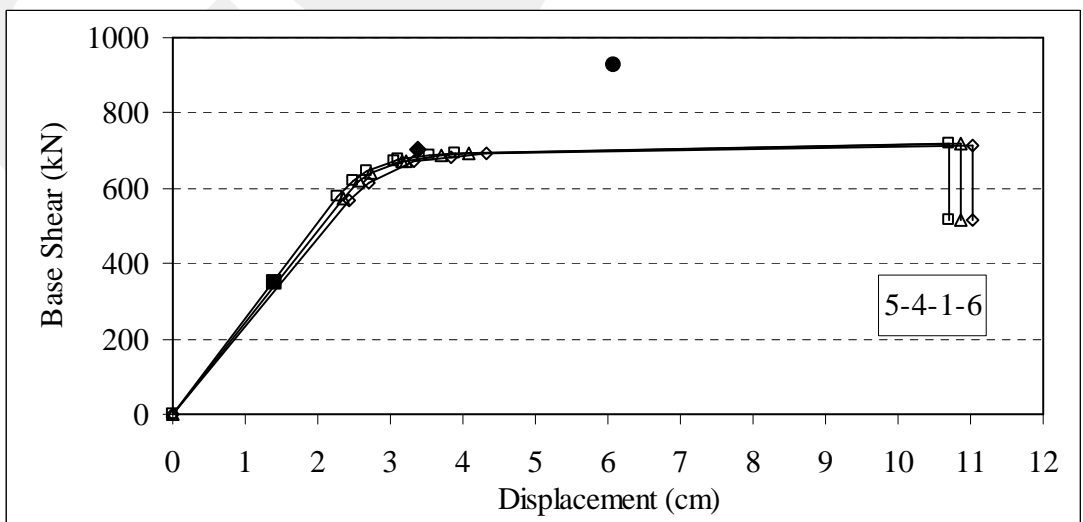
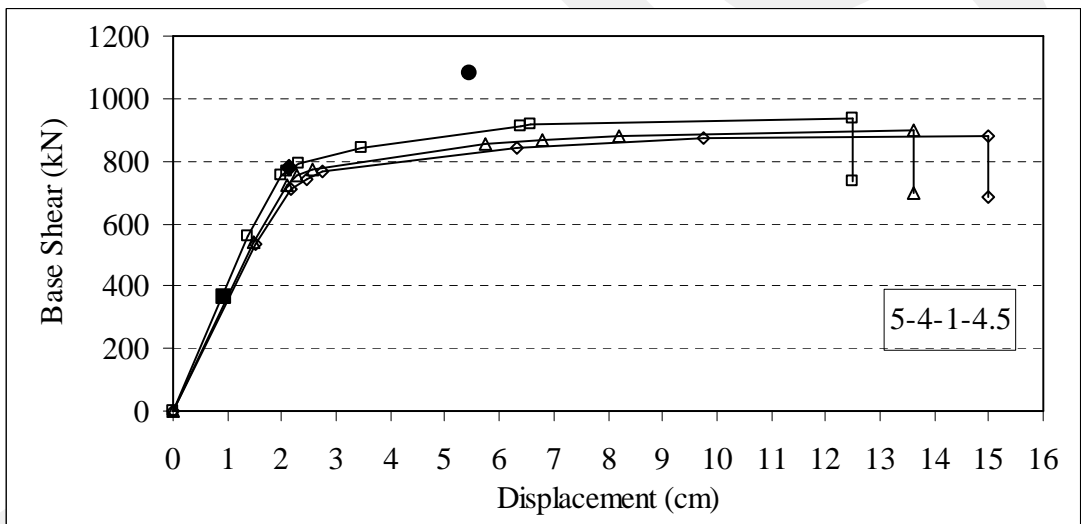
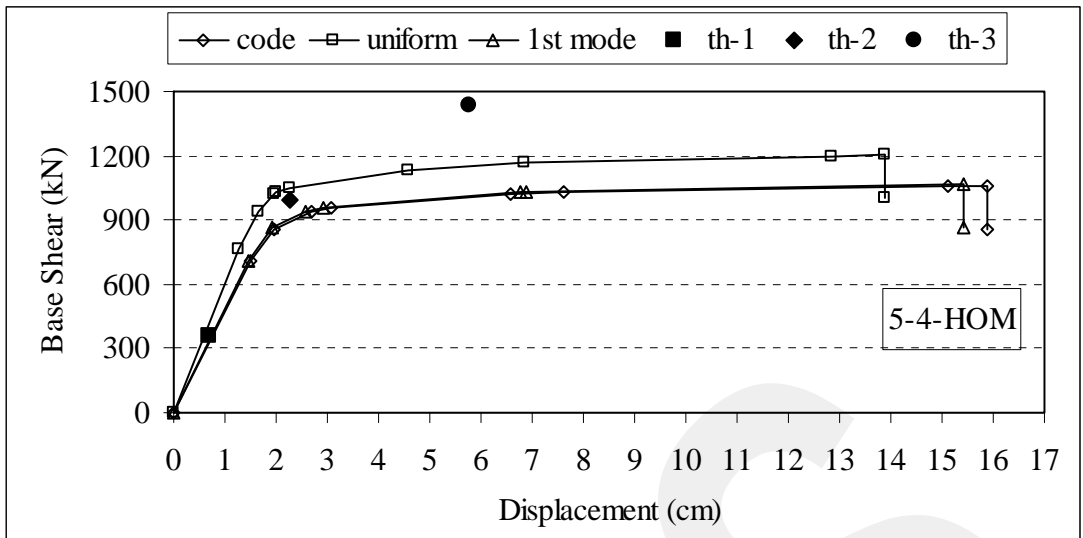
Global Pushover Curves with Nonlinear Time History Analyses Results

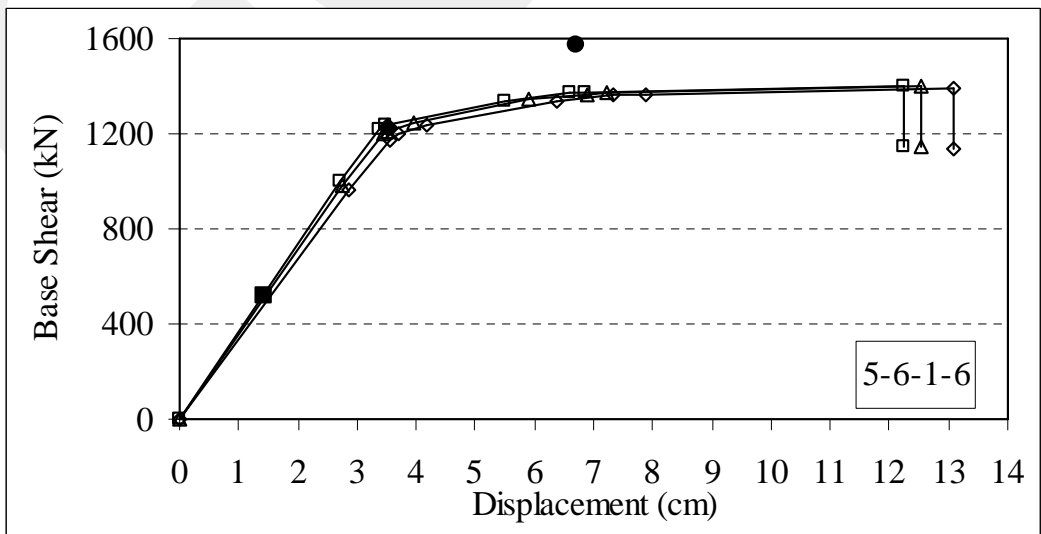
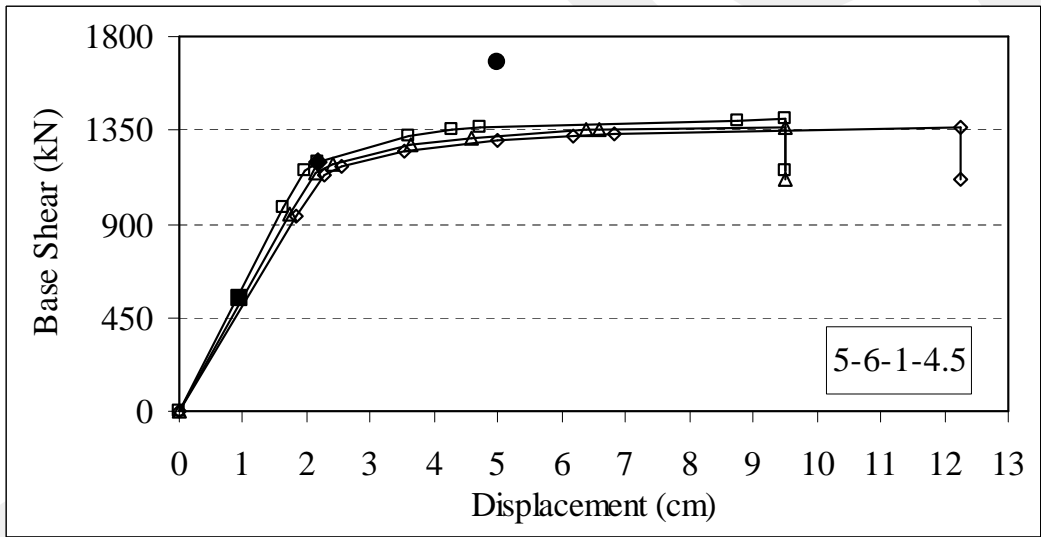
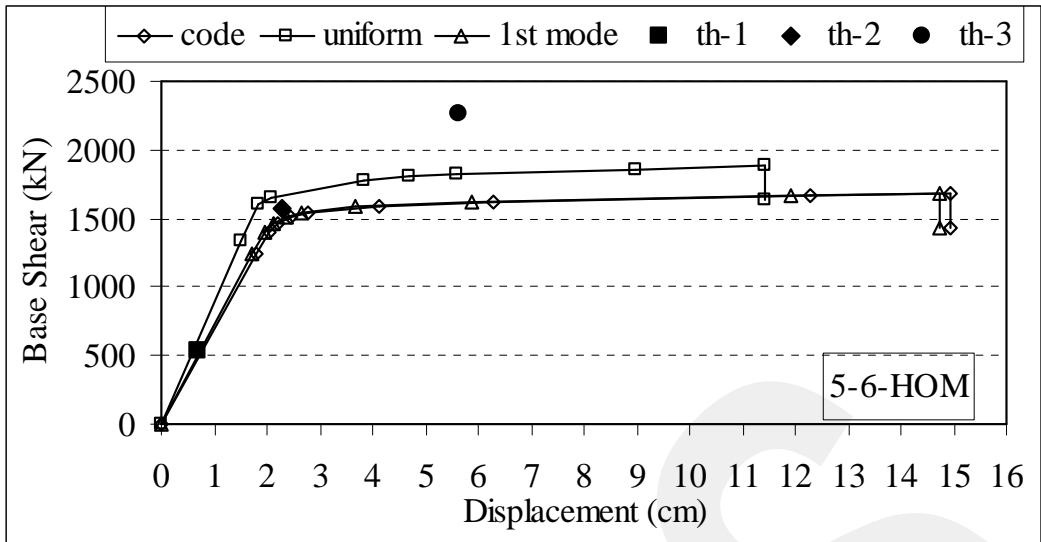


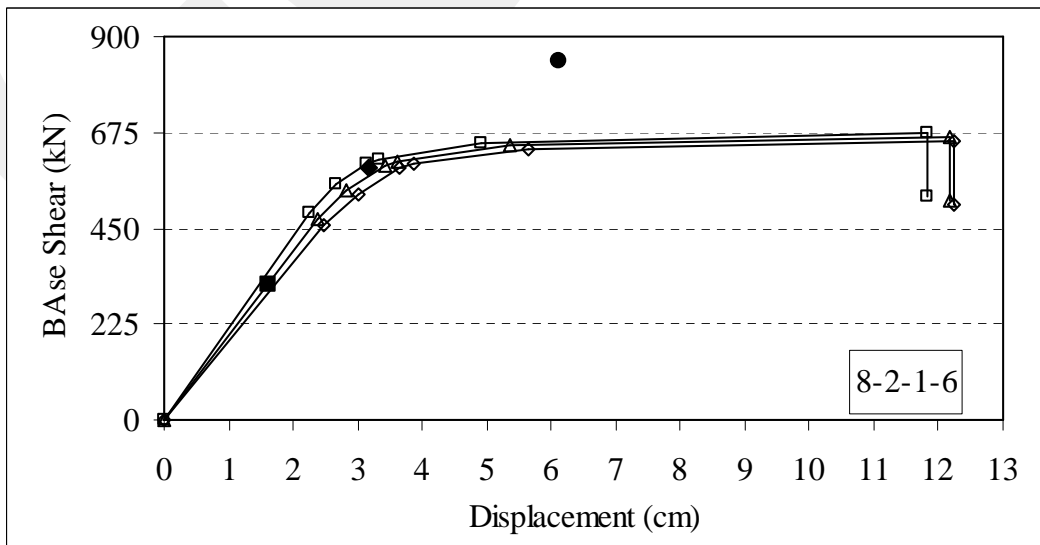
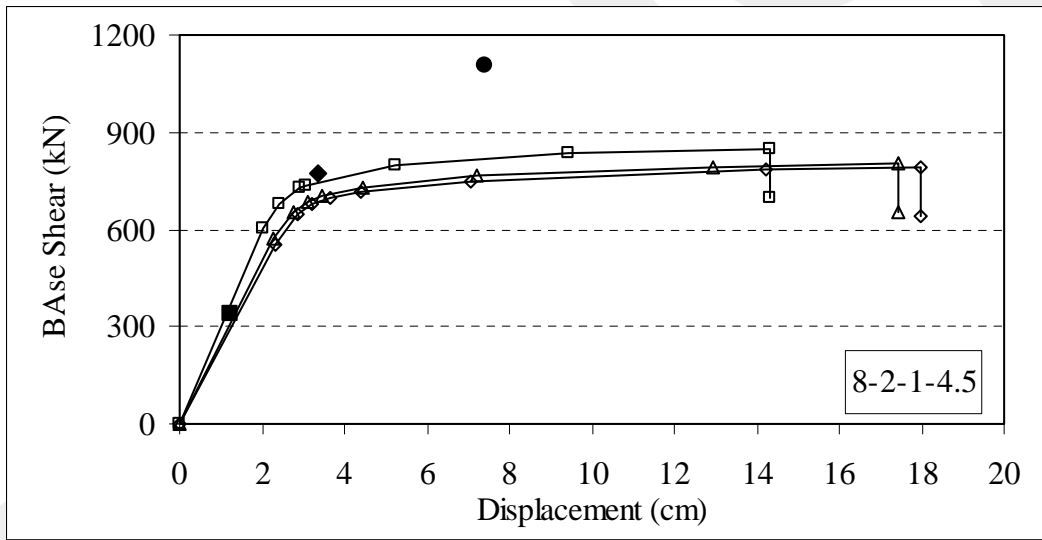
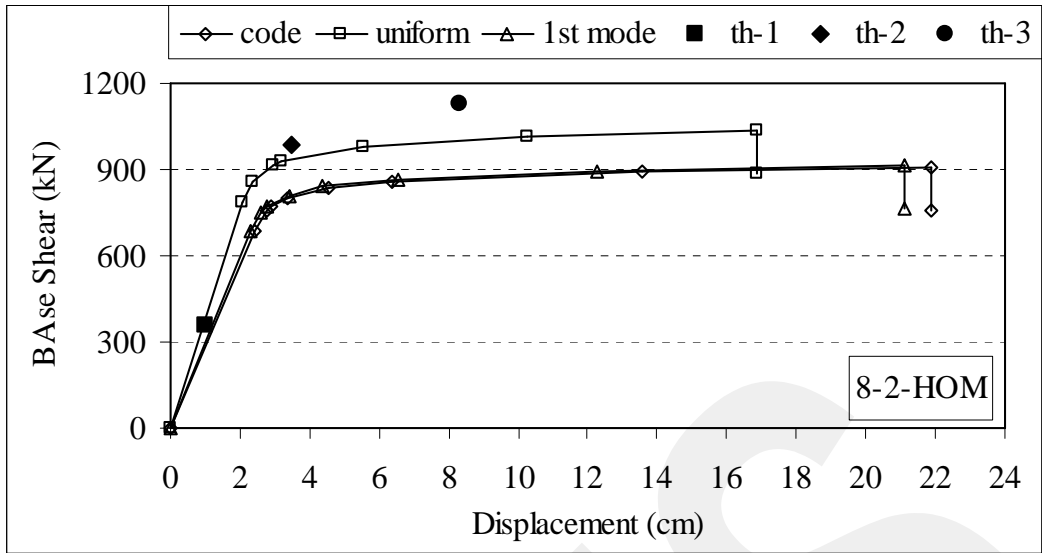


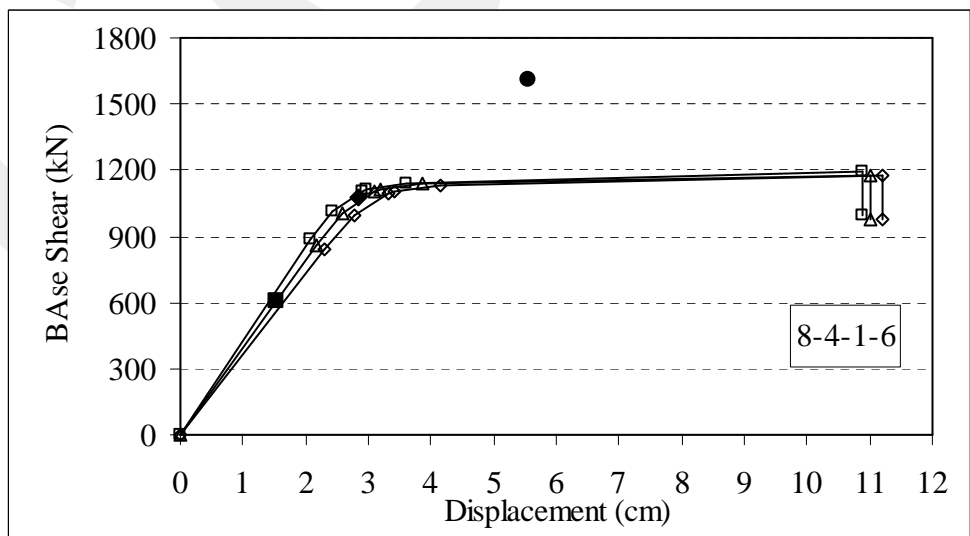
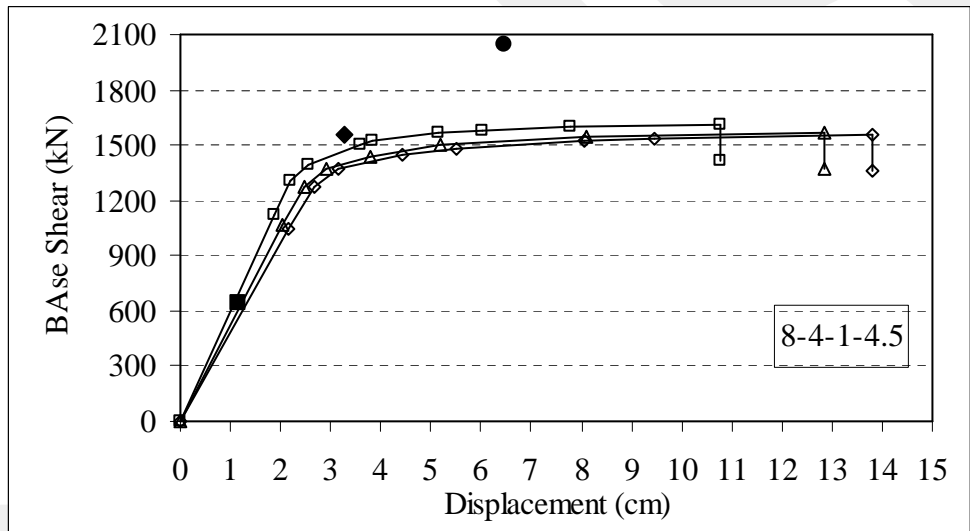
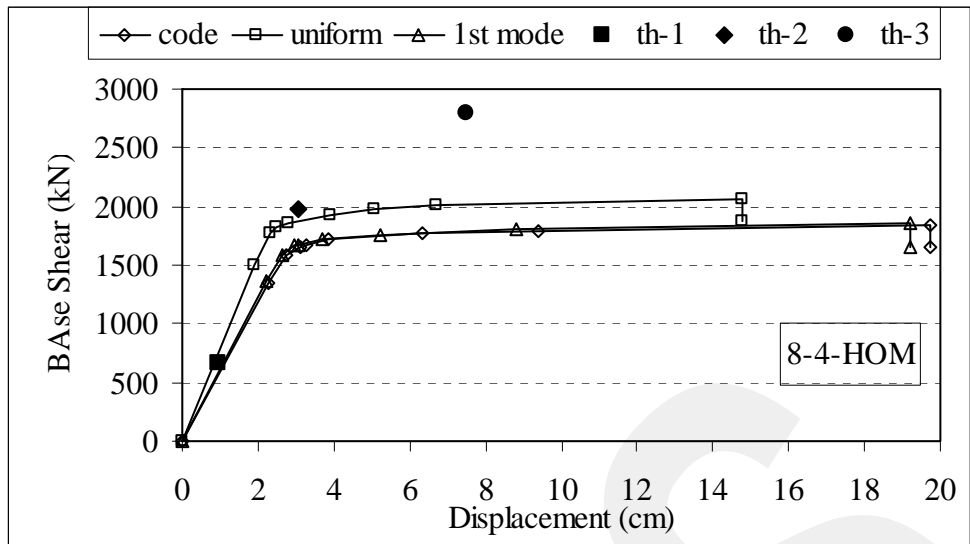


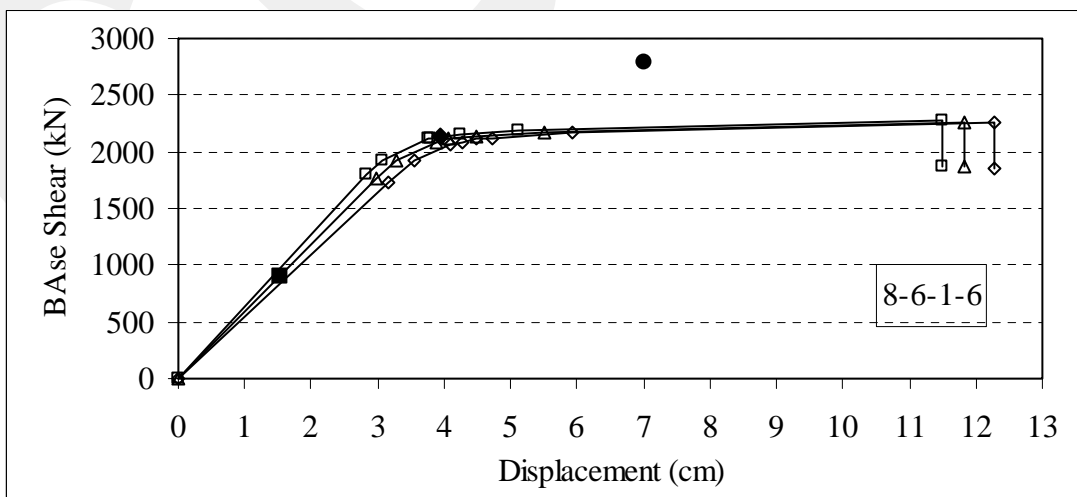
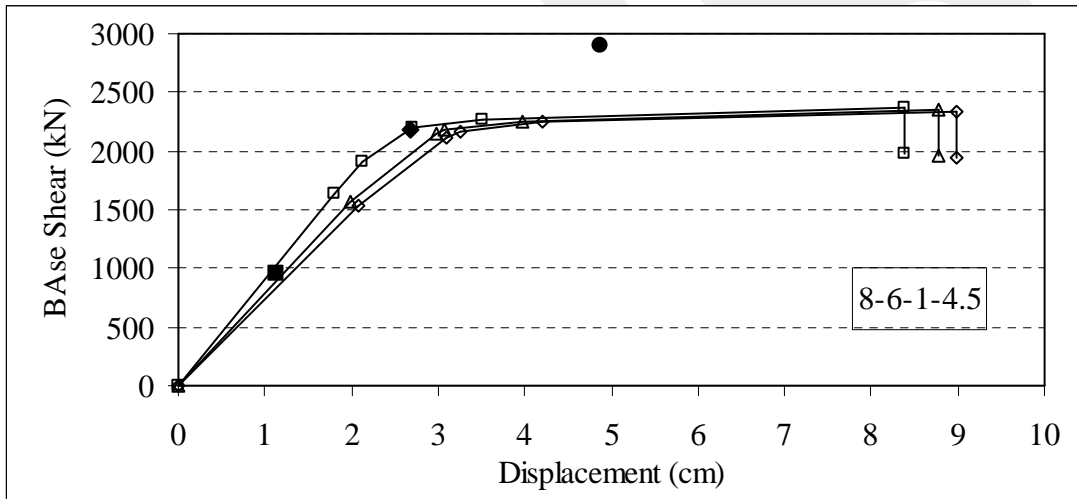
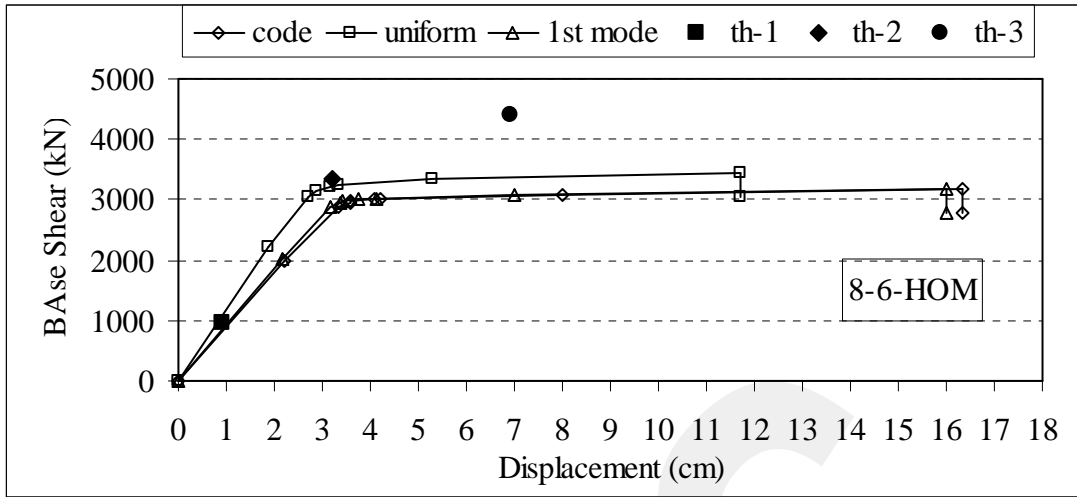






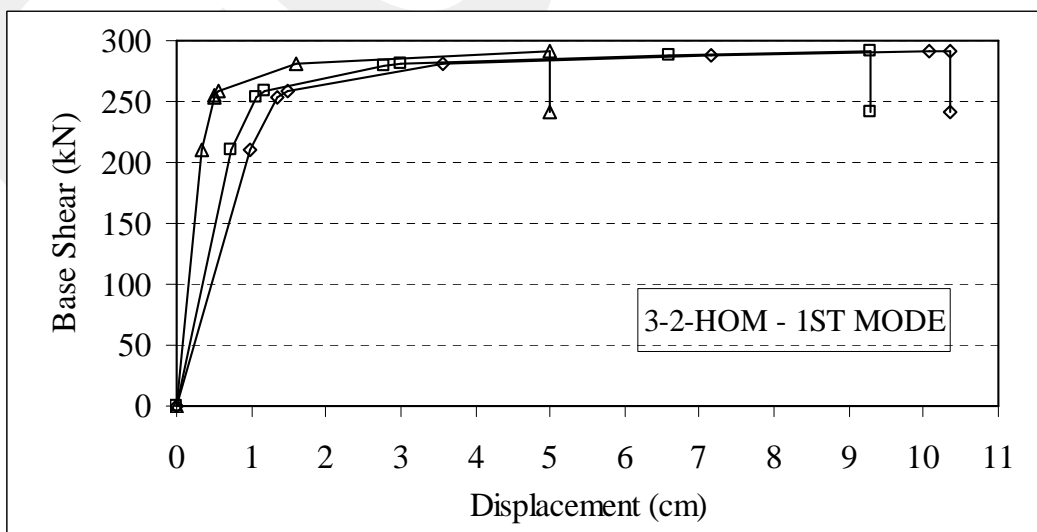
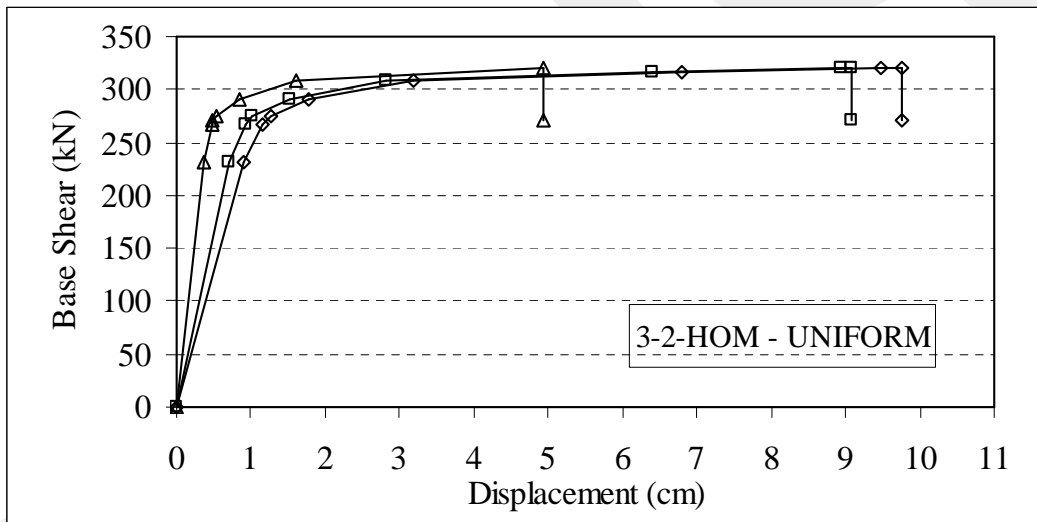
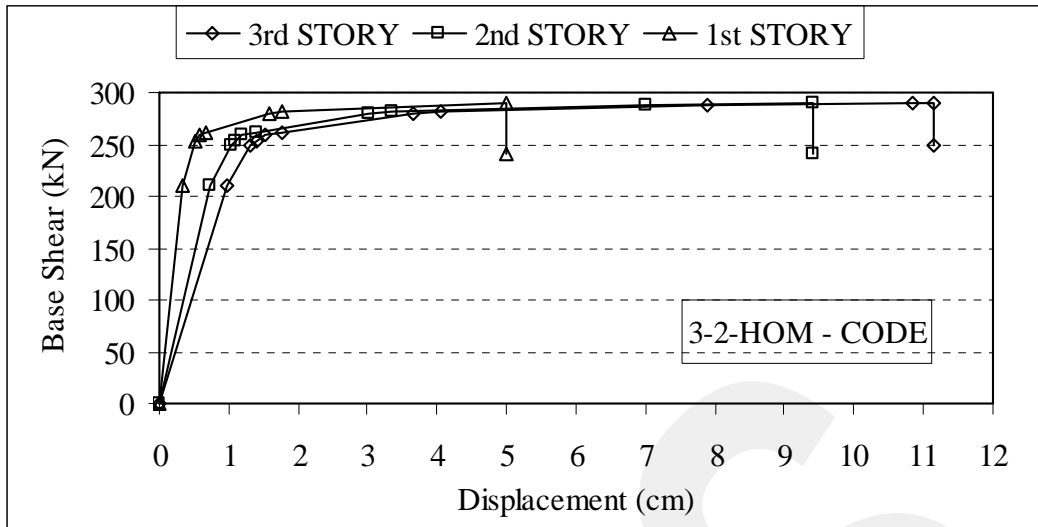


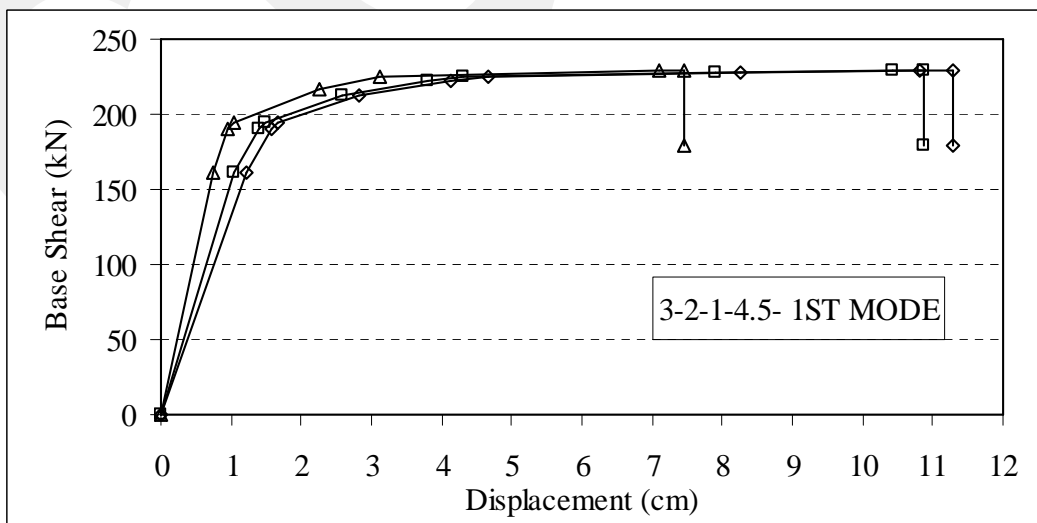
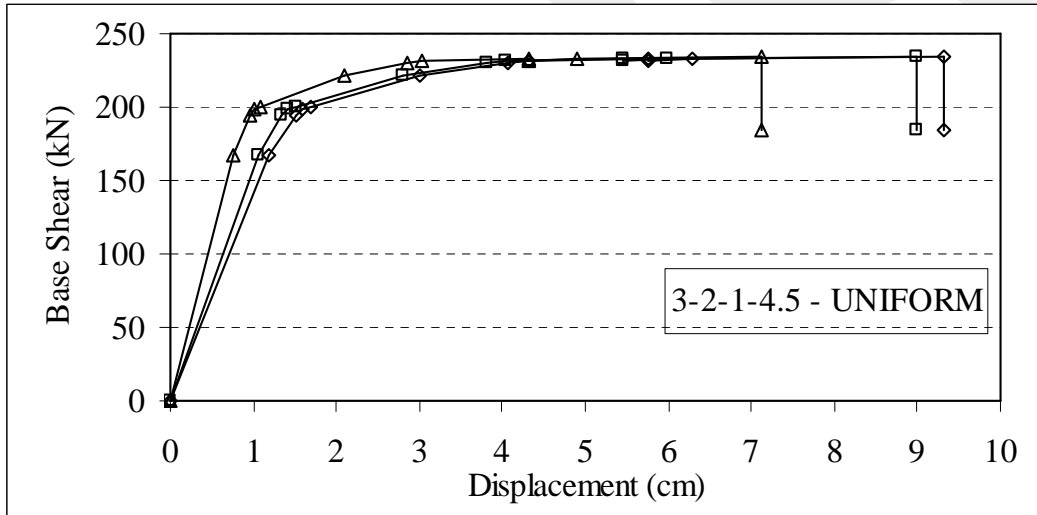
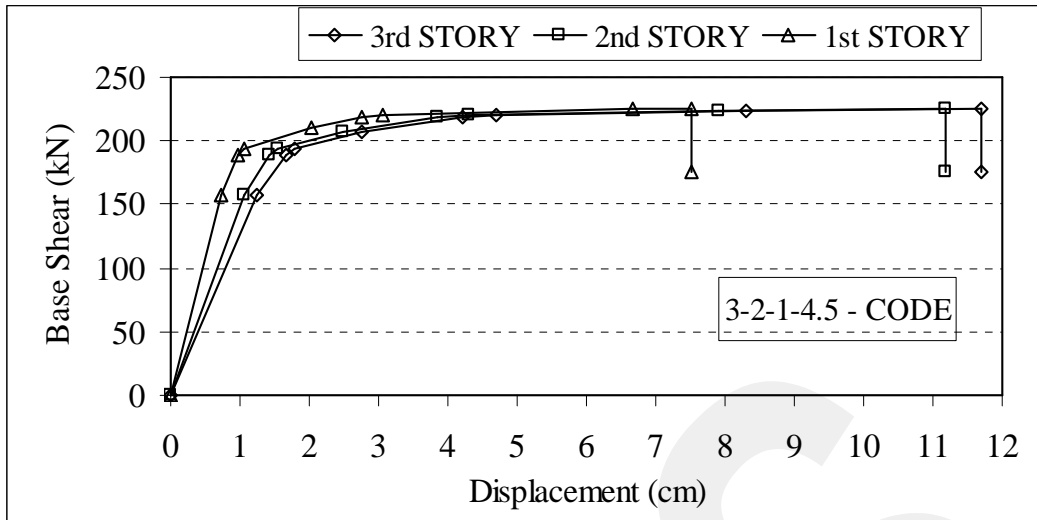


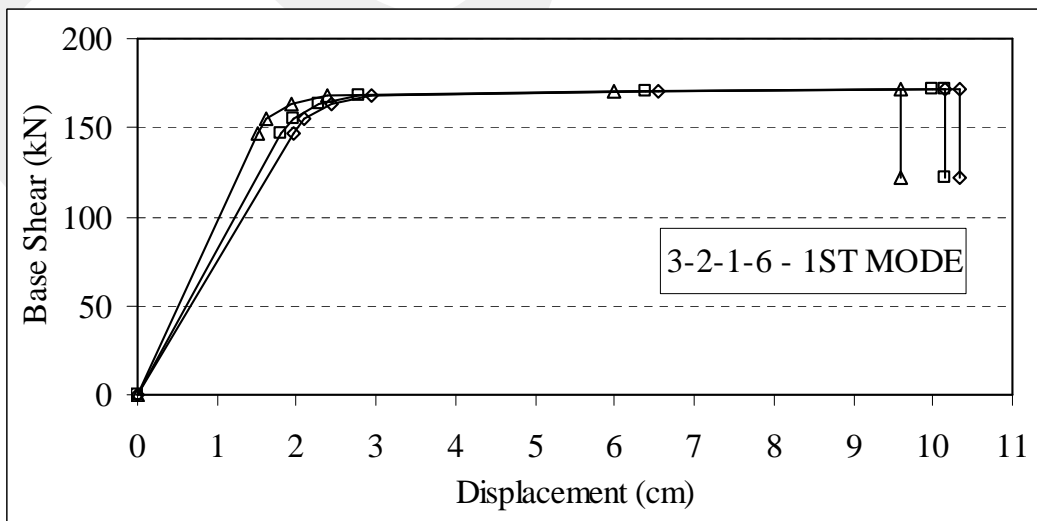
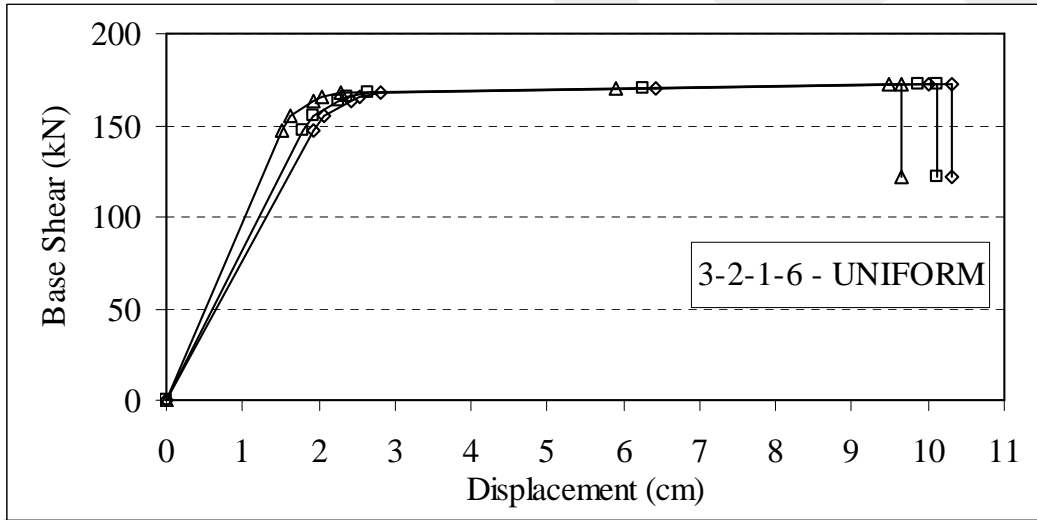
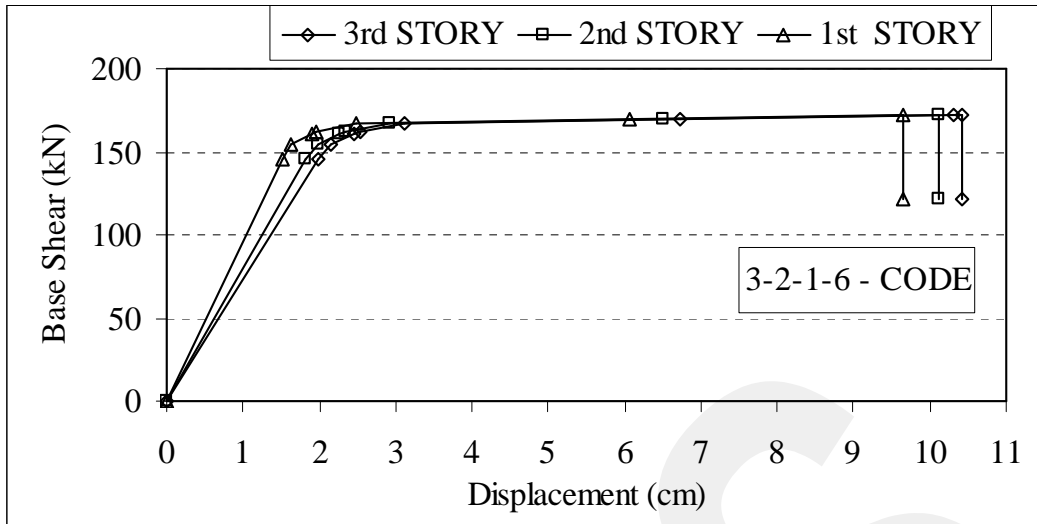


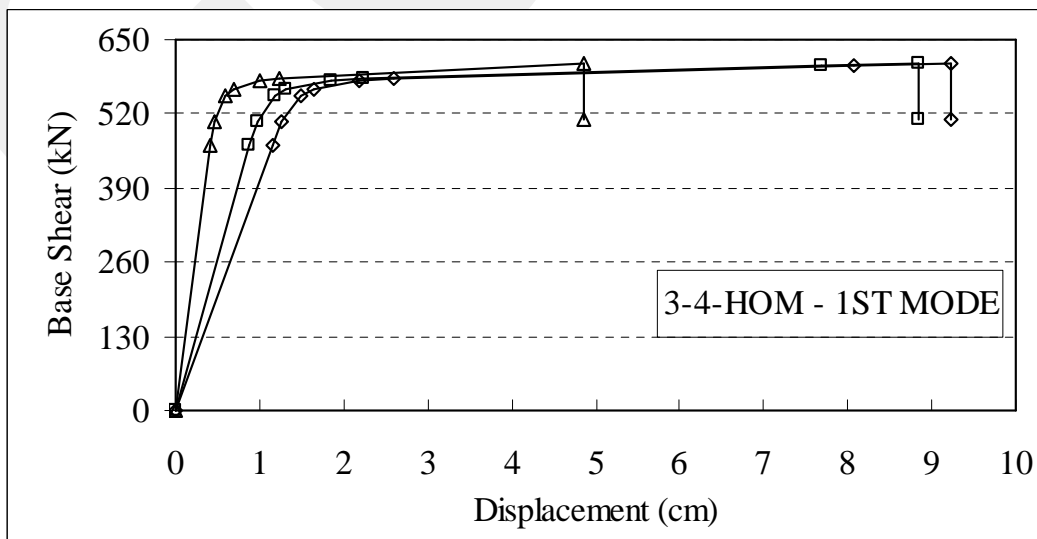
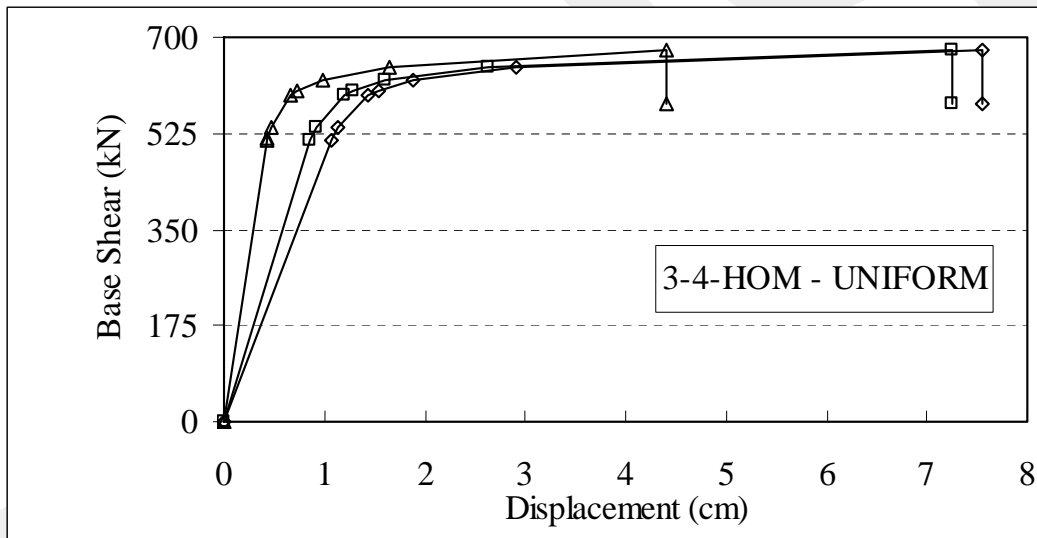
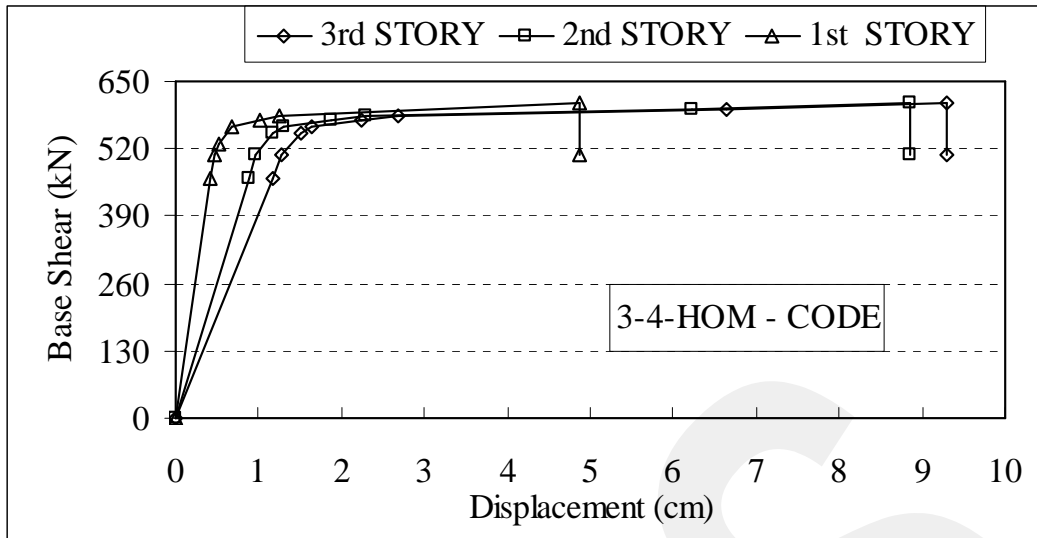
APPENDIX B

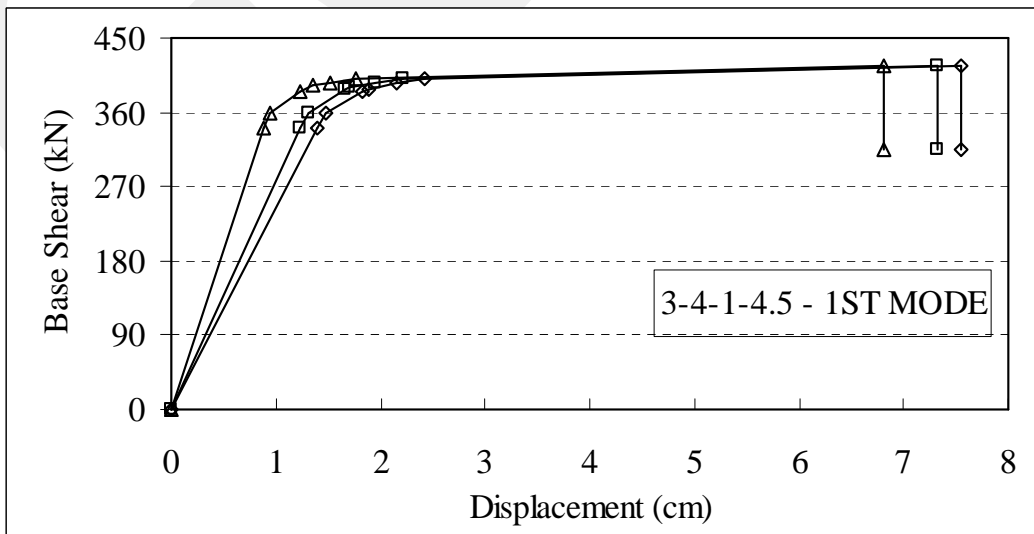
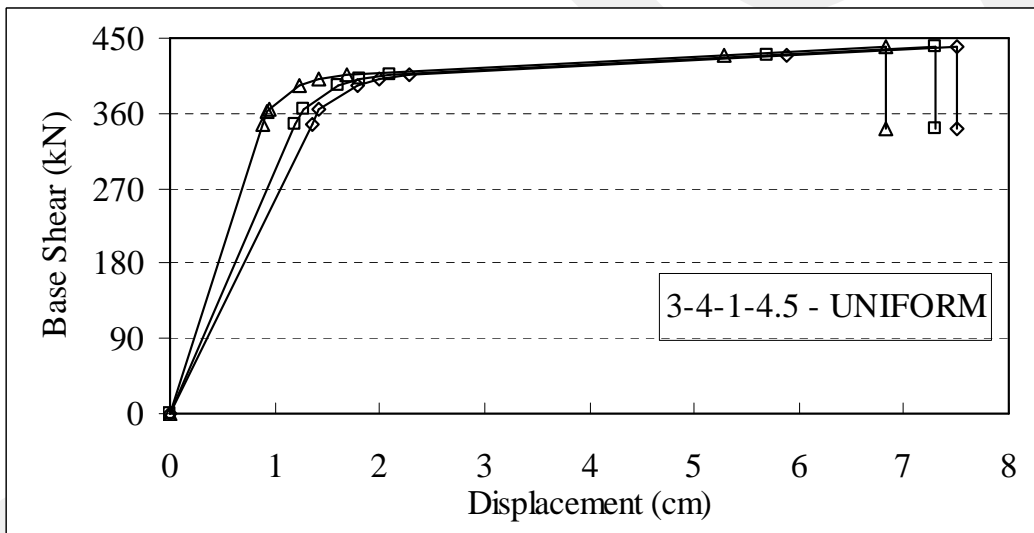
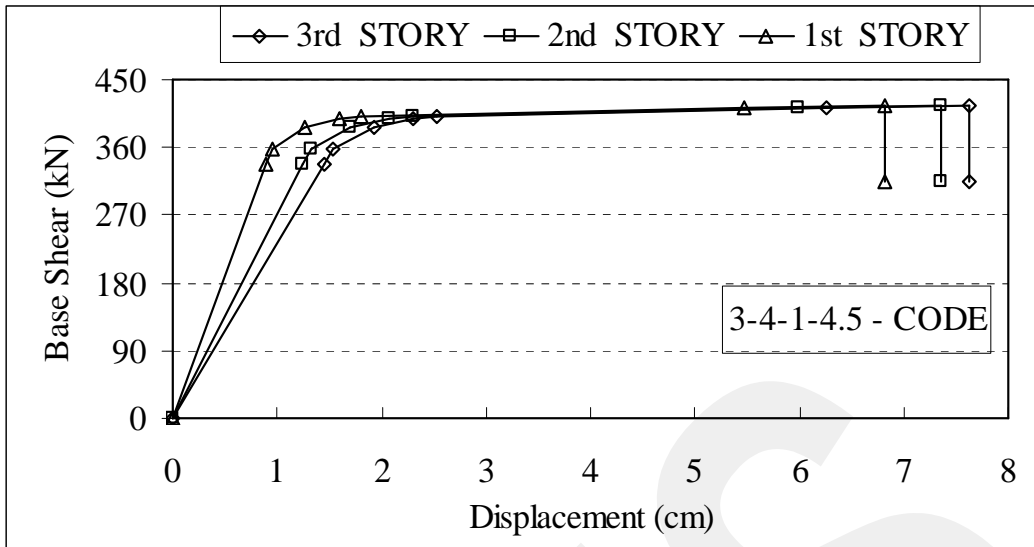
Story Pushover Curves for Various Lateral Load Patterns

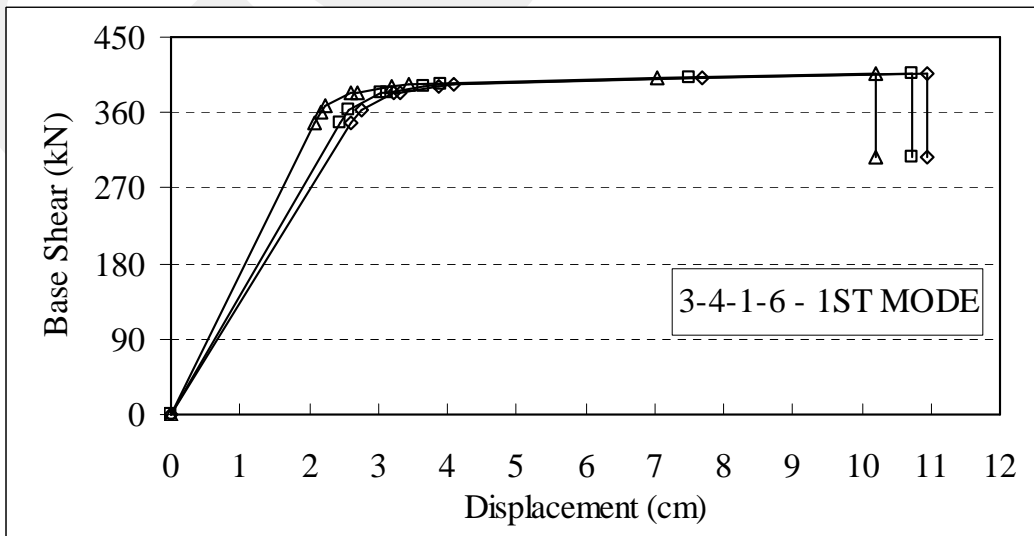
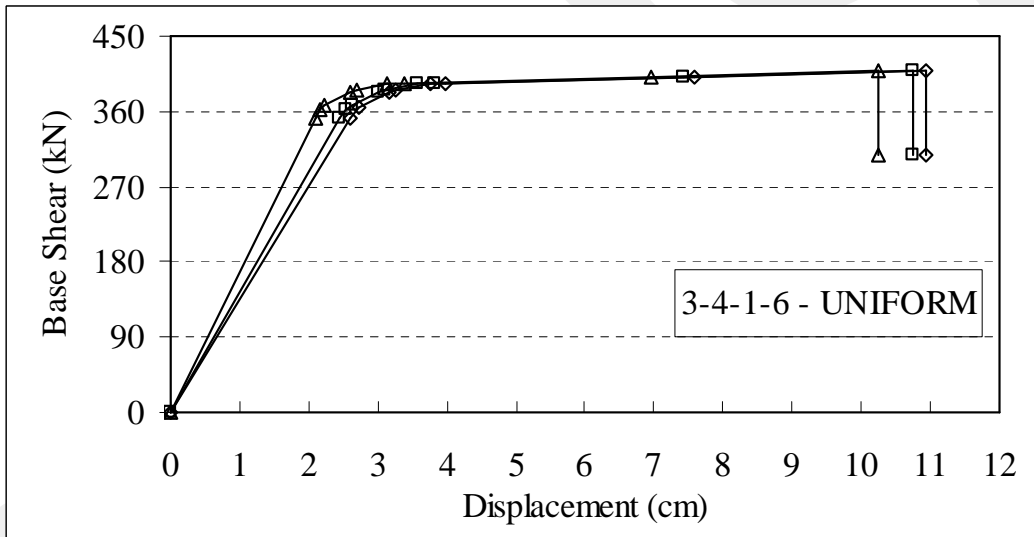
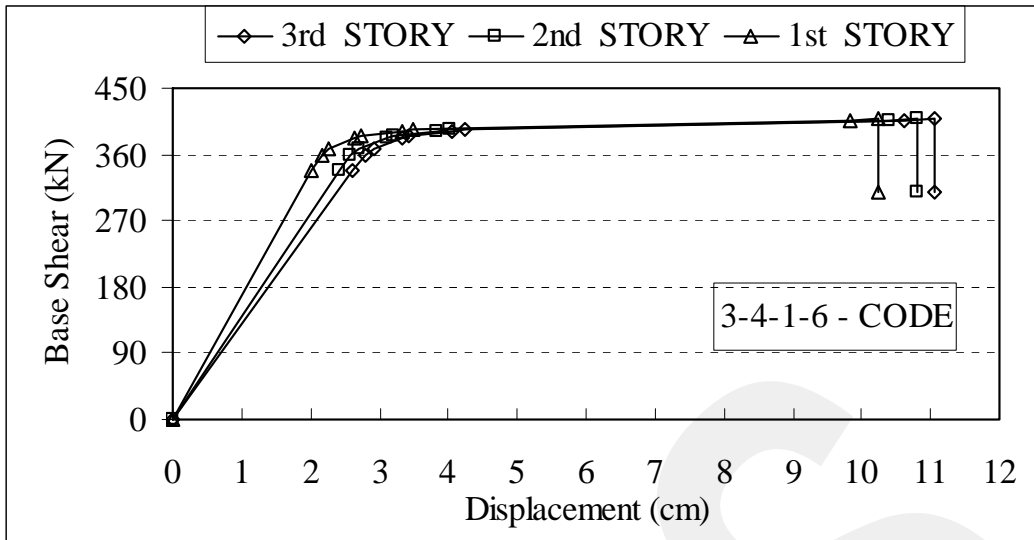


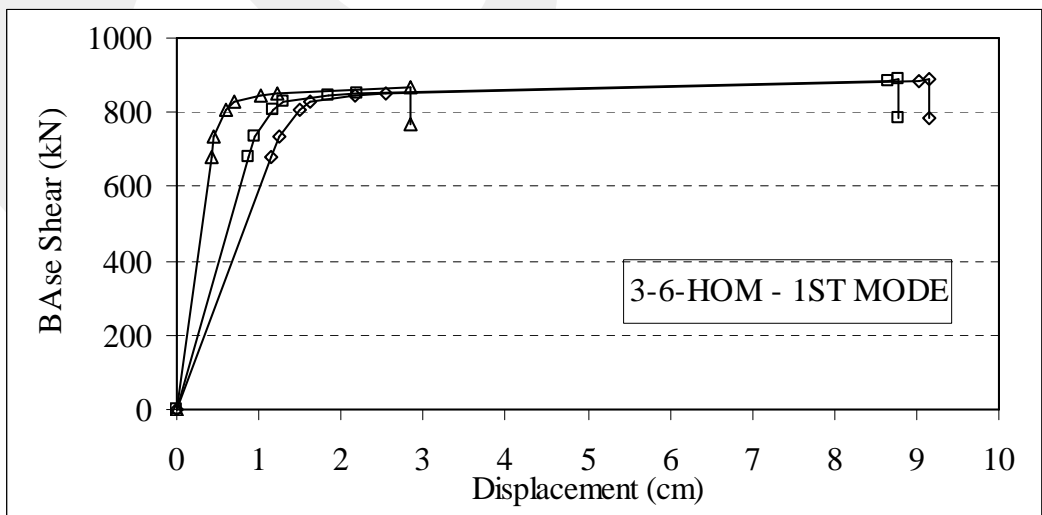
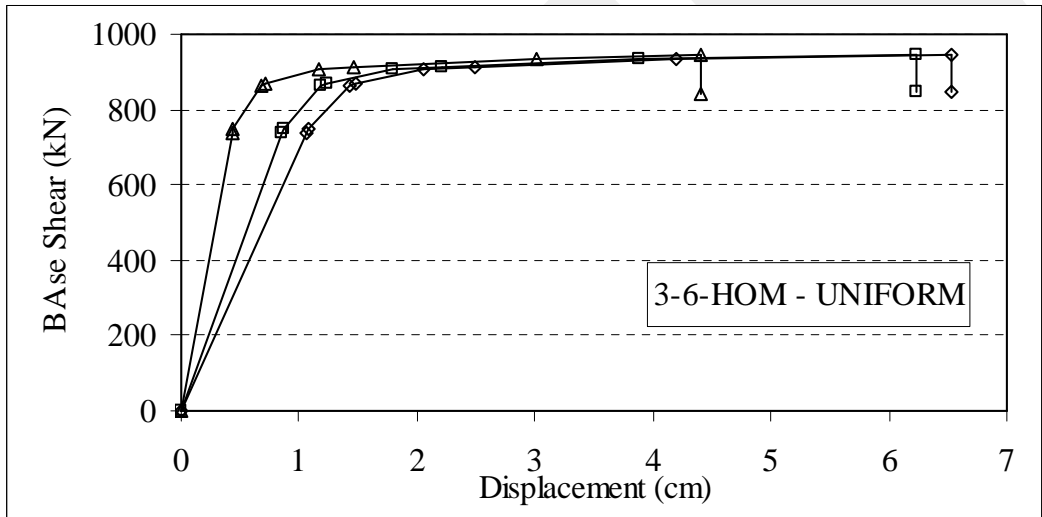
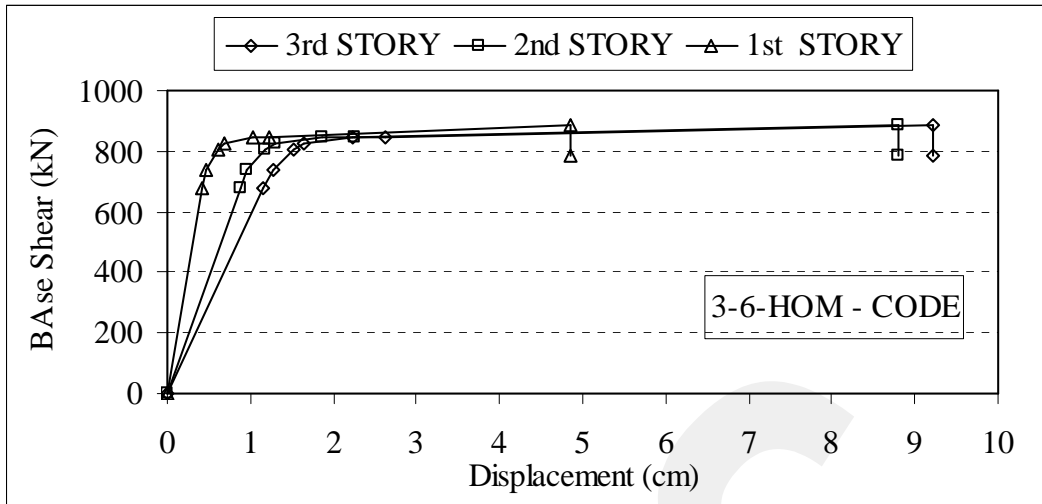


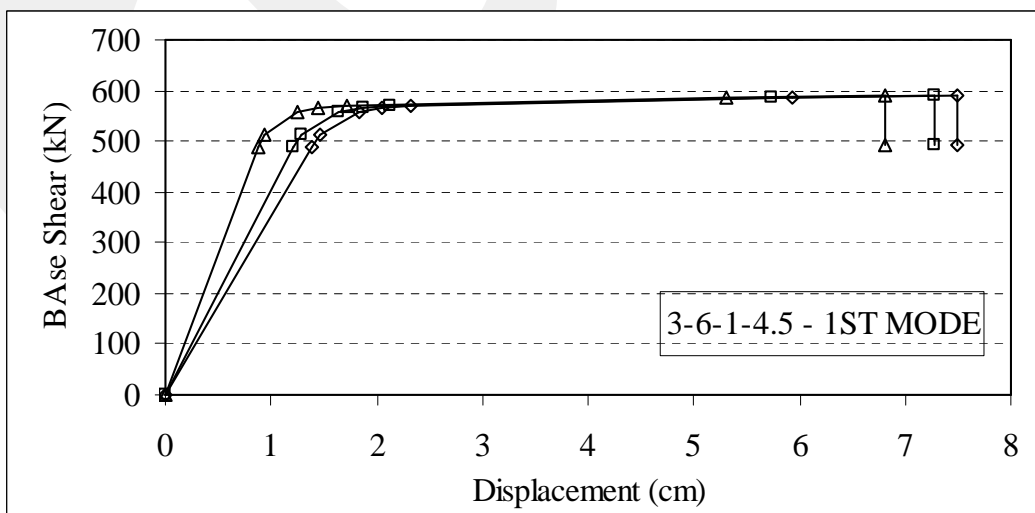
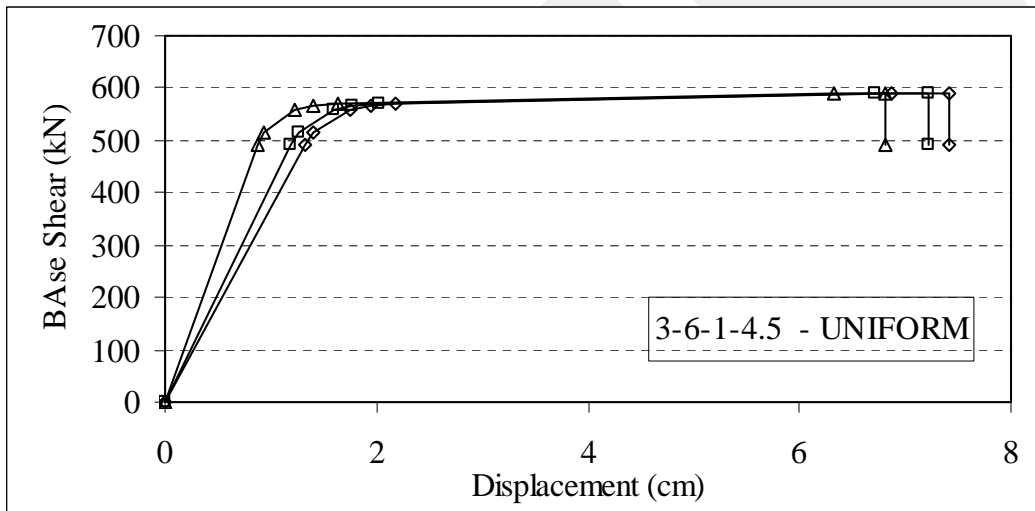
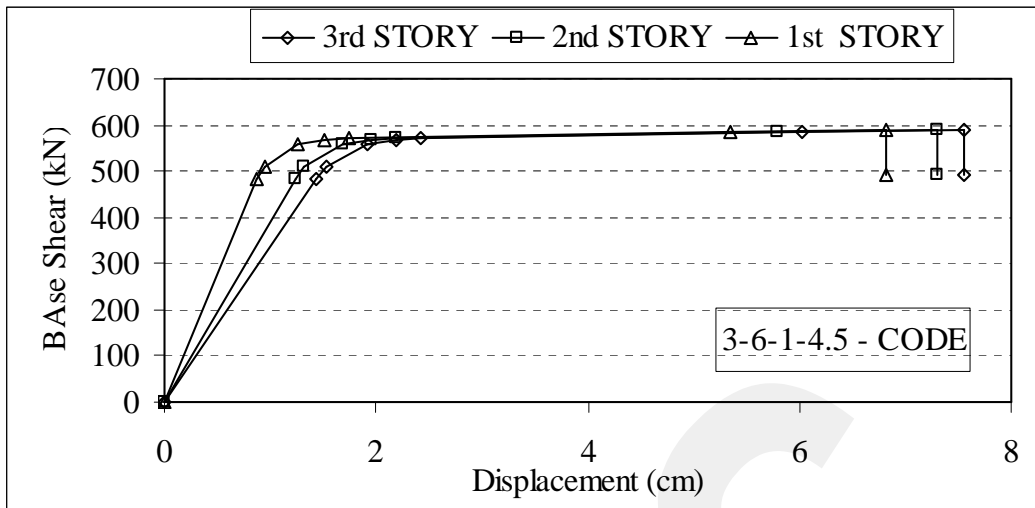


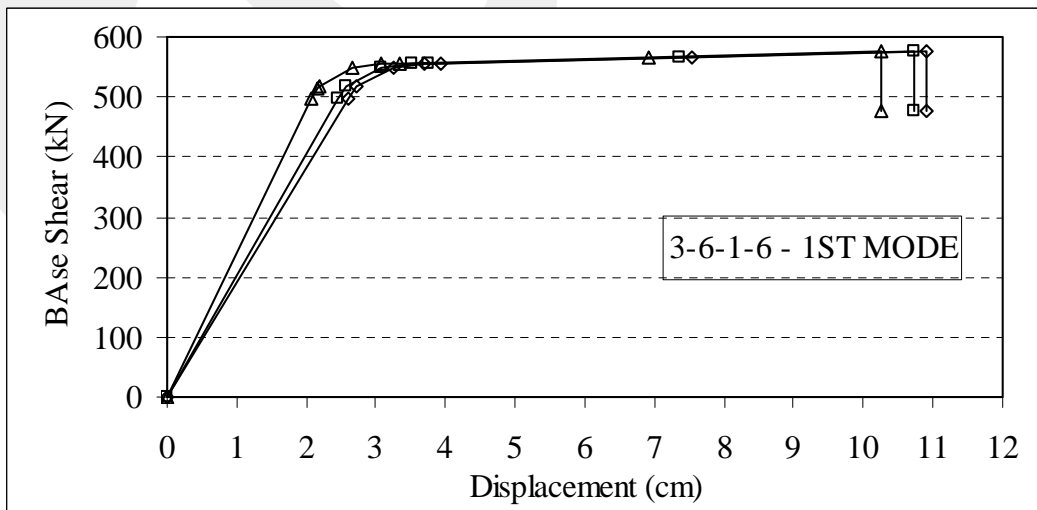
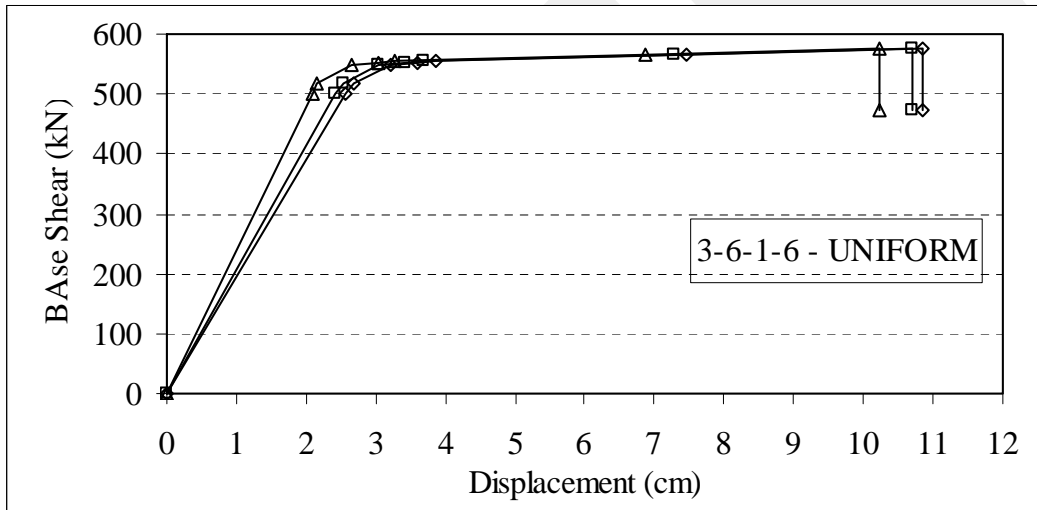
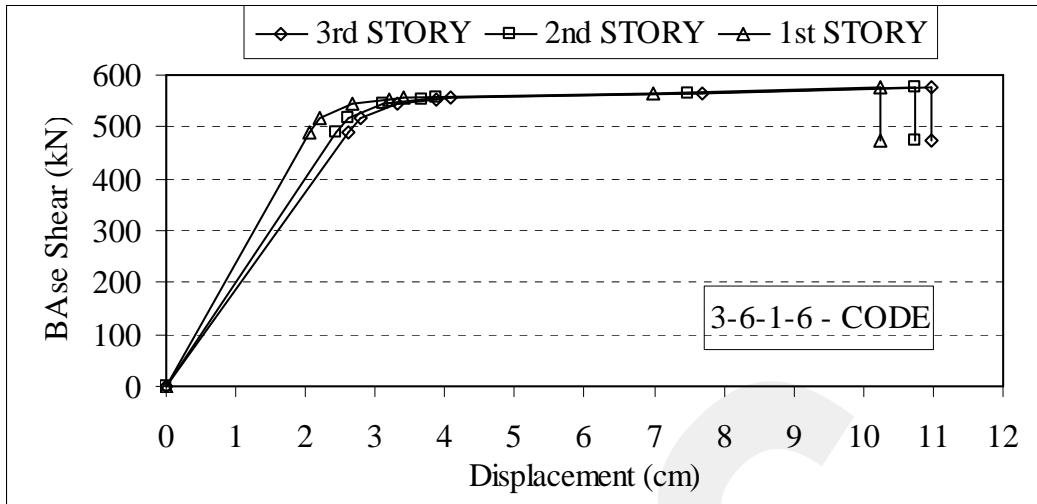


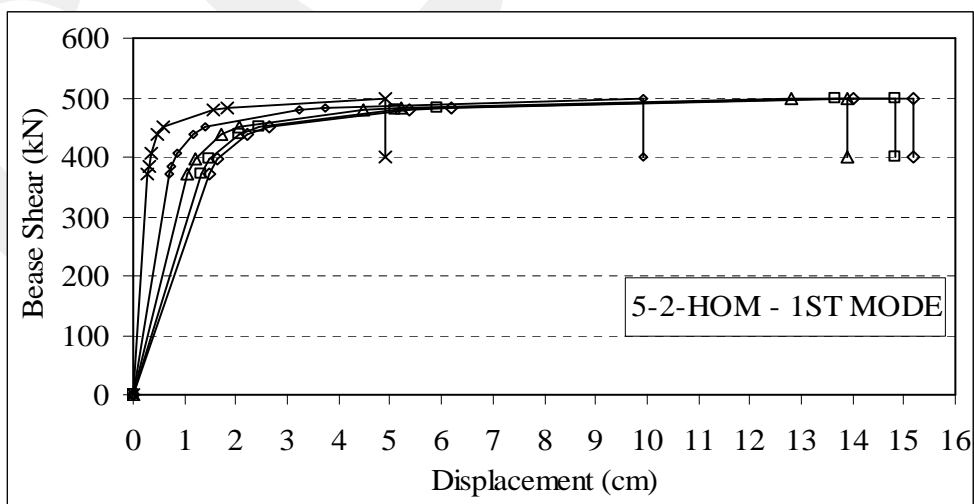
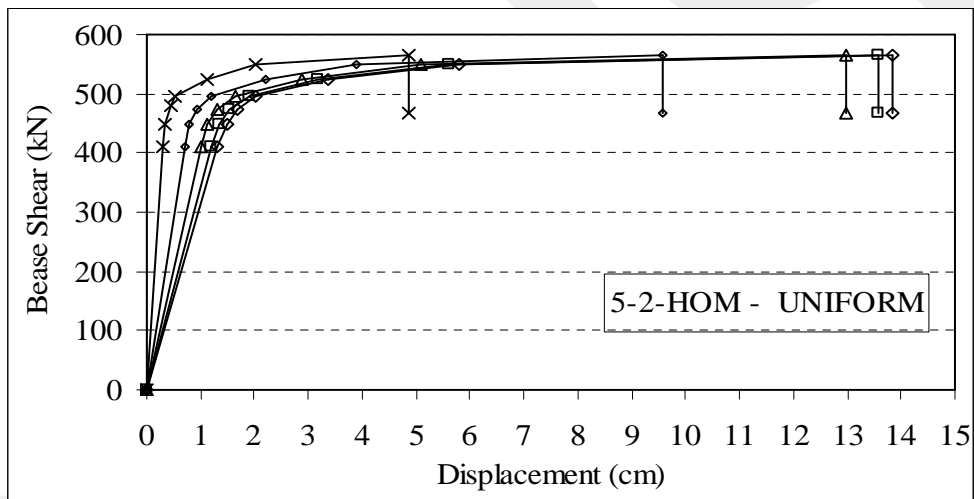
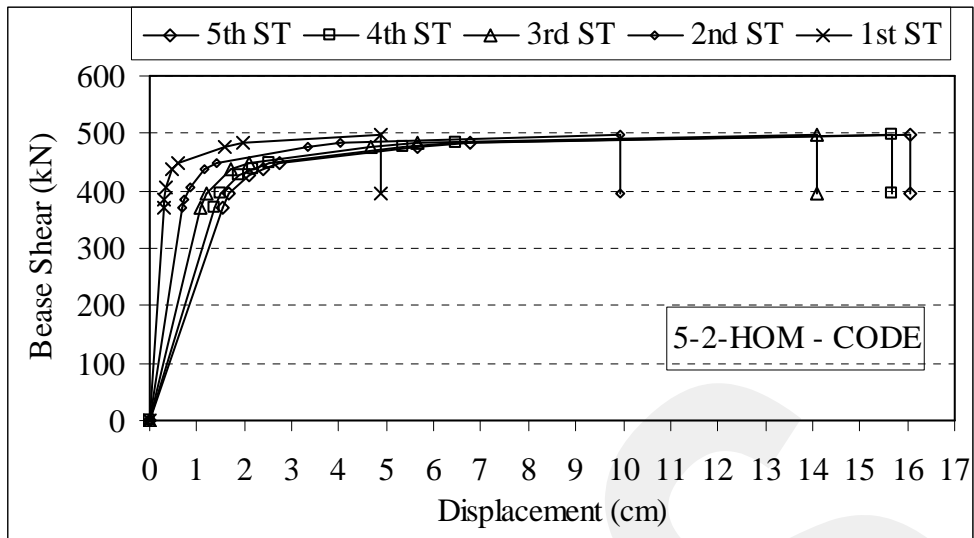


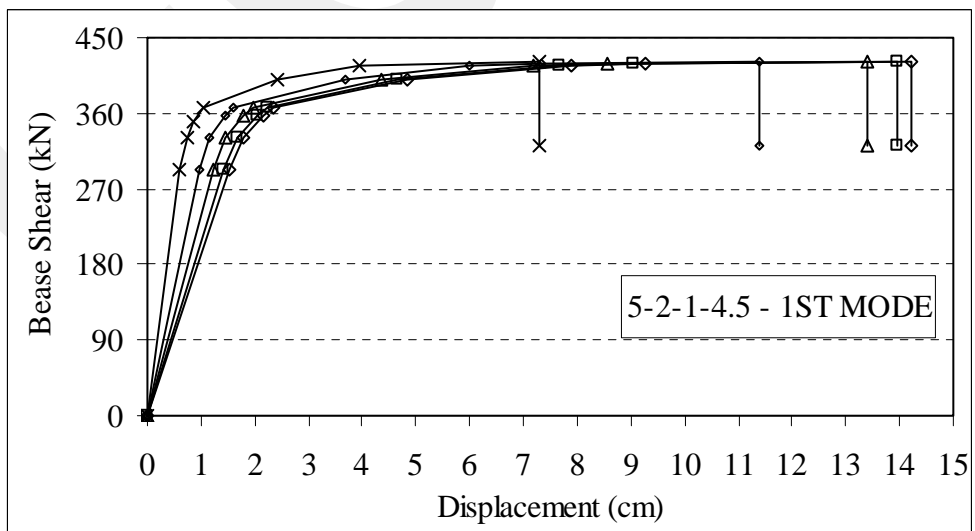
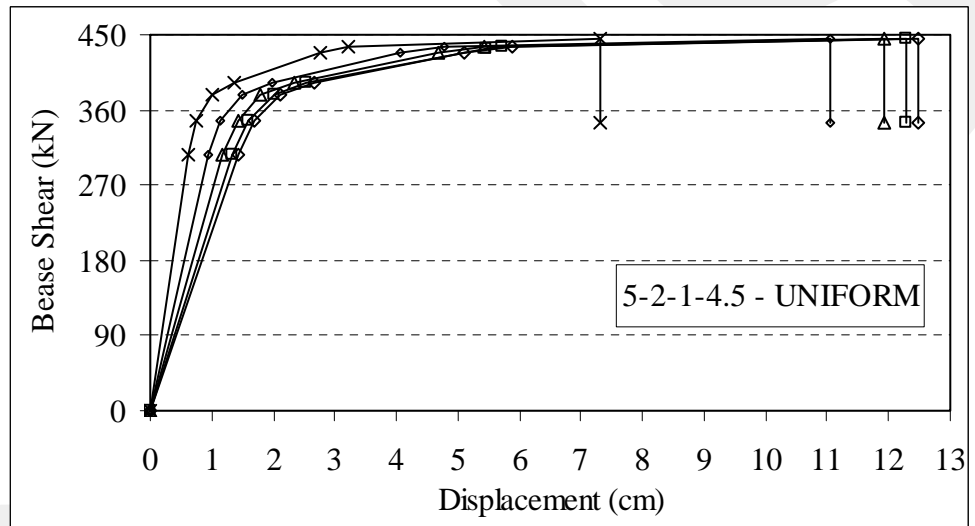
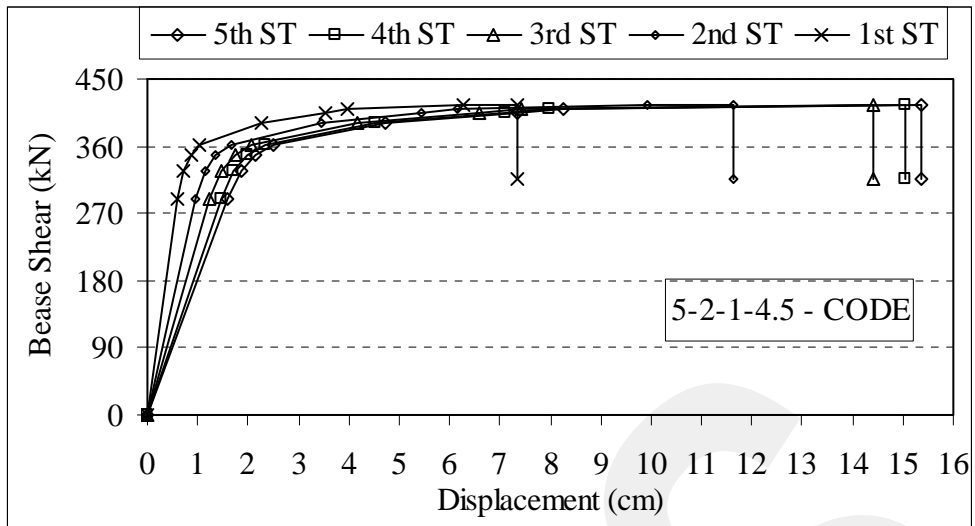


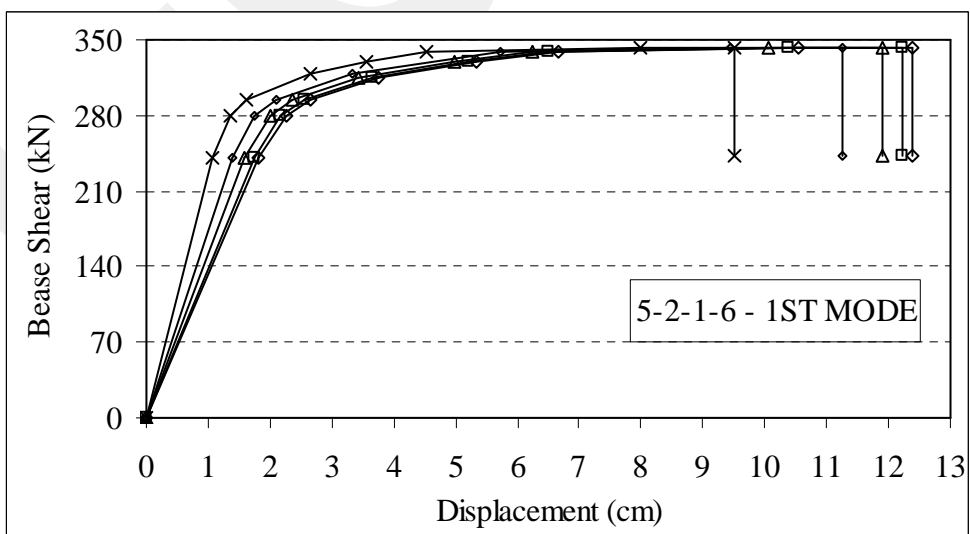
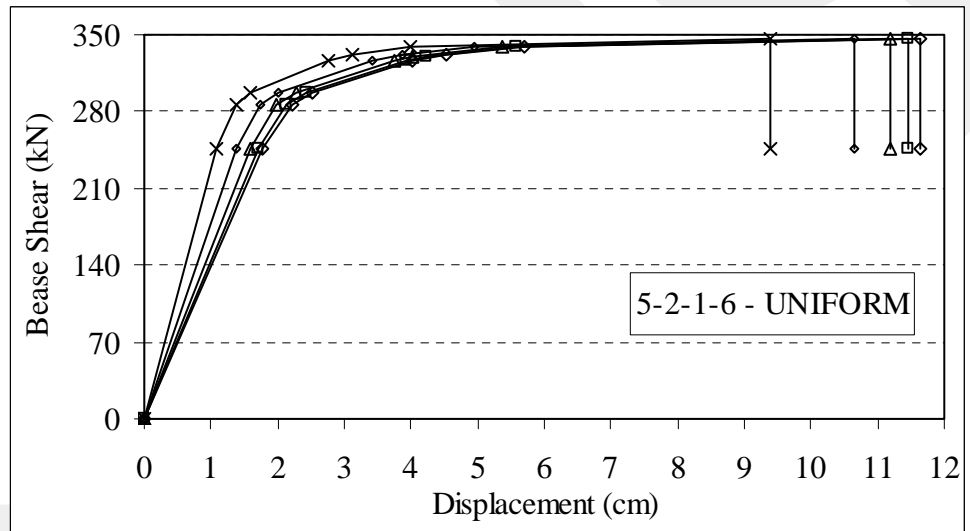
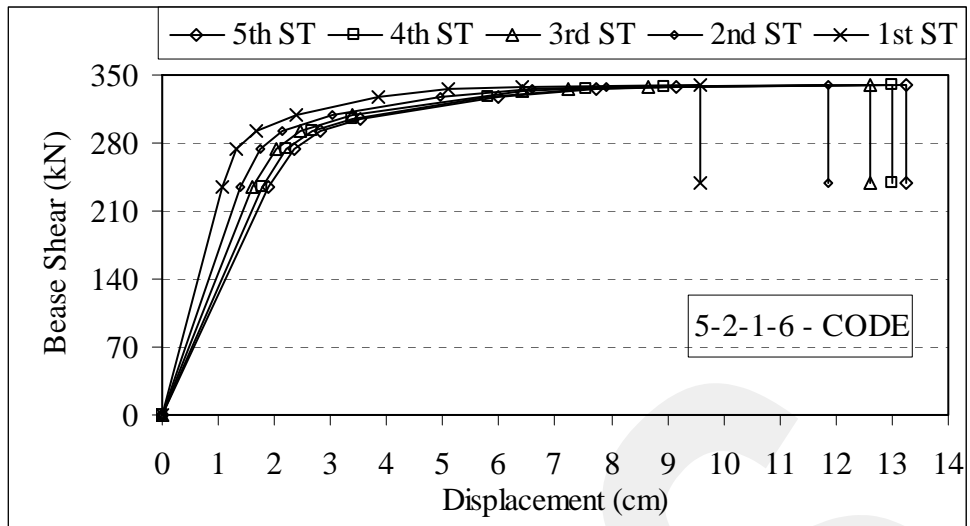


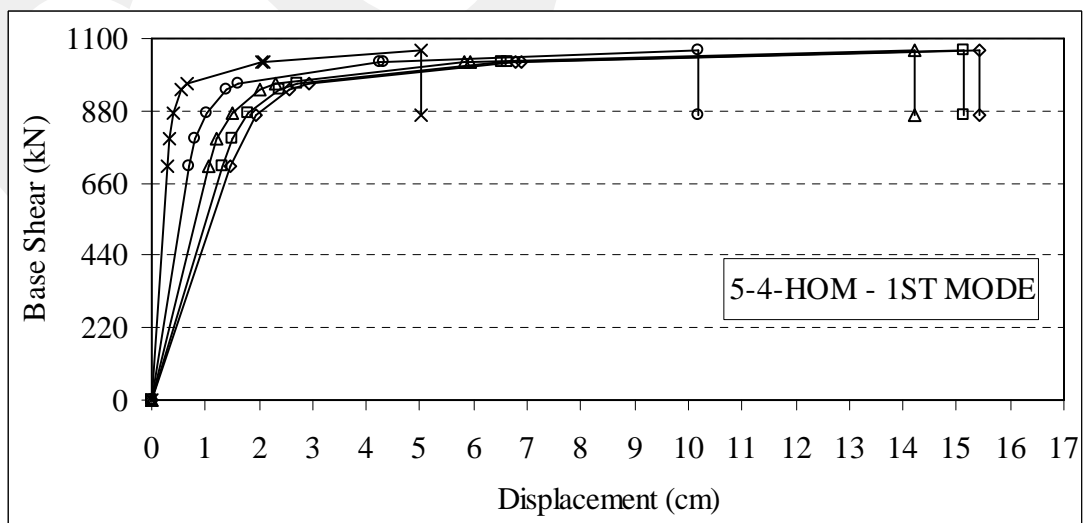
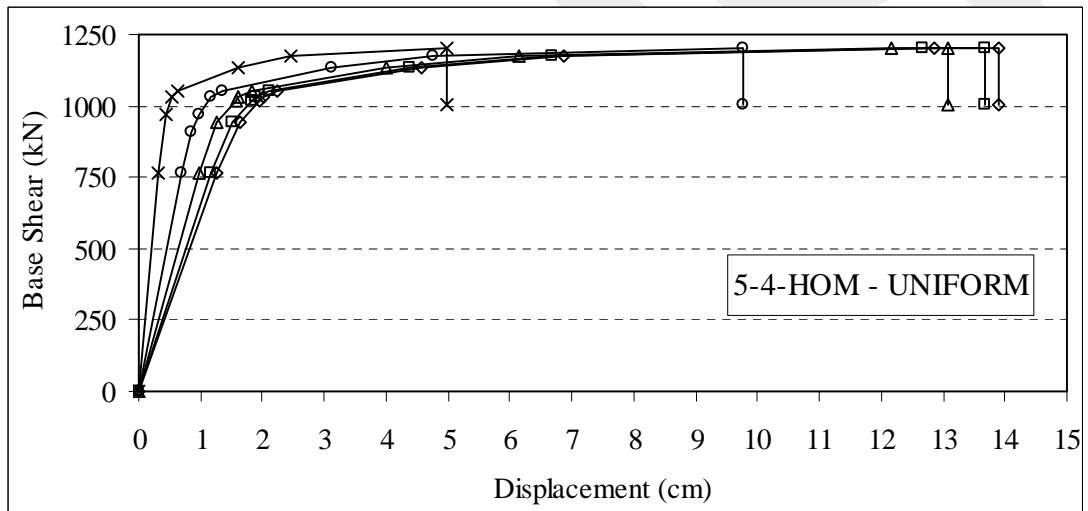
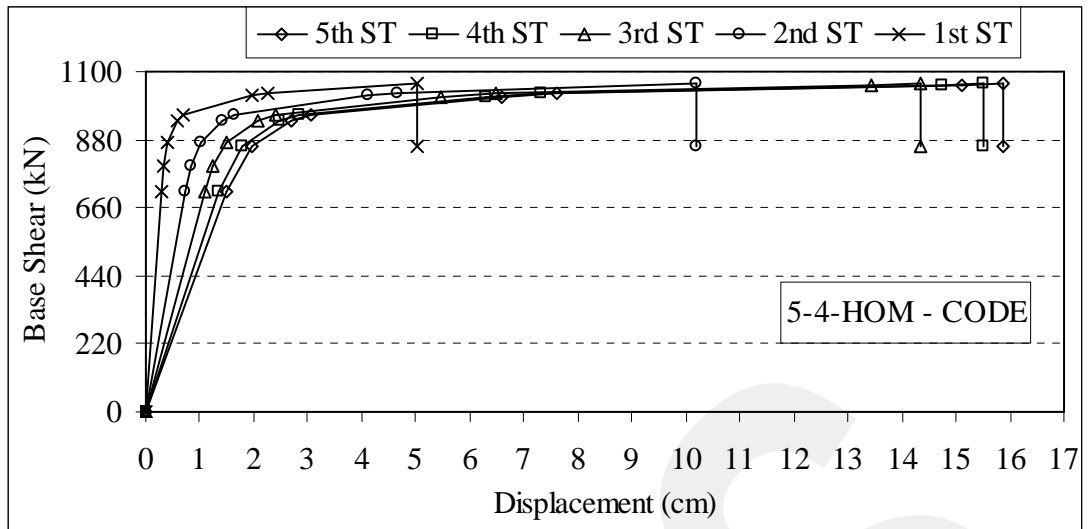


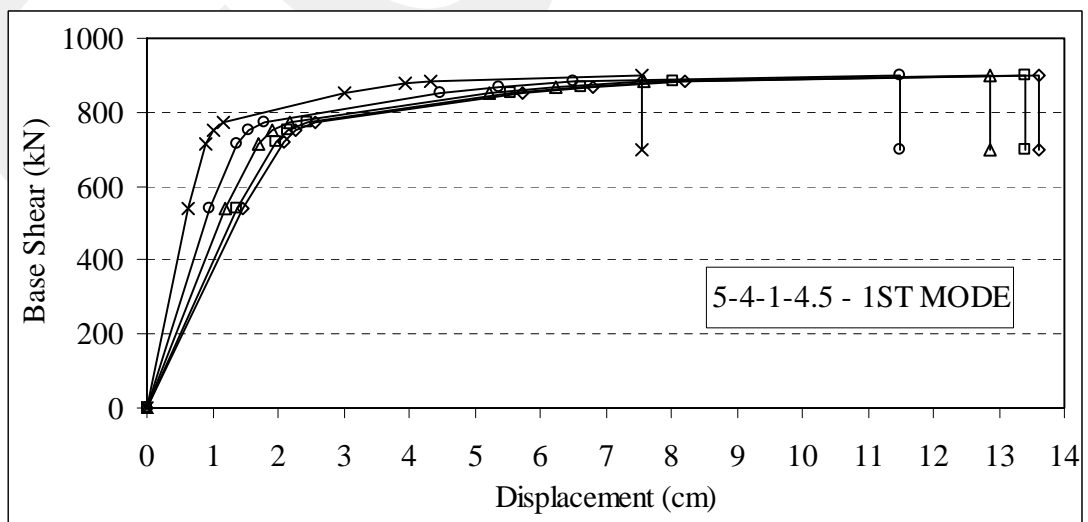
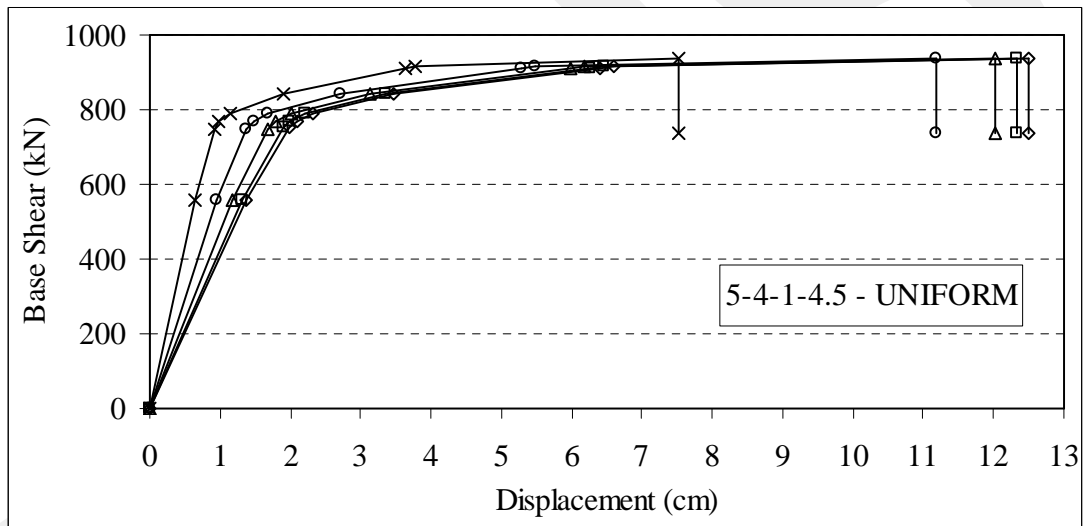
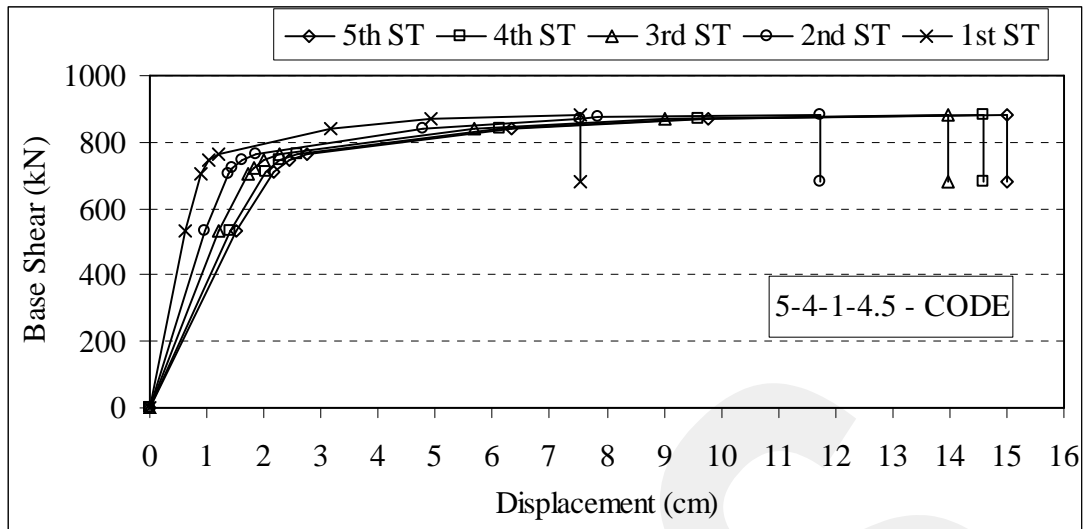


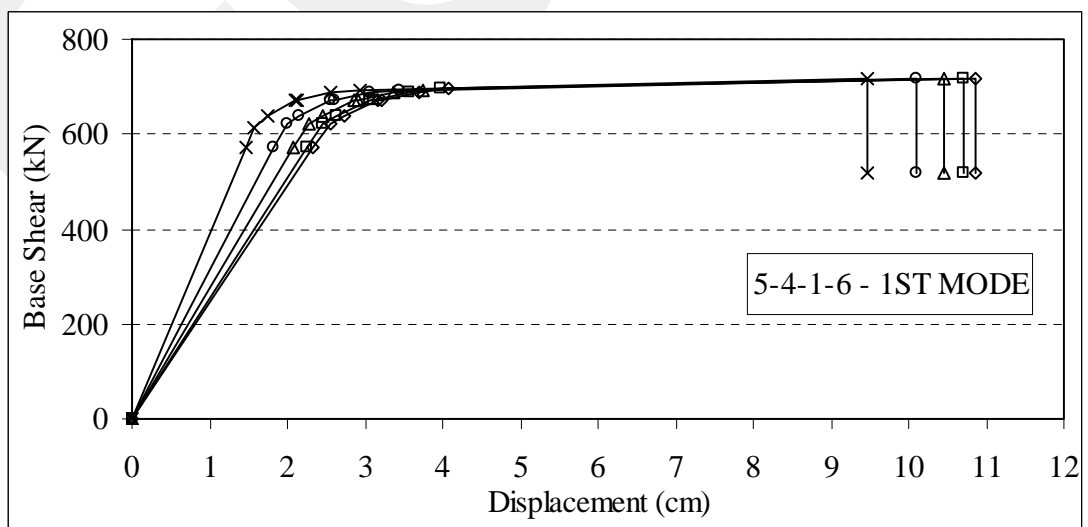
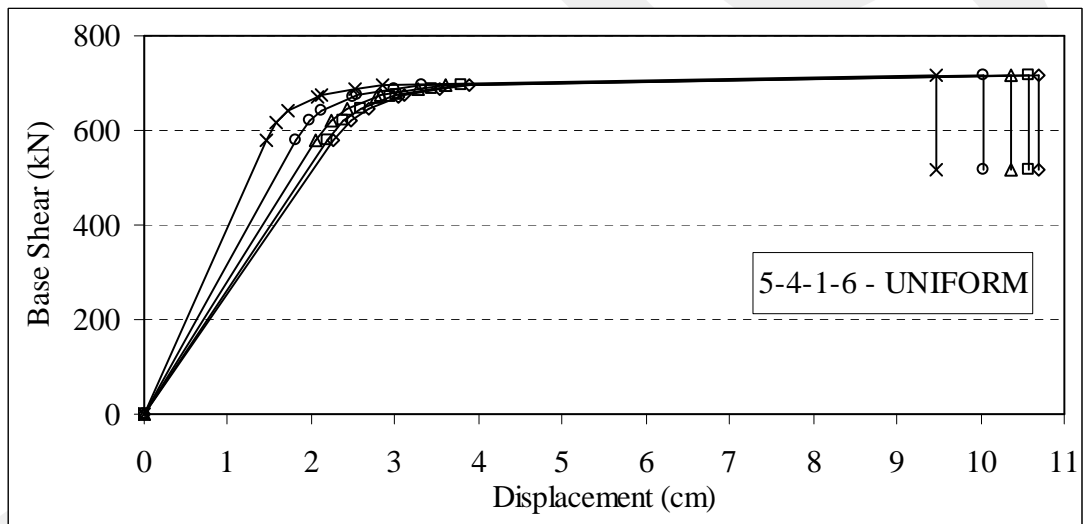
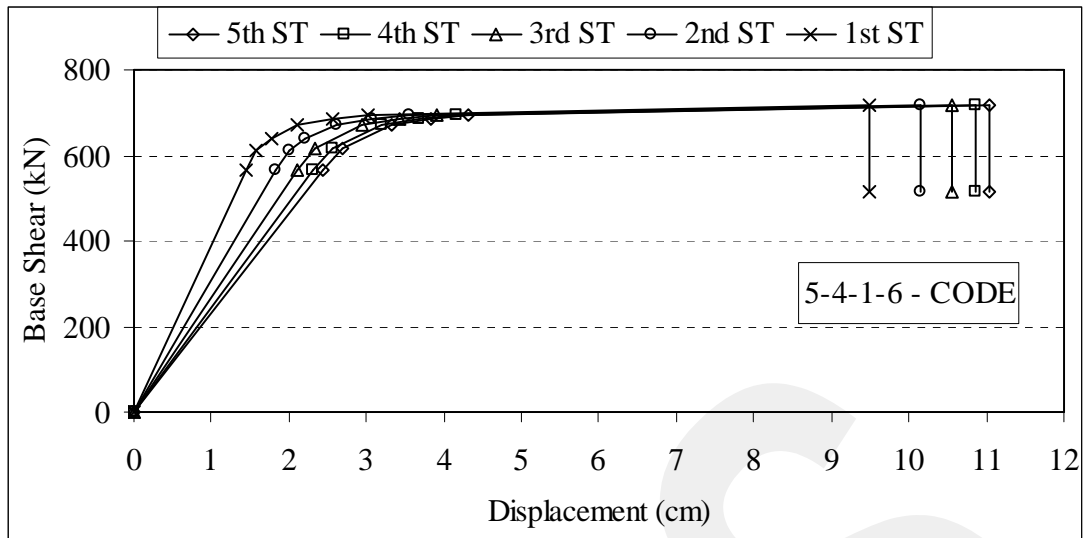


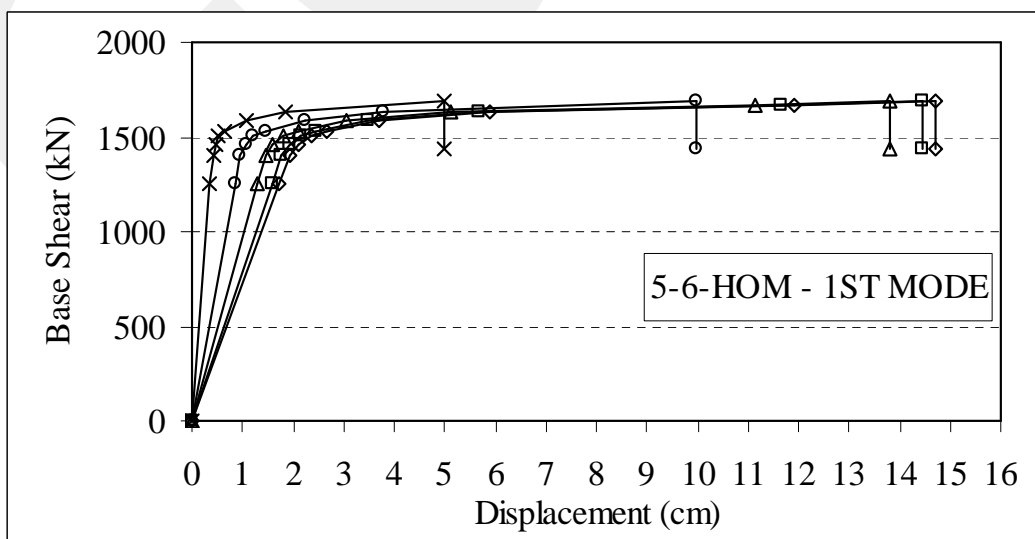
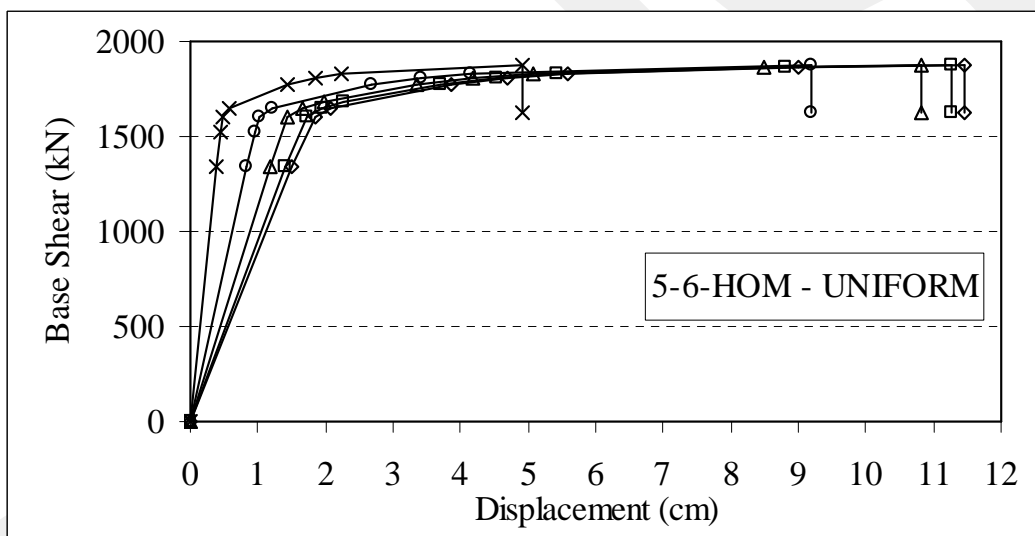
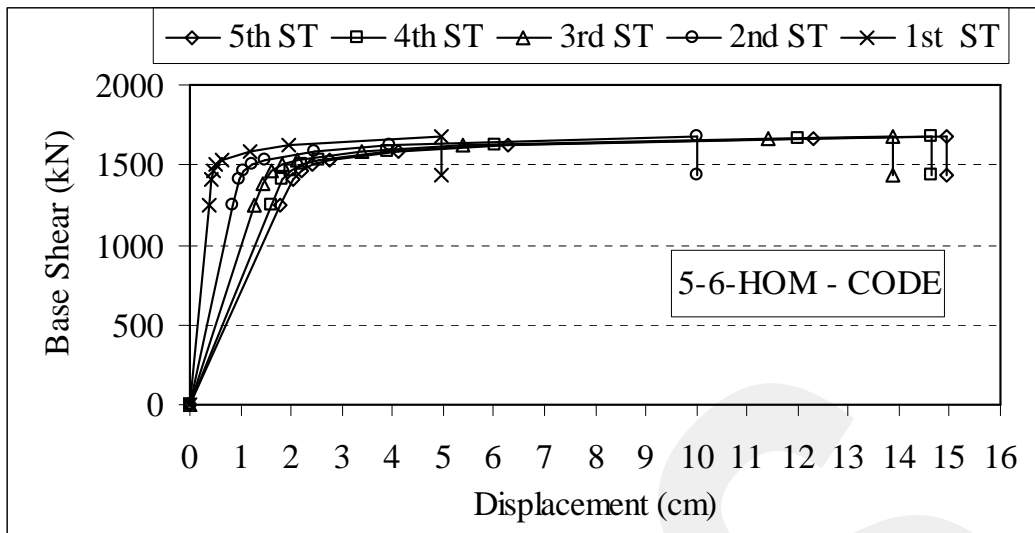


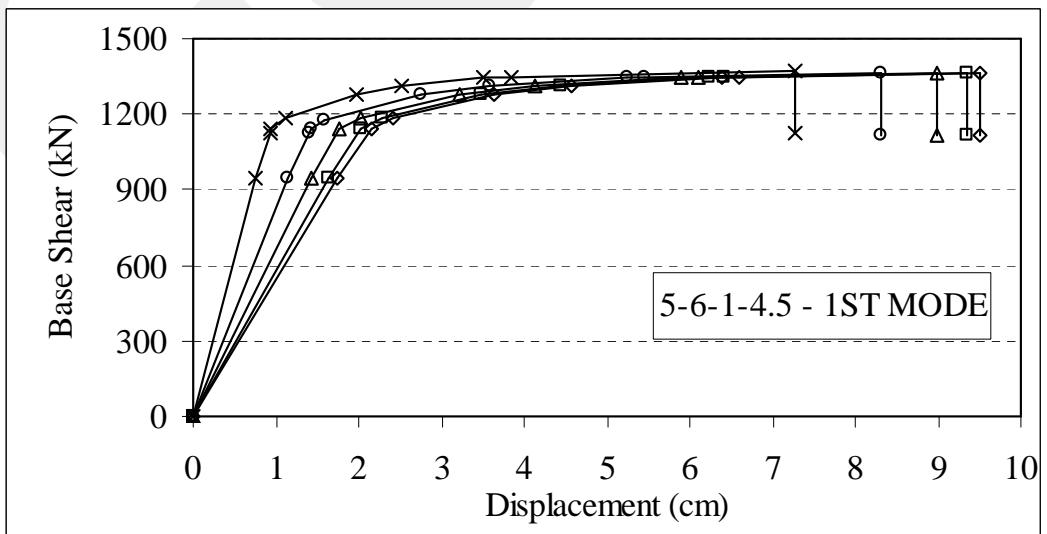
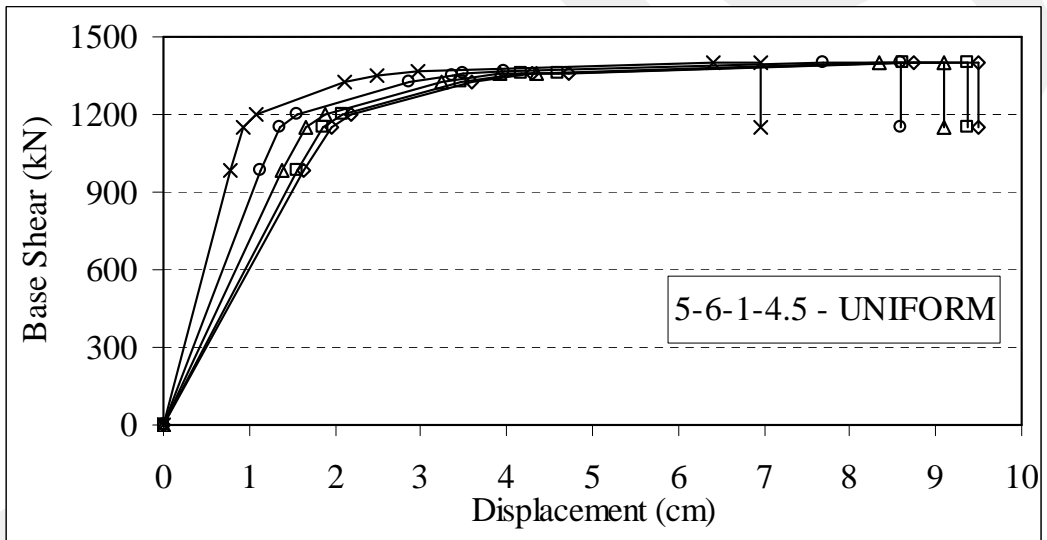
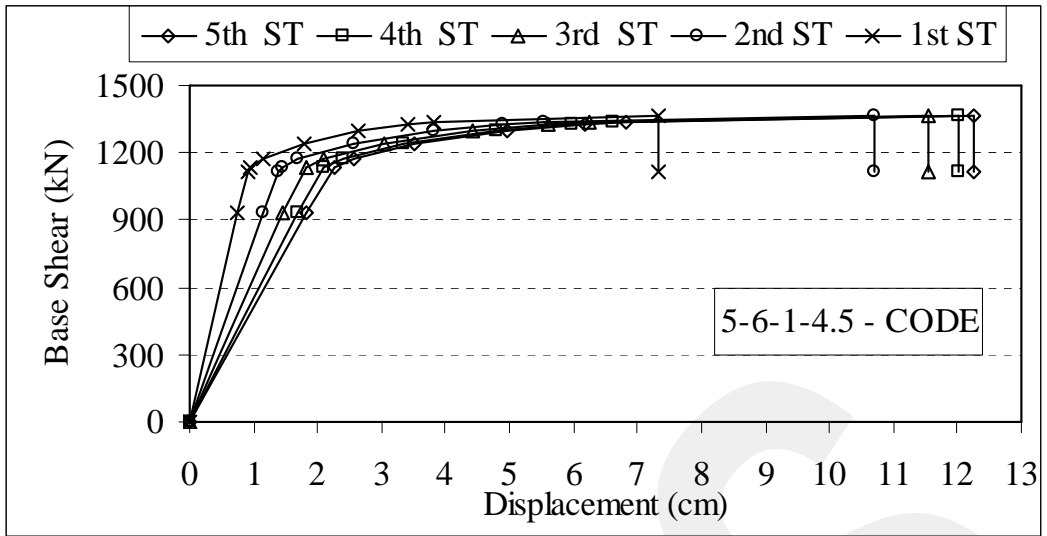


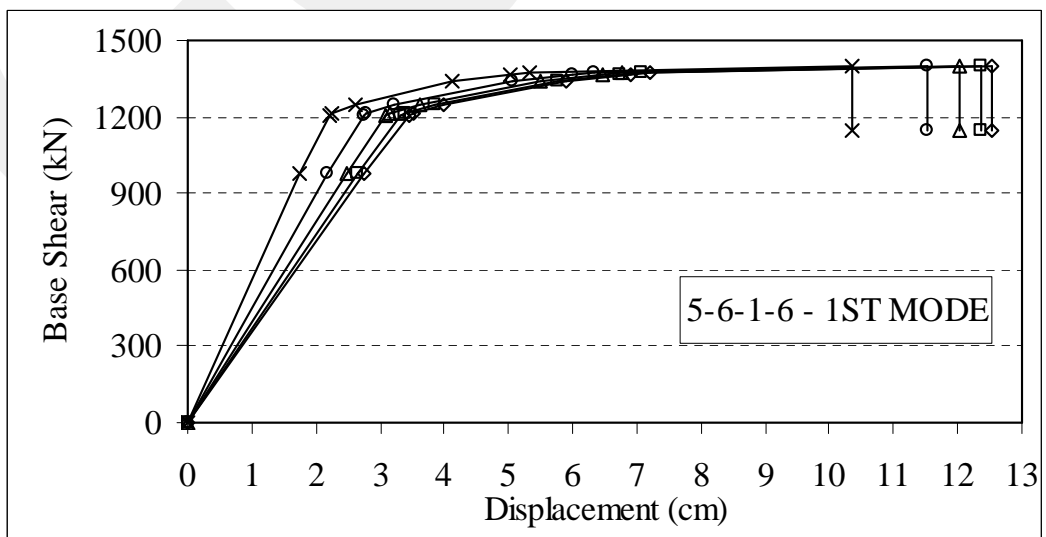
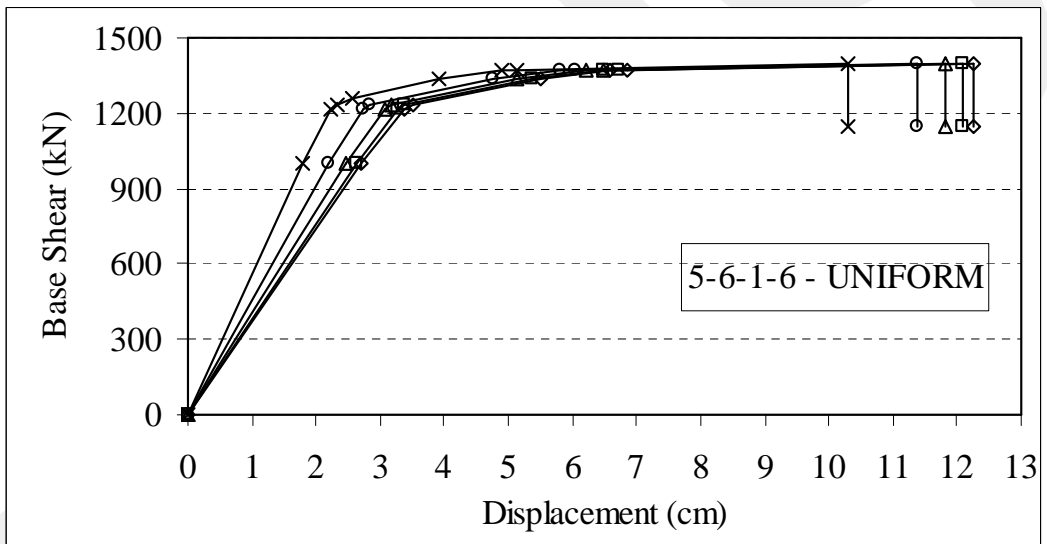
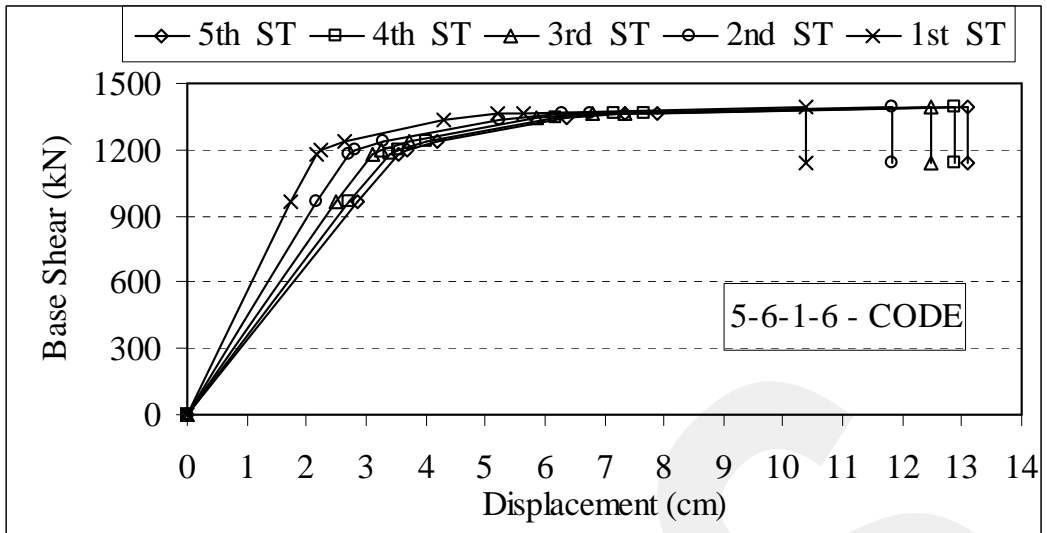


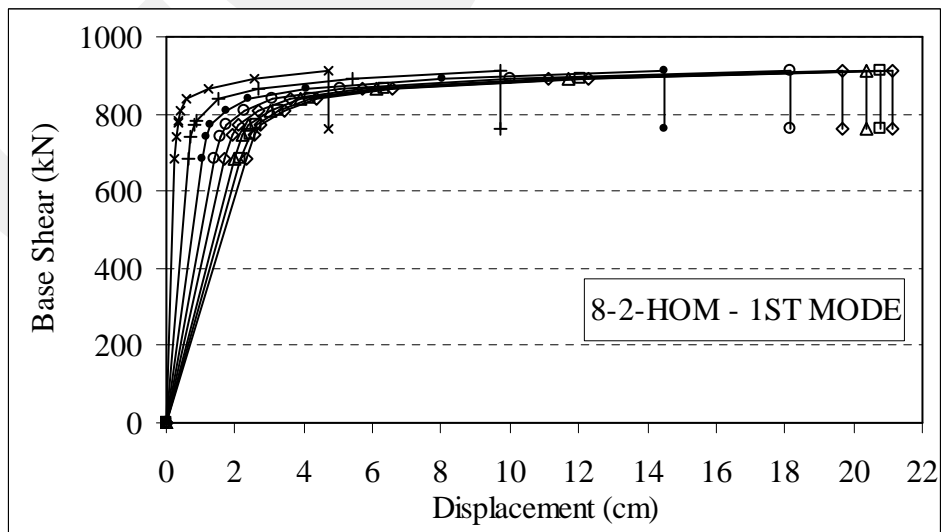
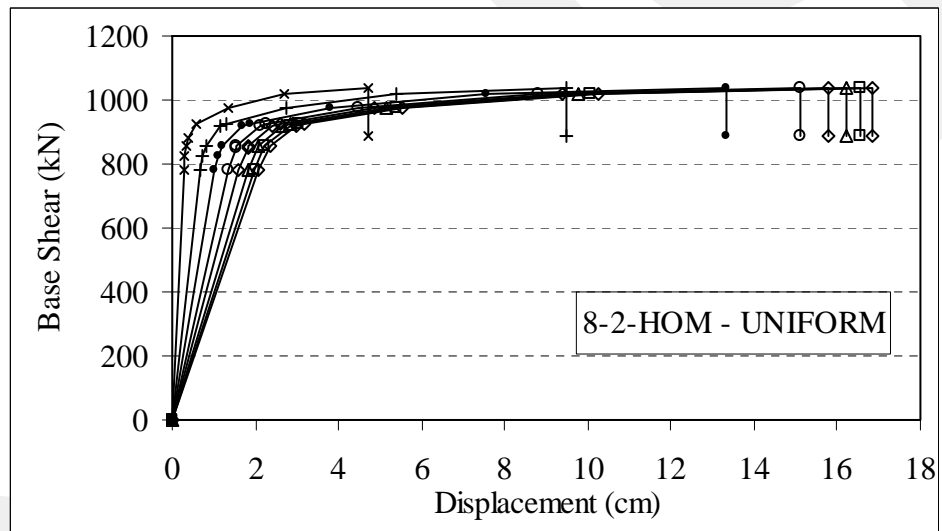
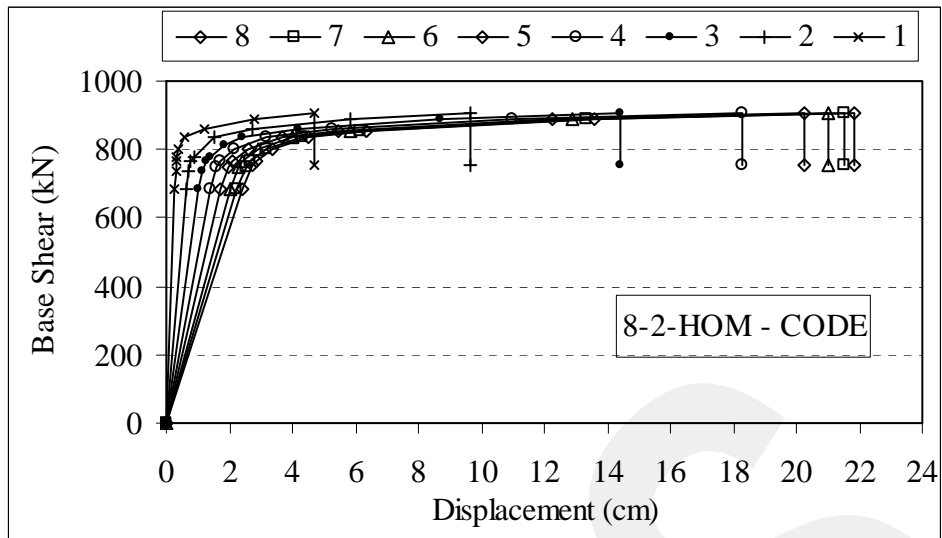


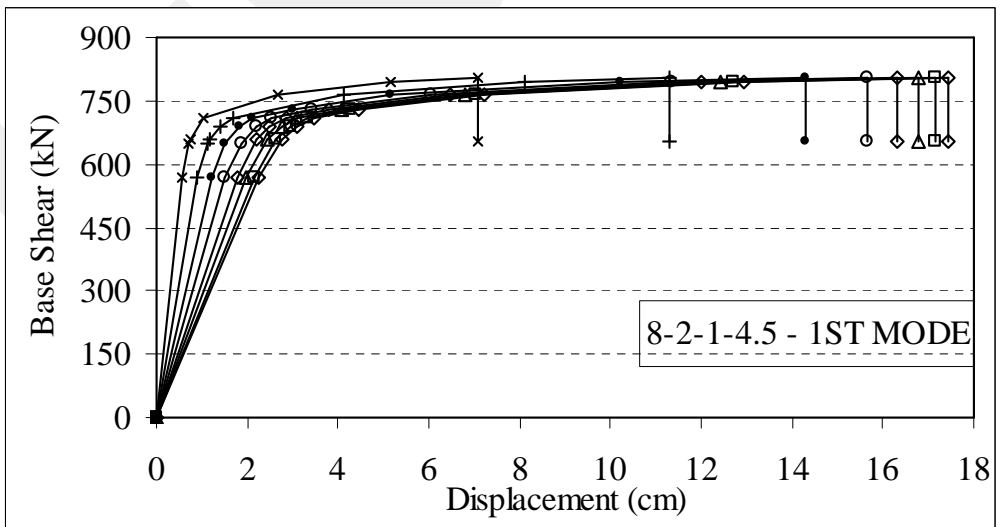
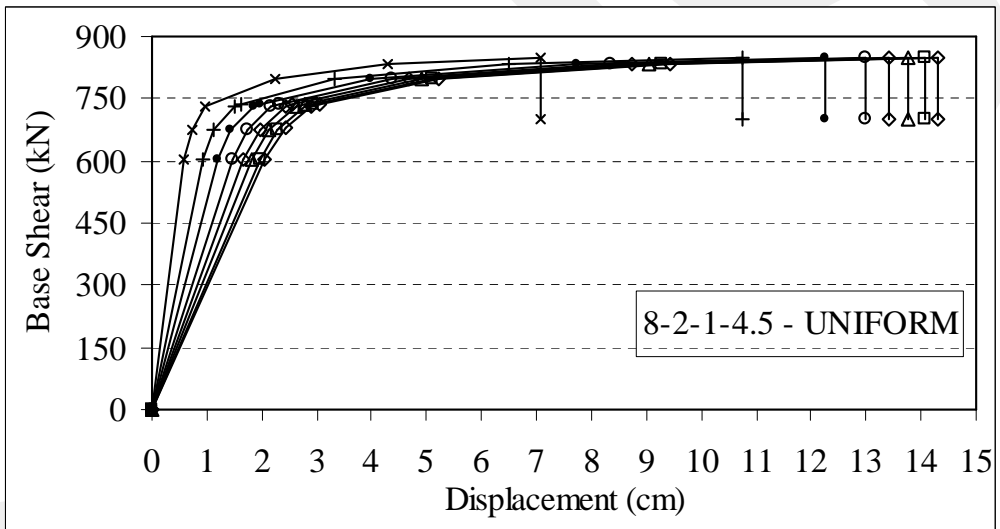
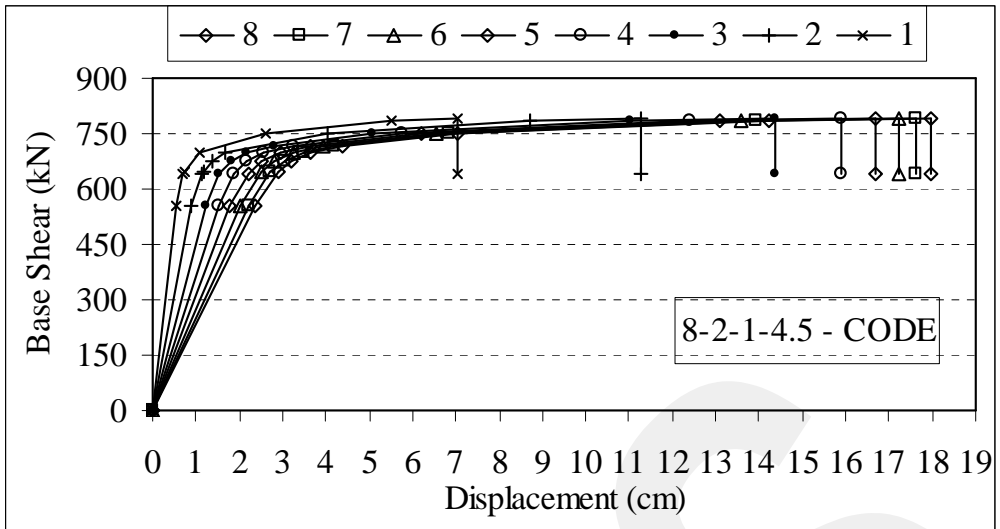


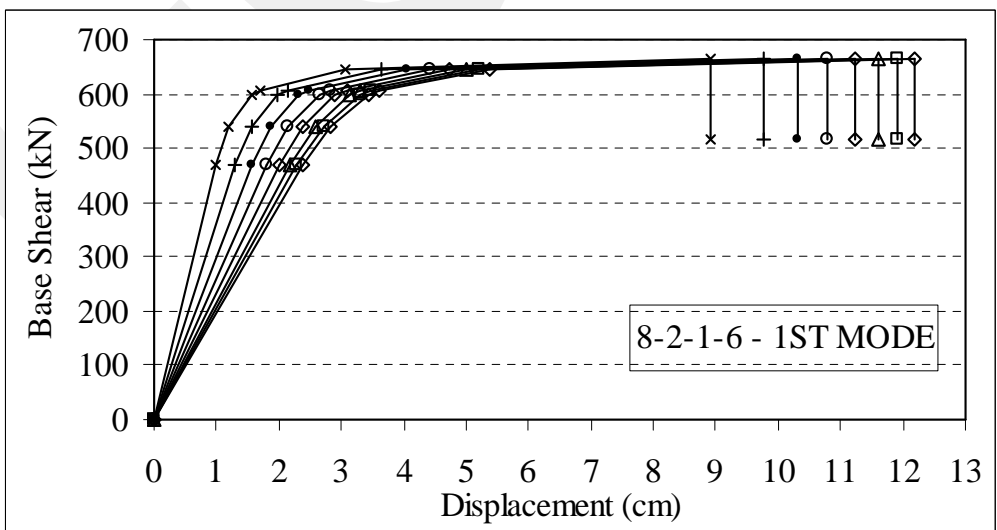
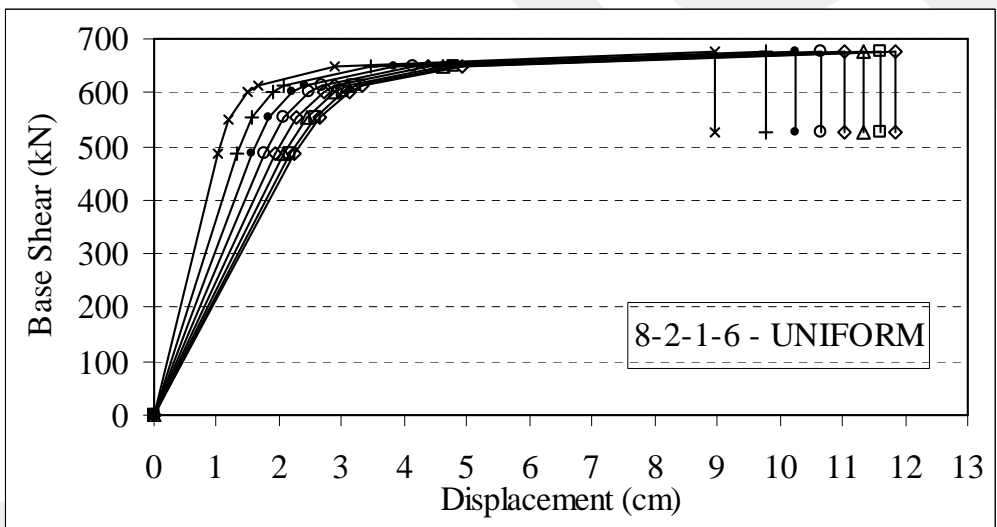
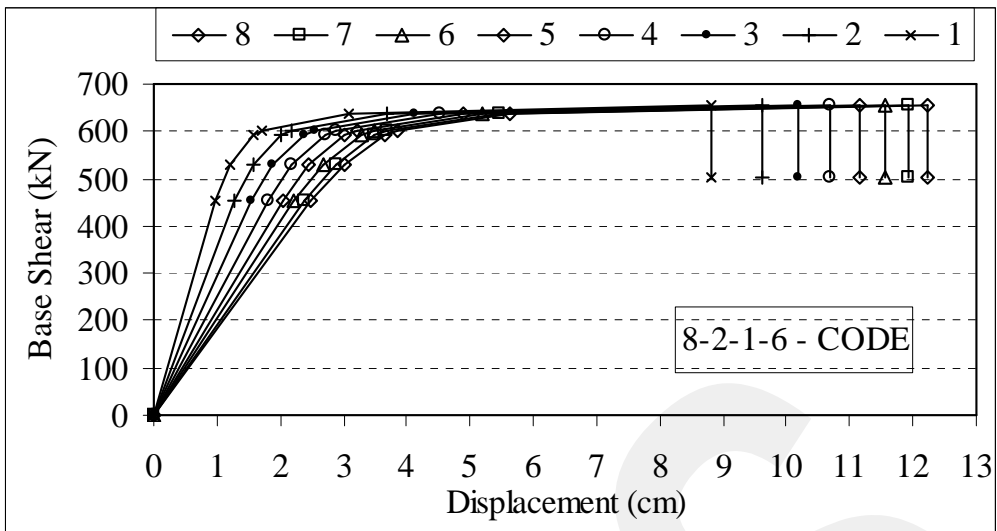


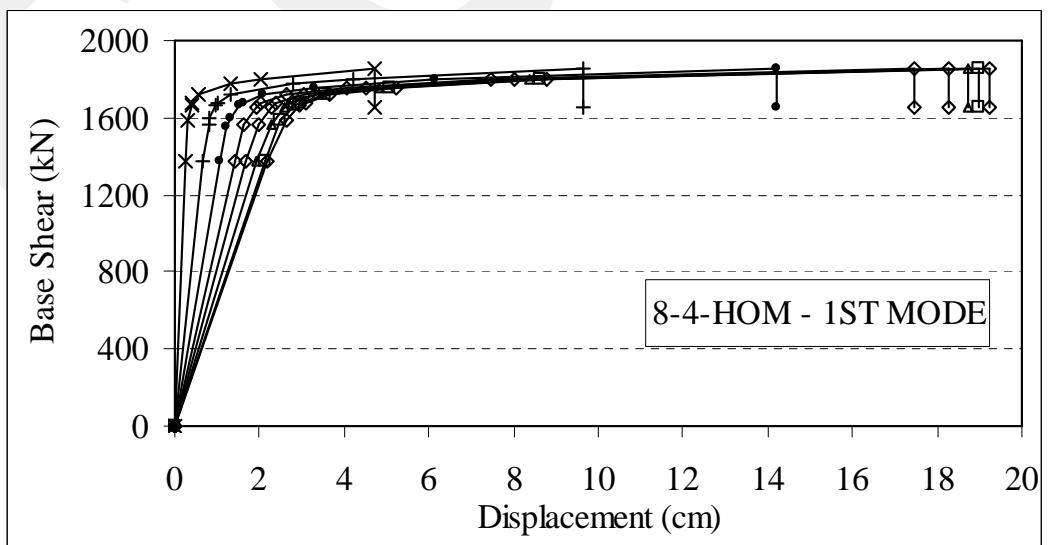
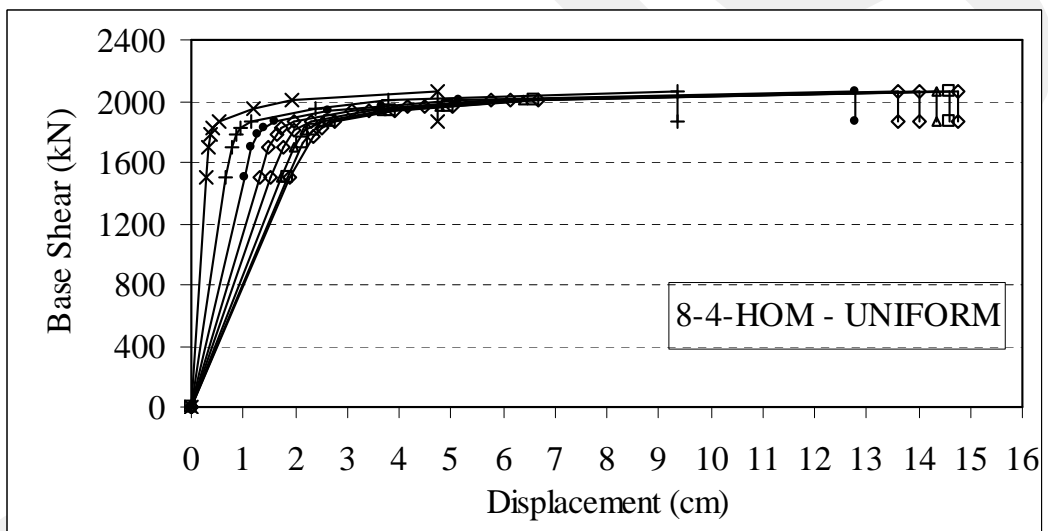
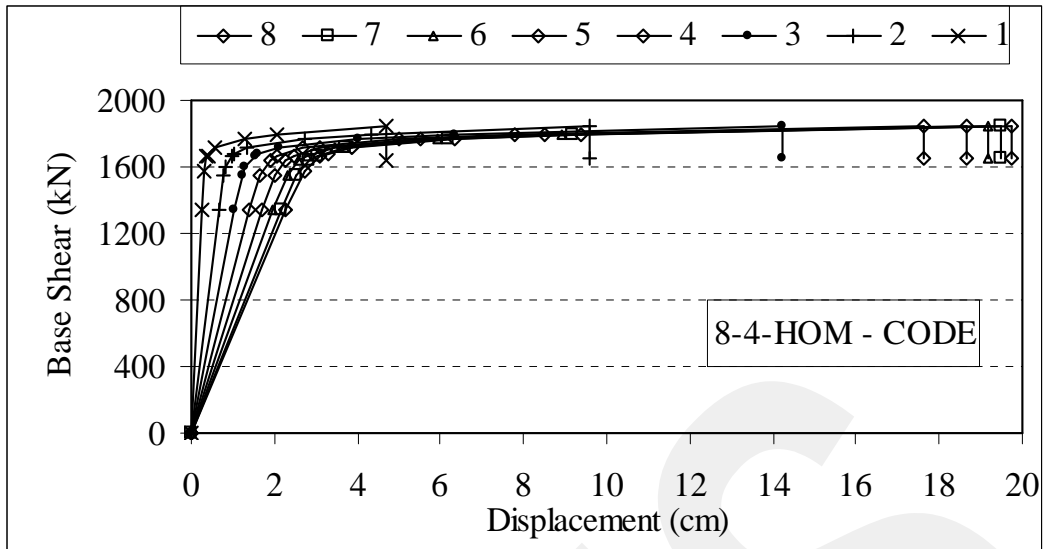


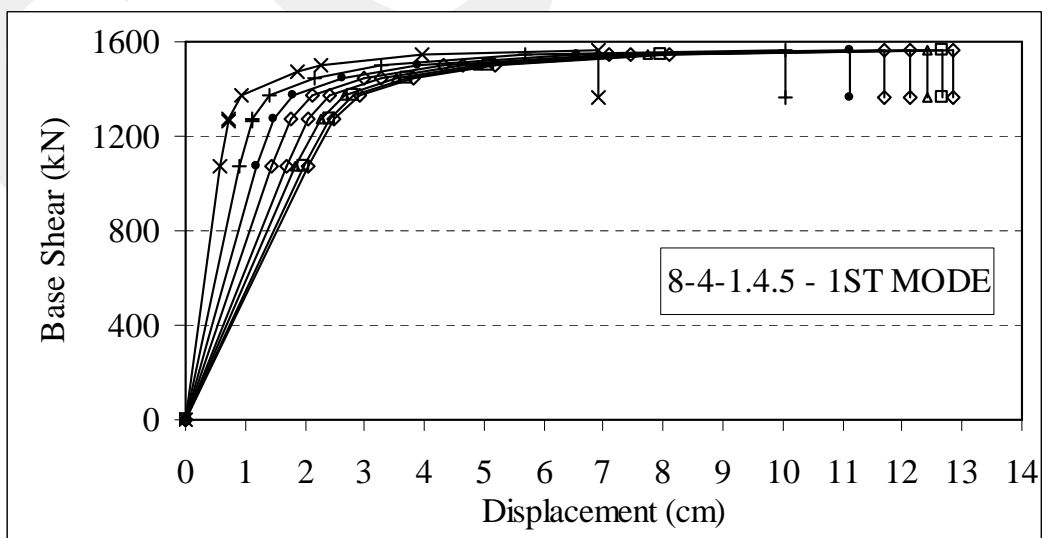
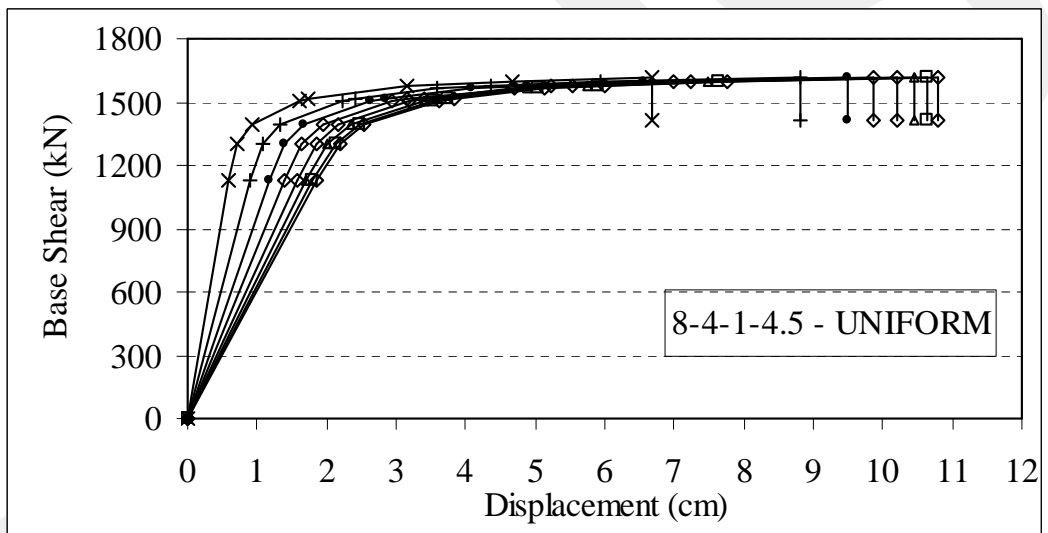
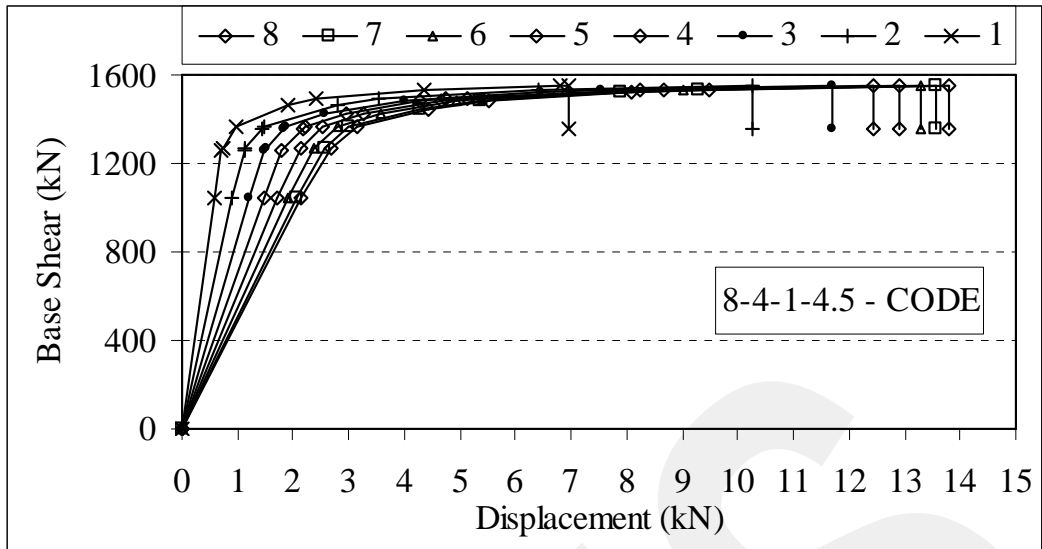


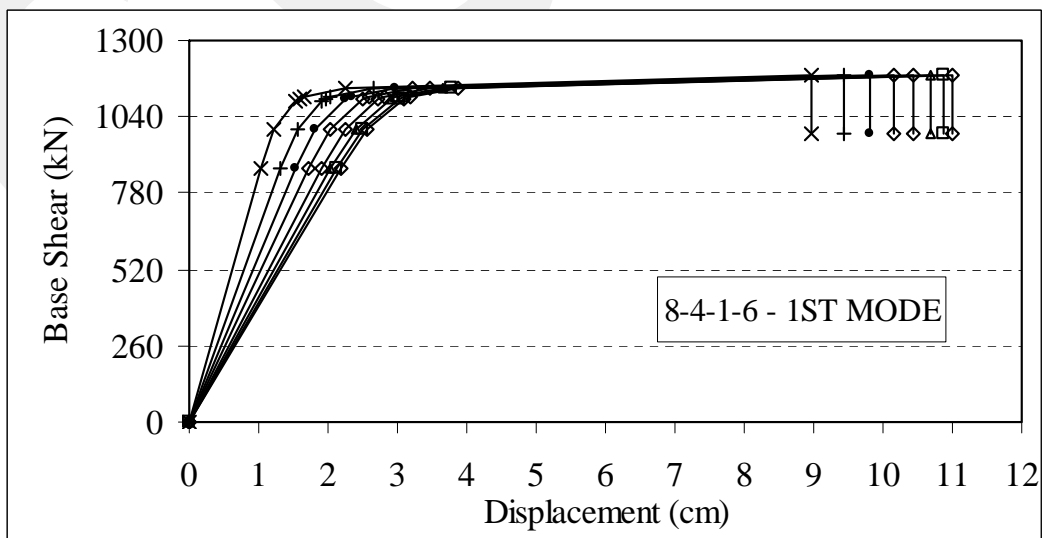
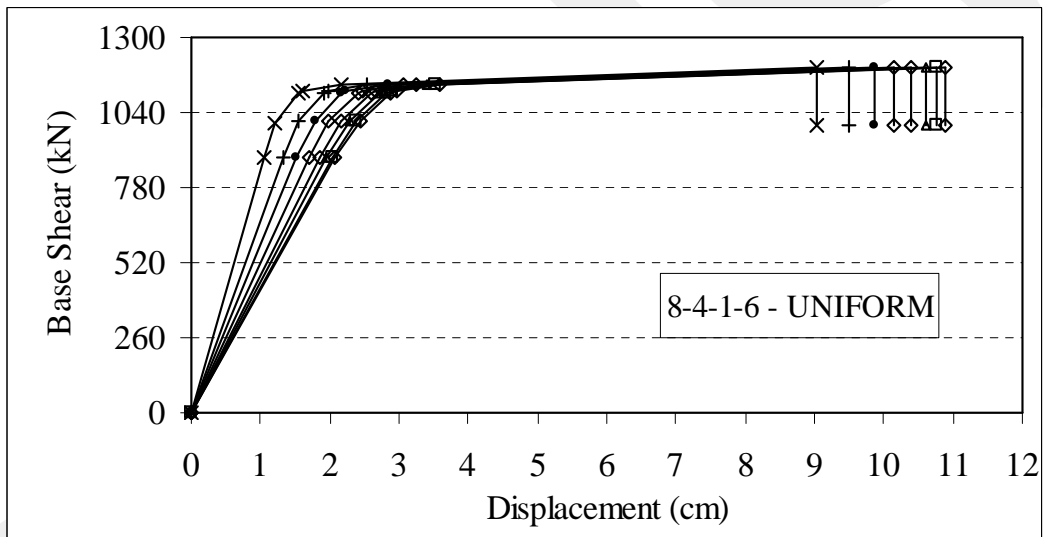
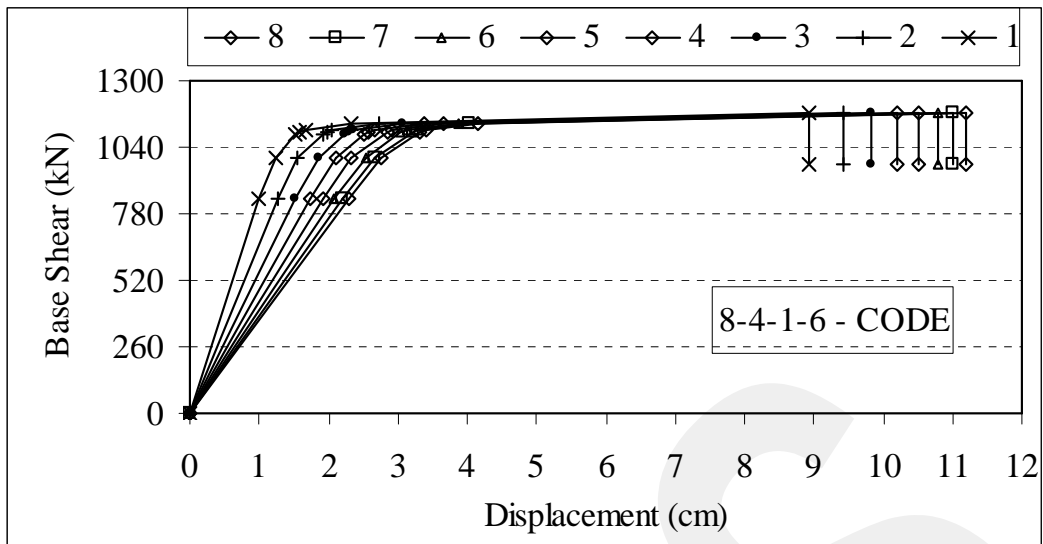


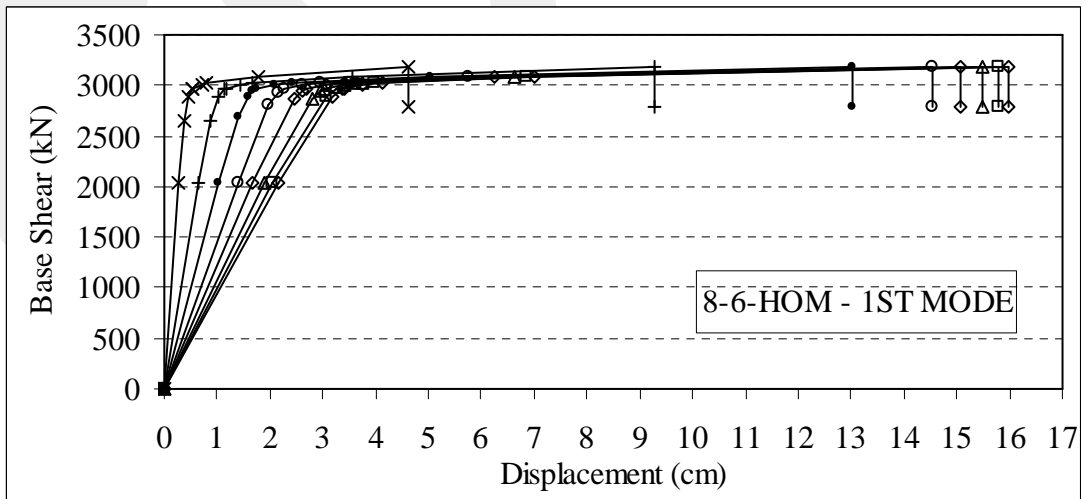
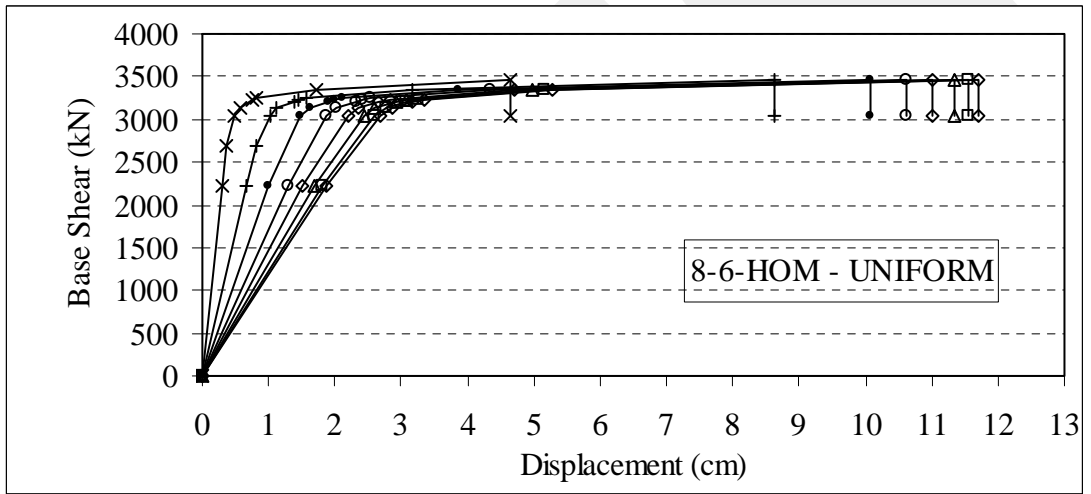
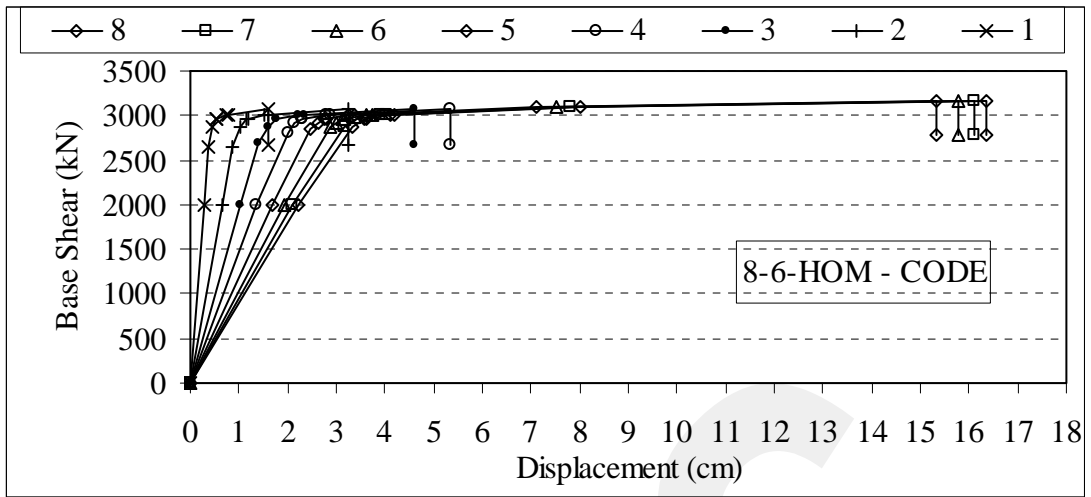


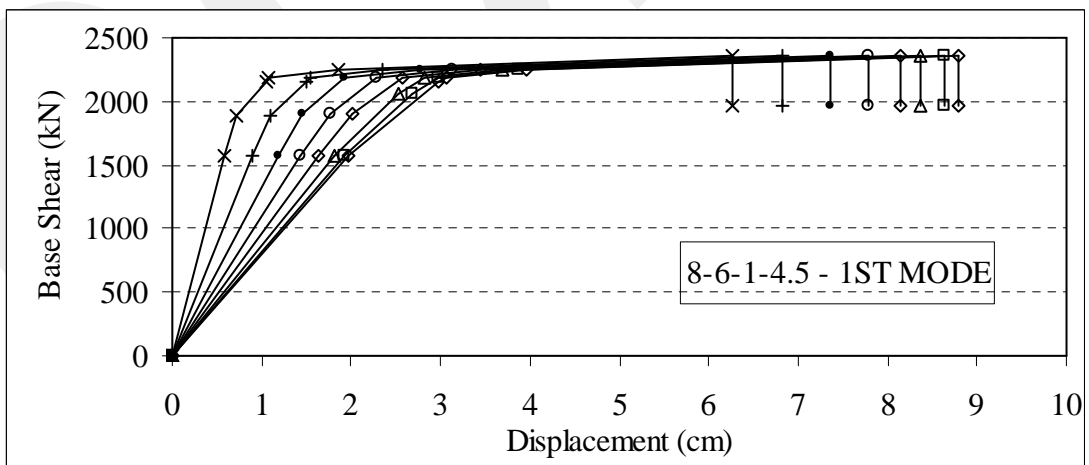
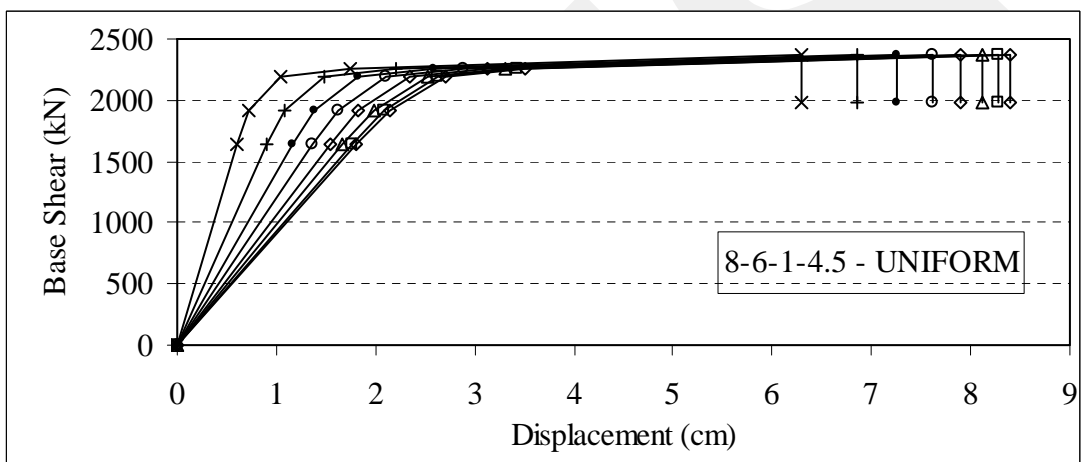
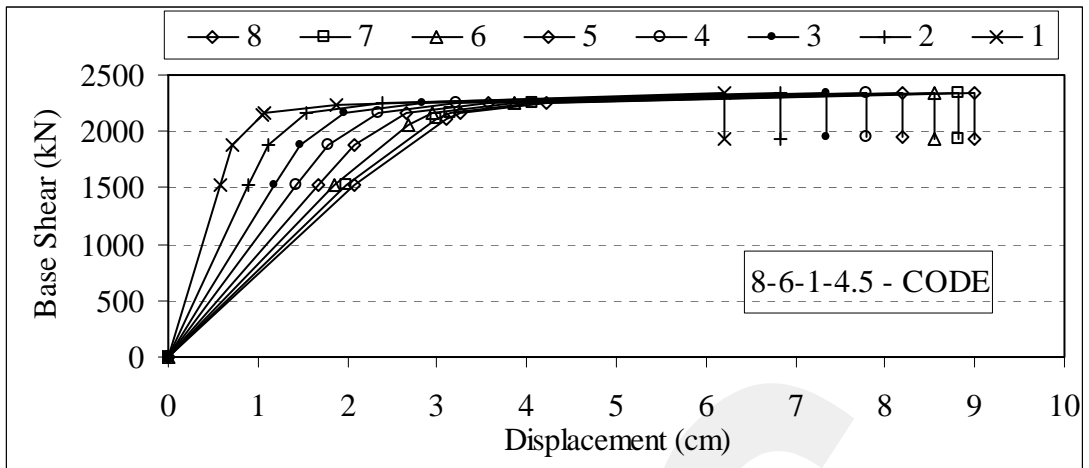


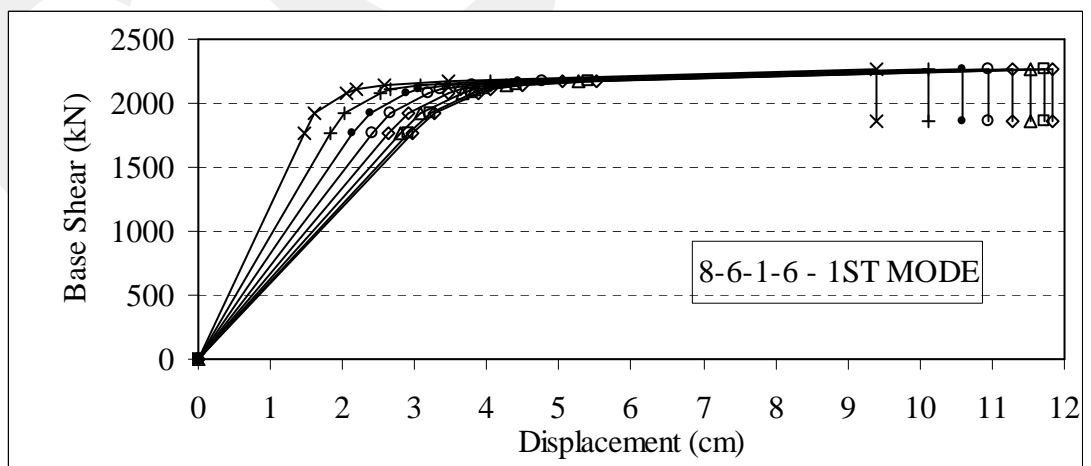
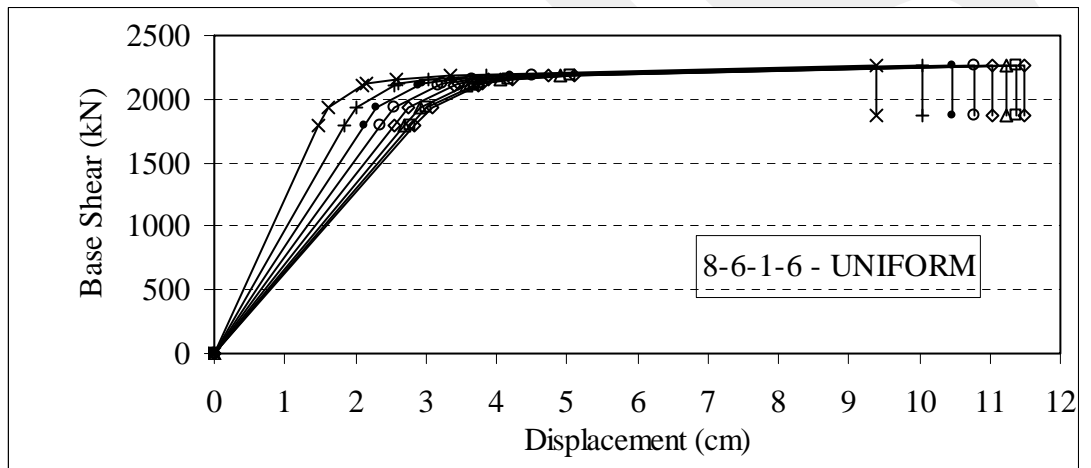
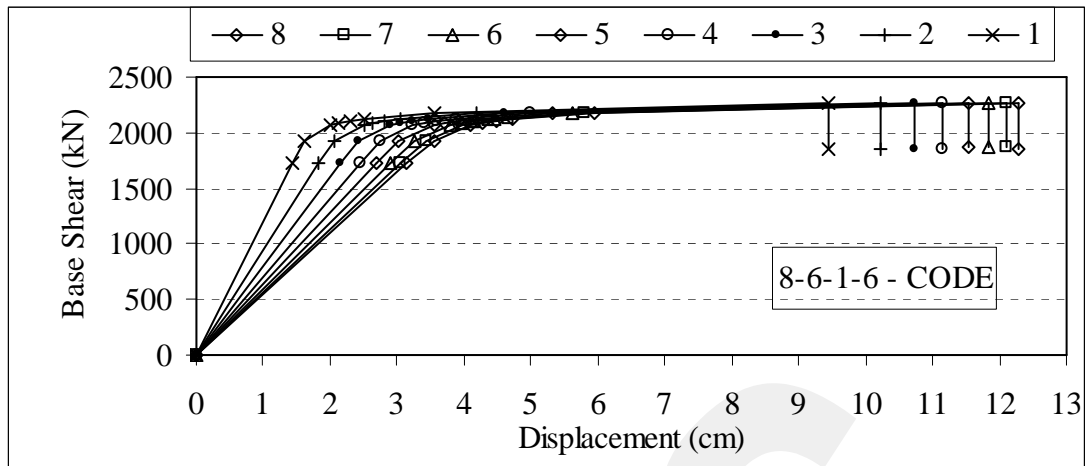






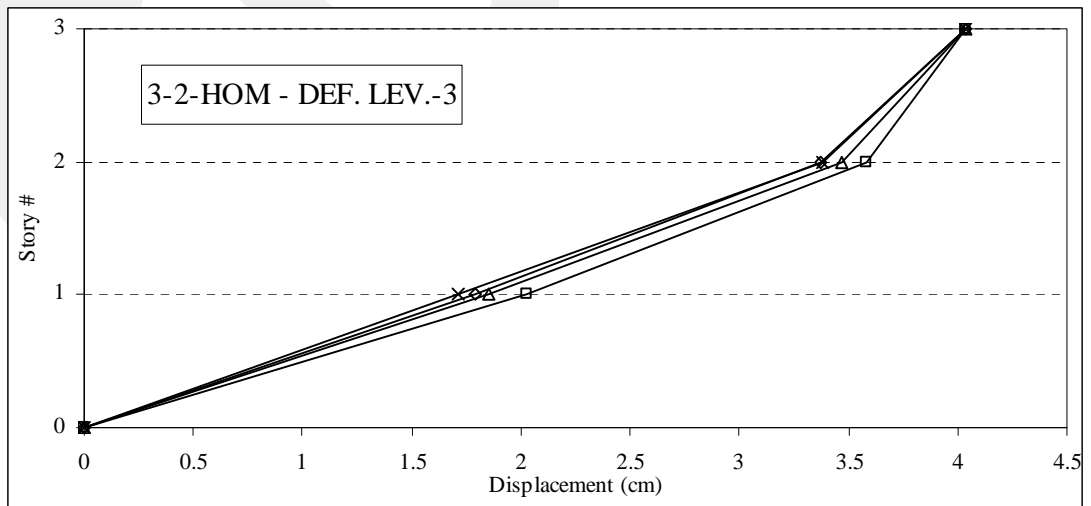
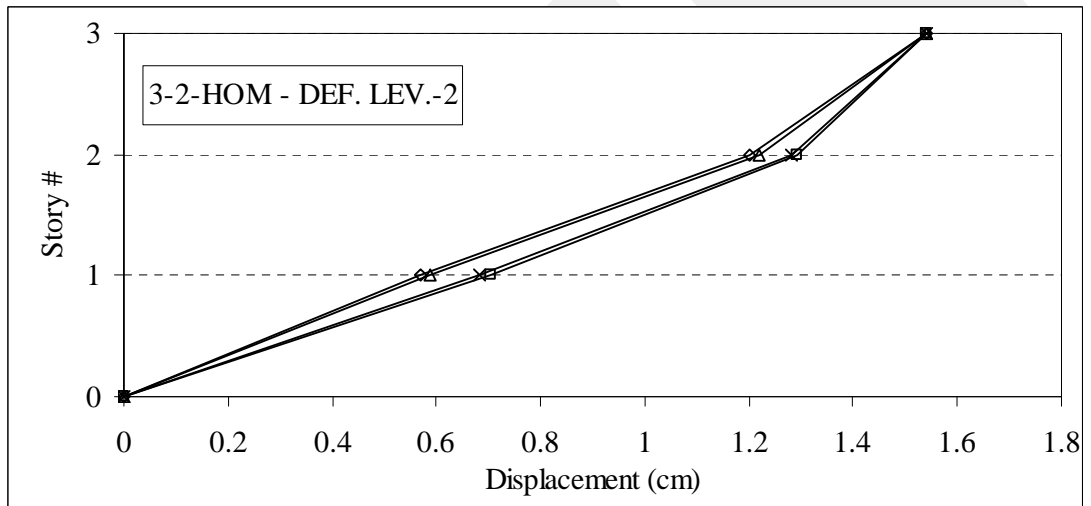
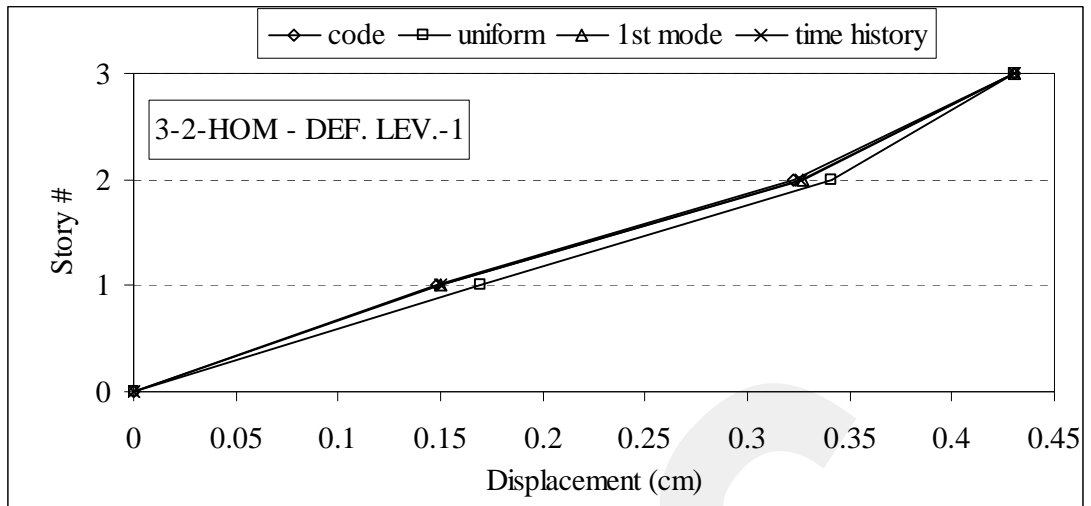


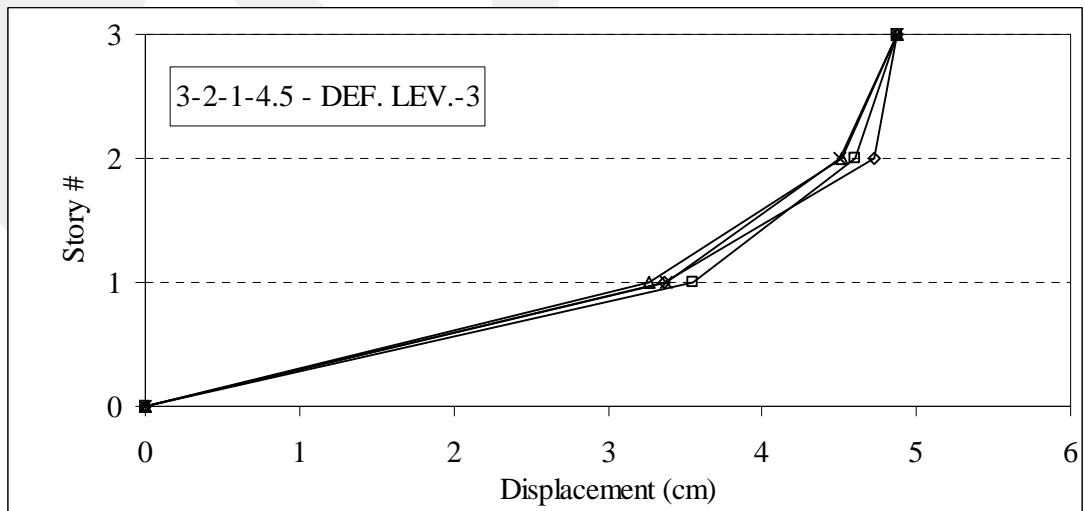
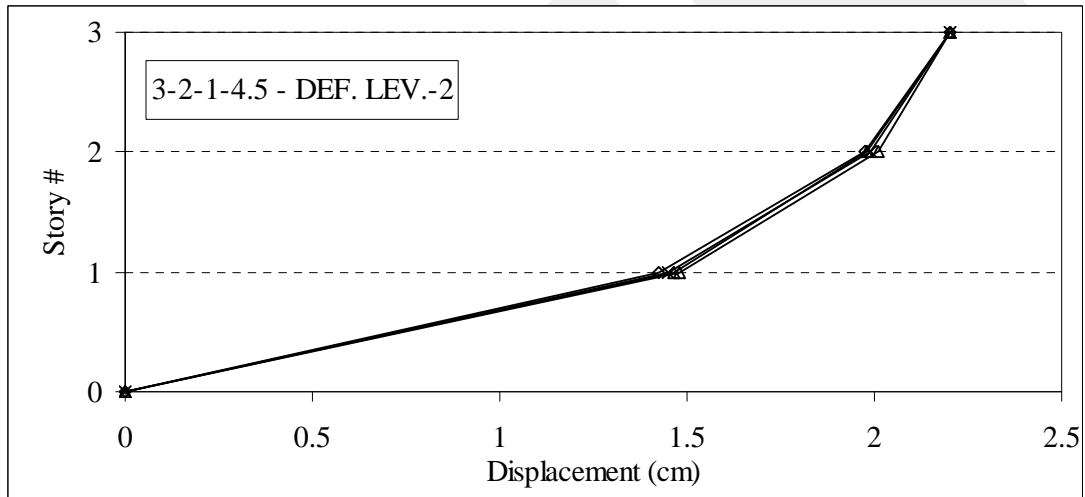
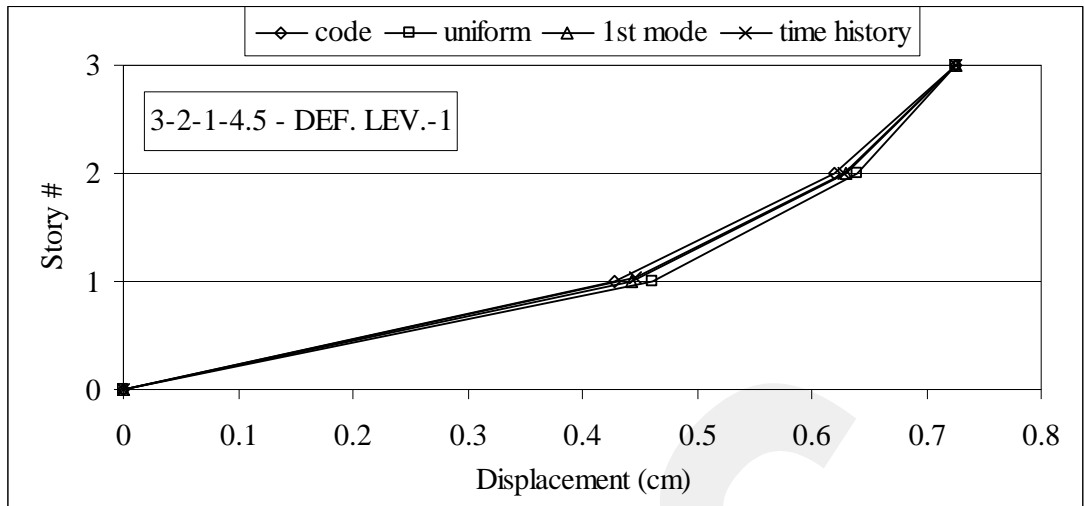


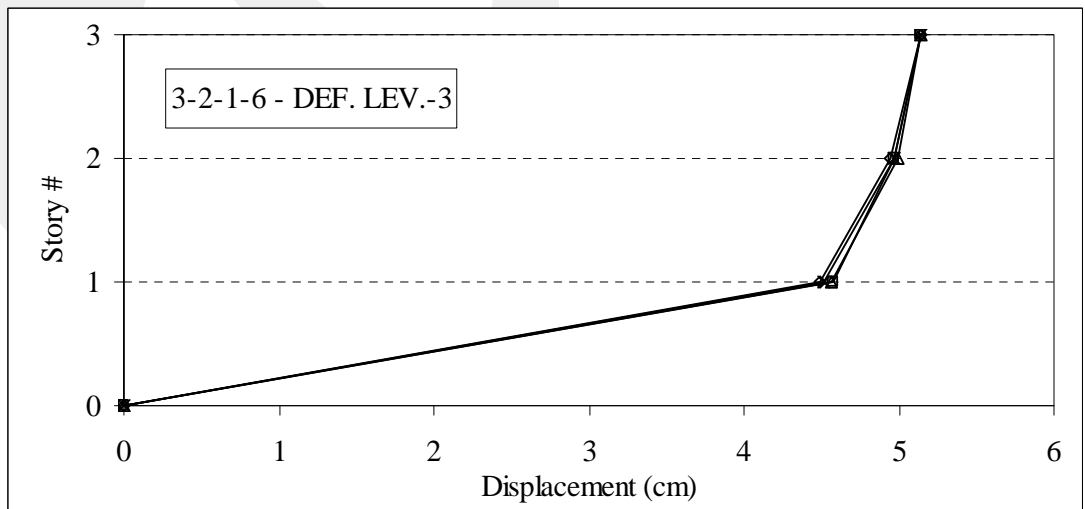
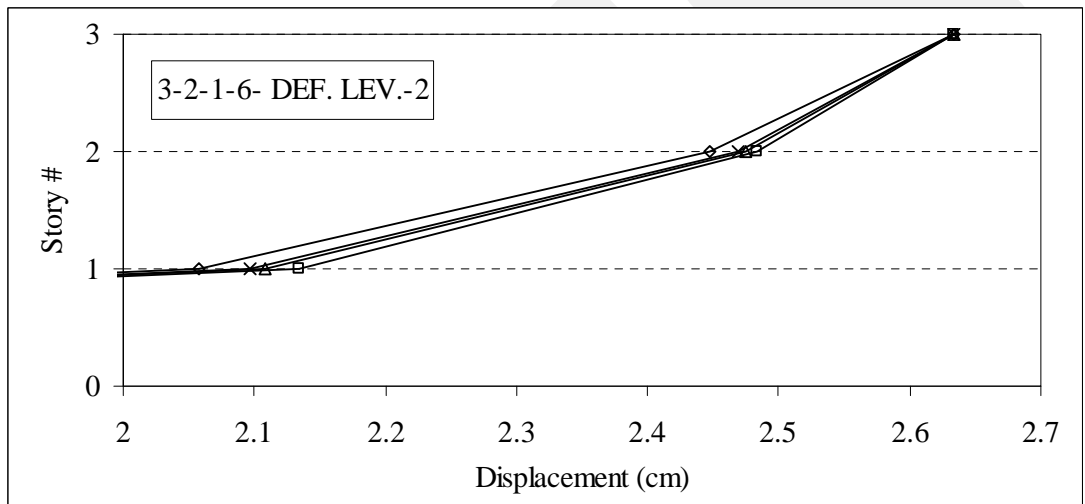
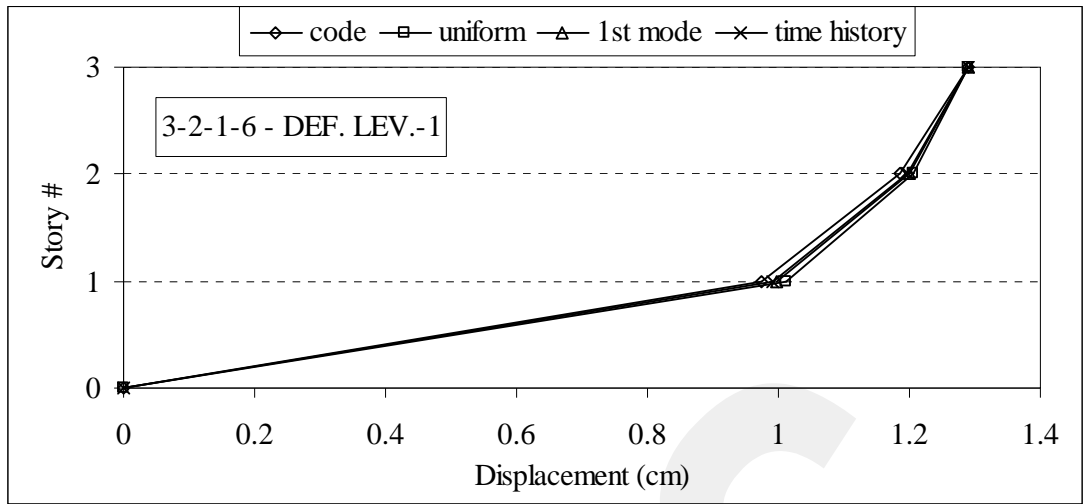


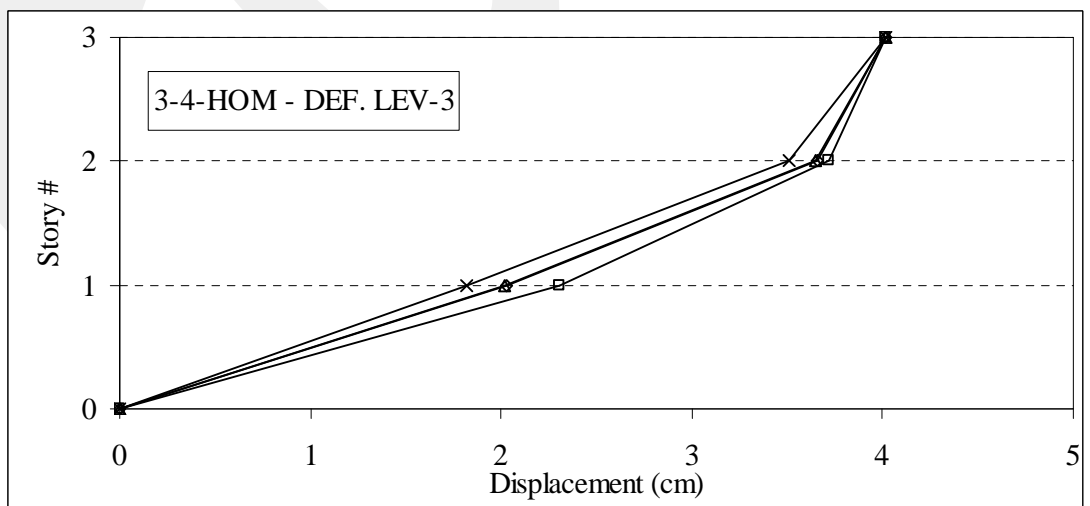
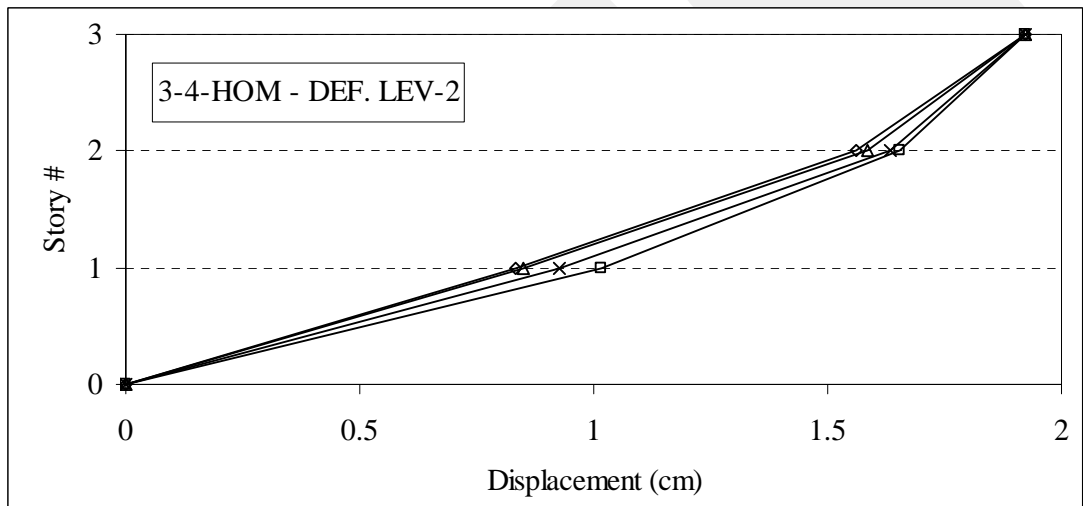
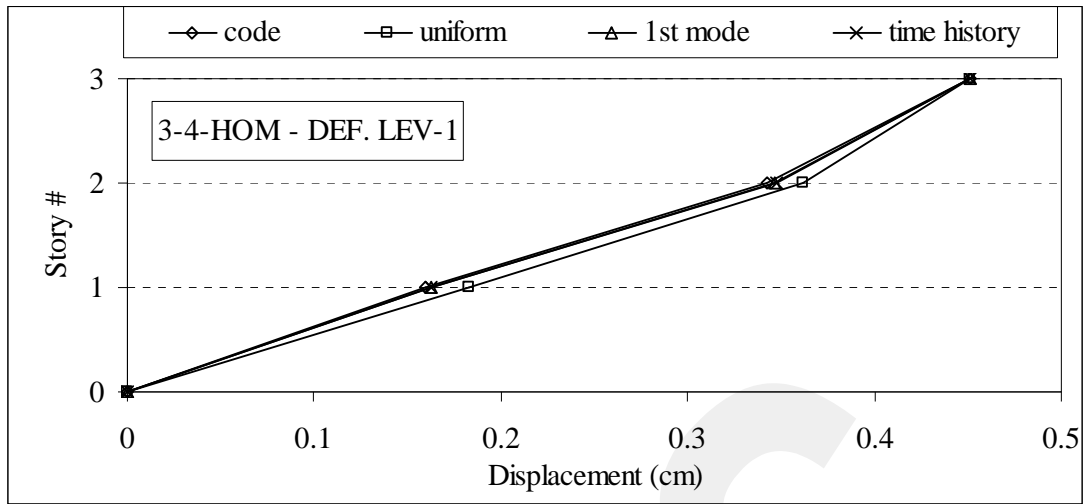
APPENDIX C

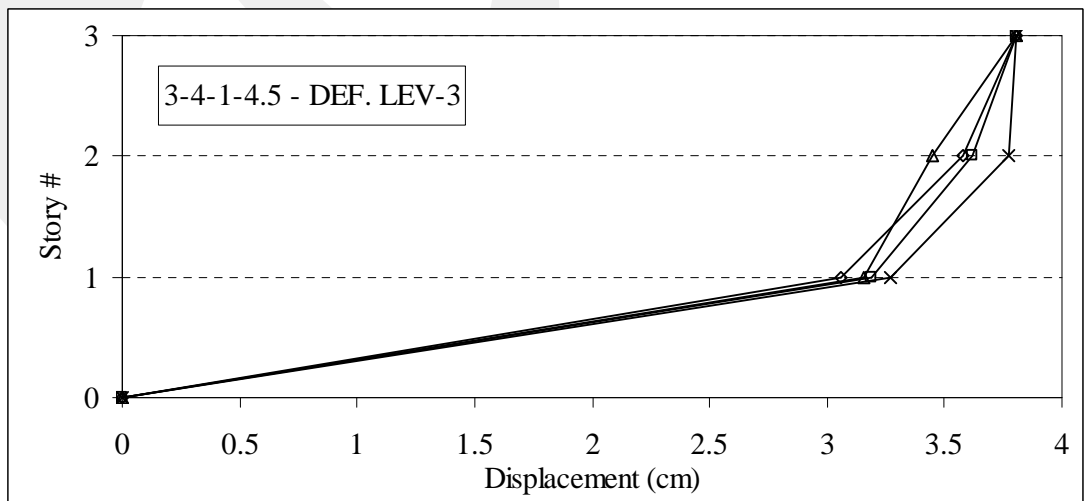
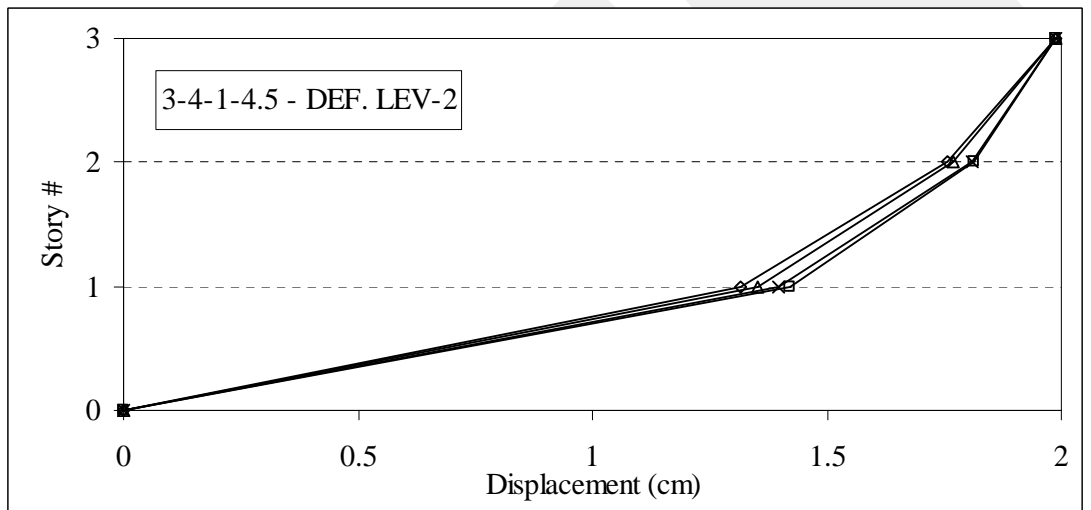
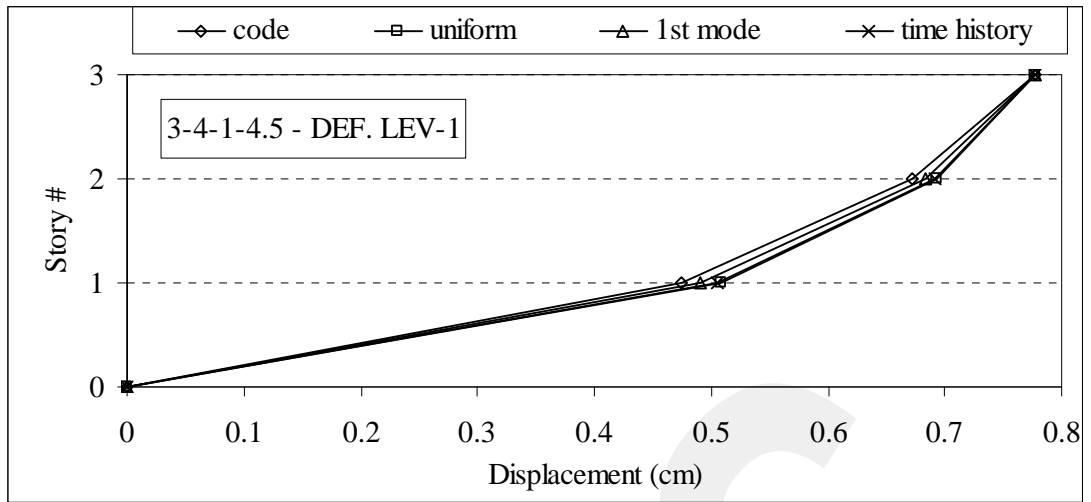
Story Displacement Diagrams

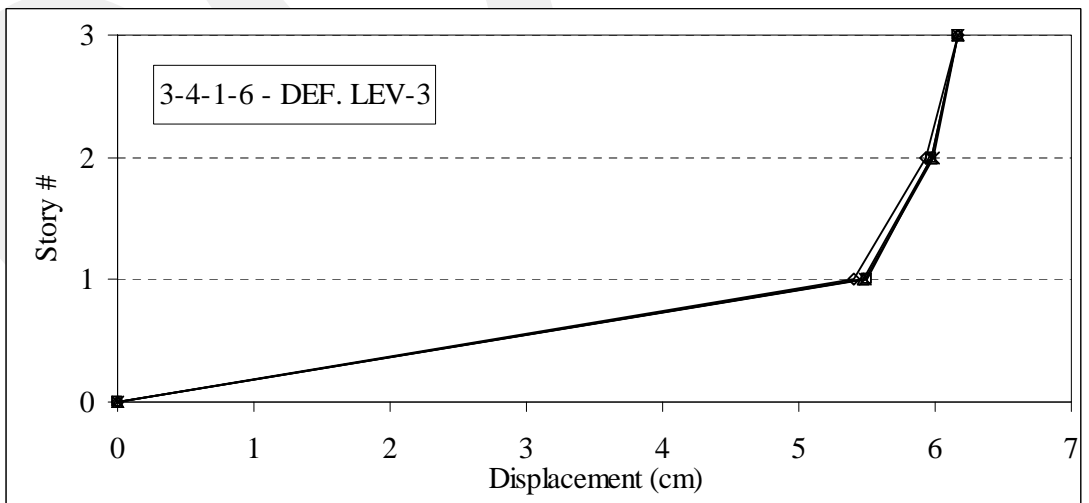
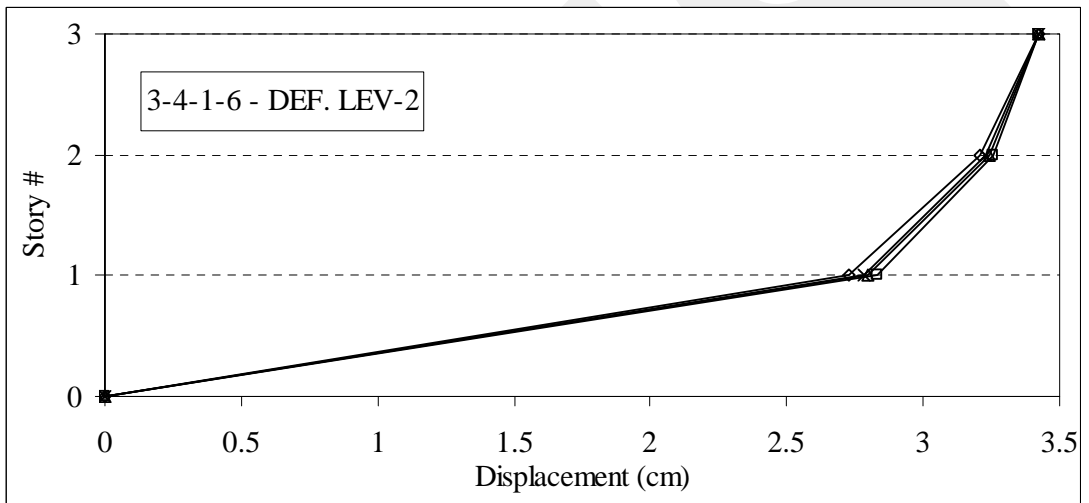
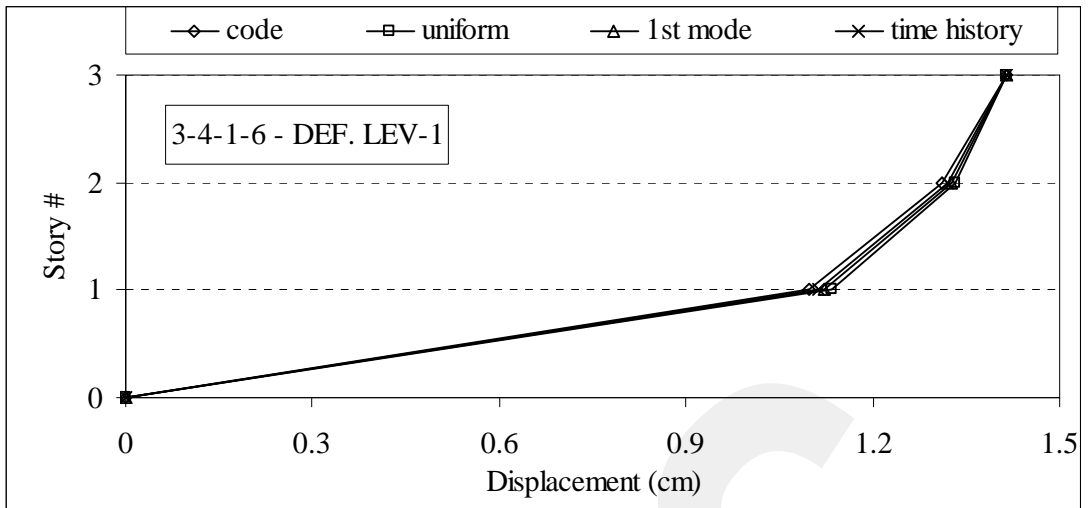


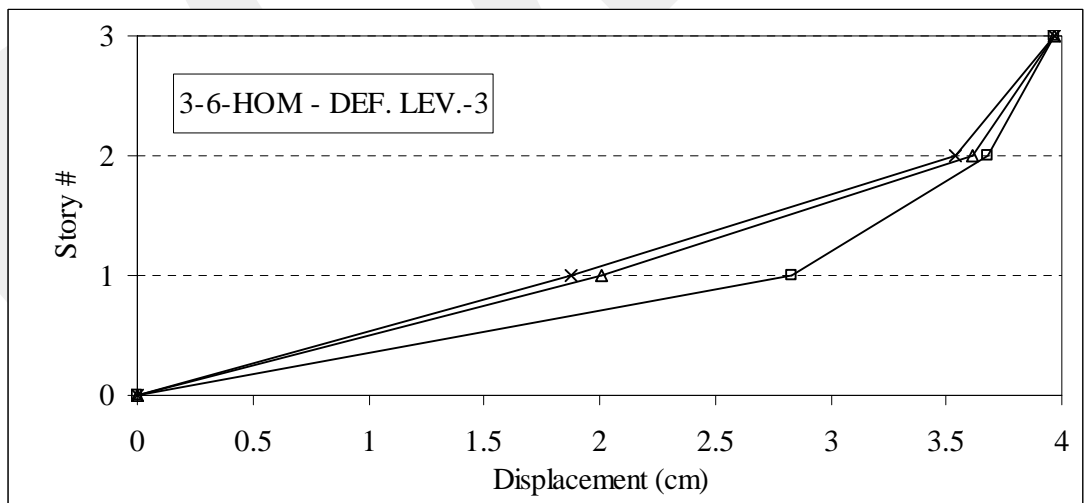
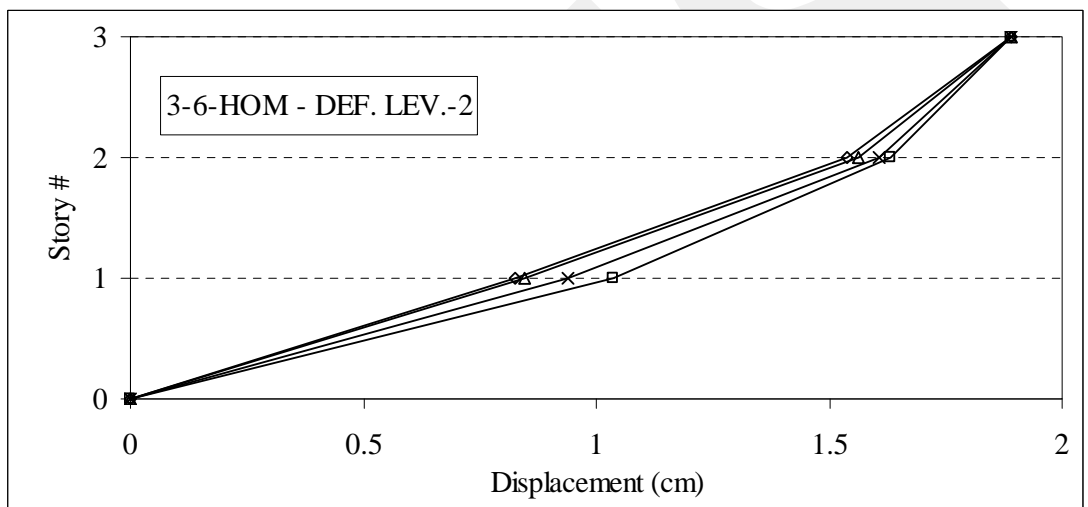
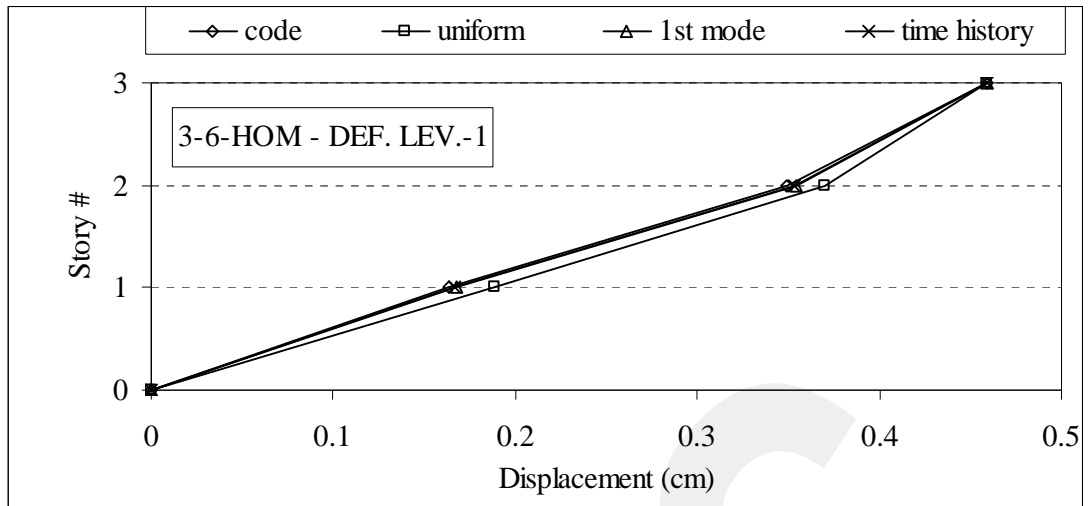


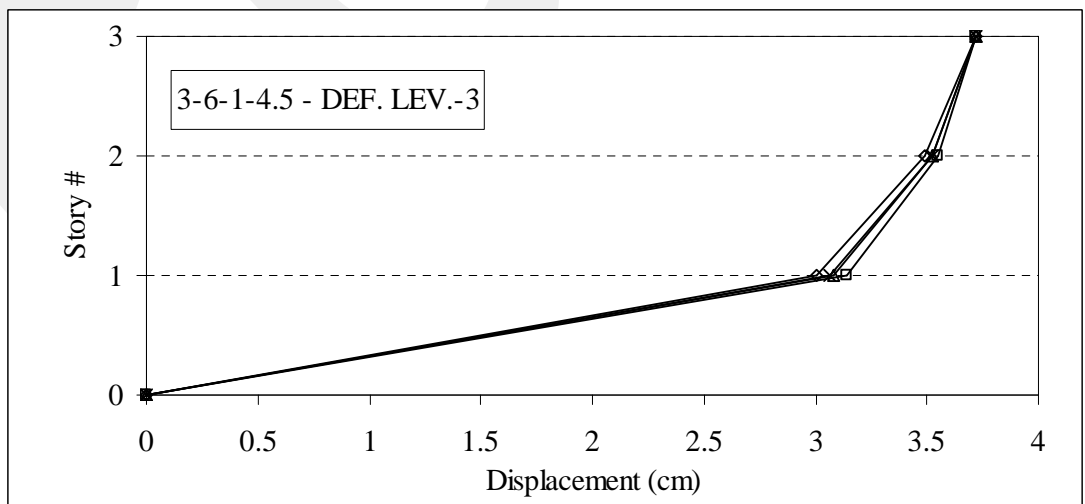
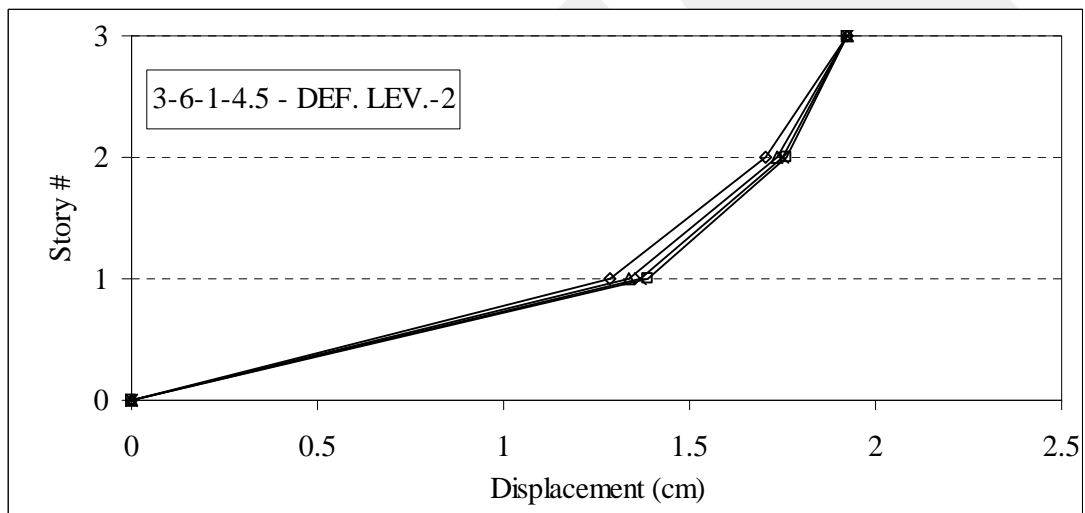
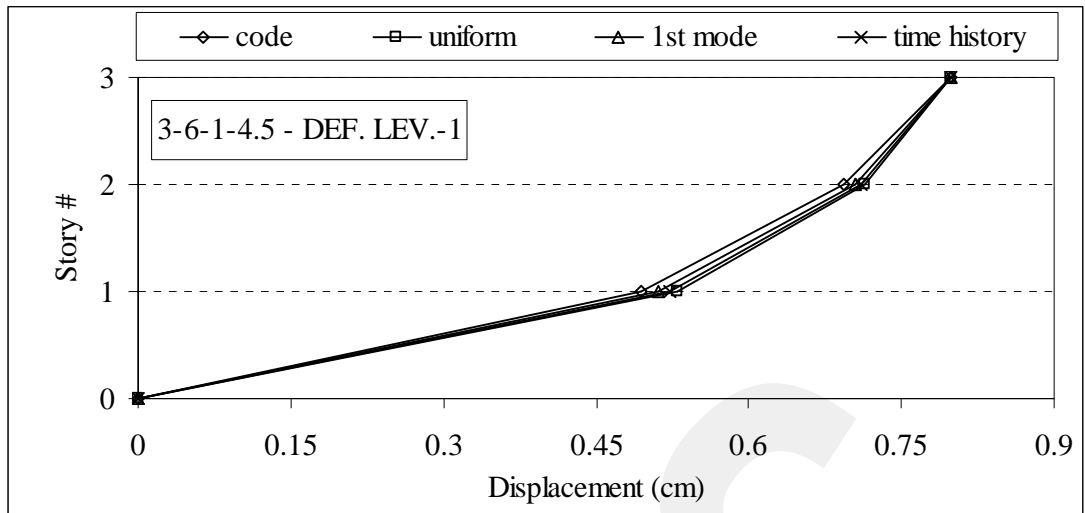


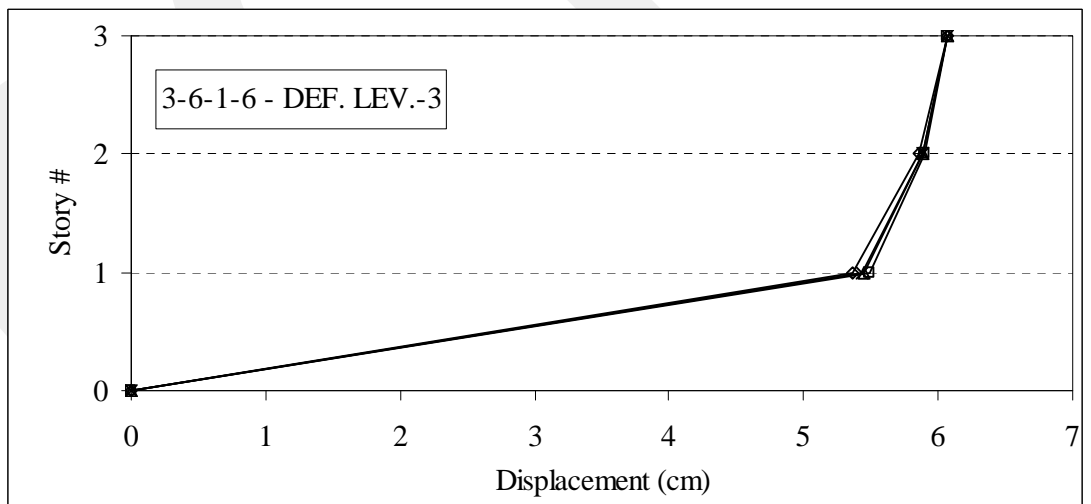
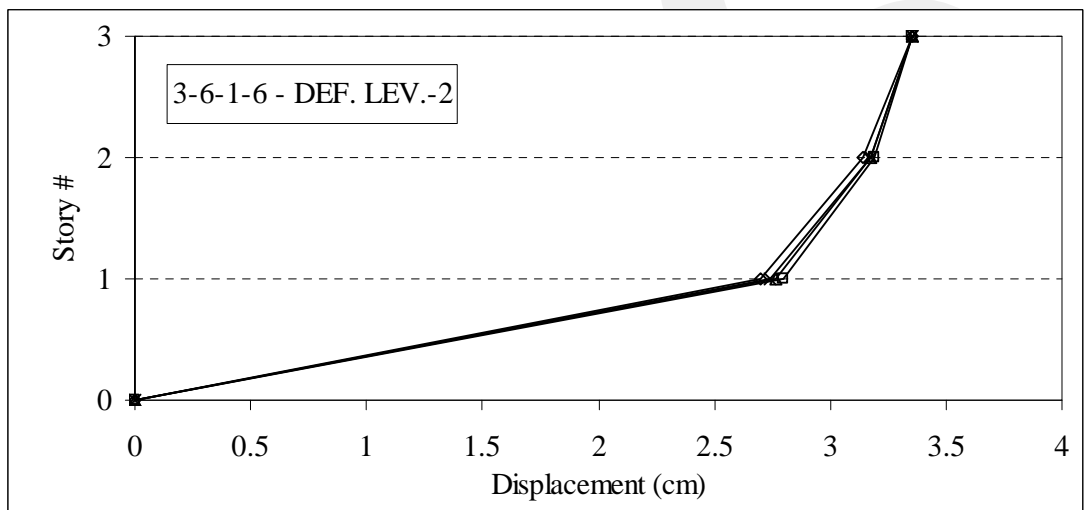
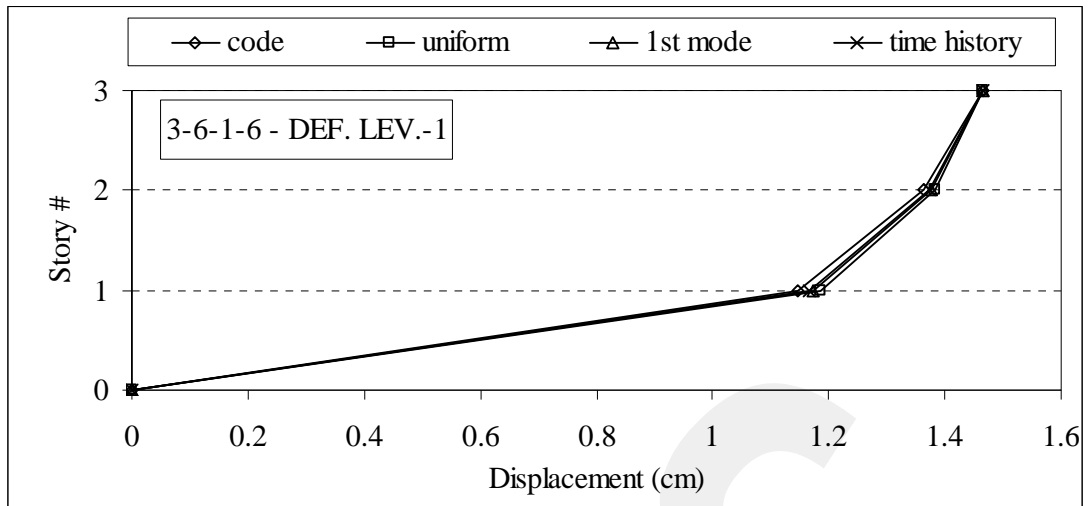


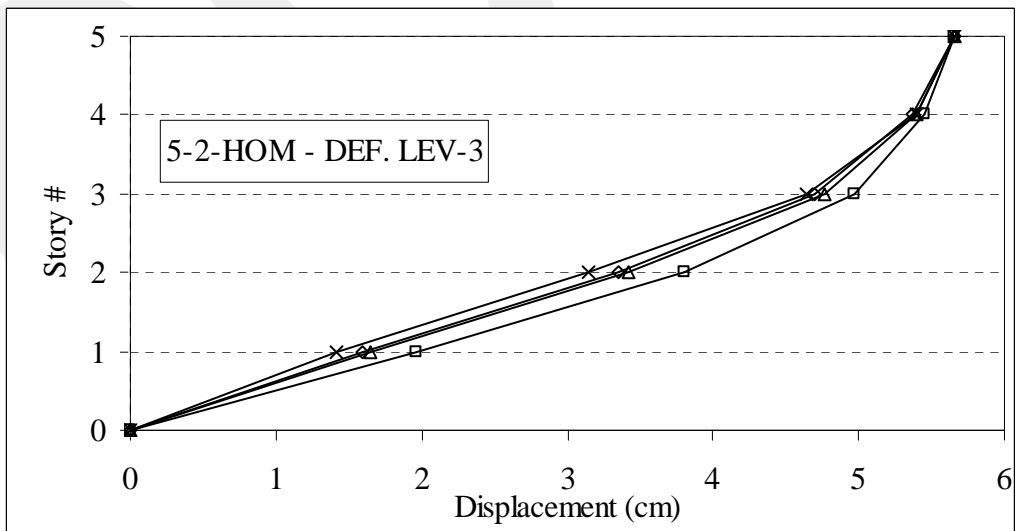
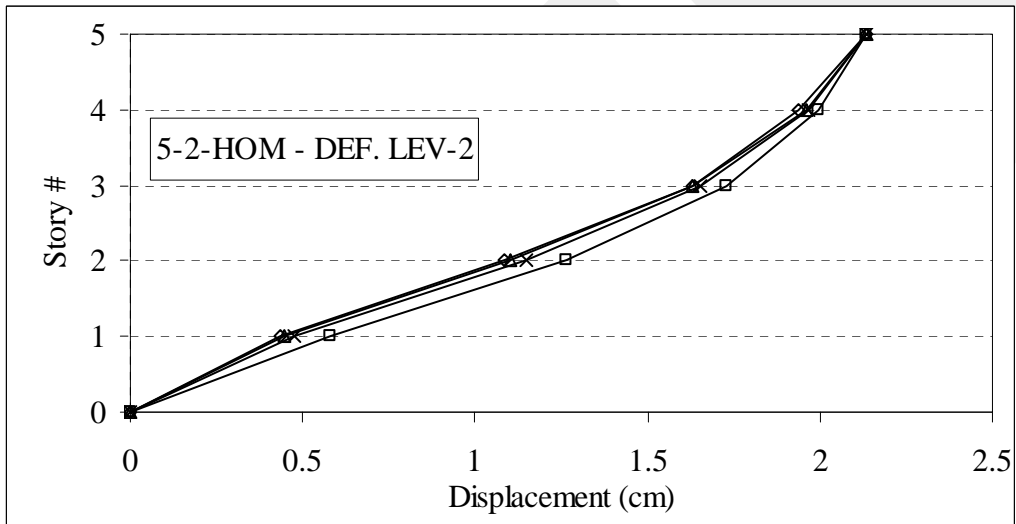
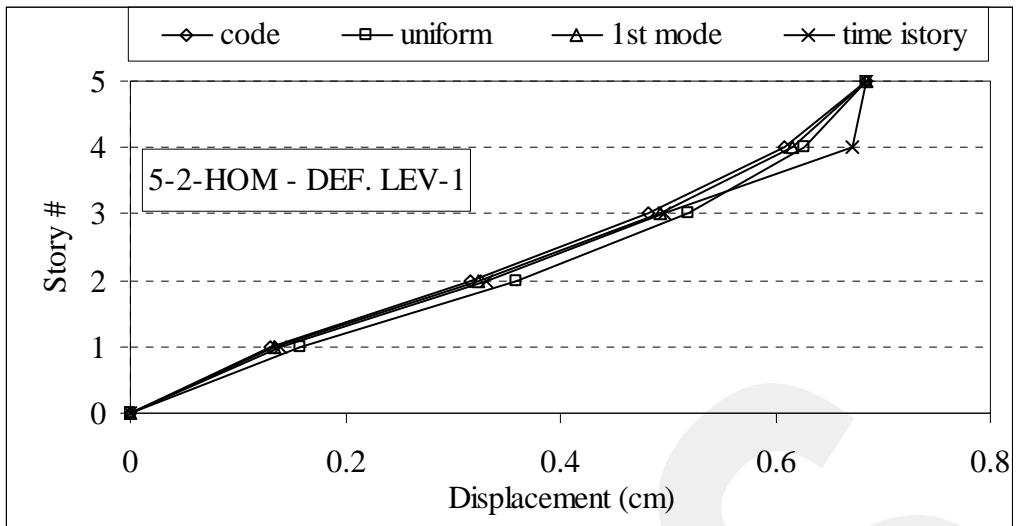


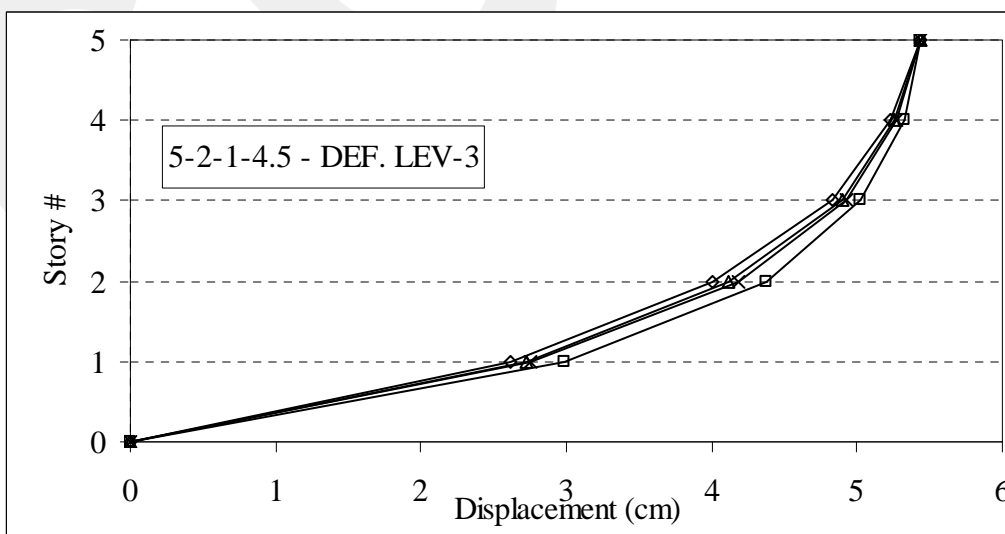
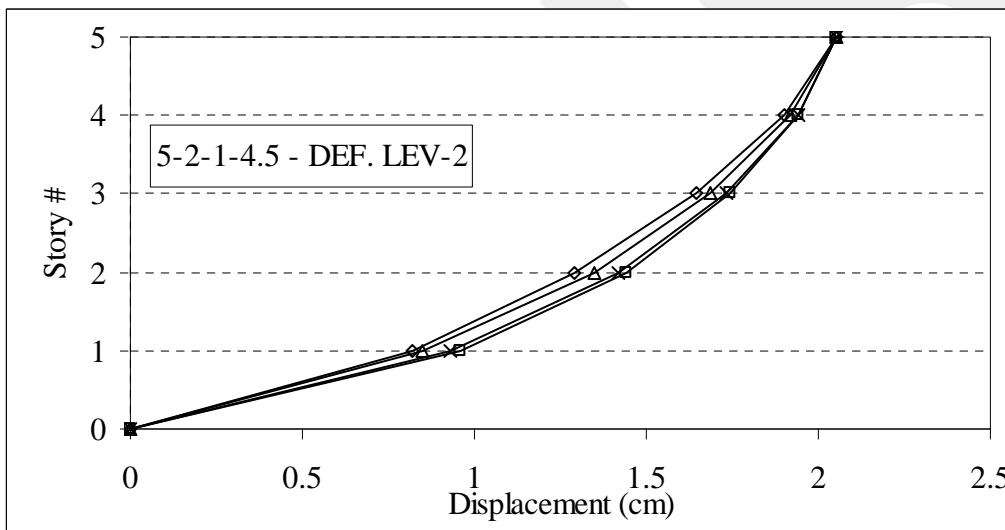
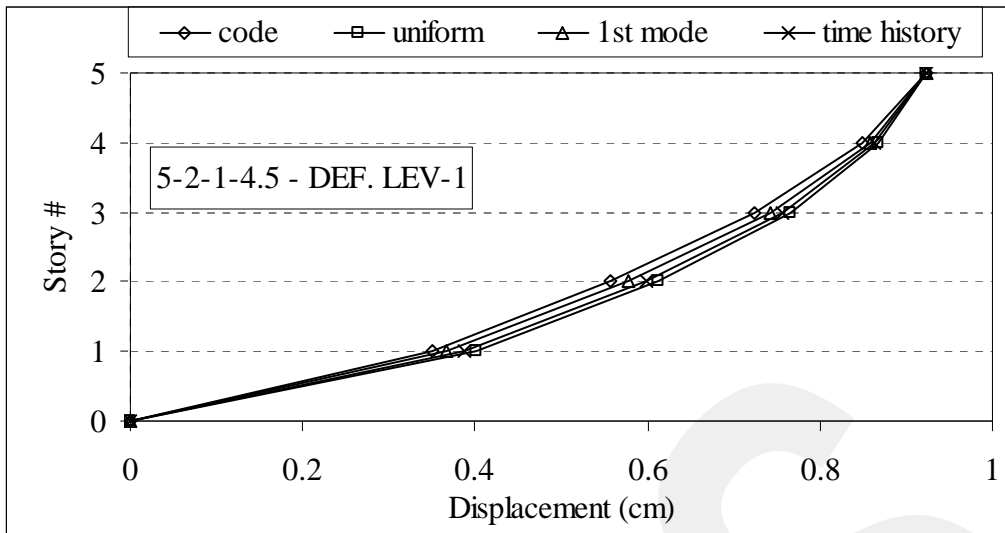


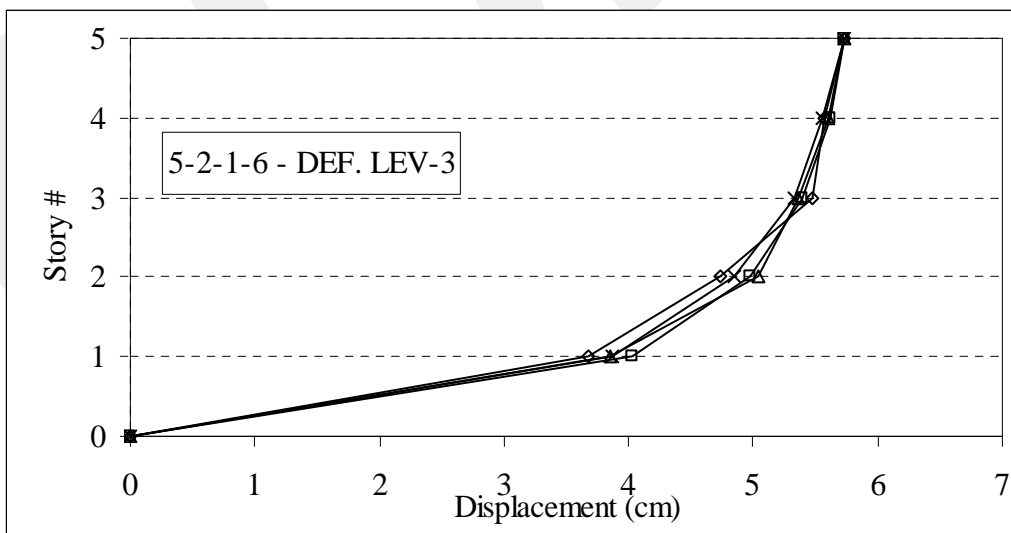
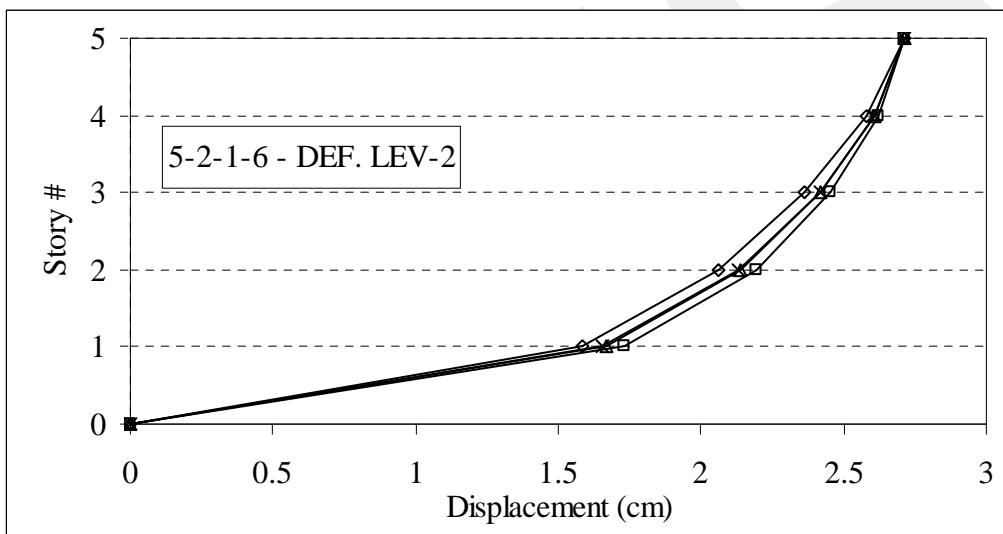
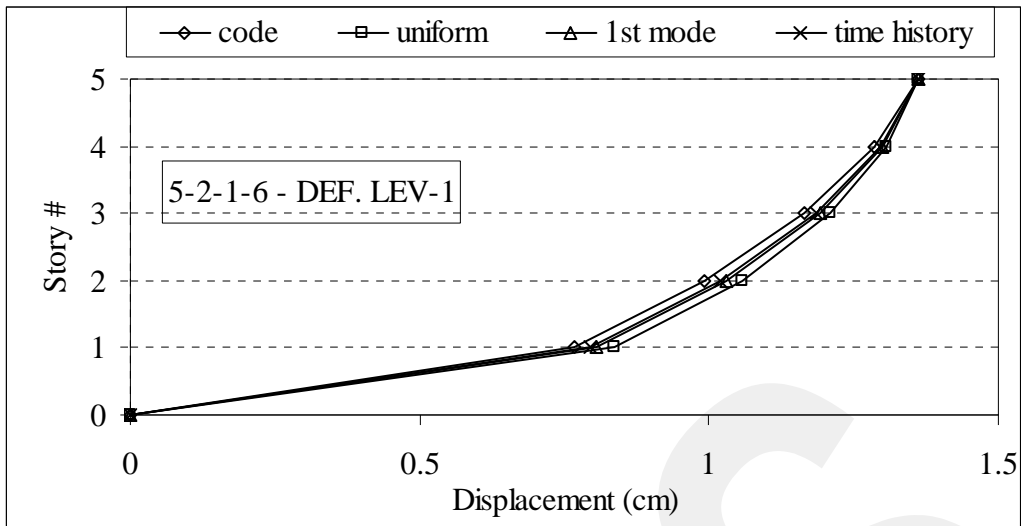


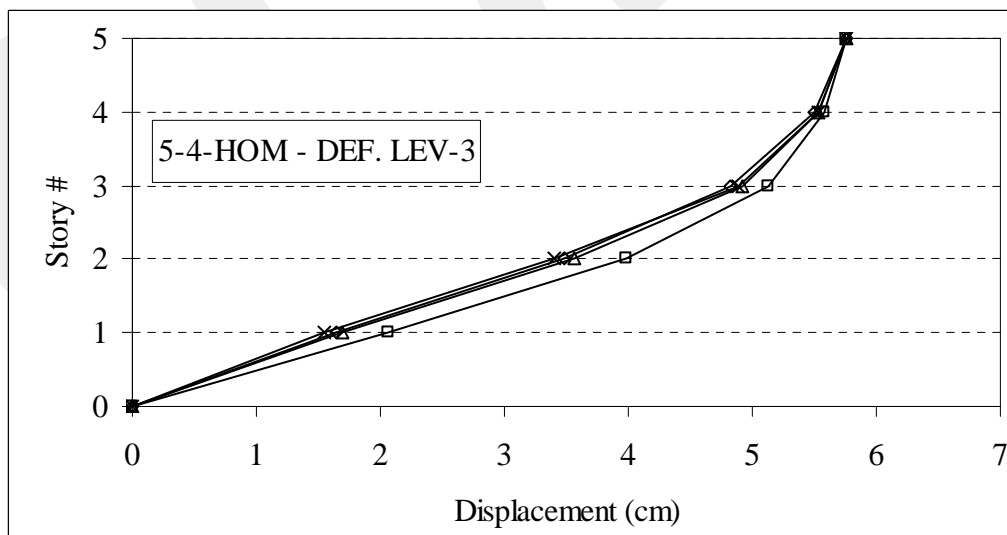
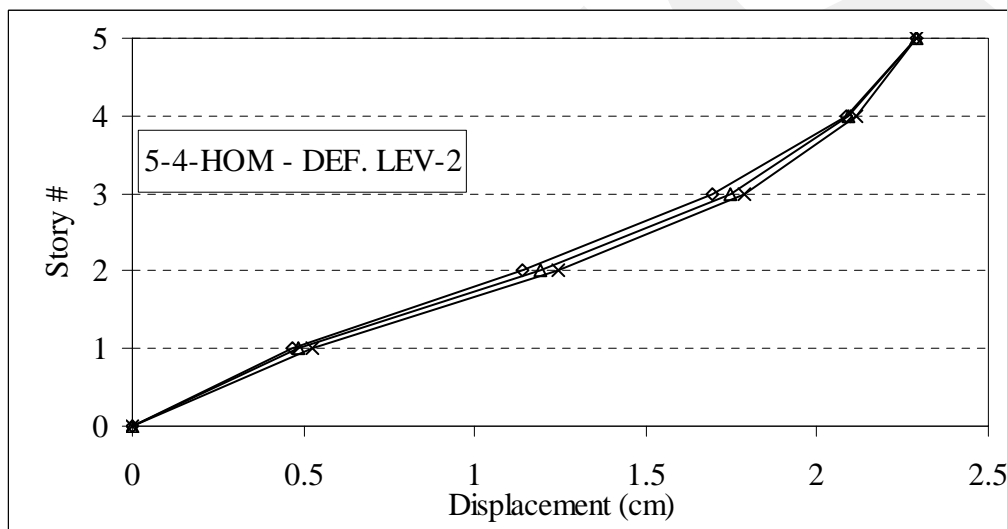
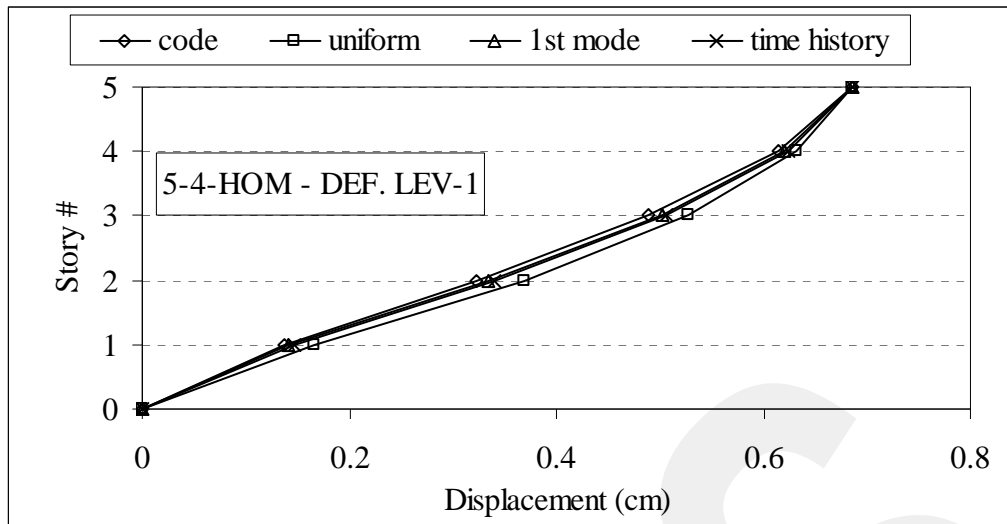


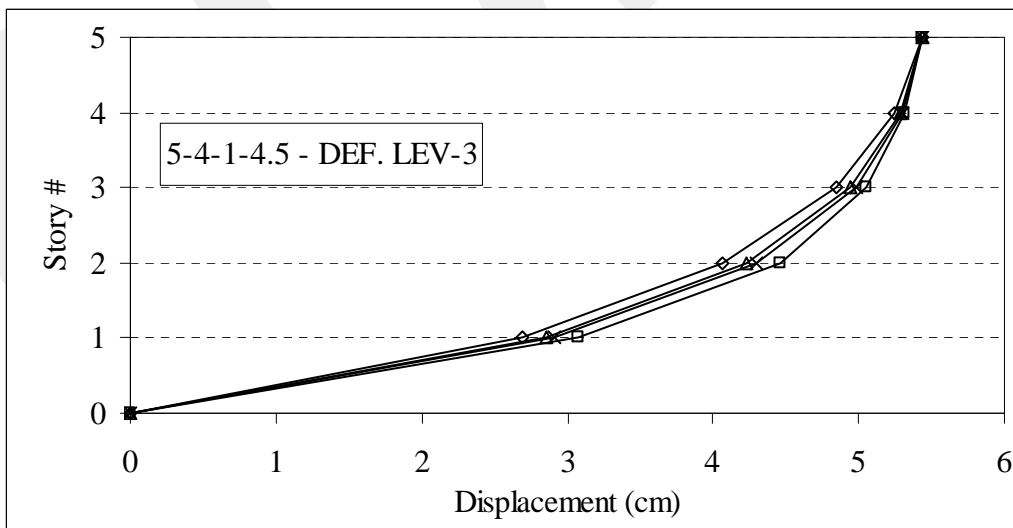
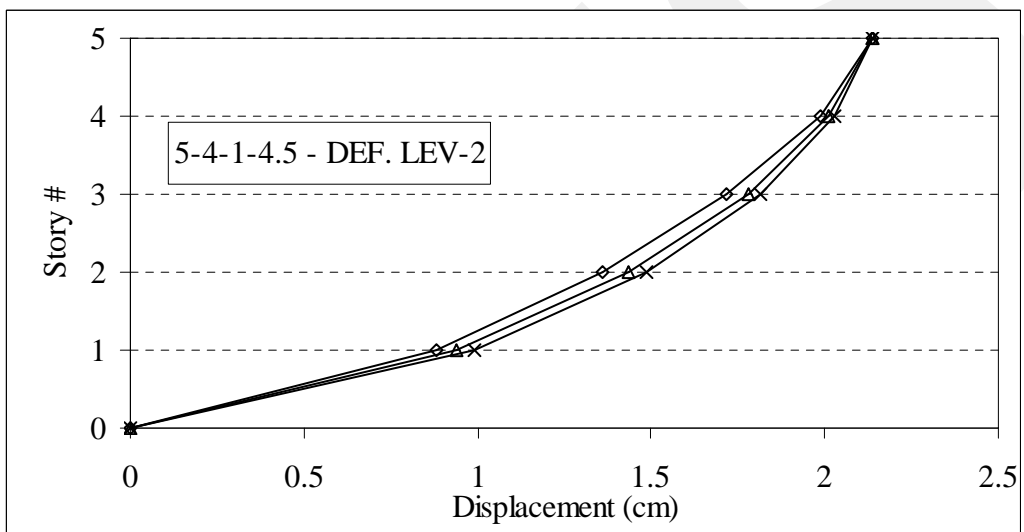
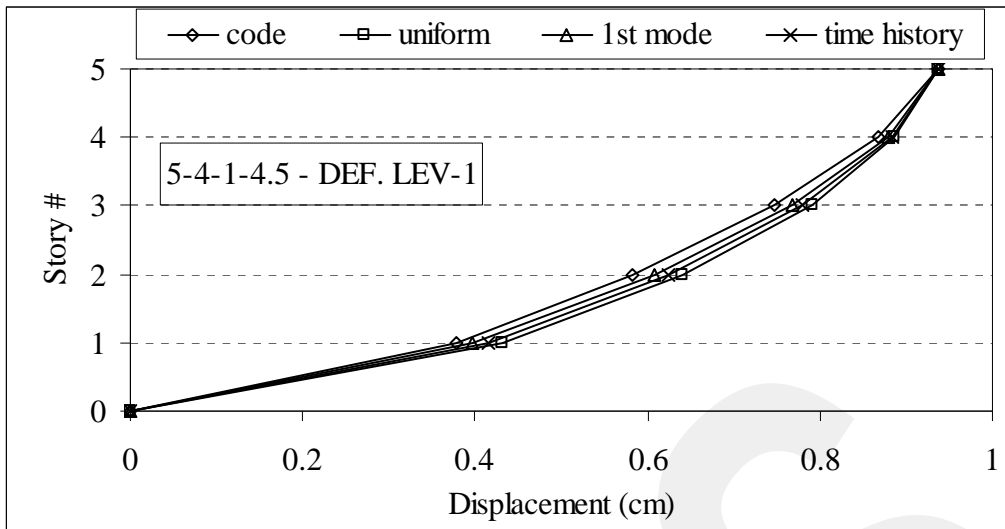


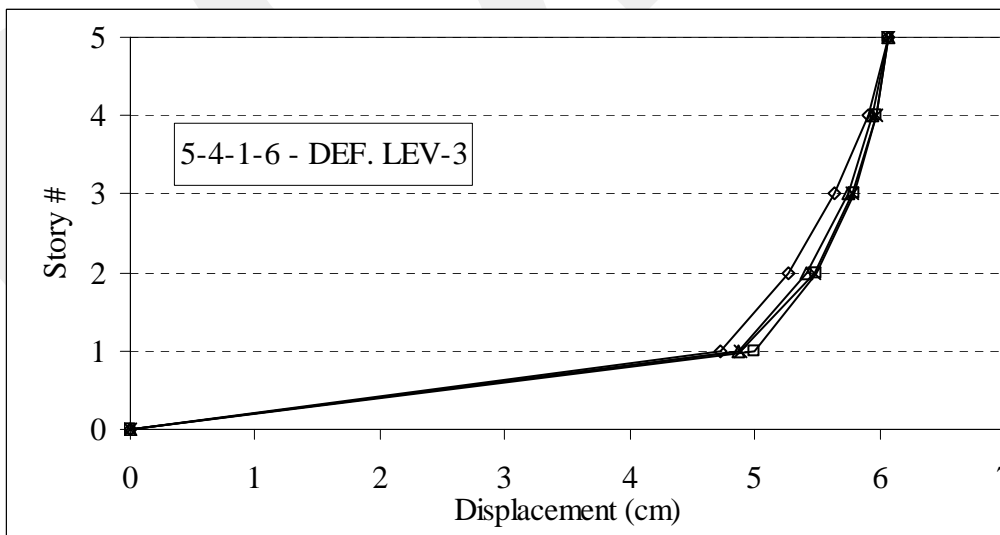
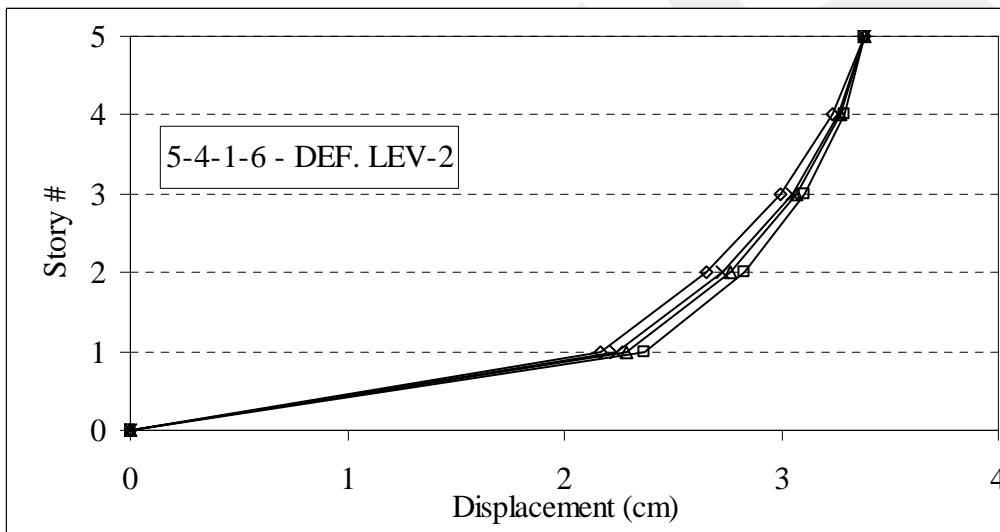
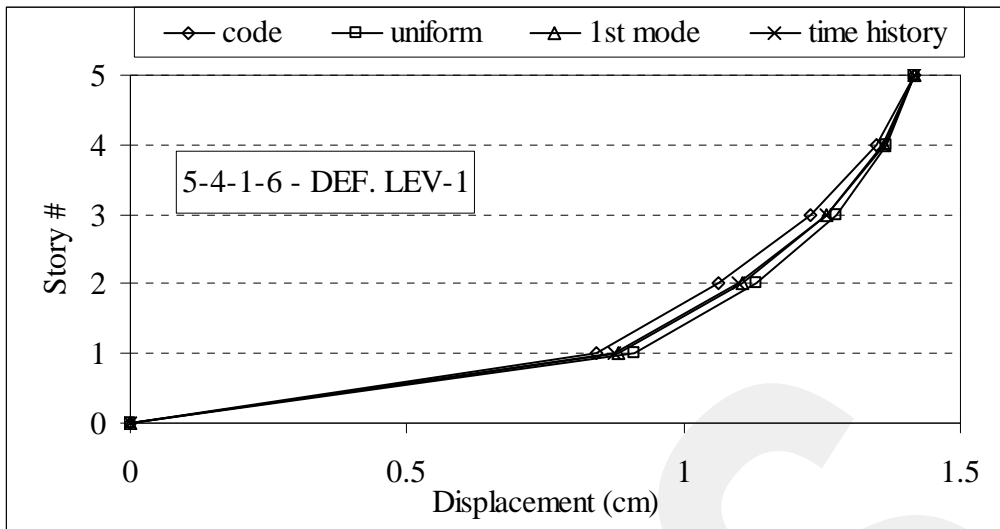


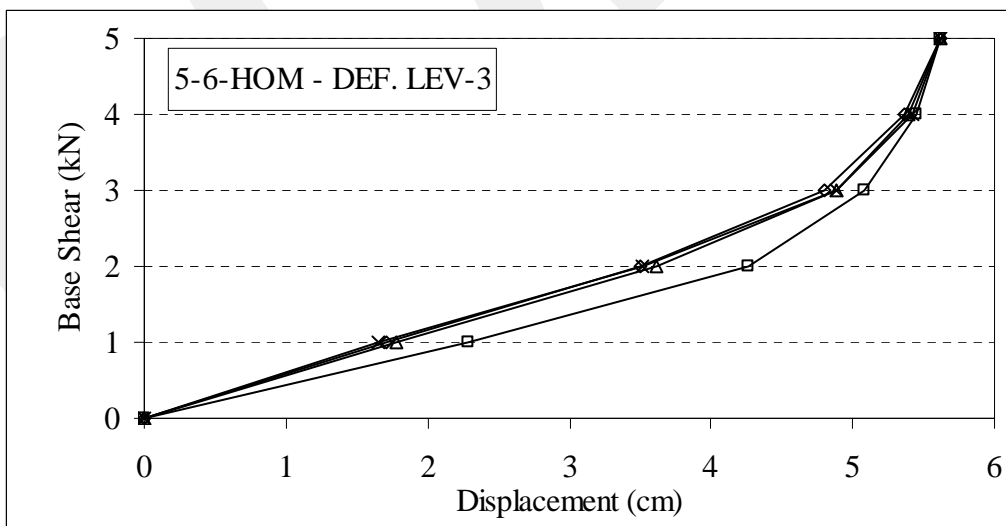
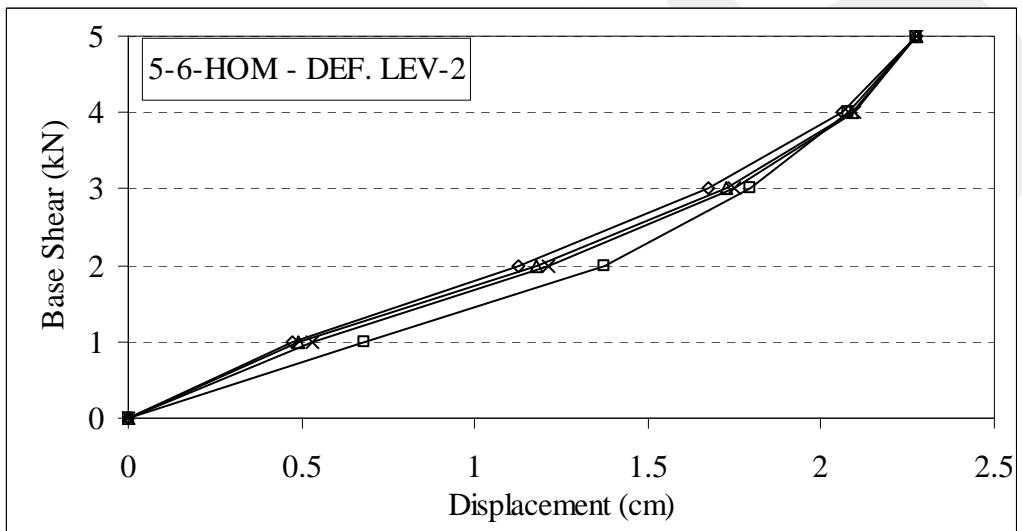
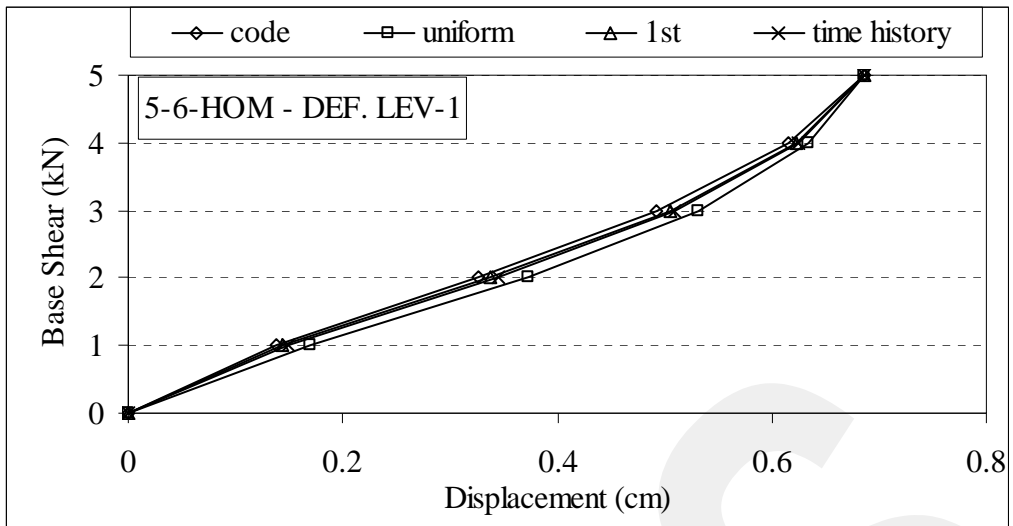


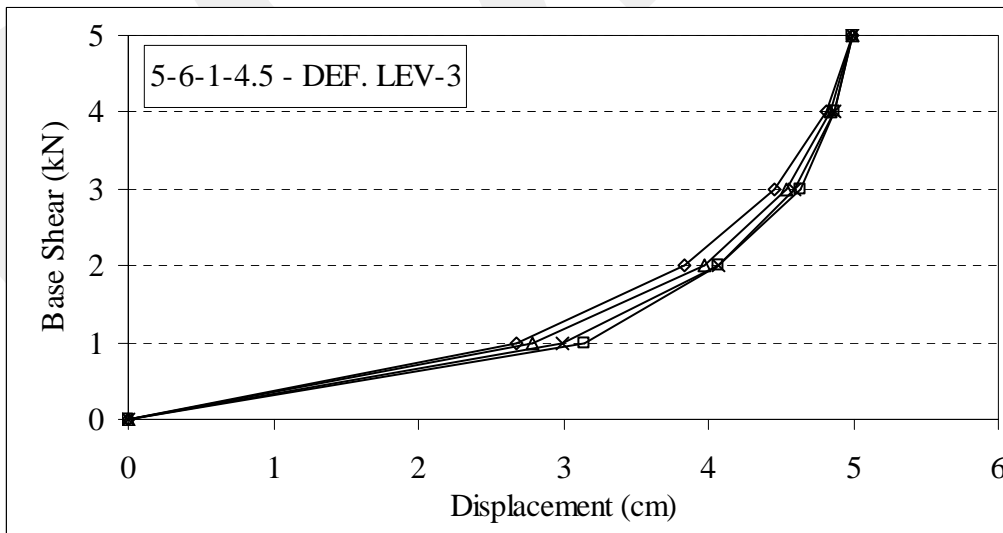
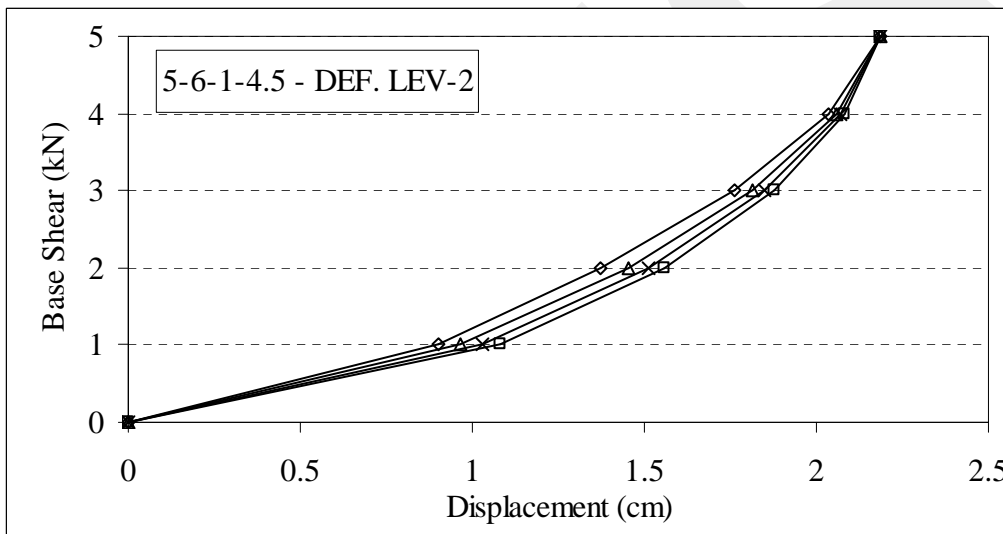
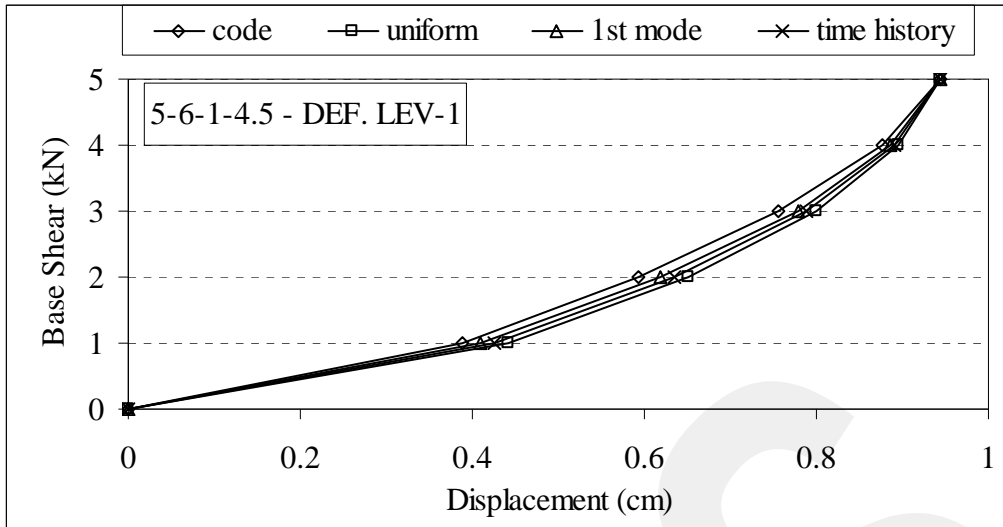


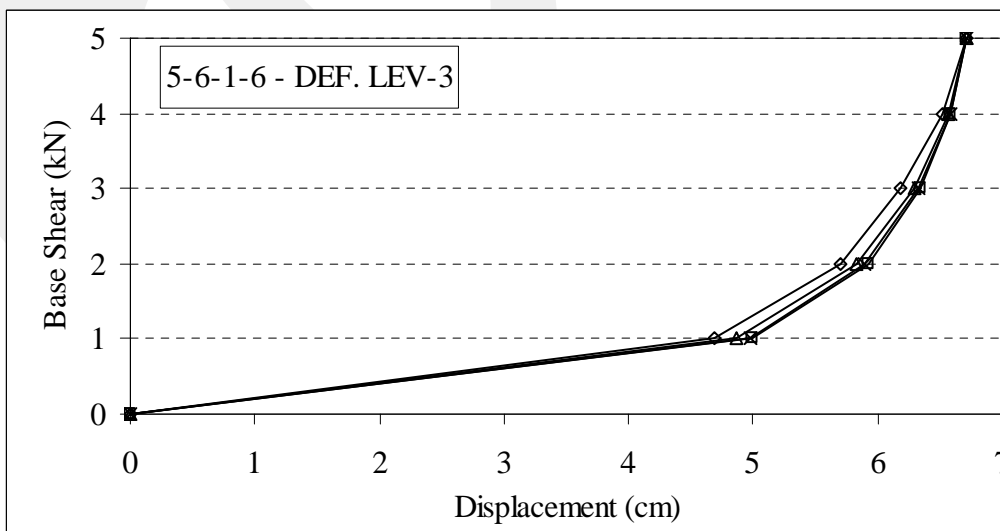
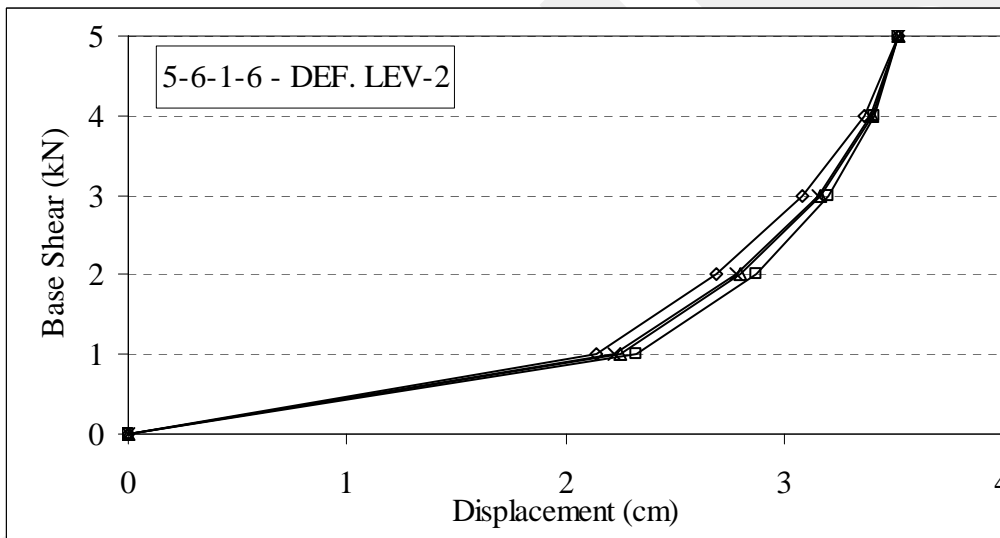
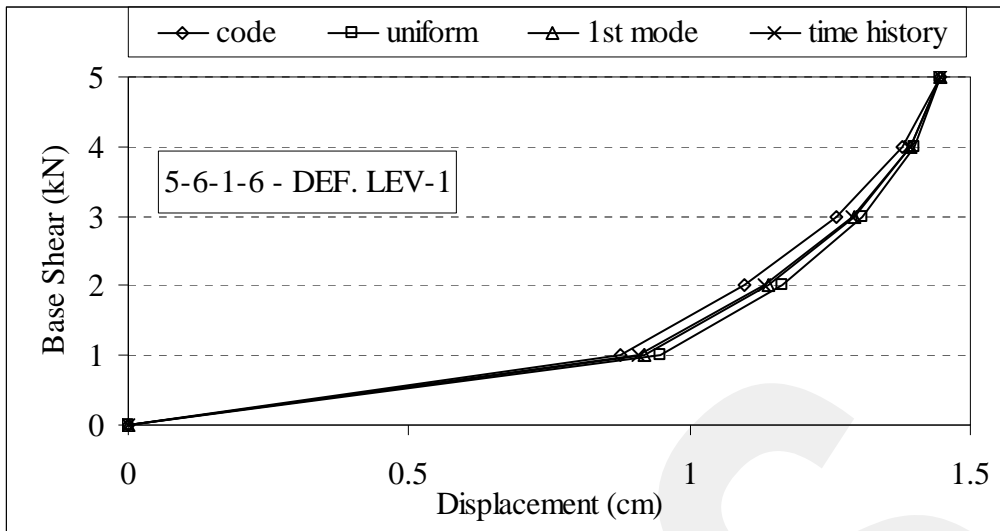


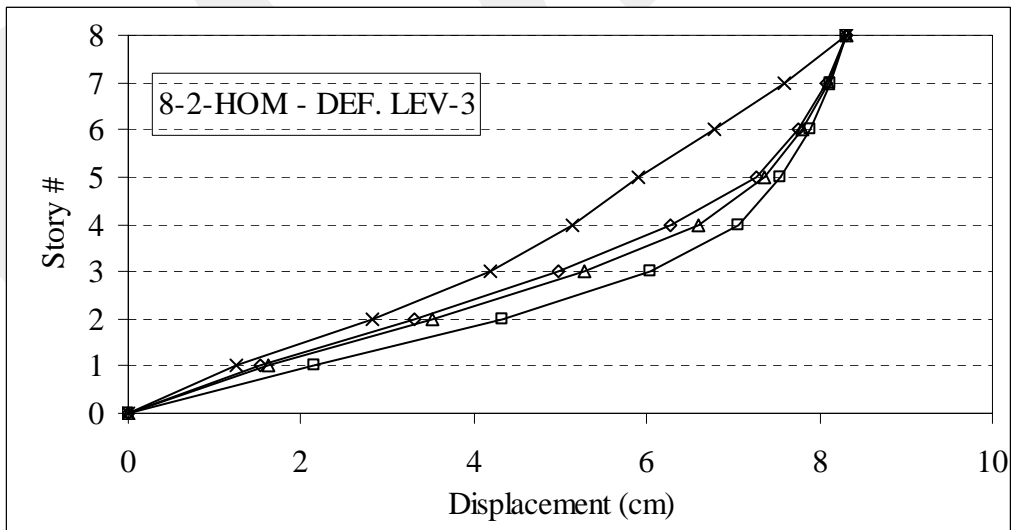
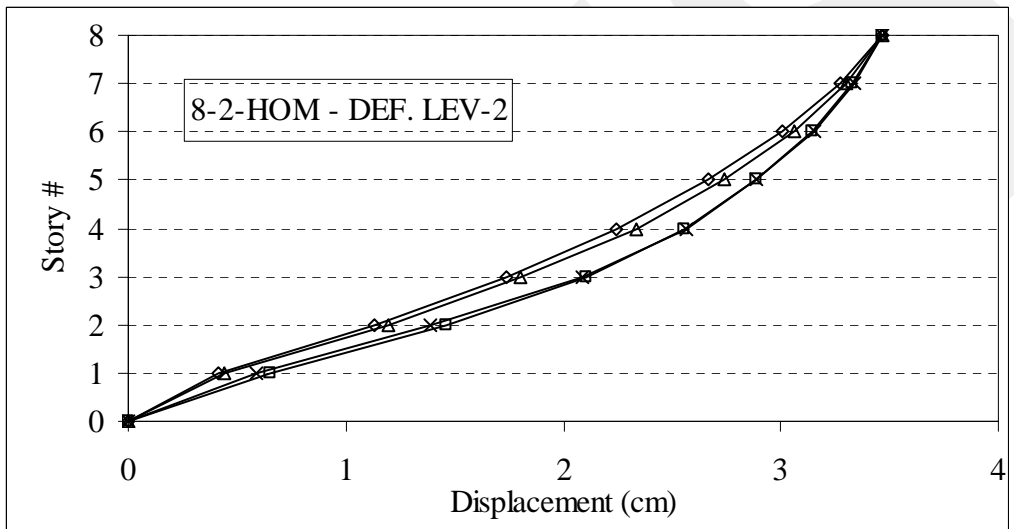
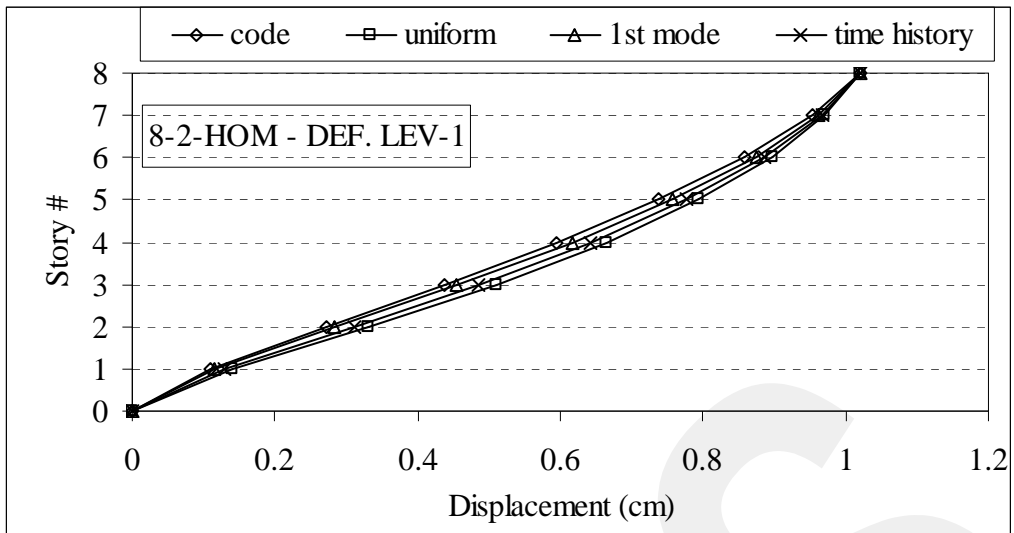


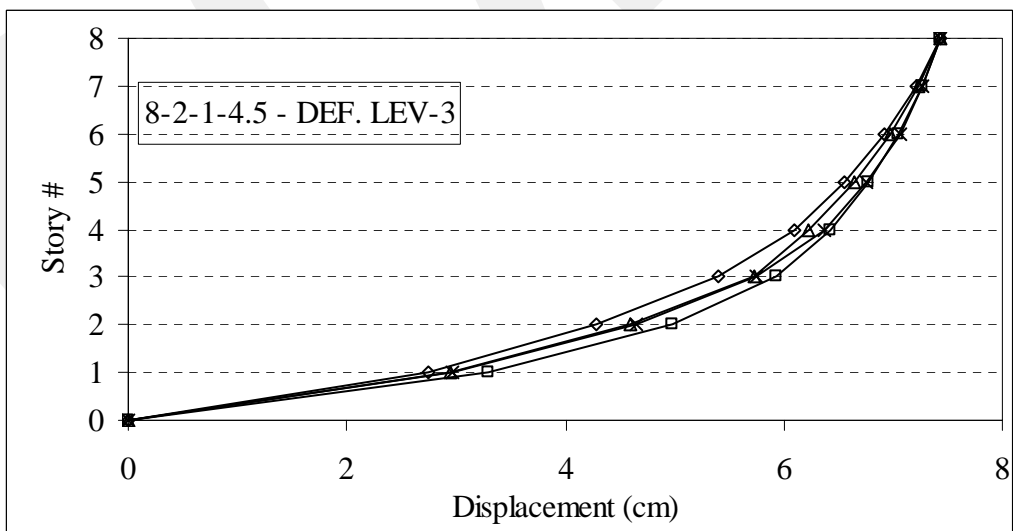
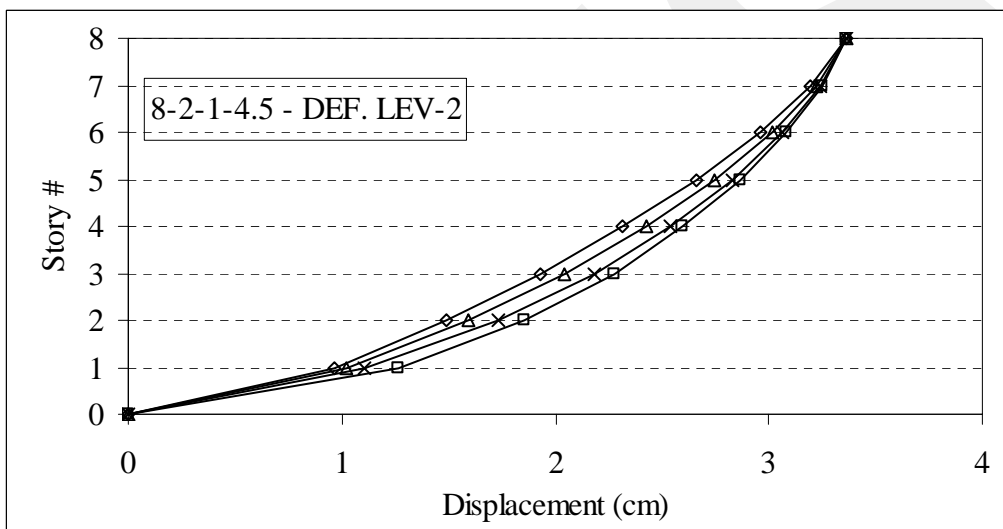
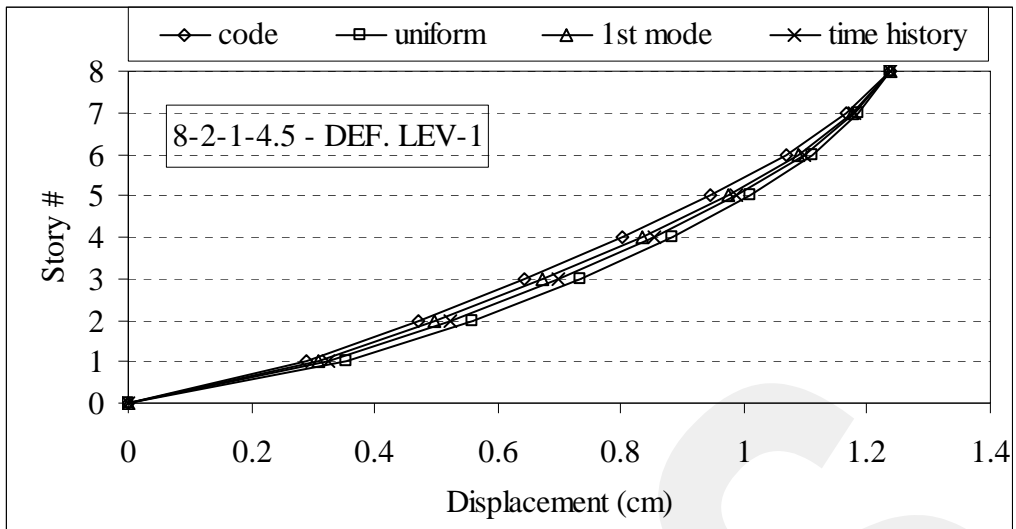


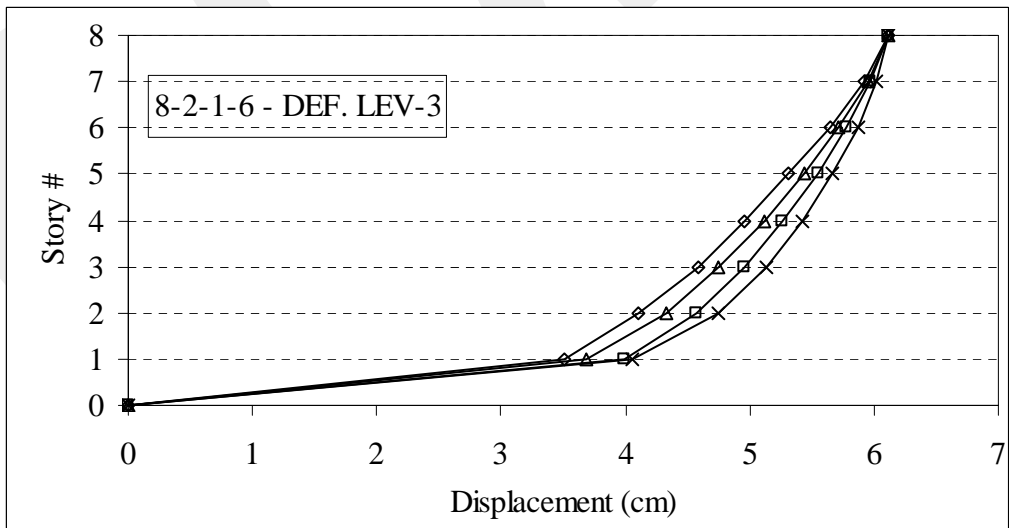
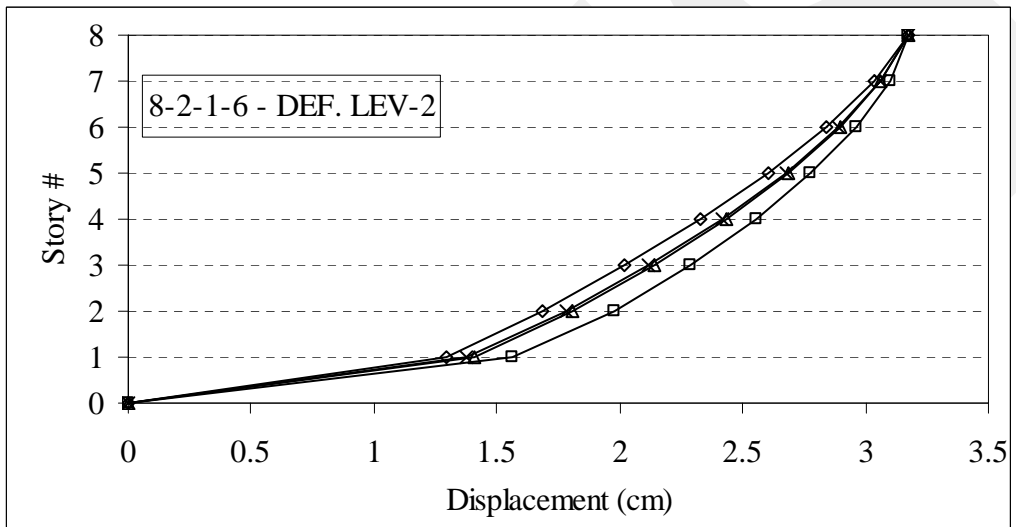
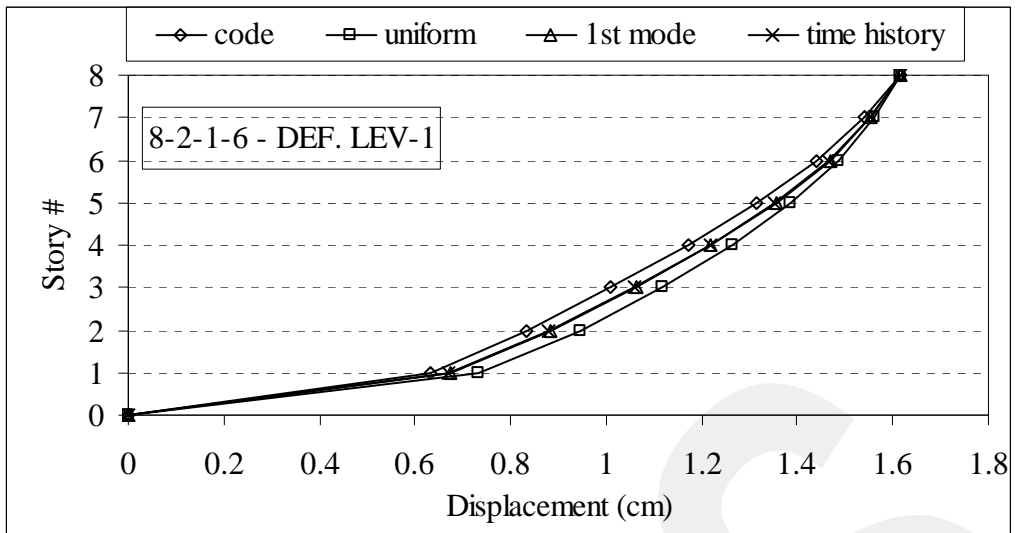


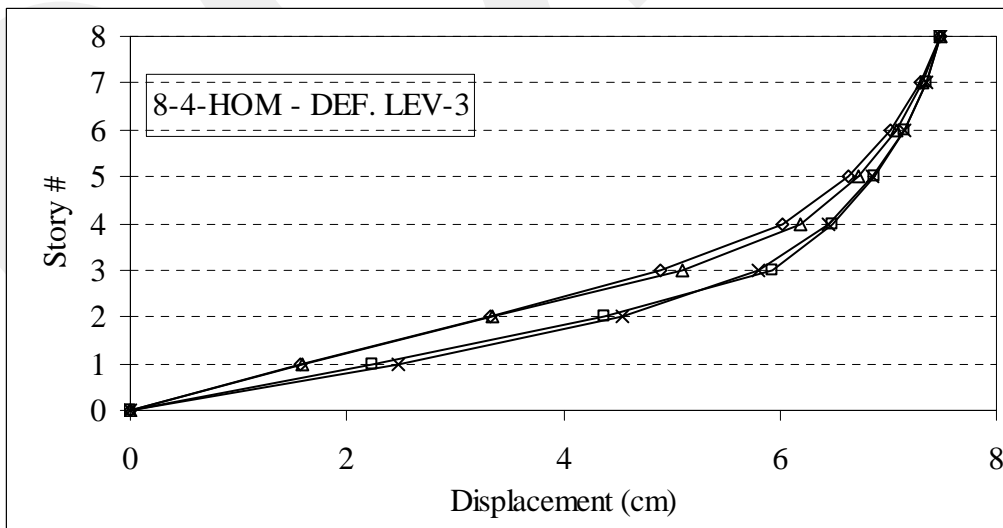
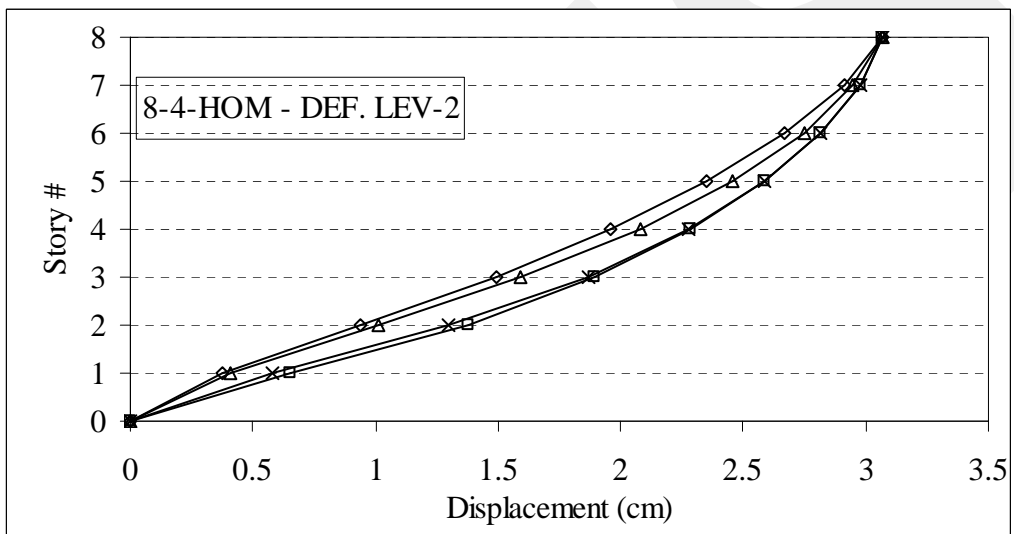
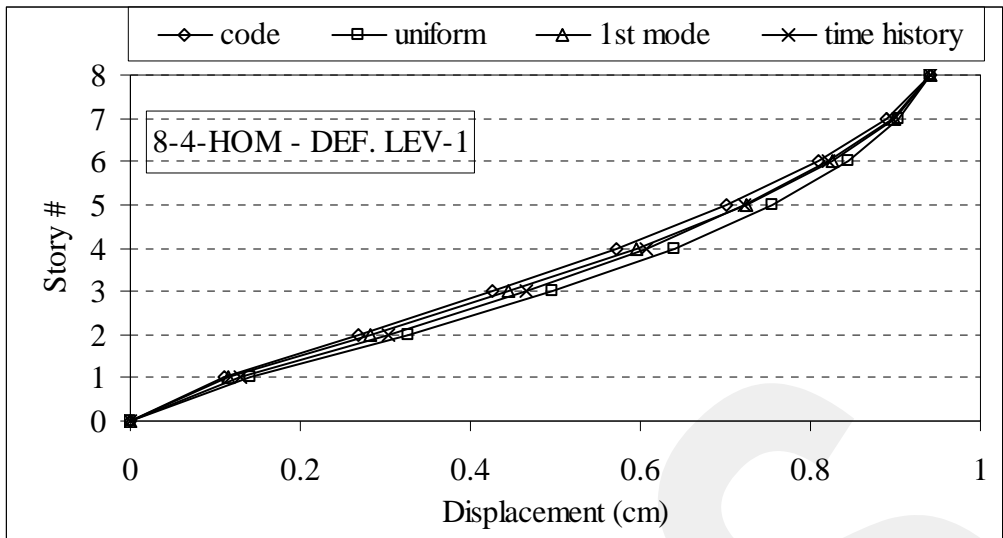


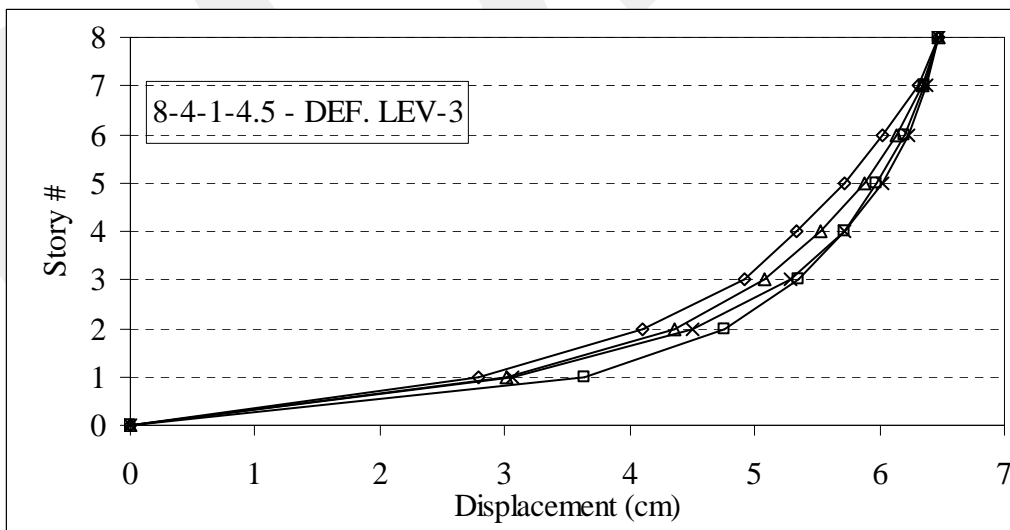
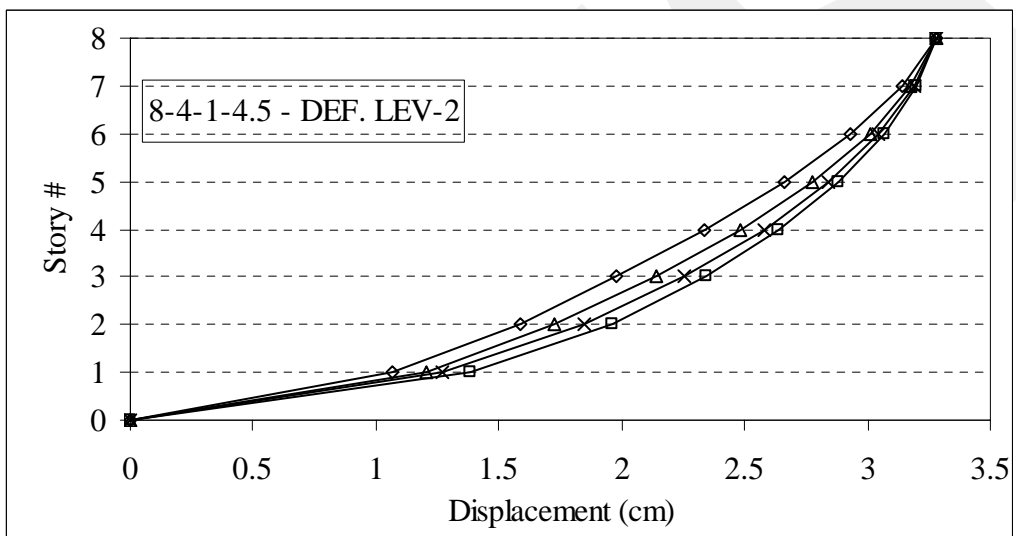
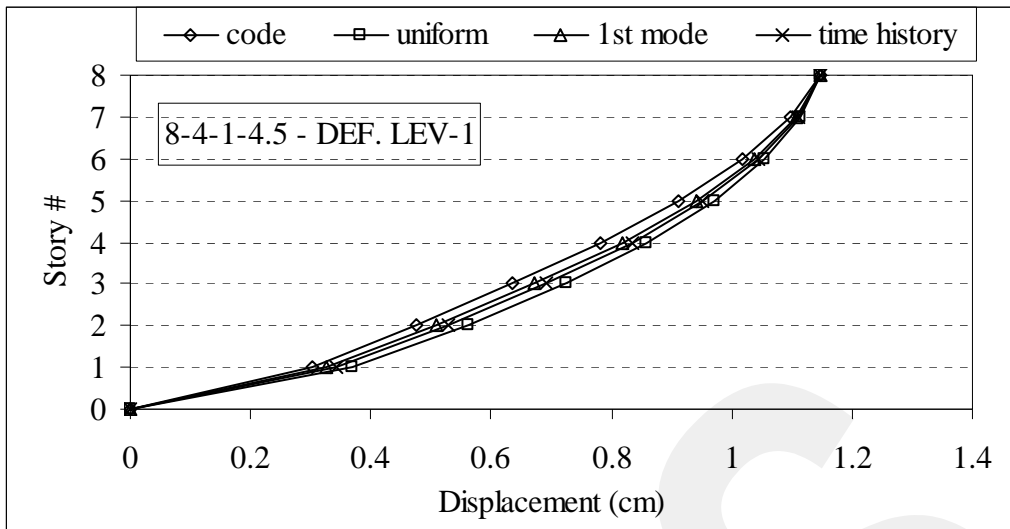


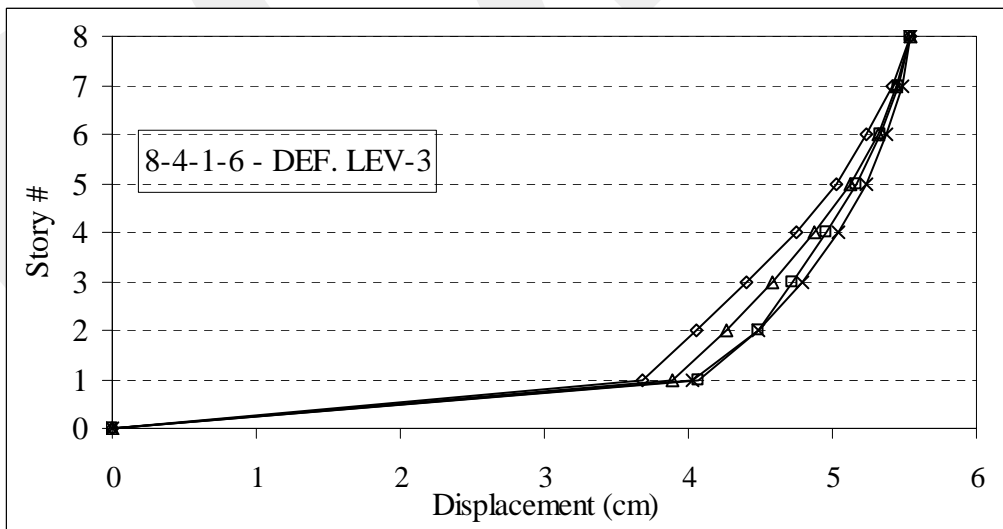
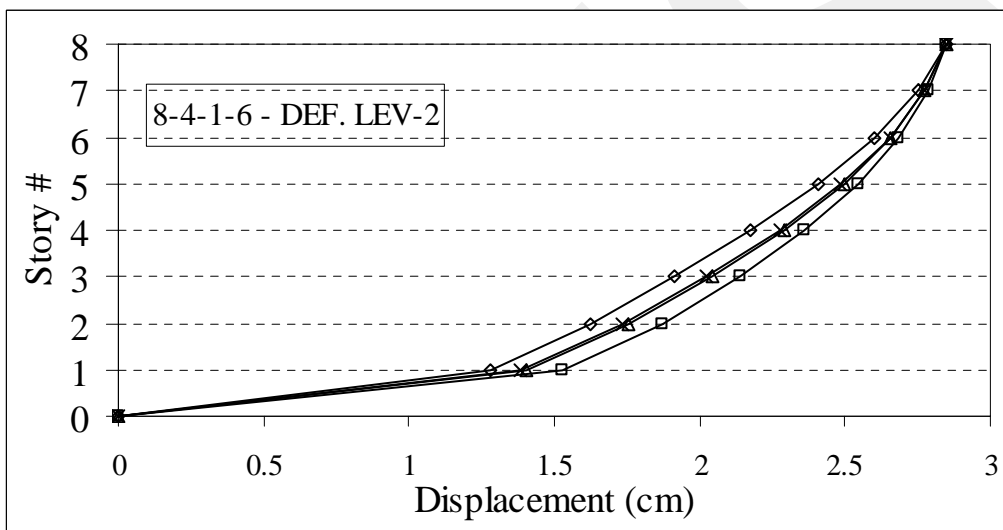
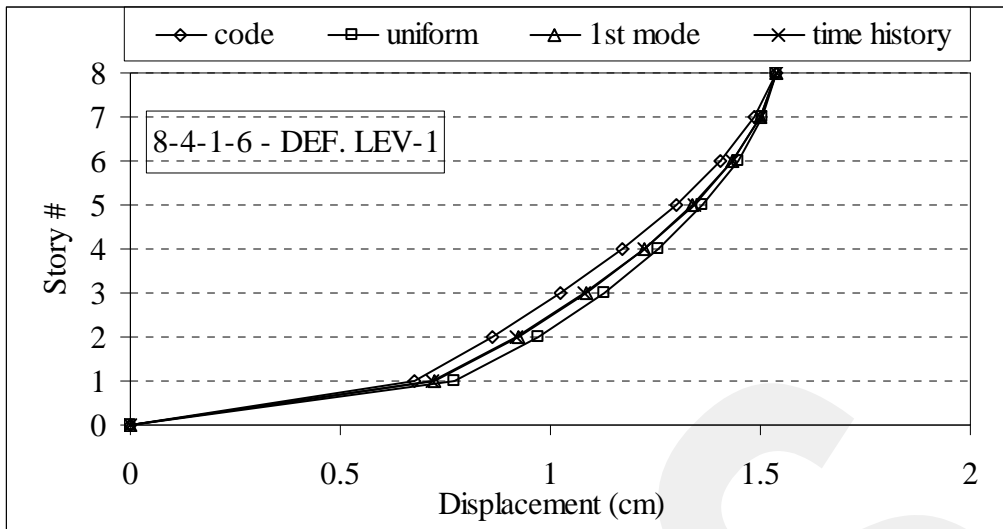


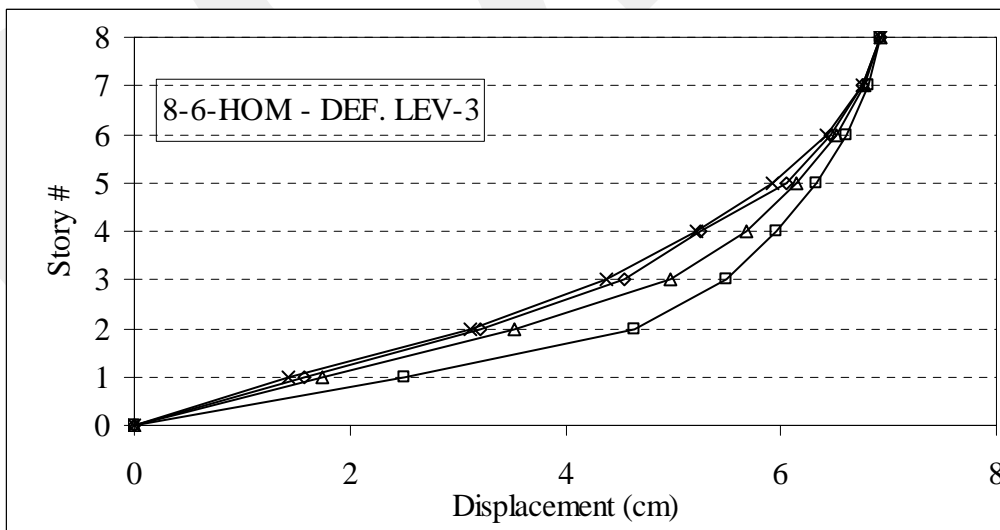
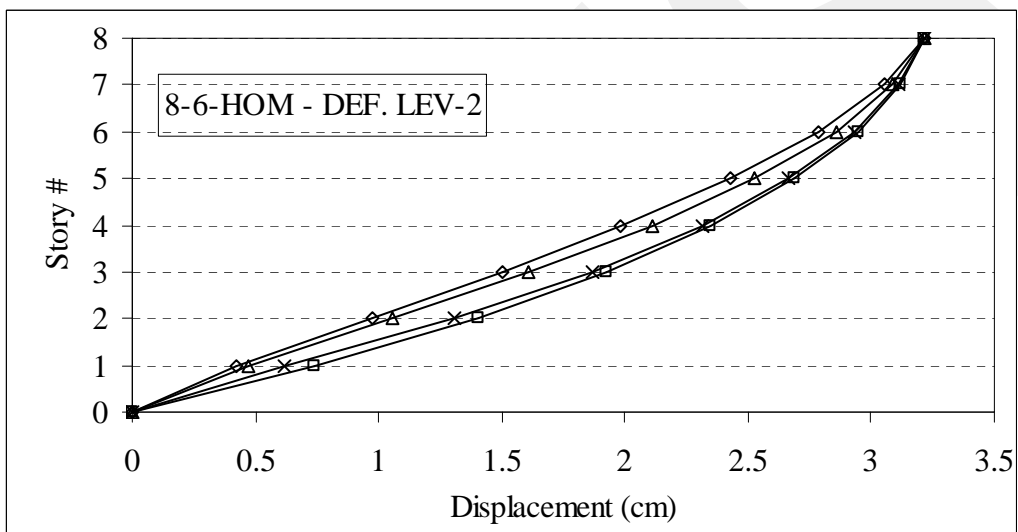
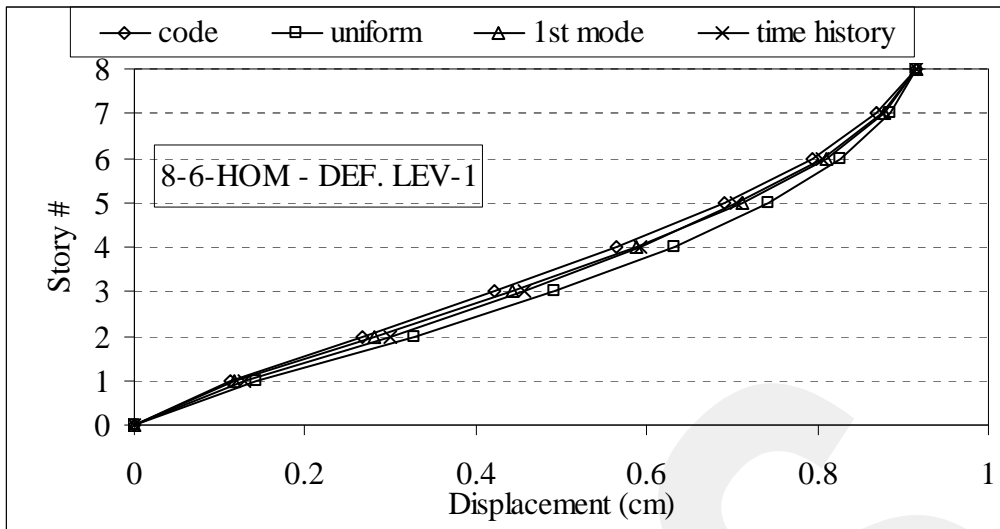


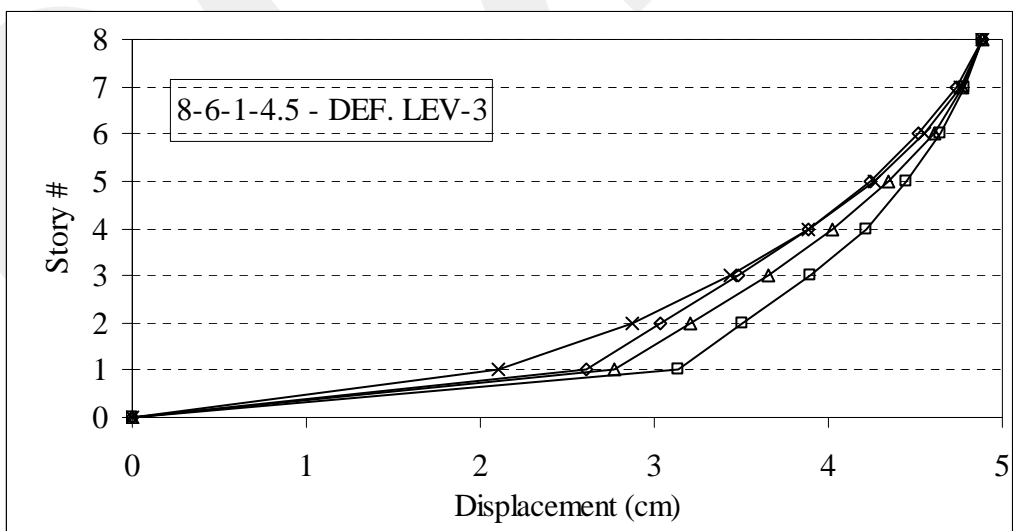
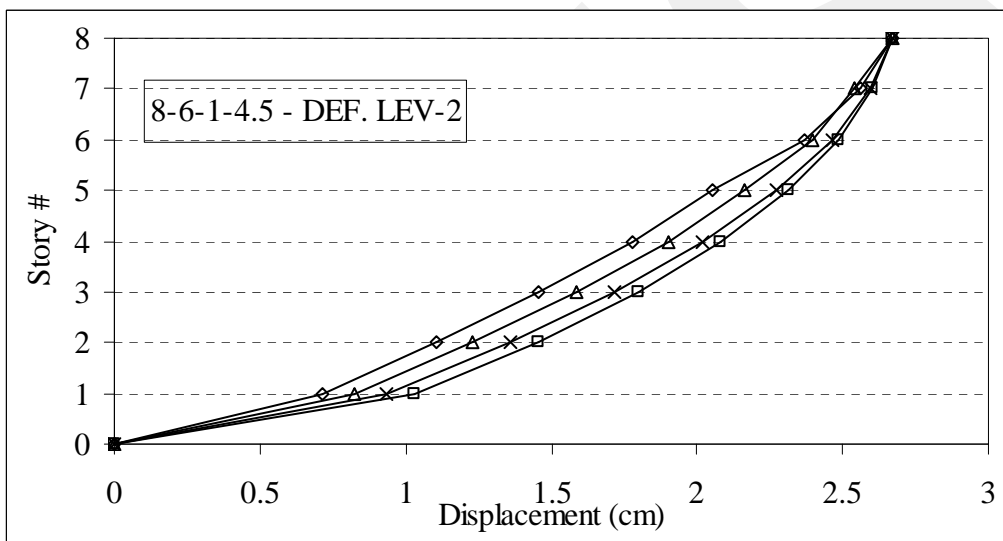
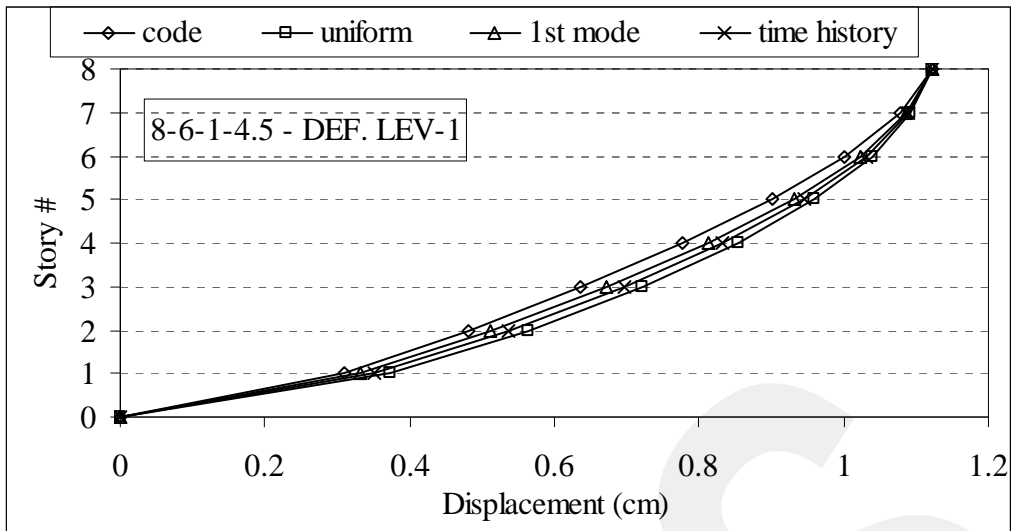


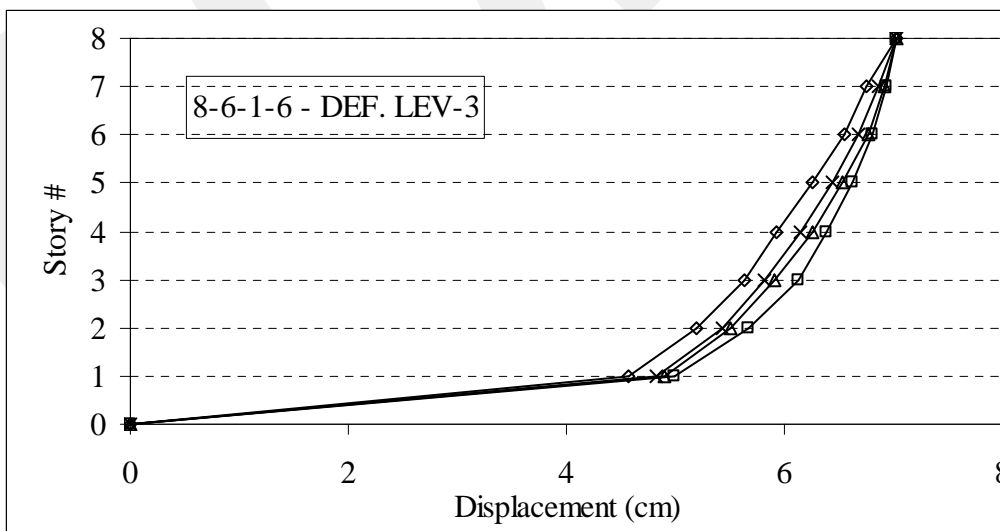
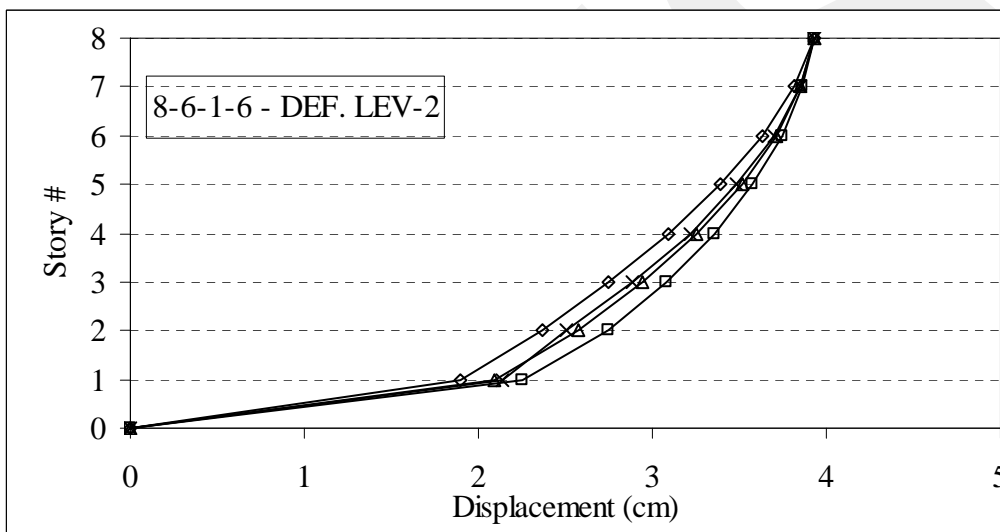
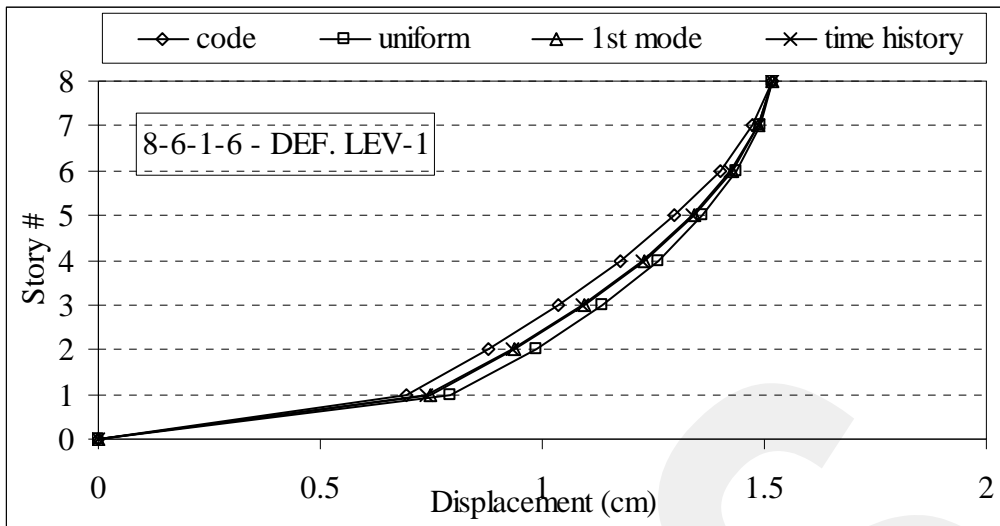






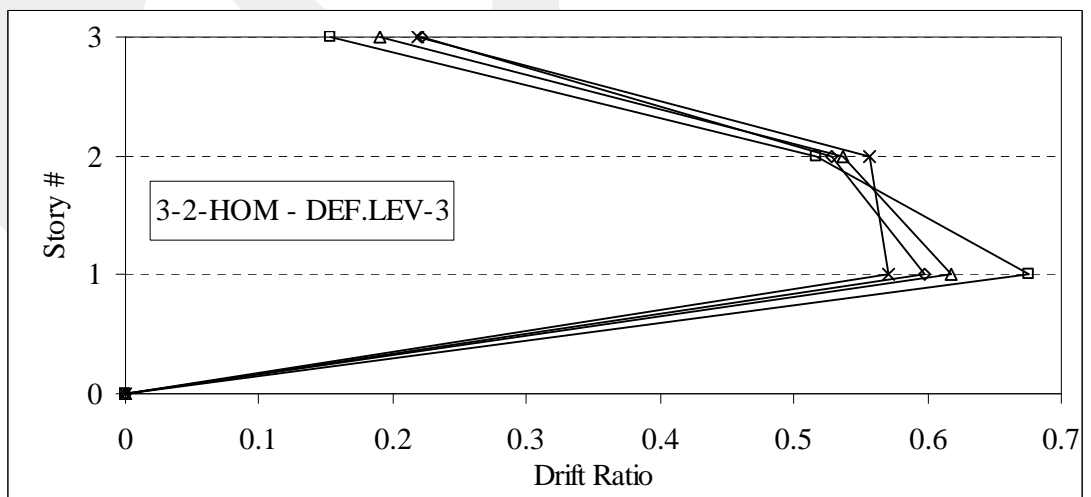
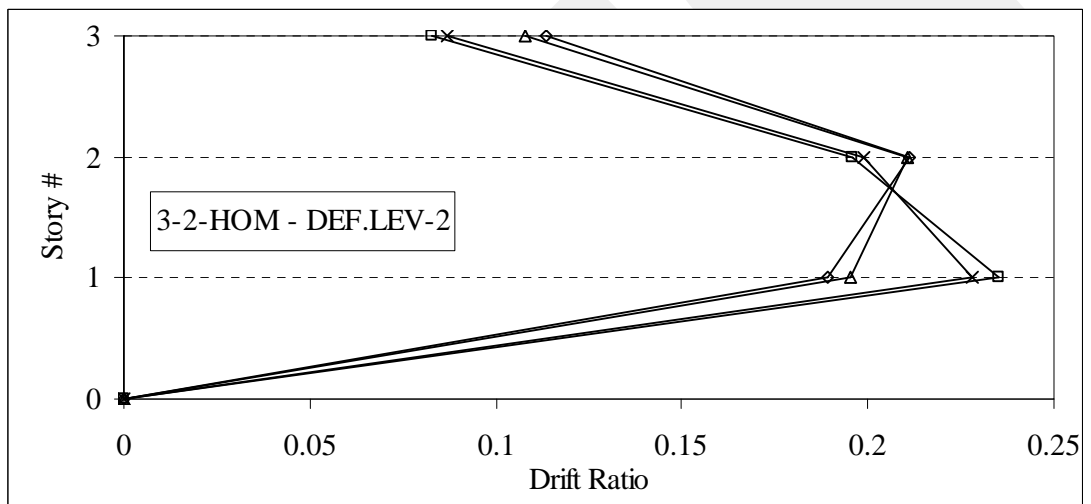
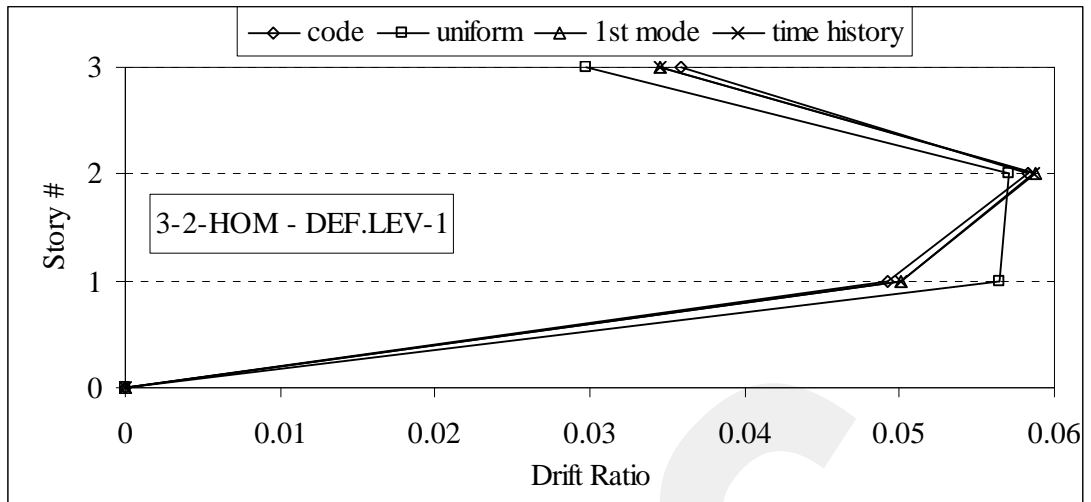


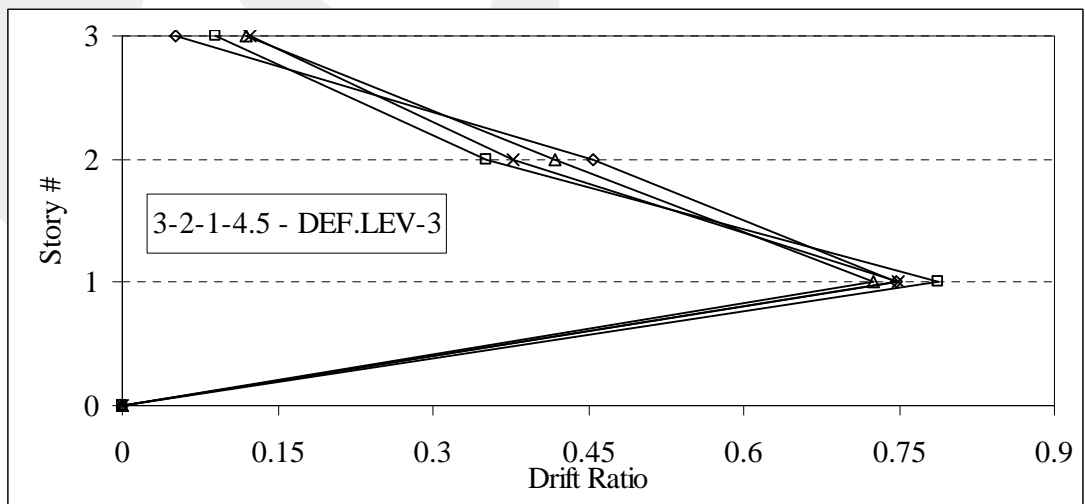
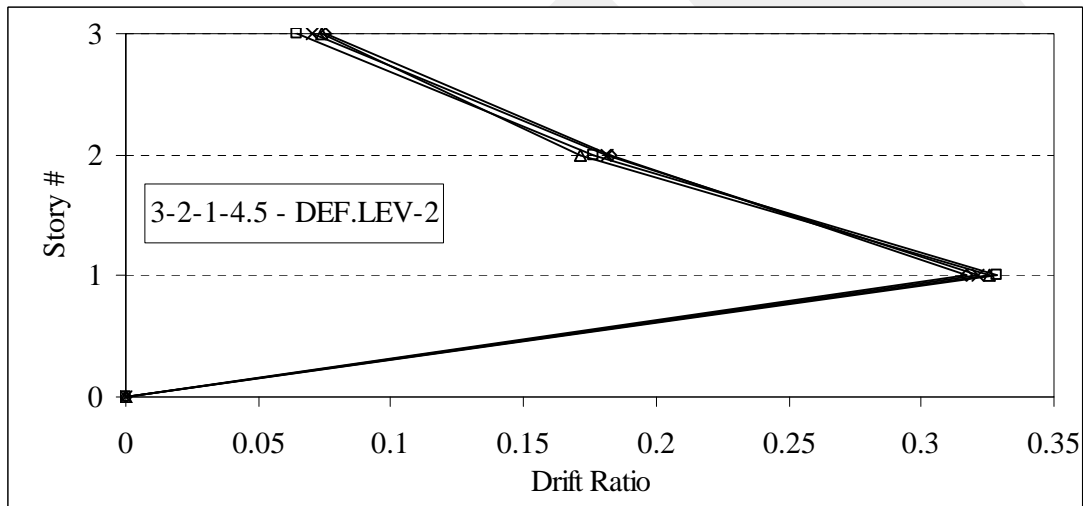
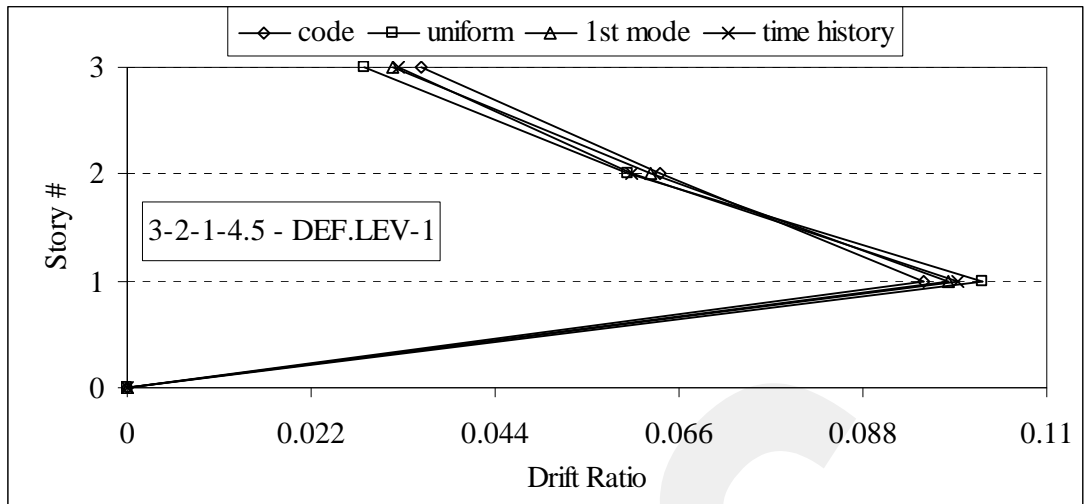


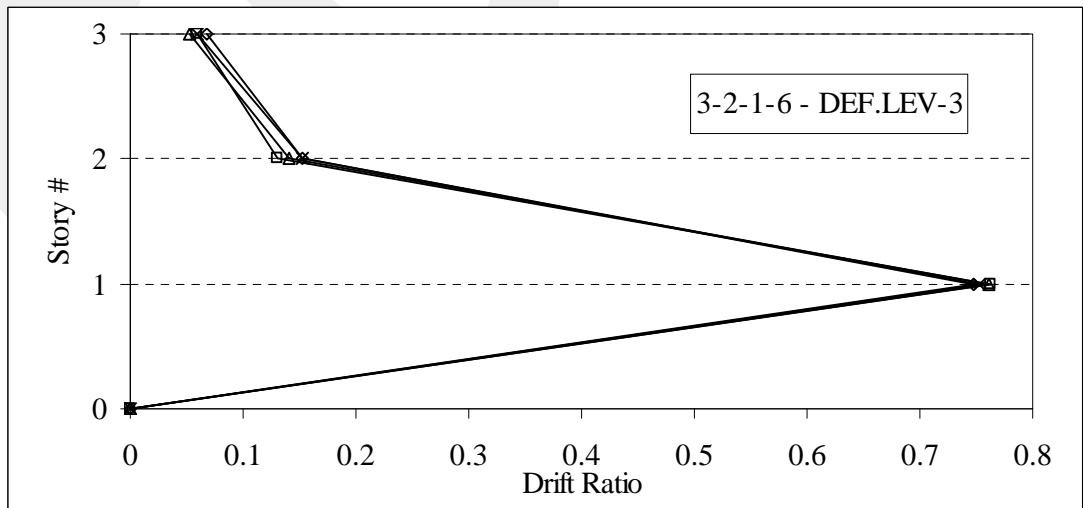
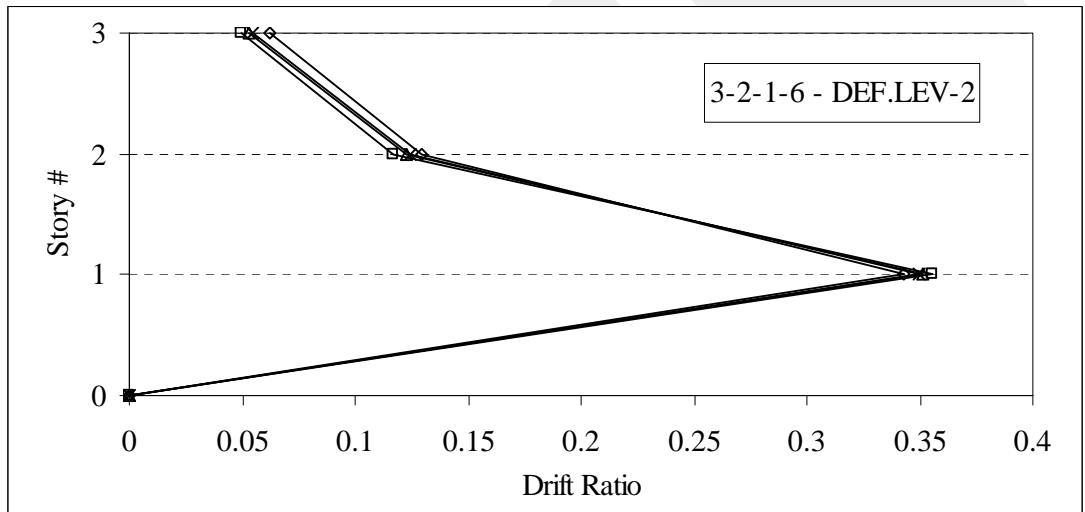
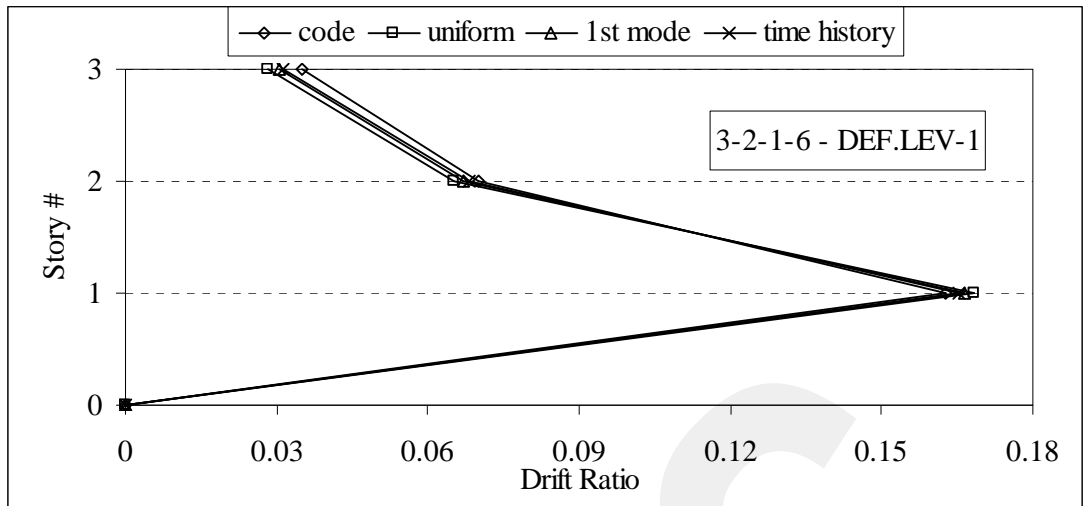


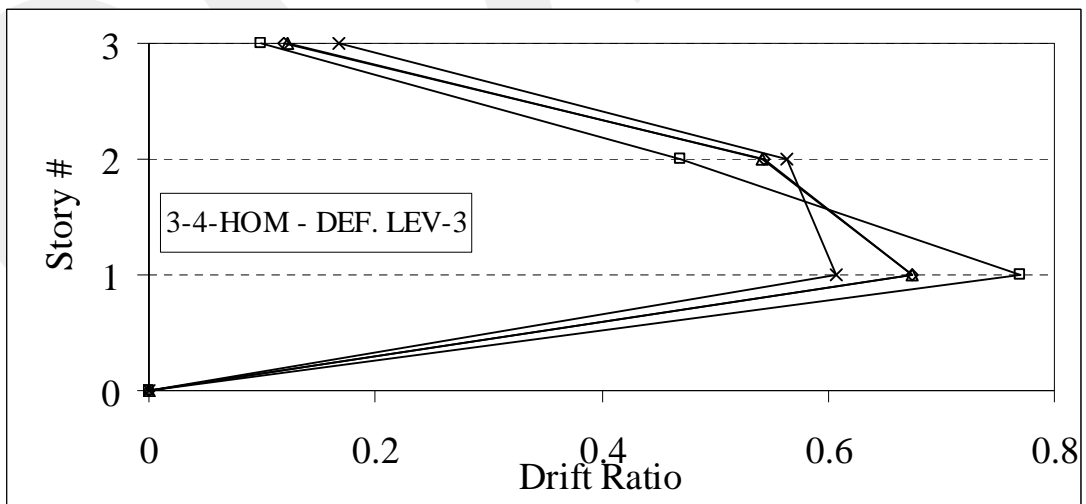
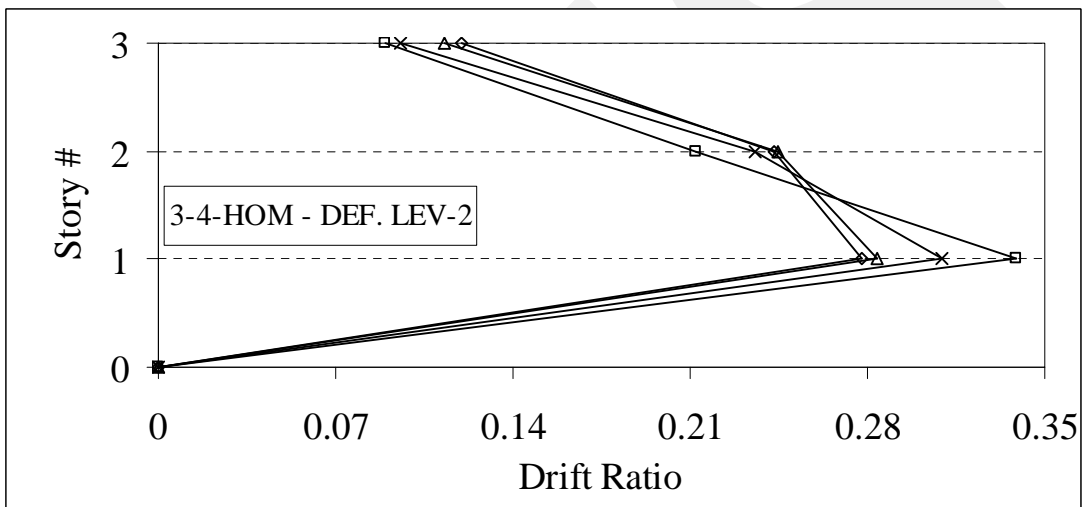
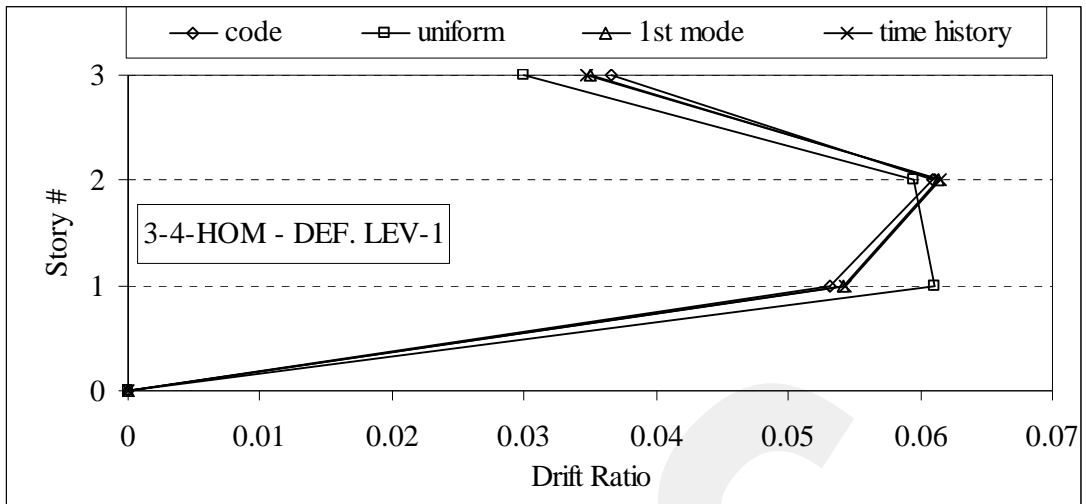
APPENDIX D

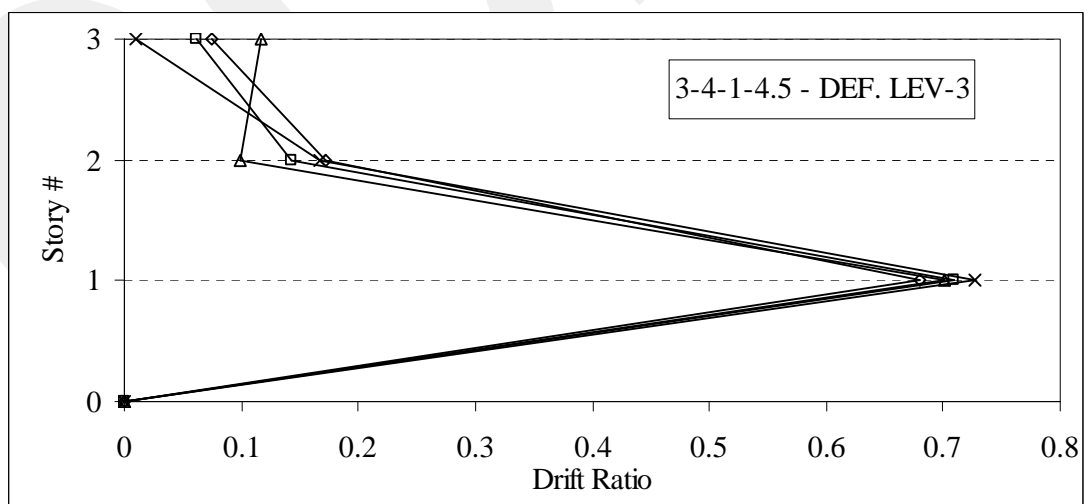
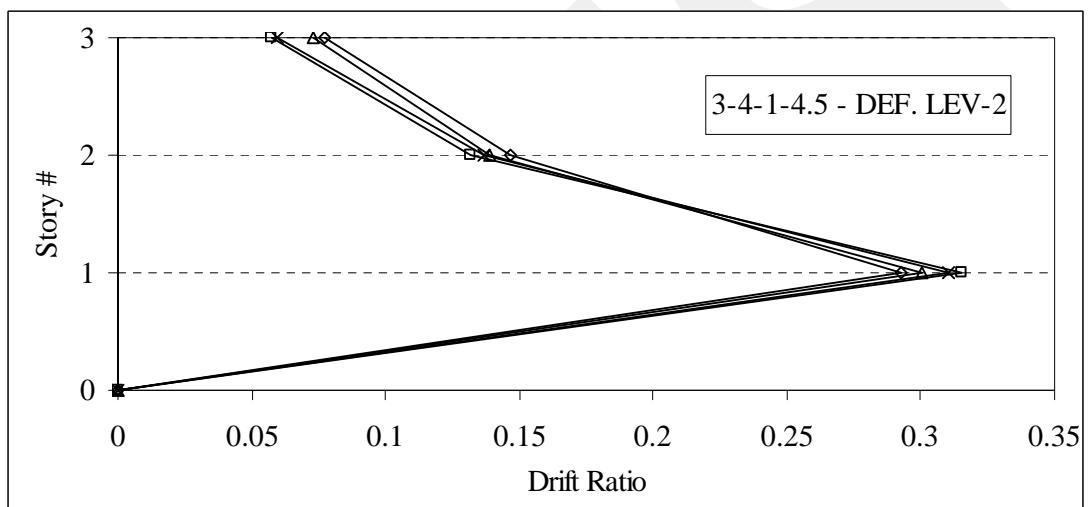
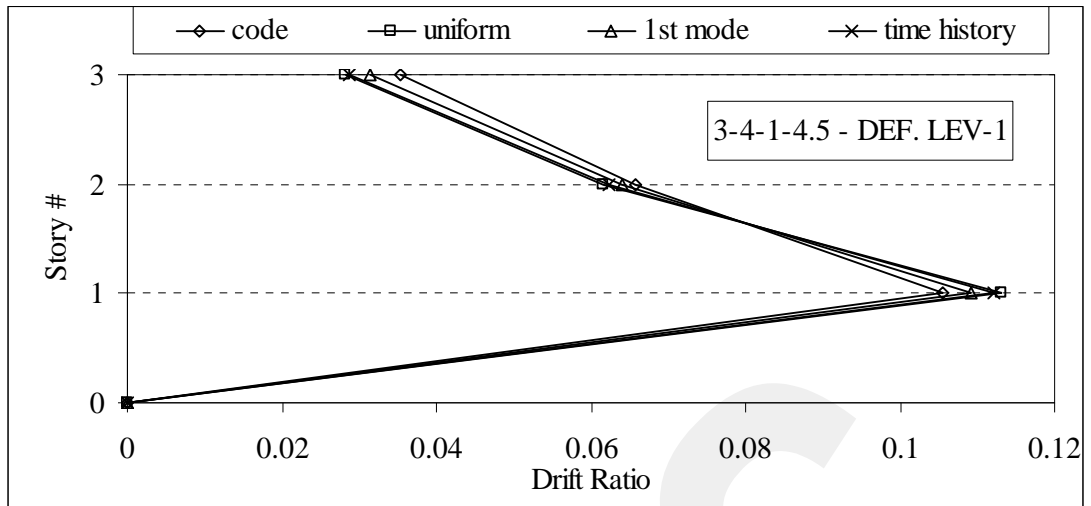
Inter-Story Drift Ratio Diagrams

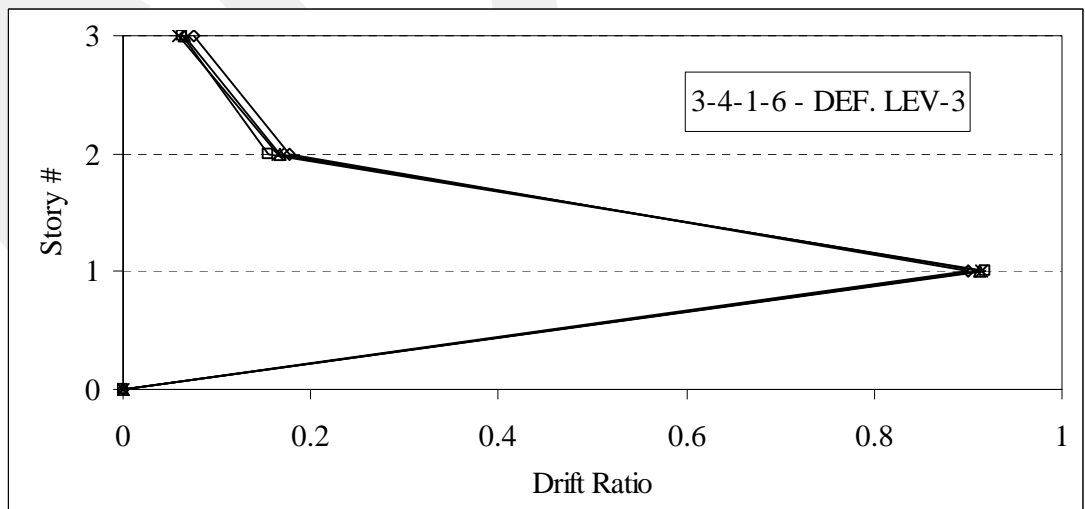
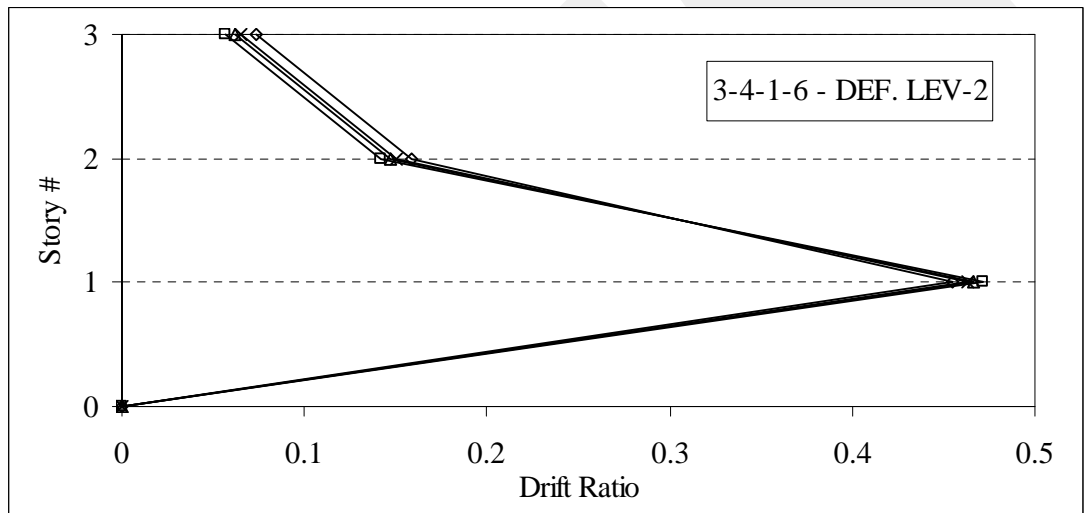
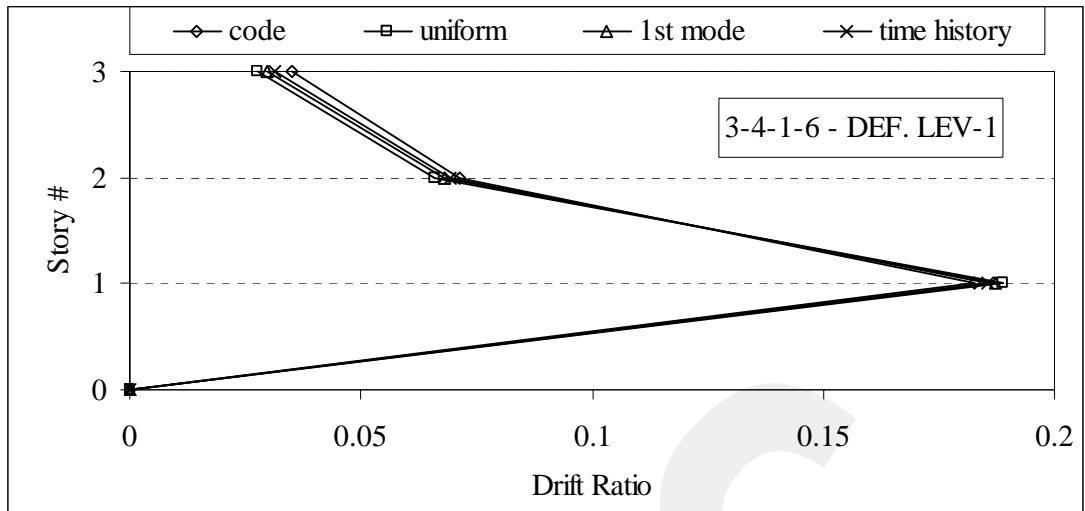


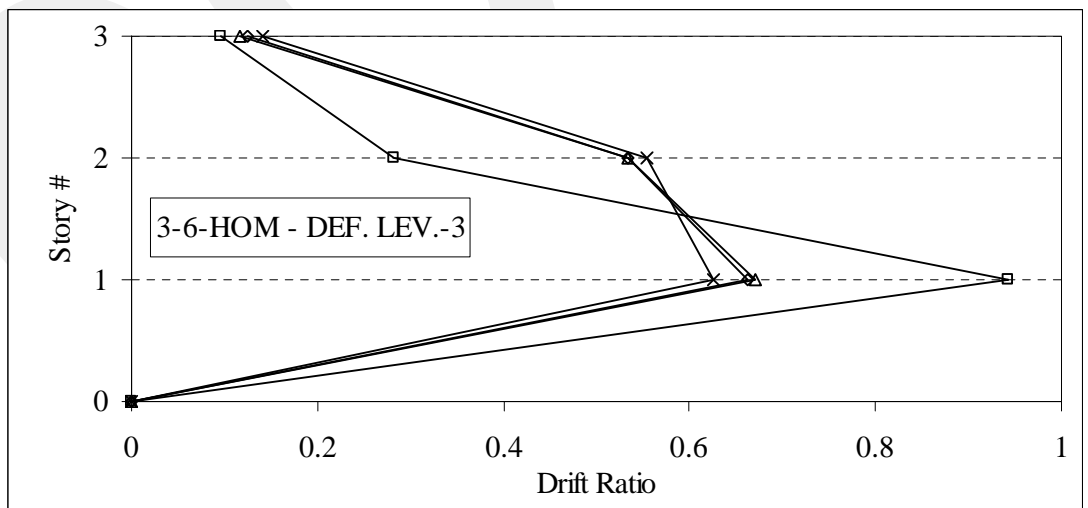
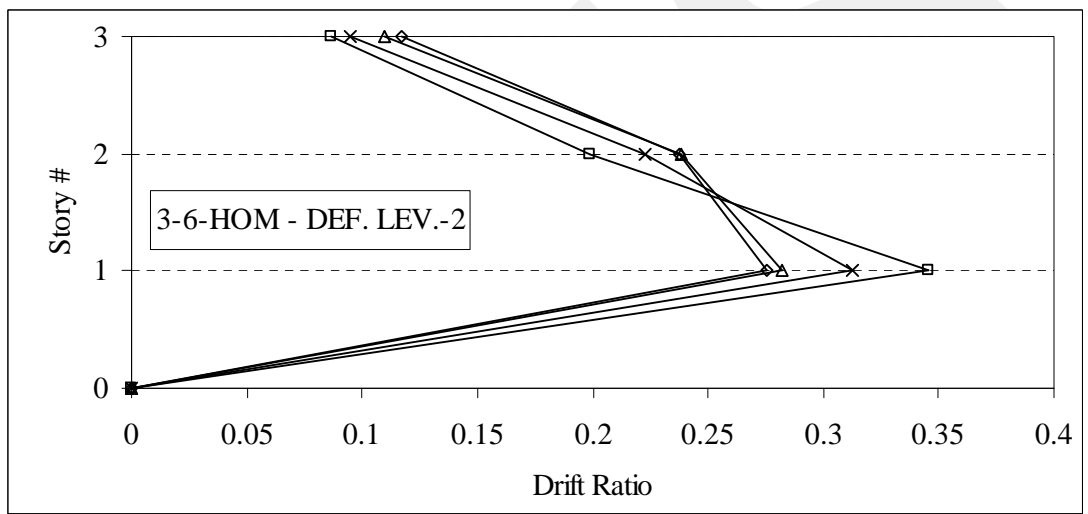
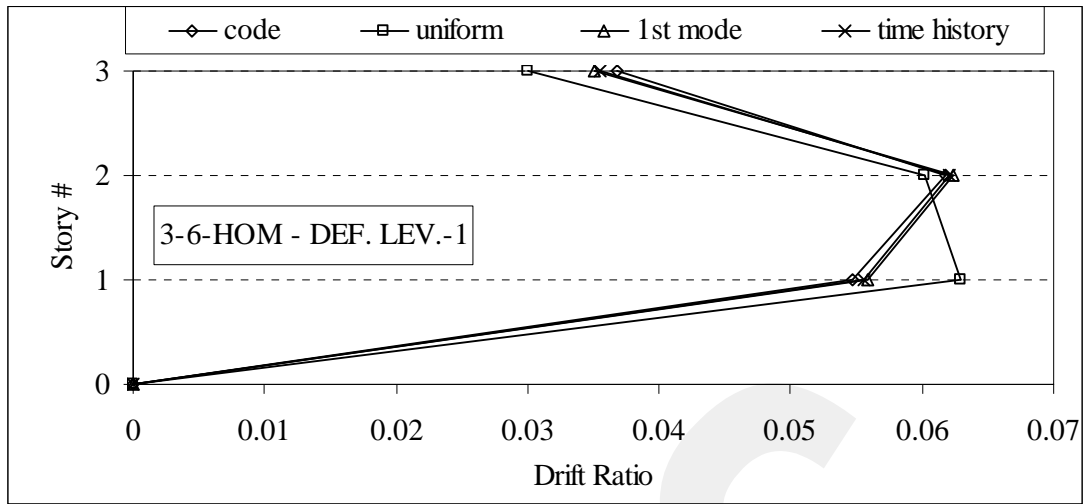


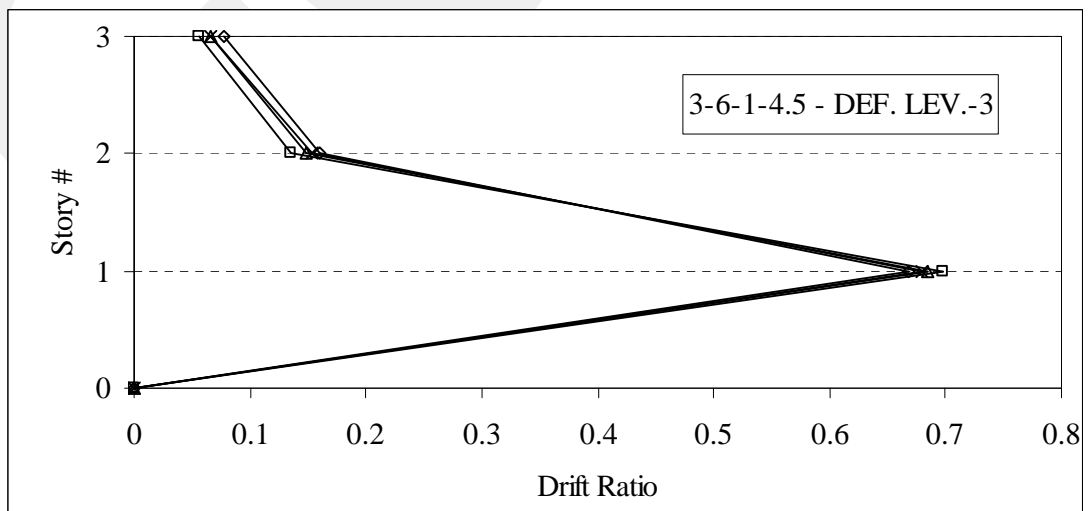
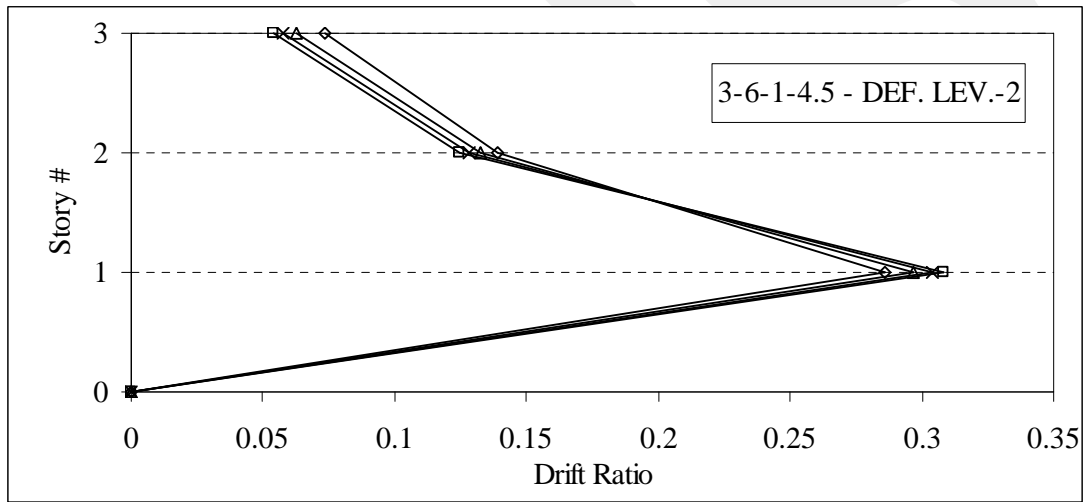
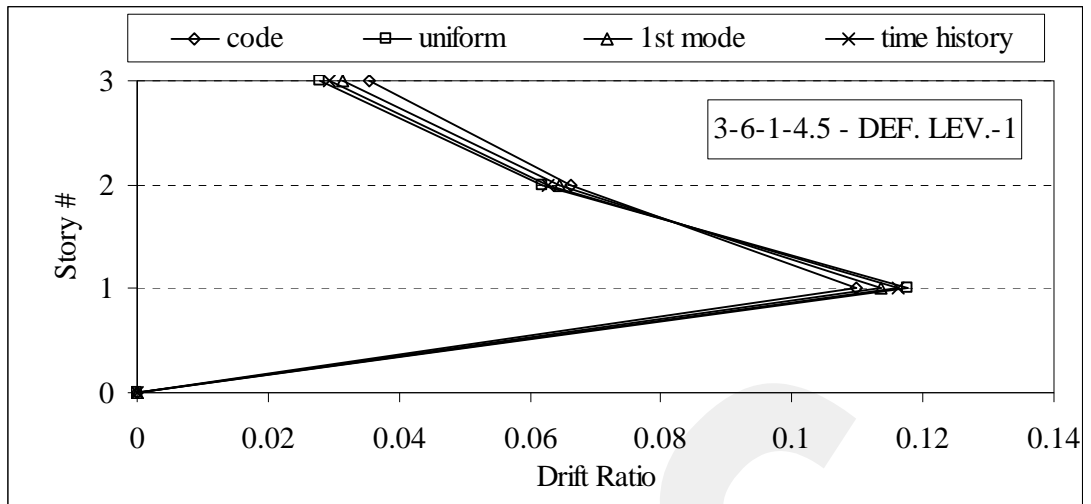


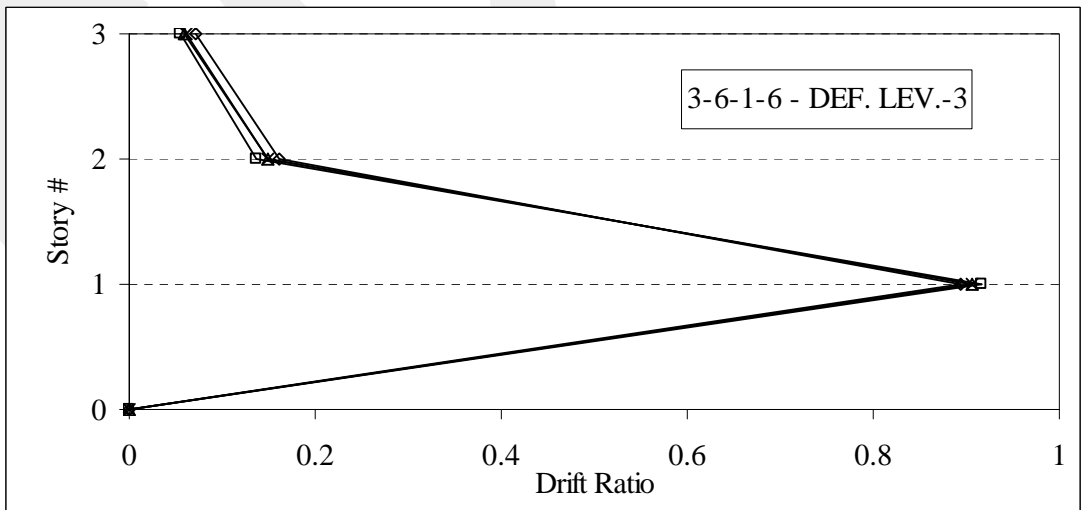
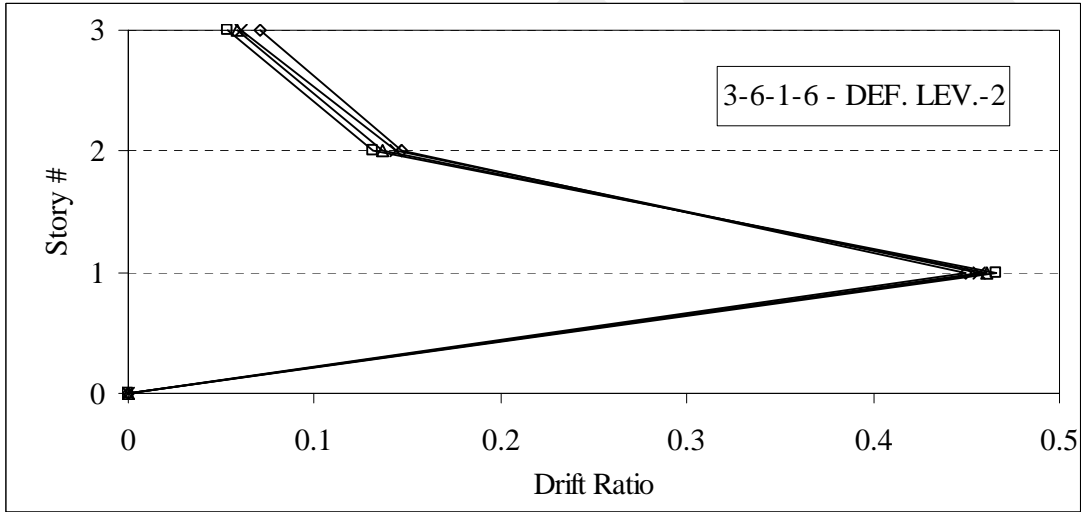
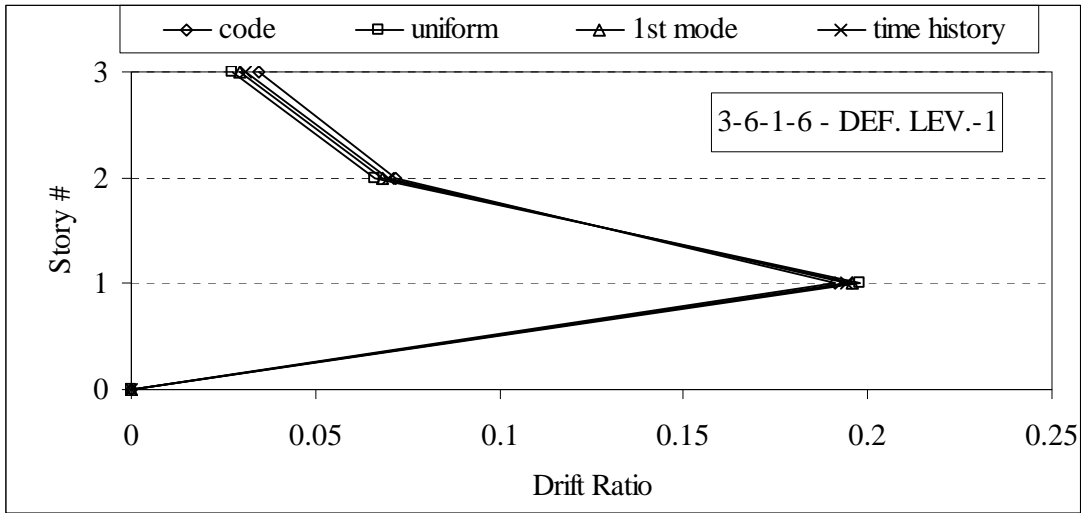


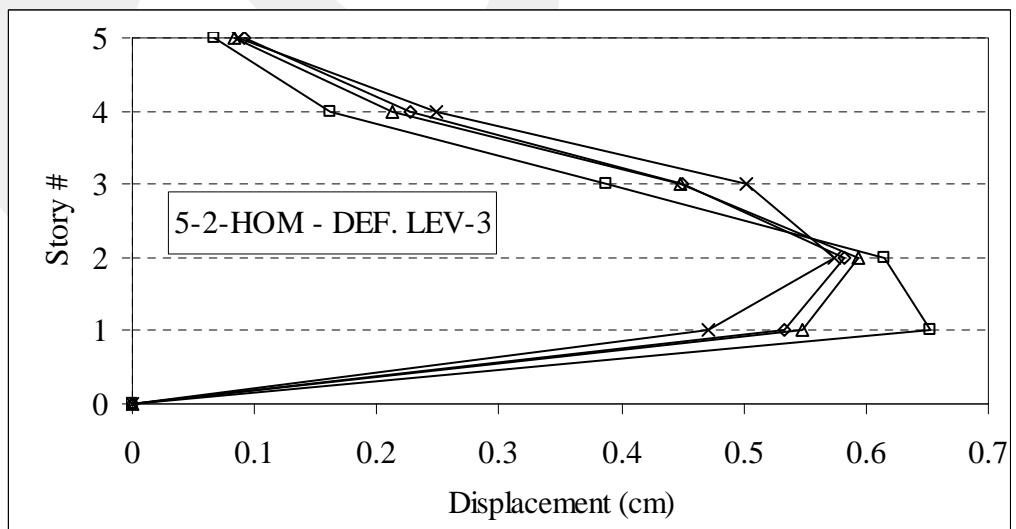
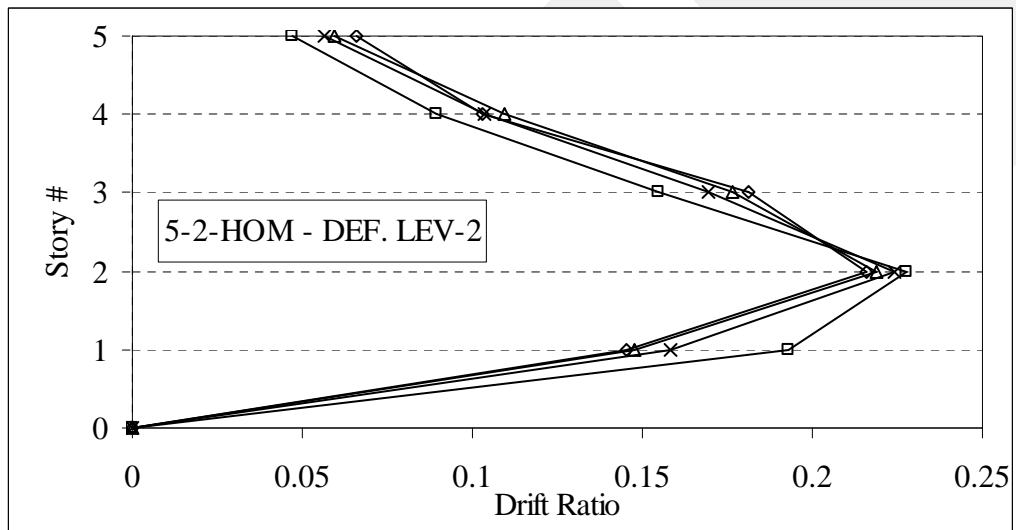
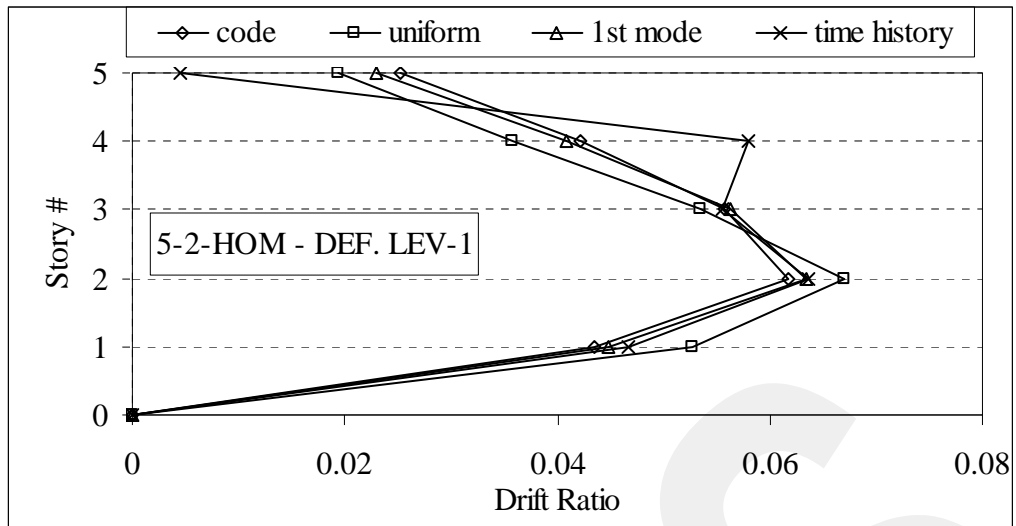


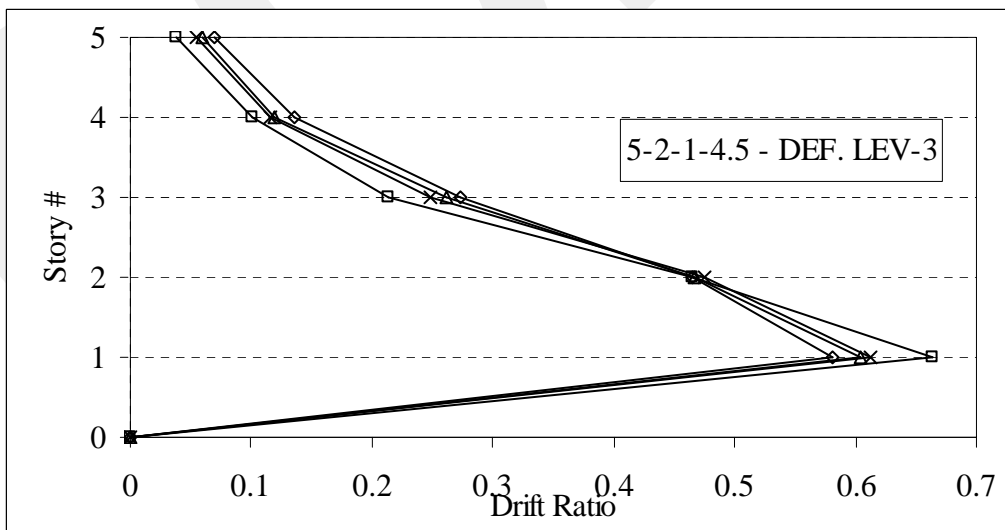
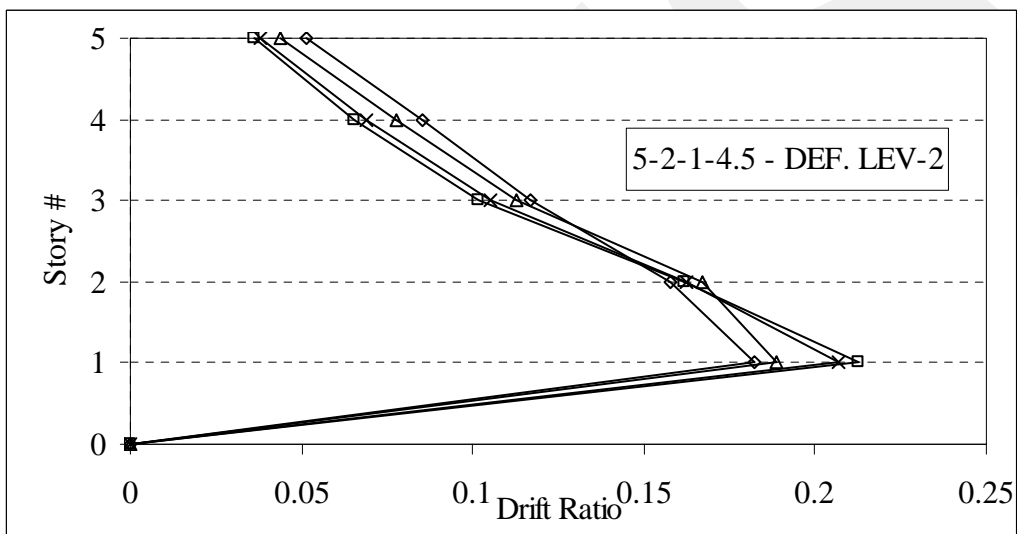
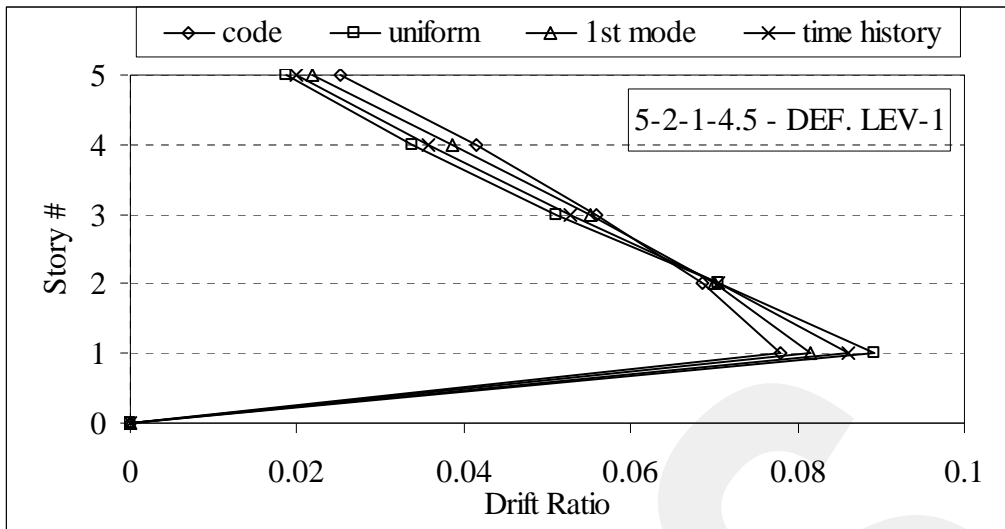


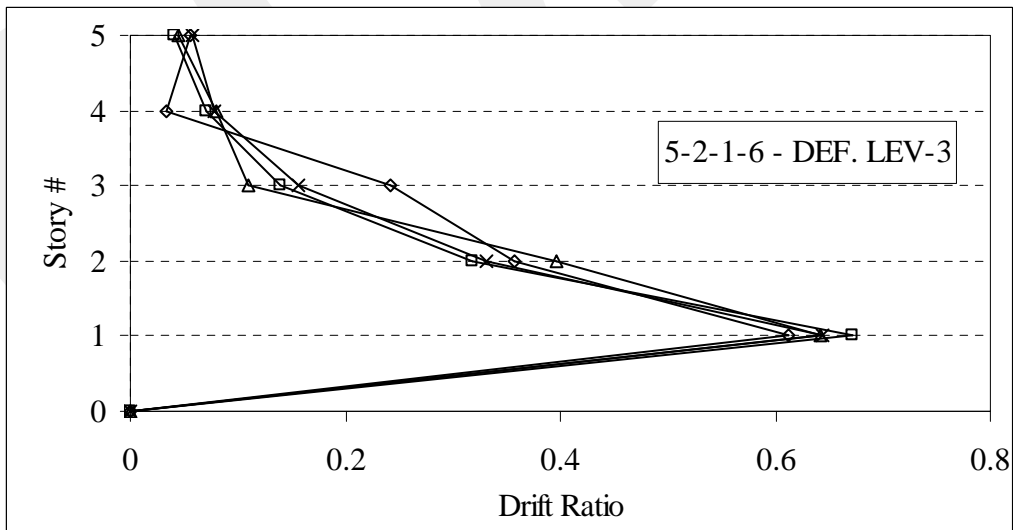
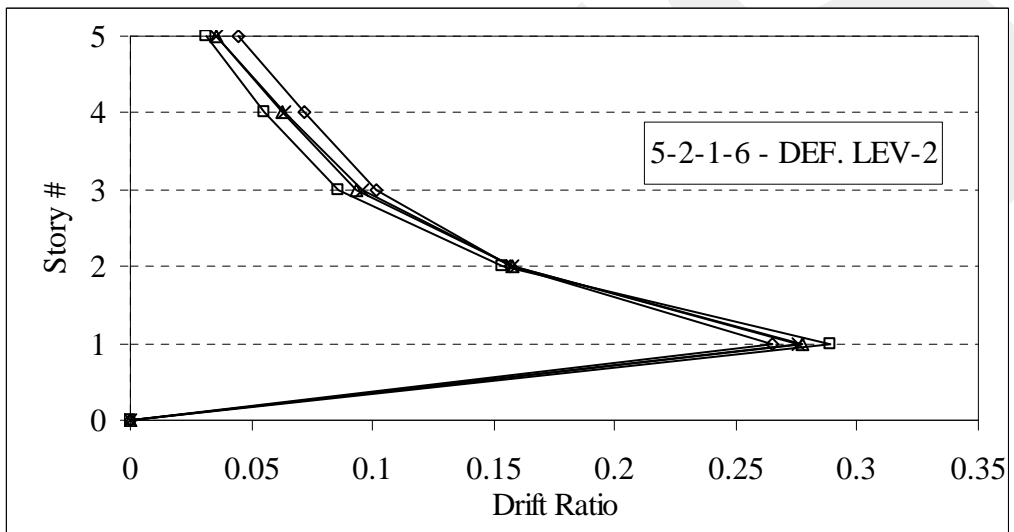
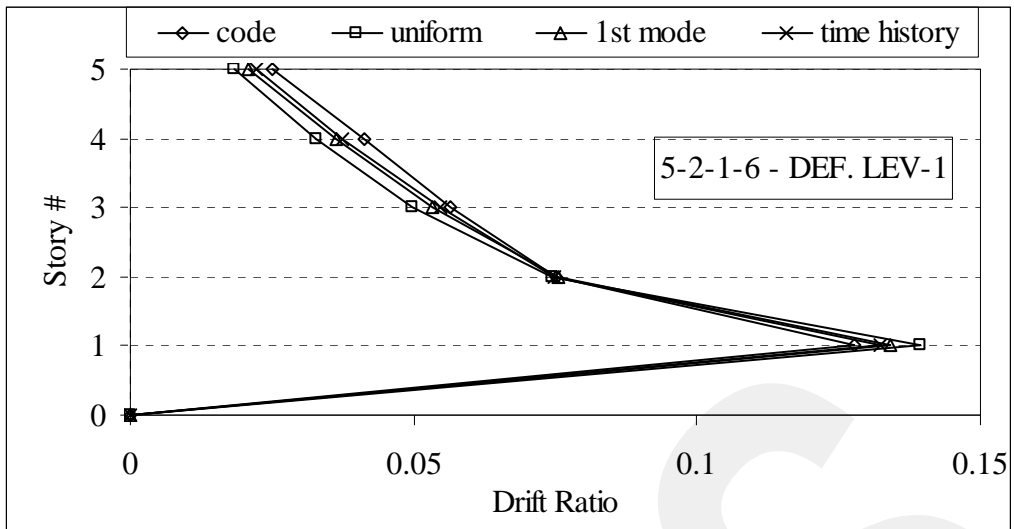


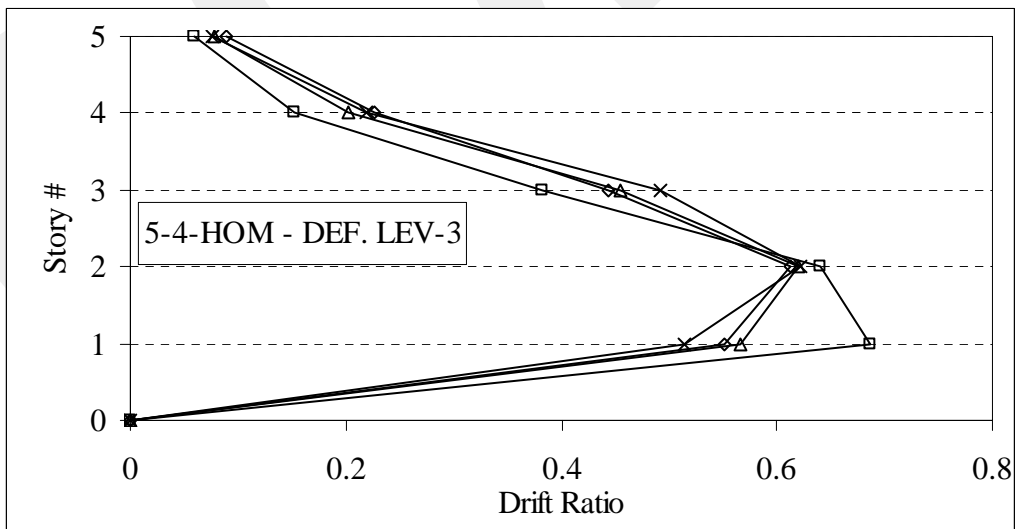
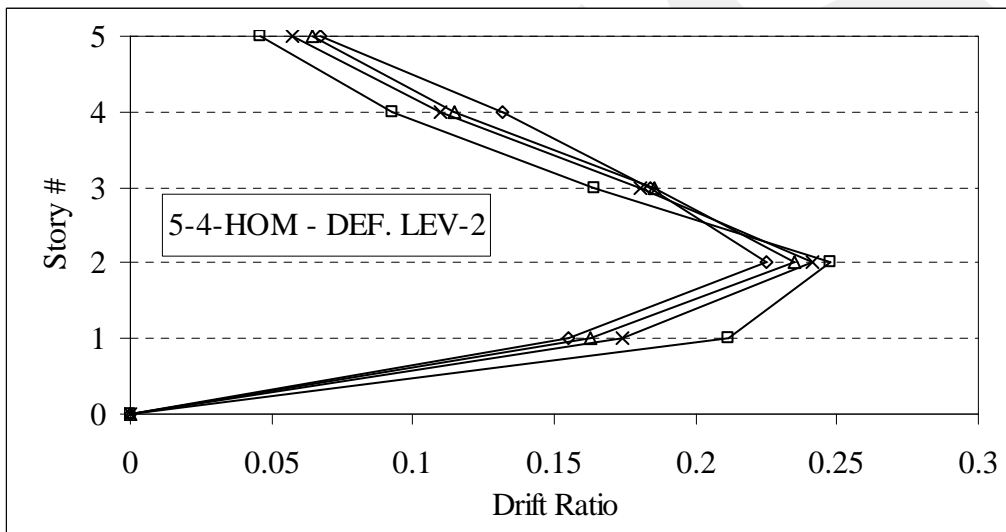
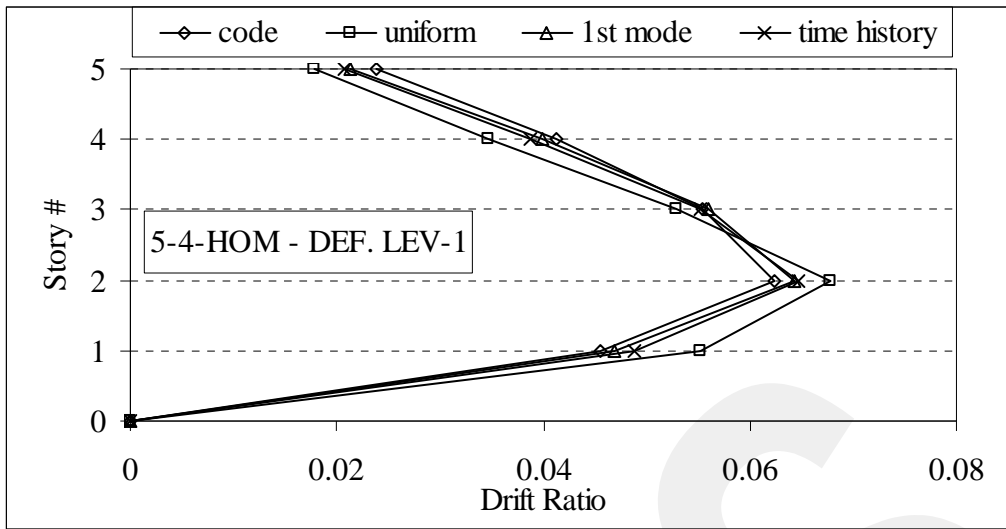


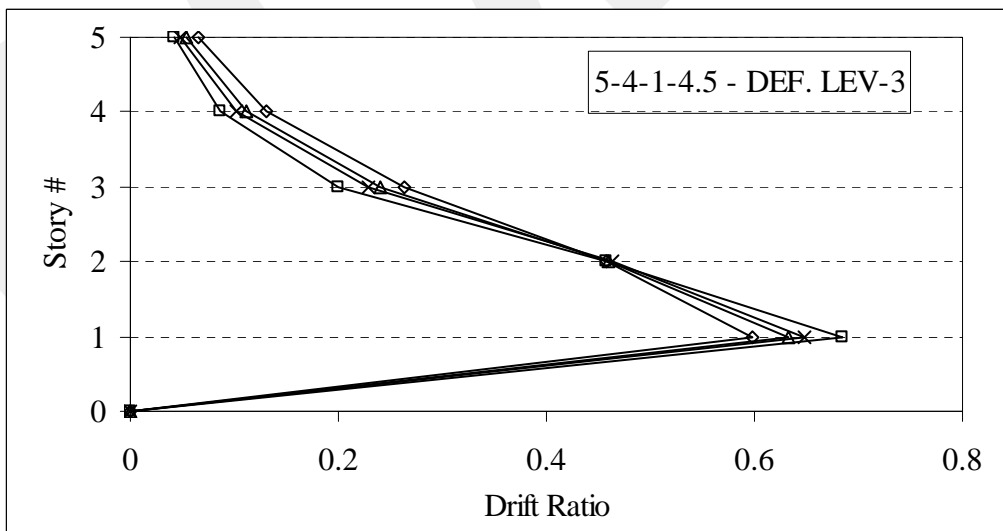
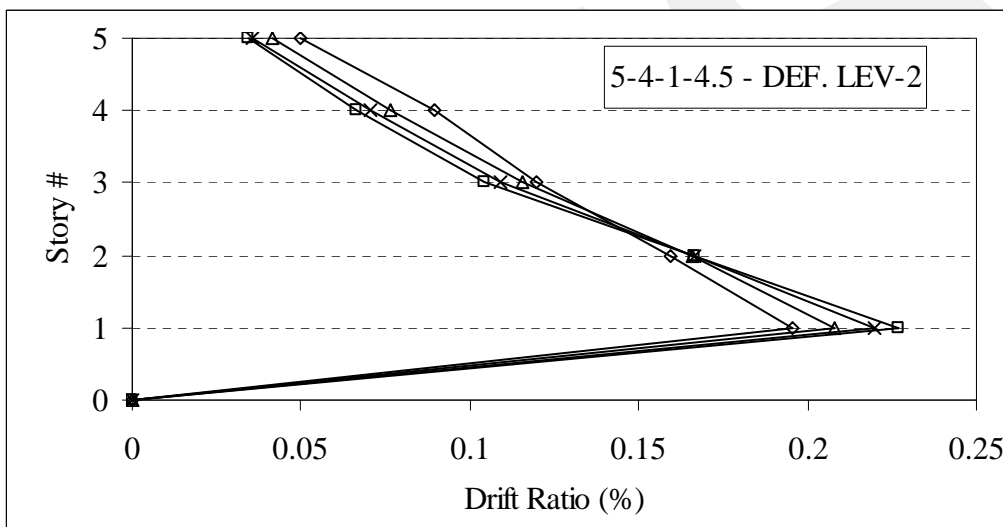
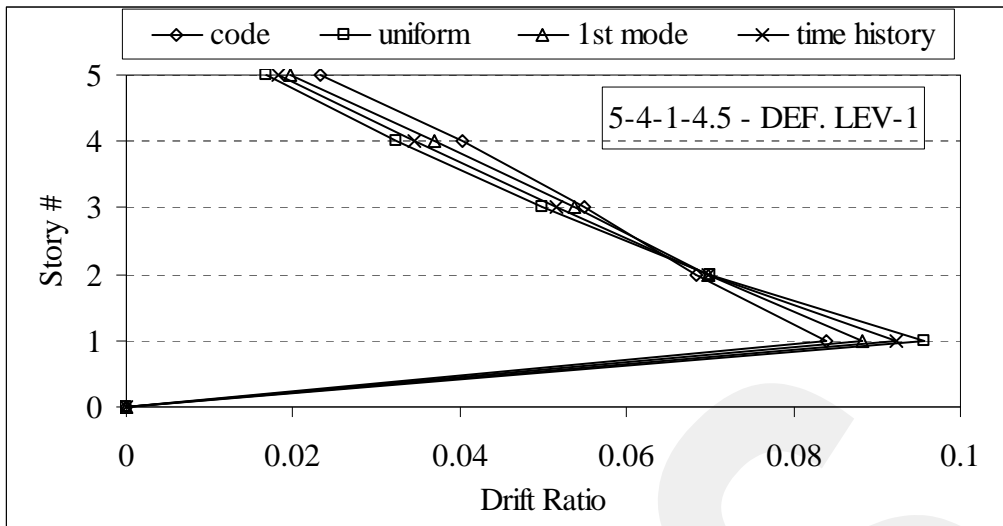


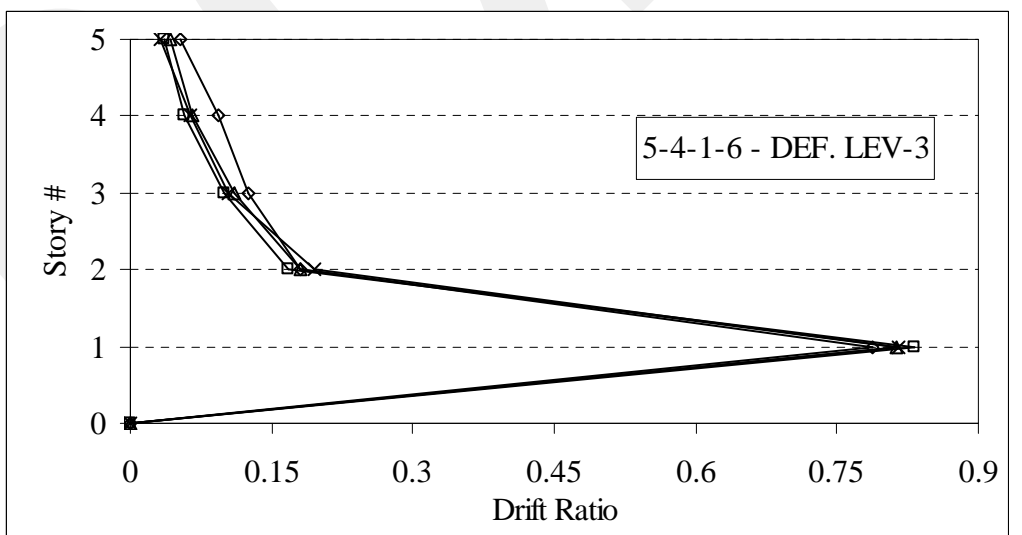
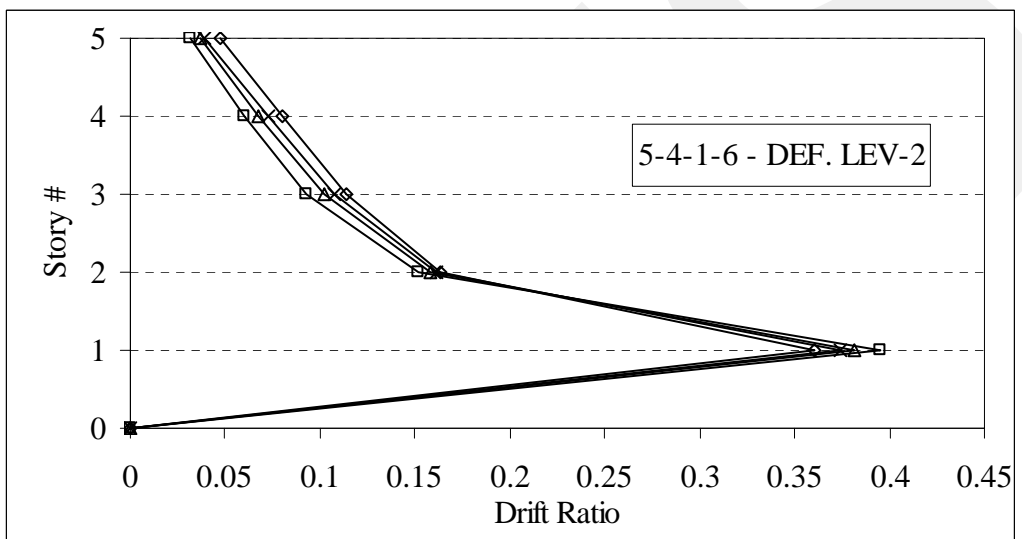
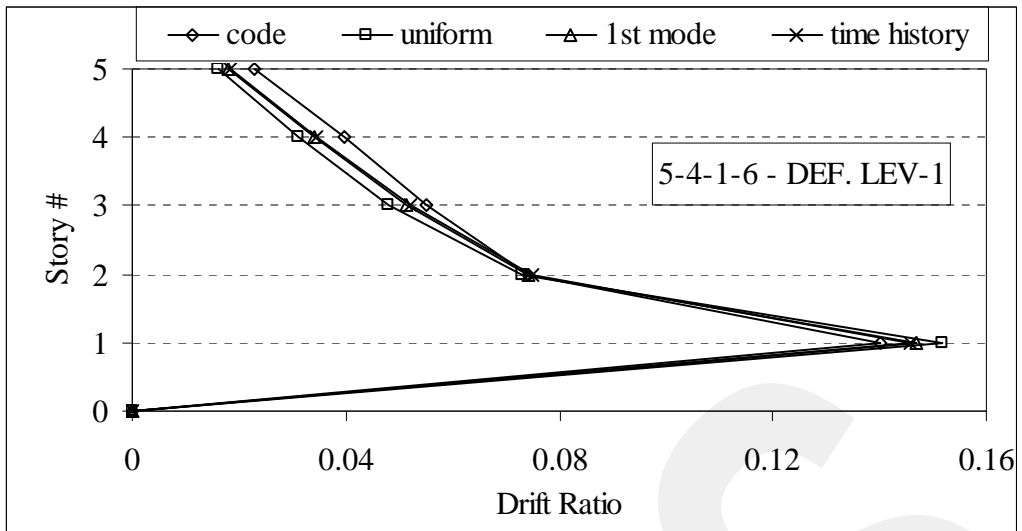


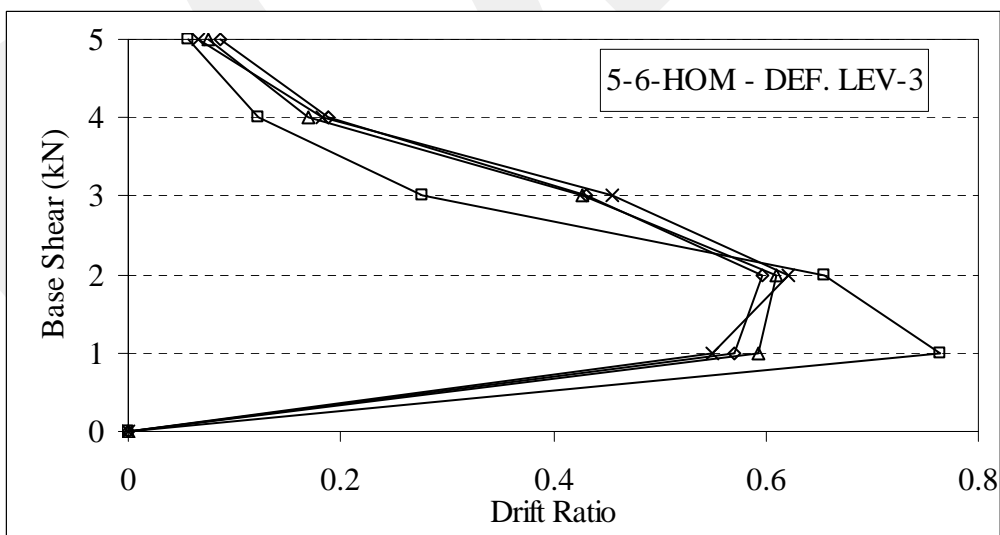
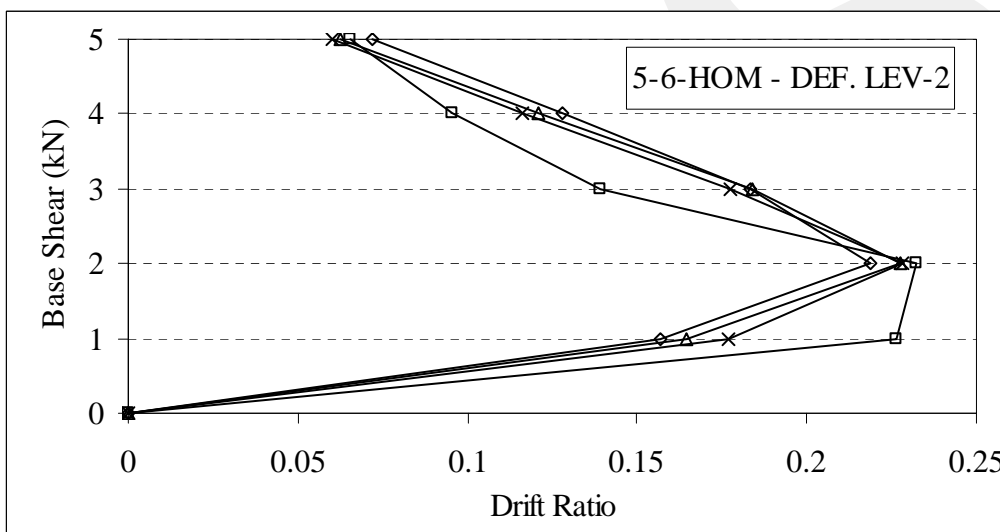
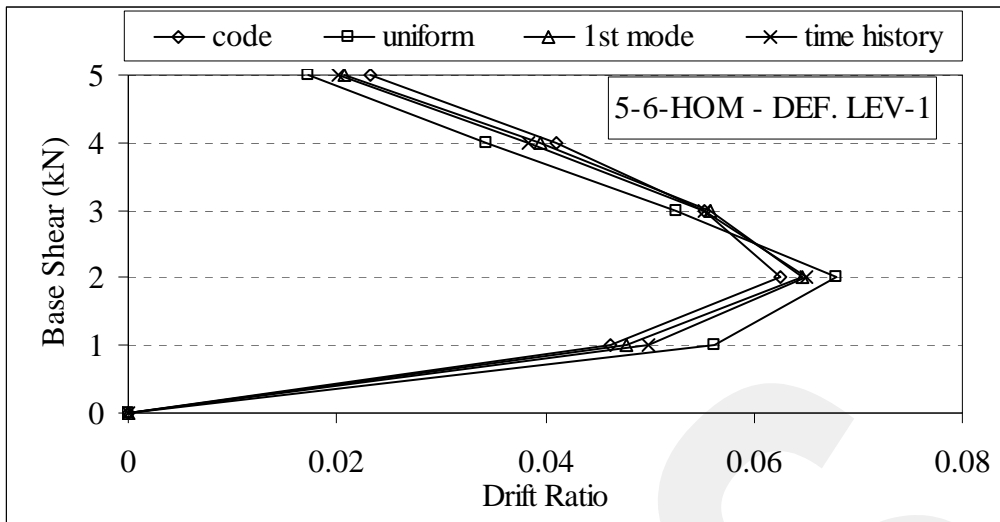


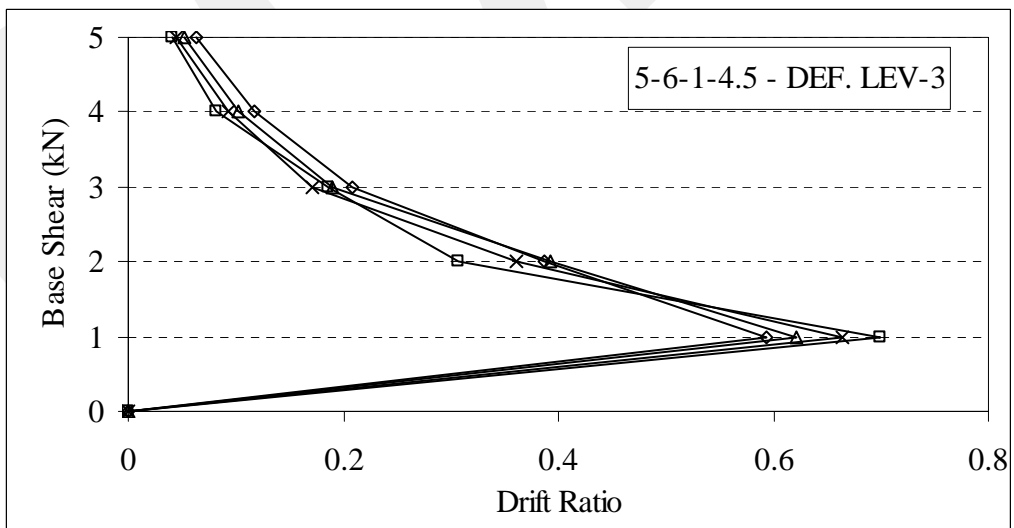
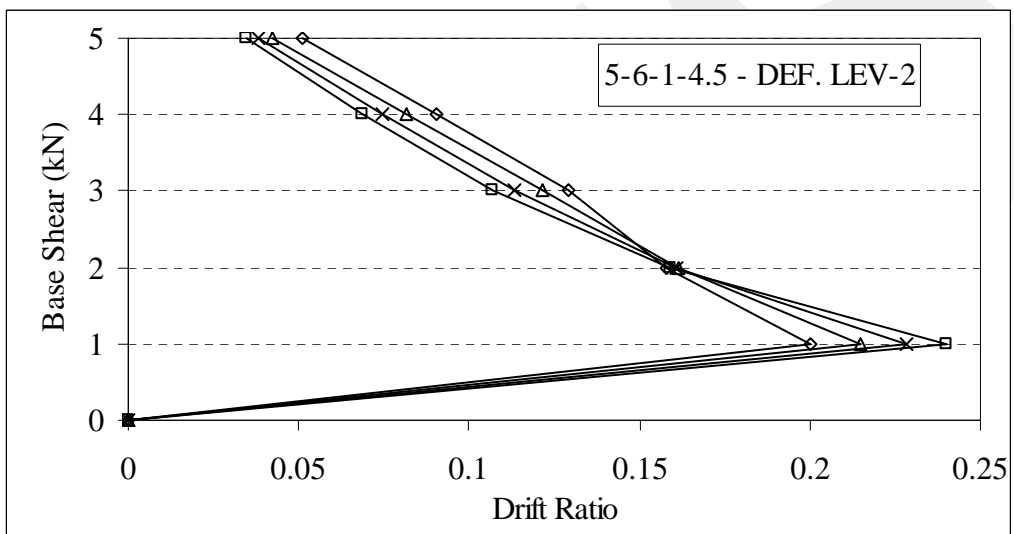
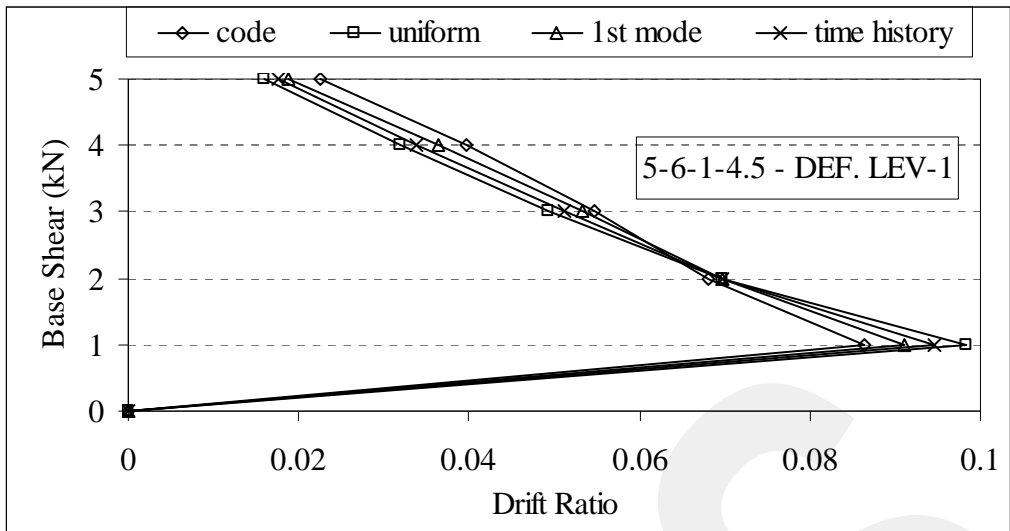


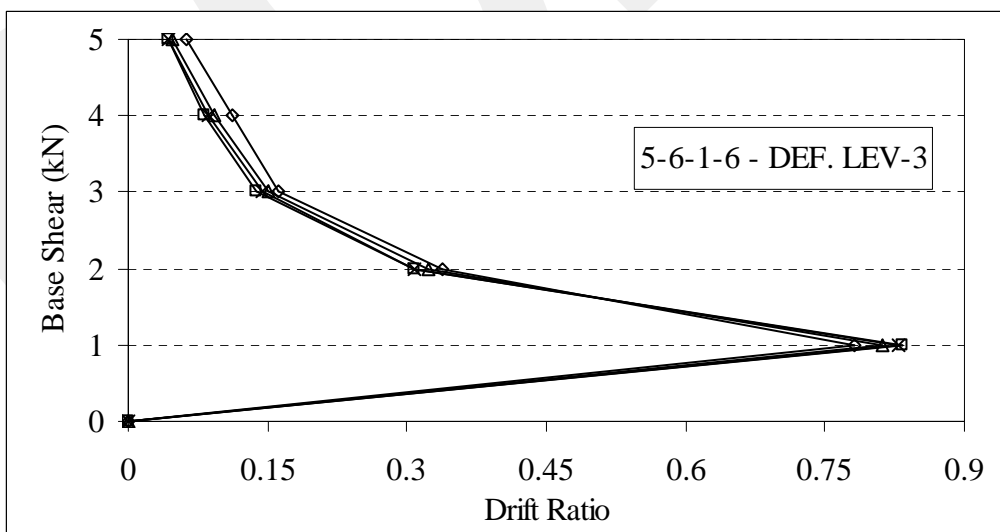
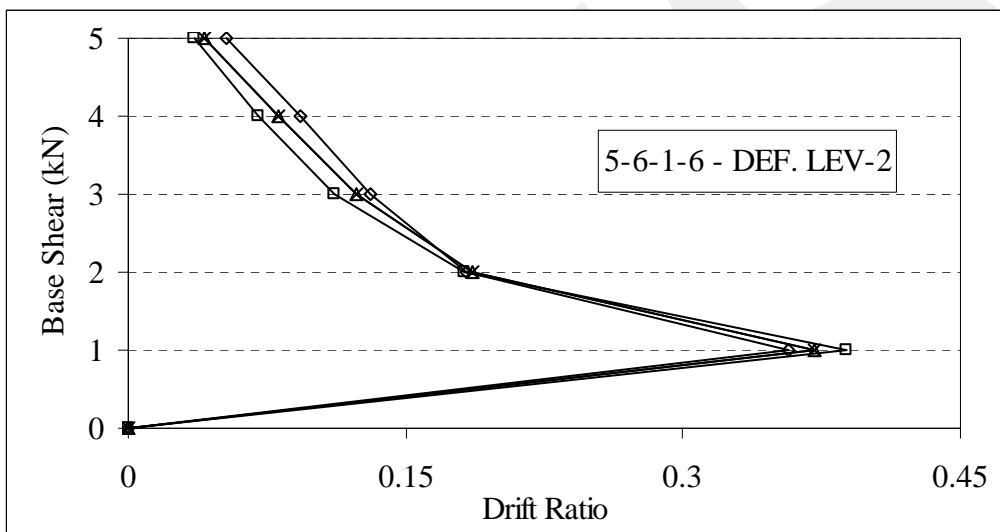
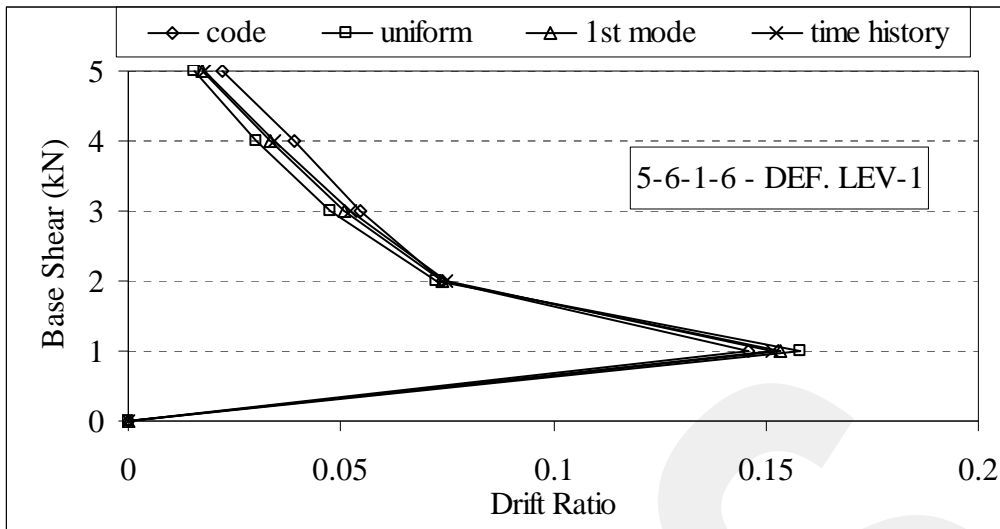


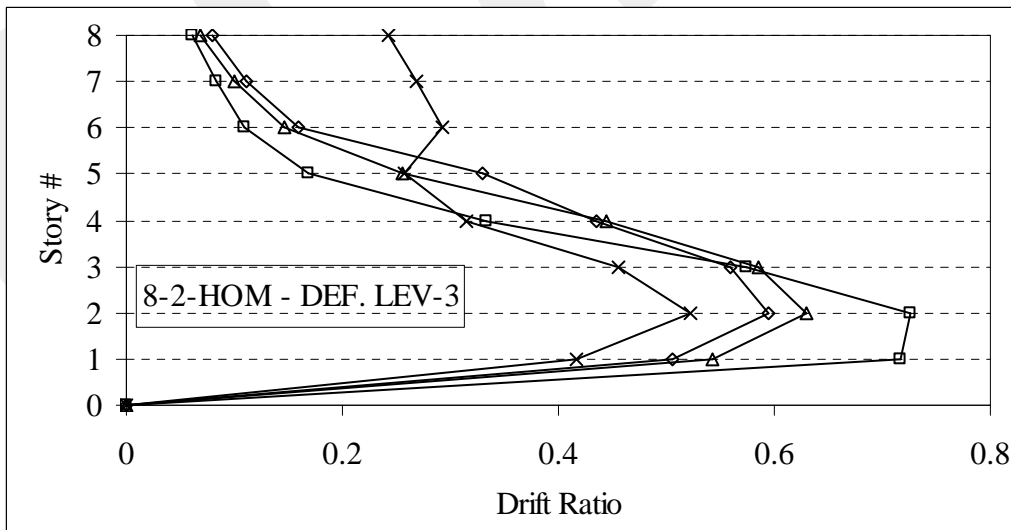
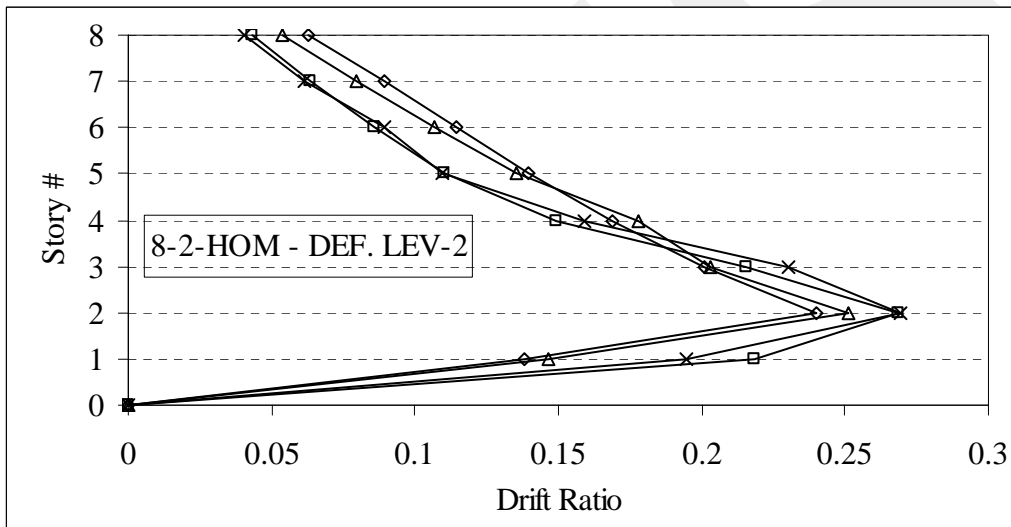
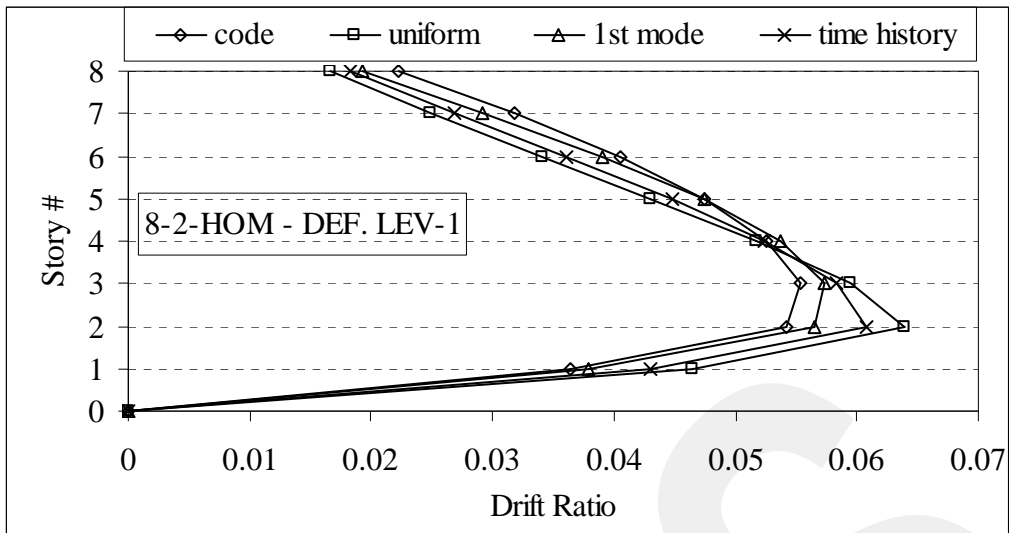


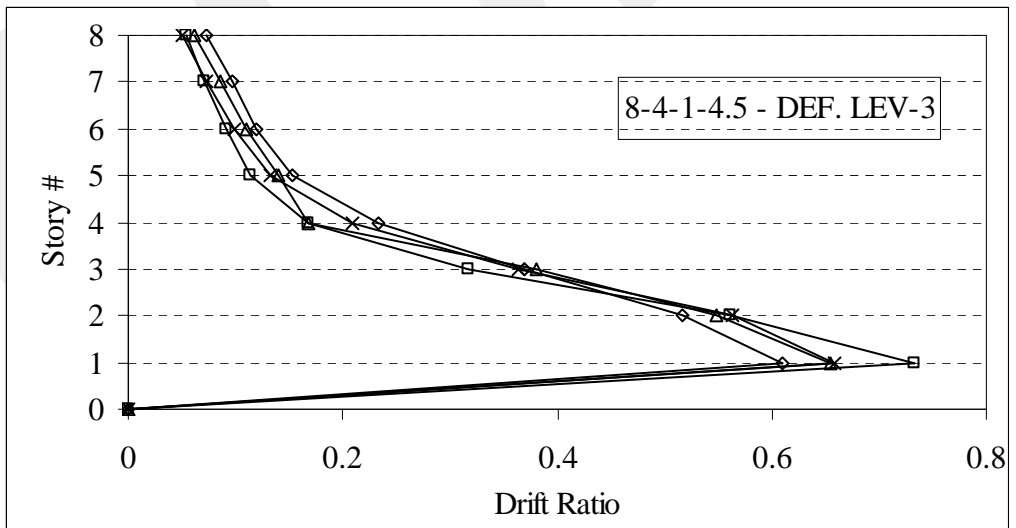
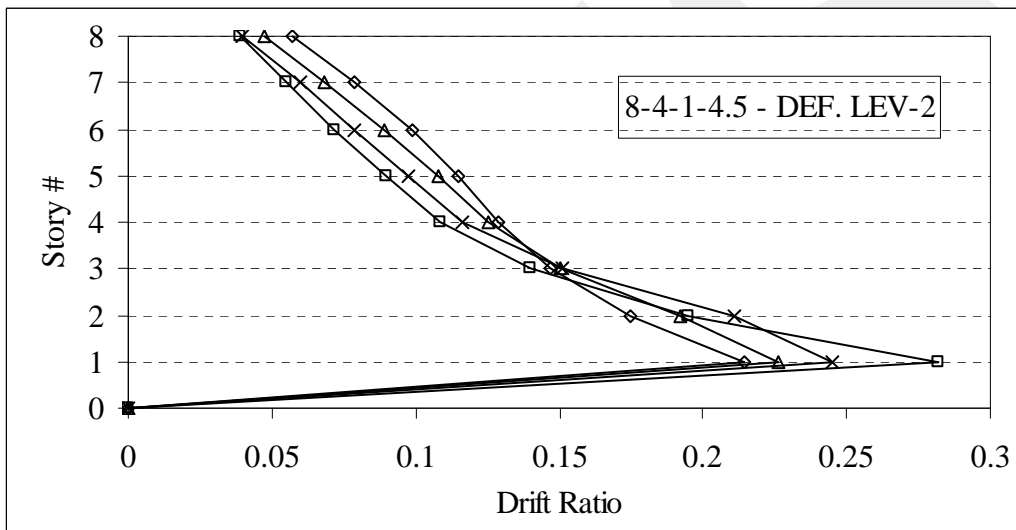
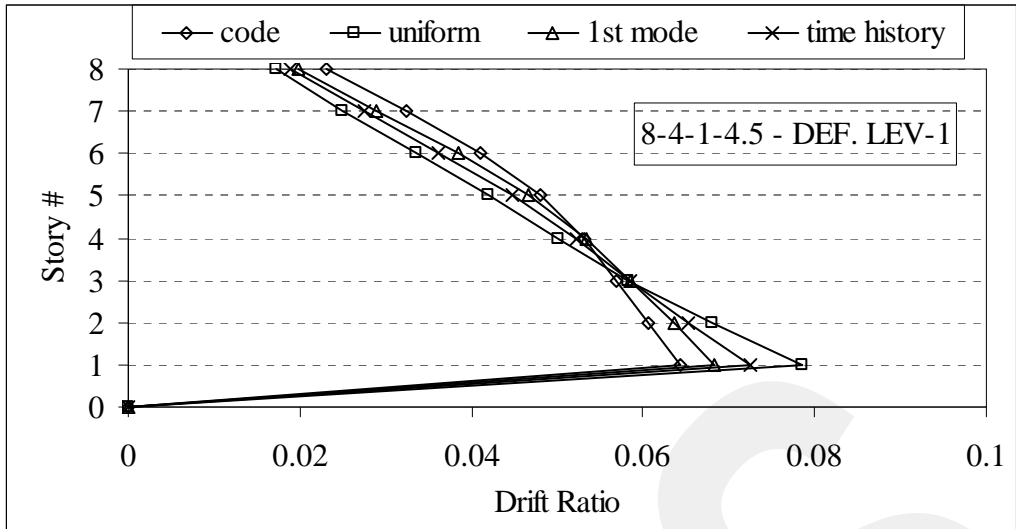


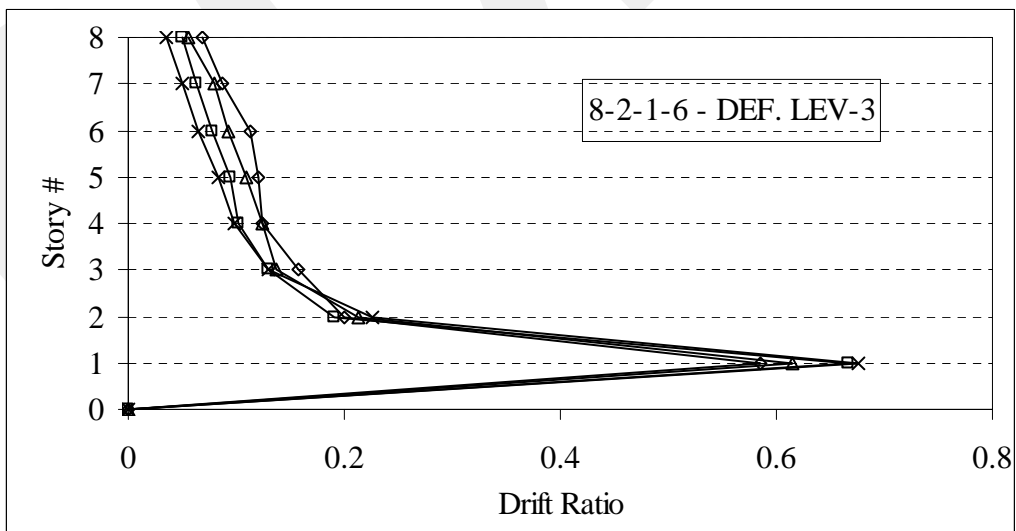
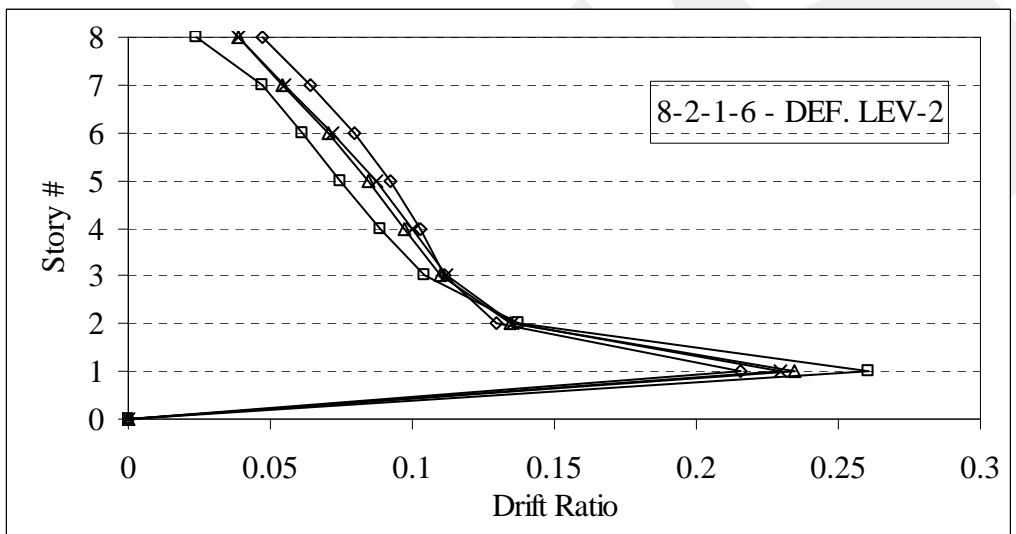
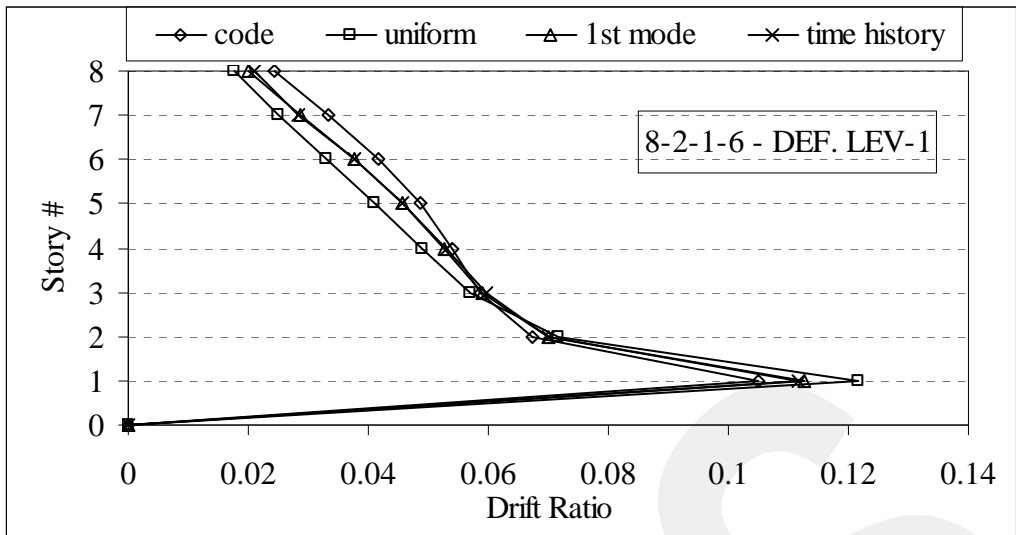


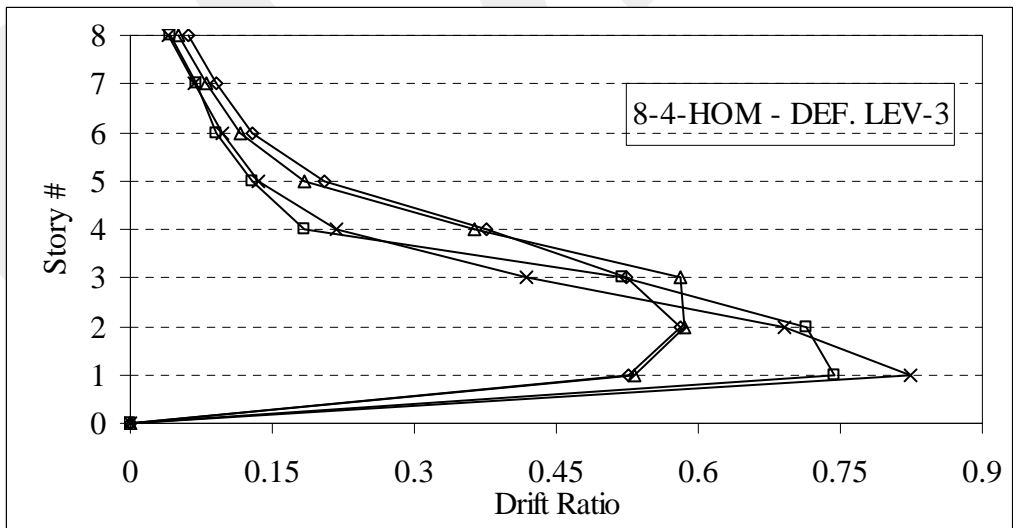
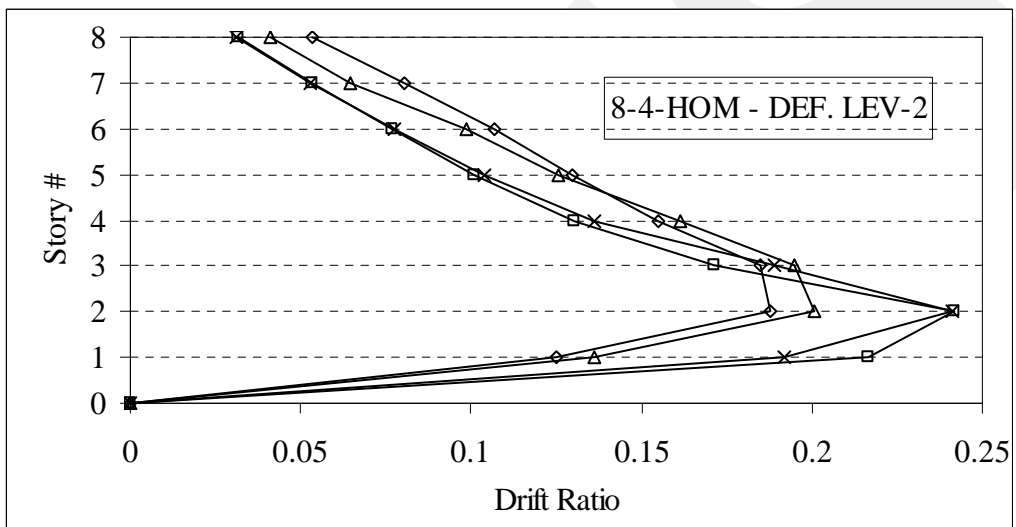
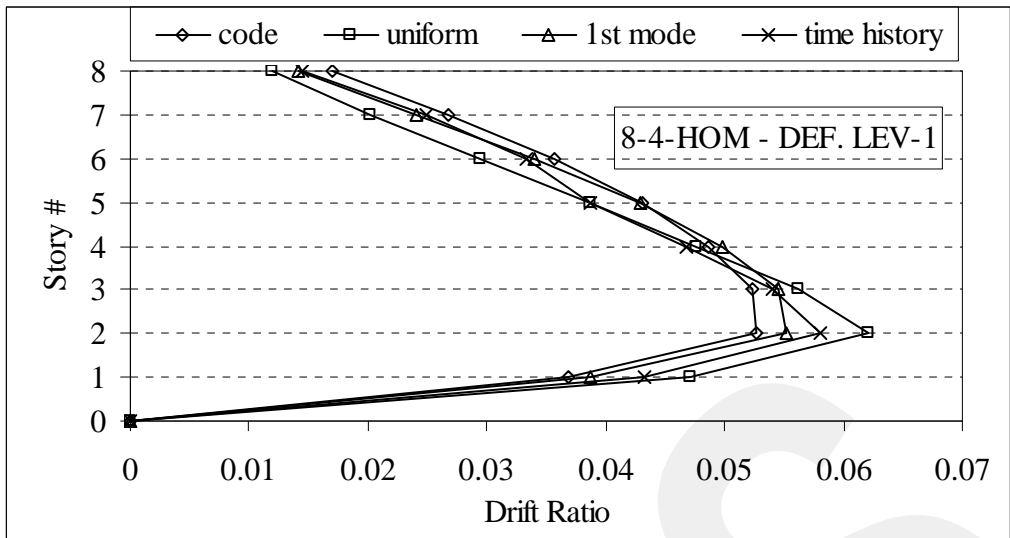


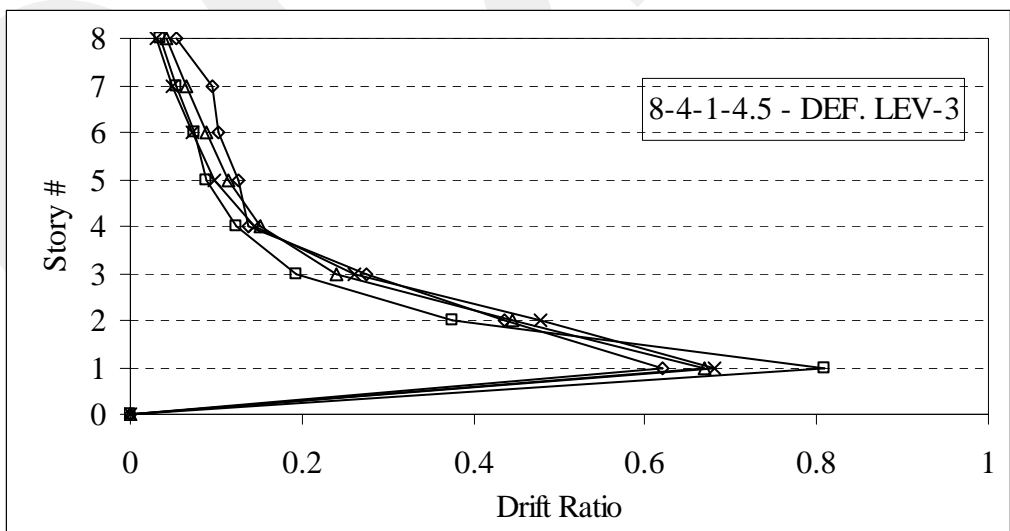
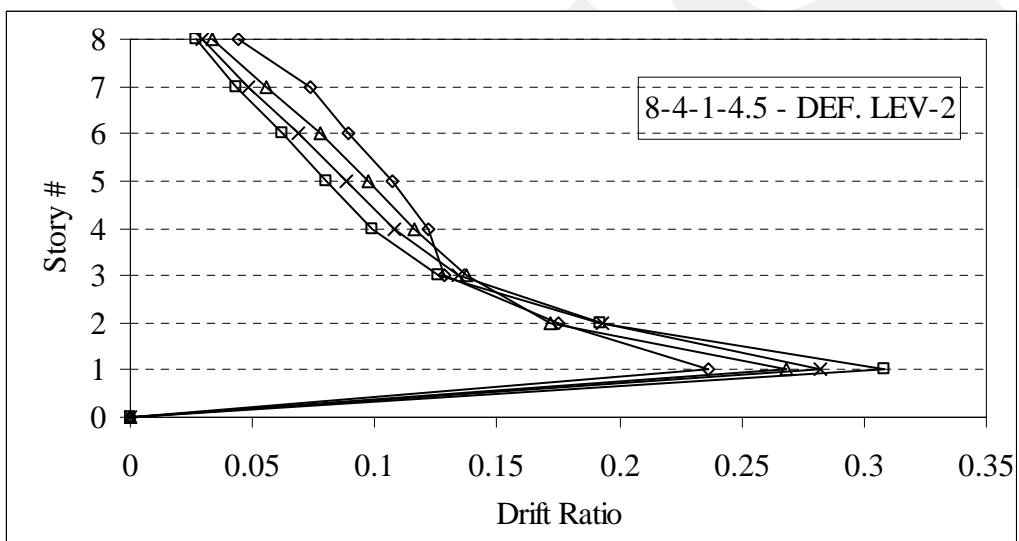
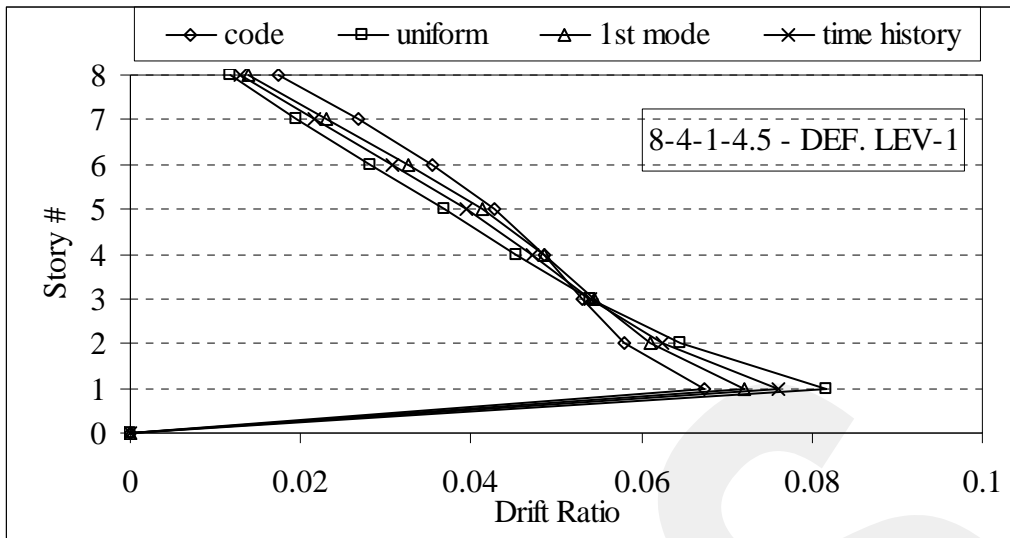


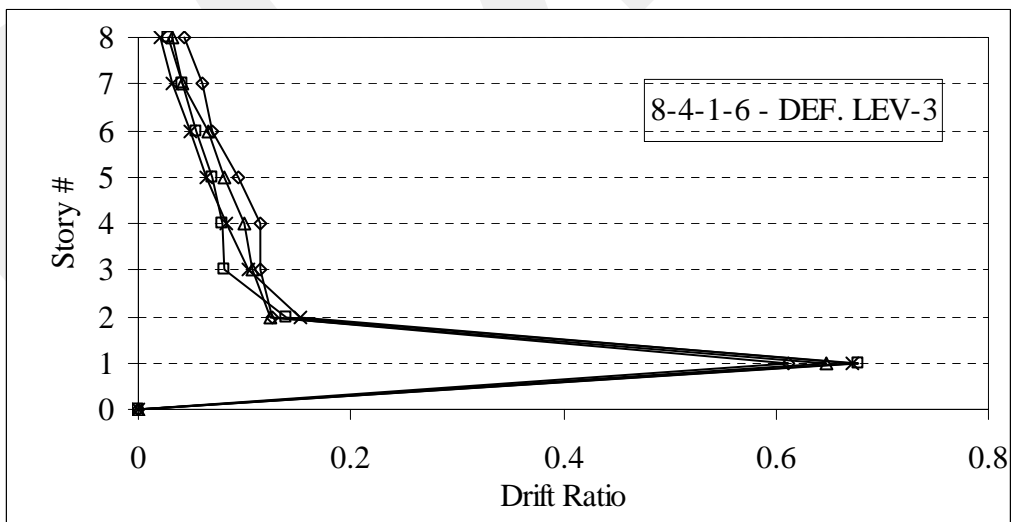
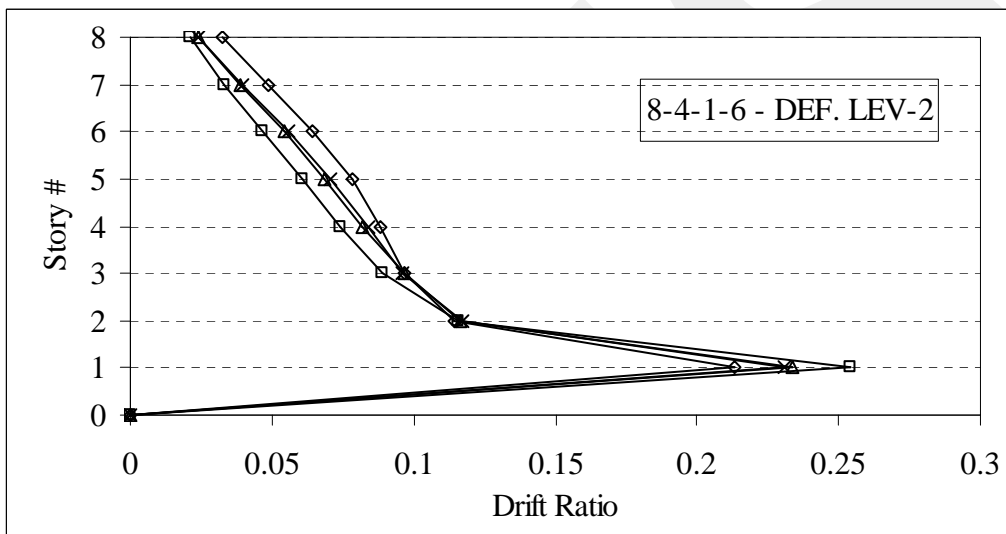
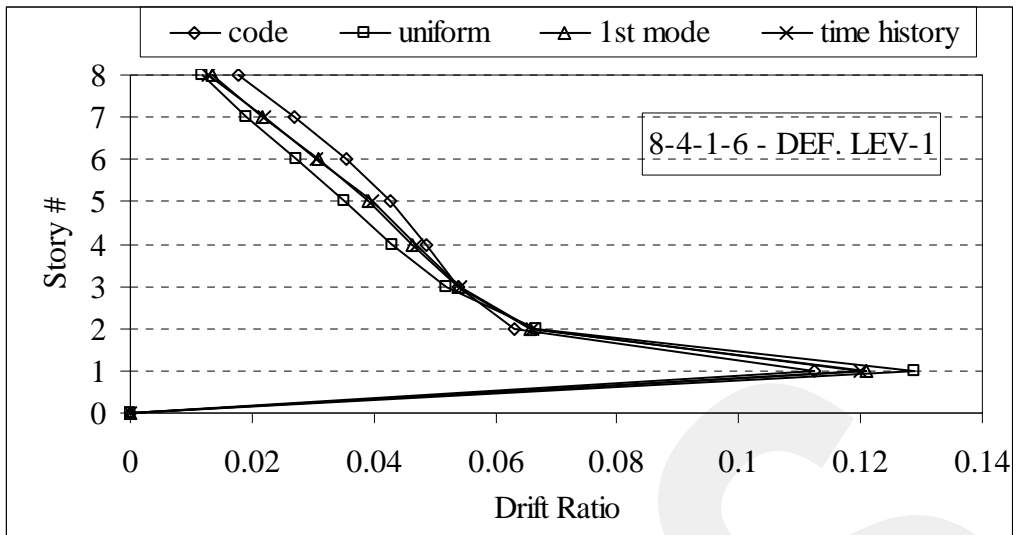


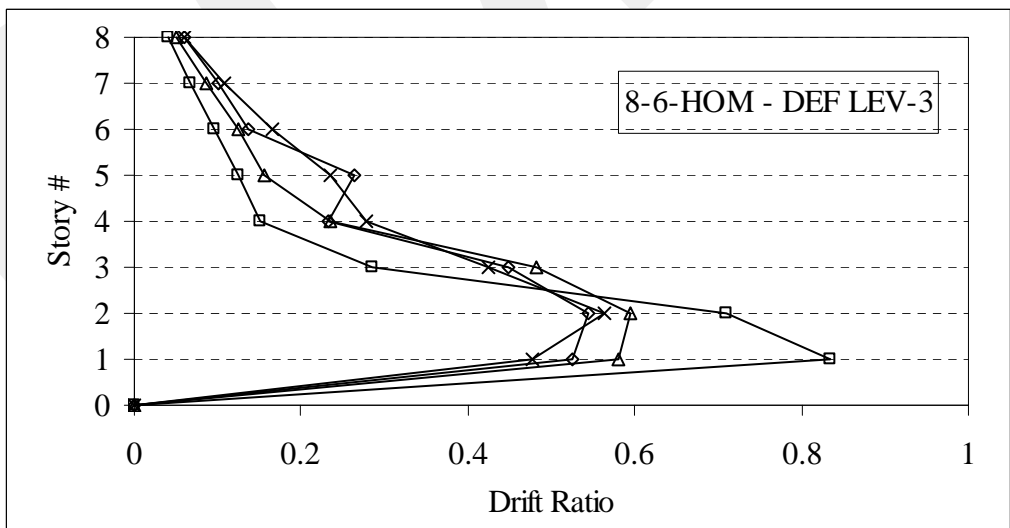
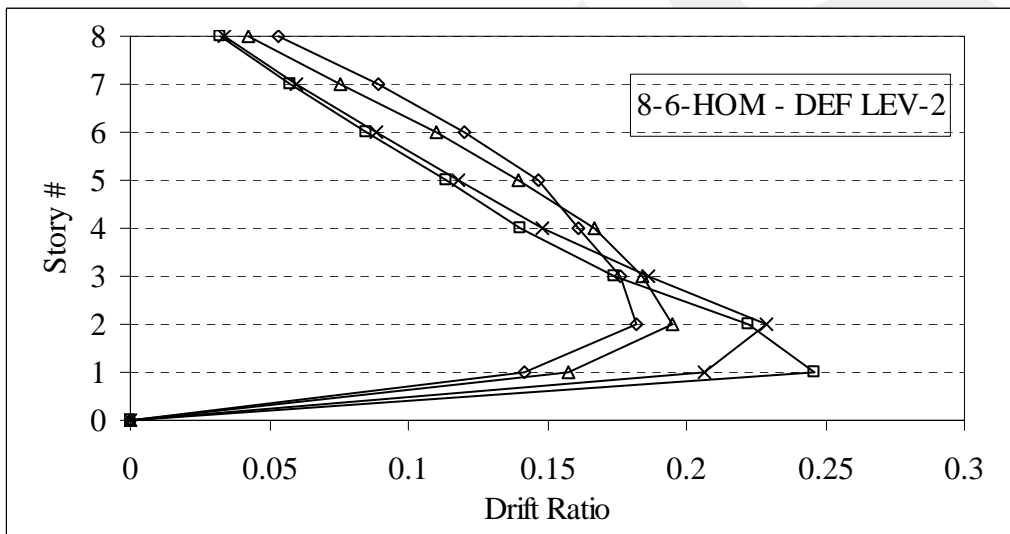
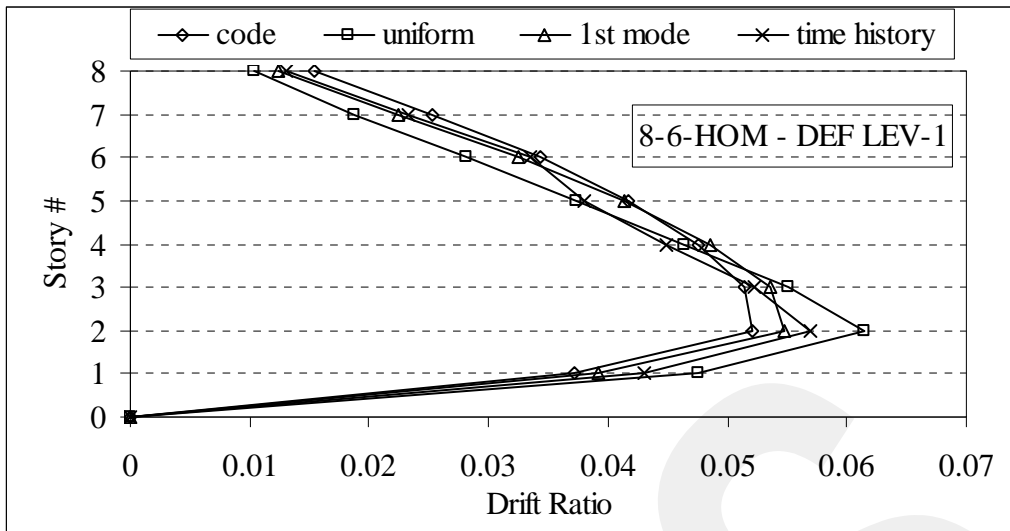


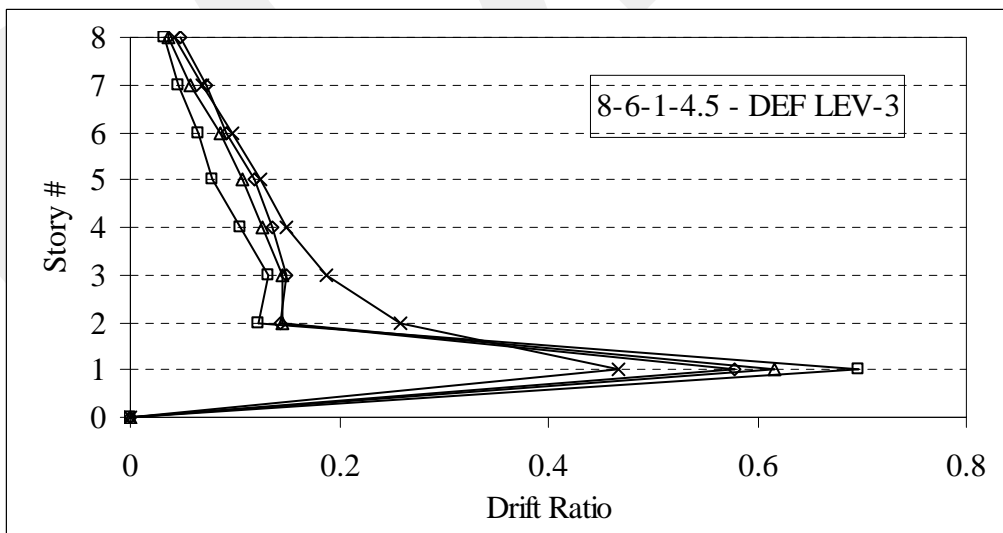
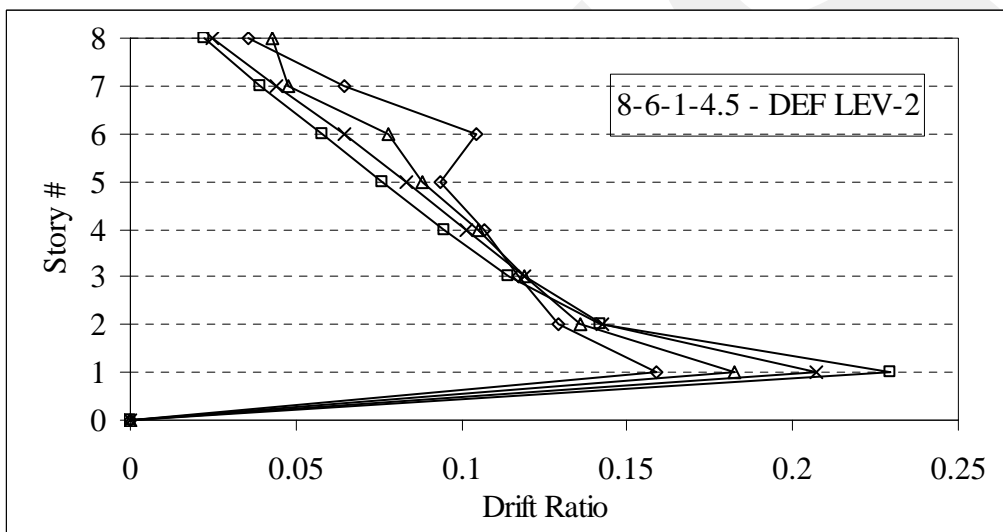
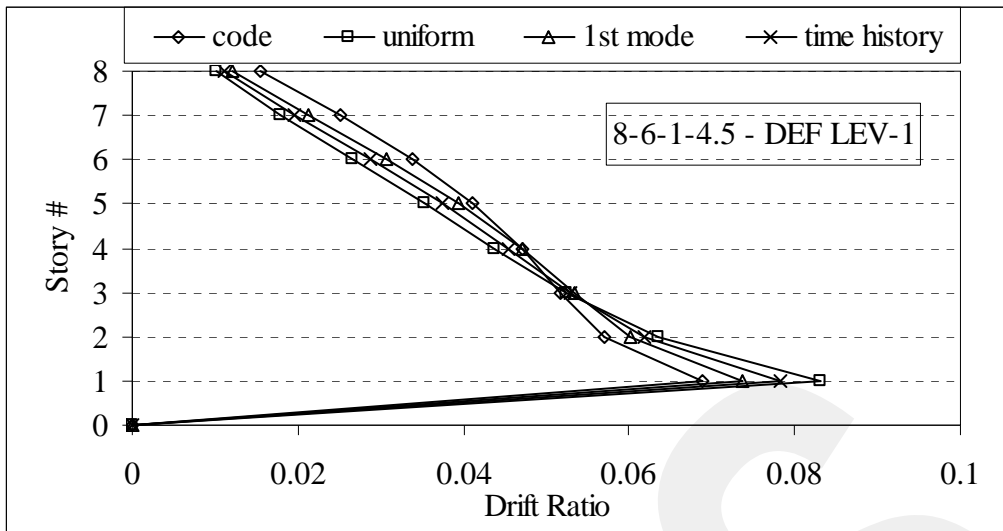


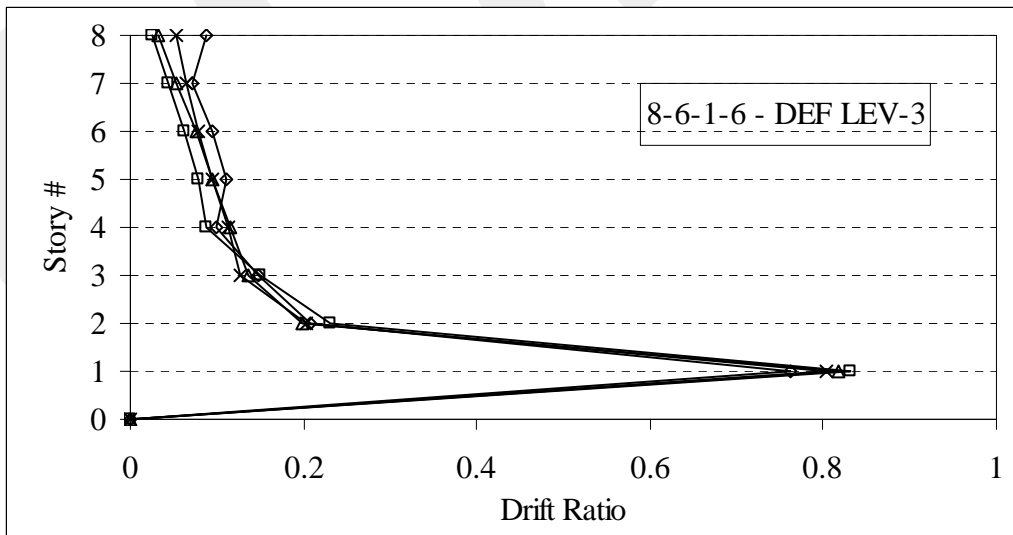
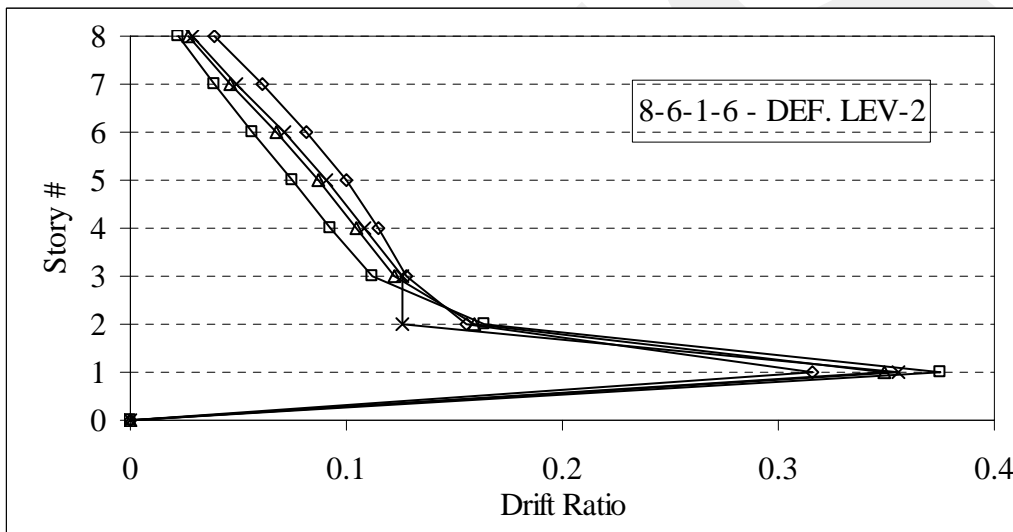
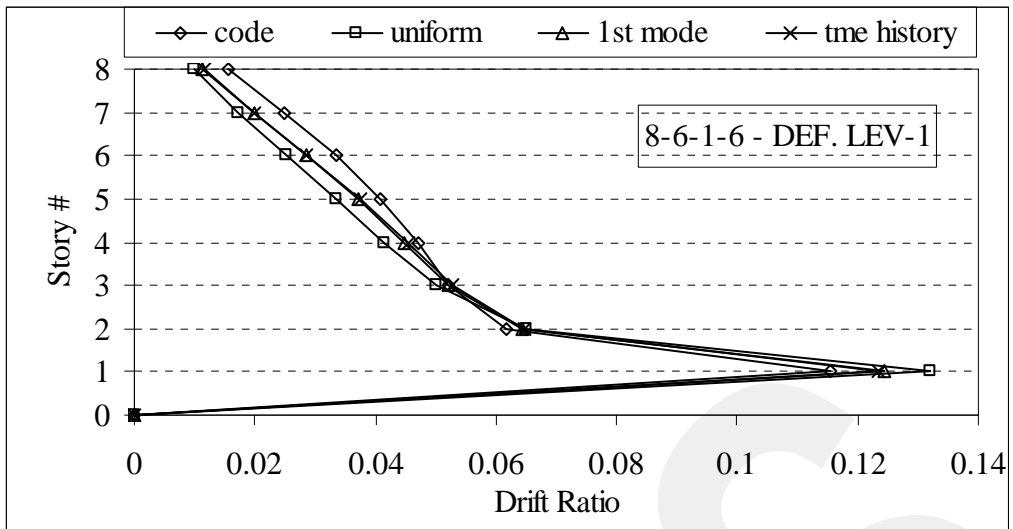






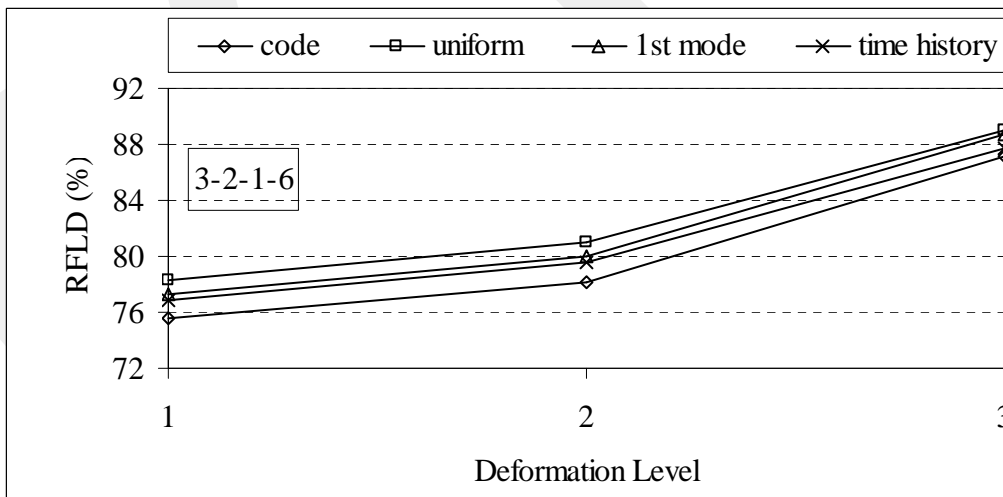
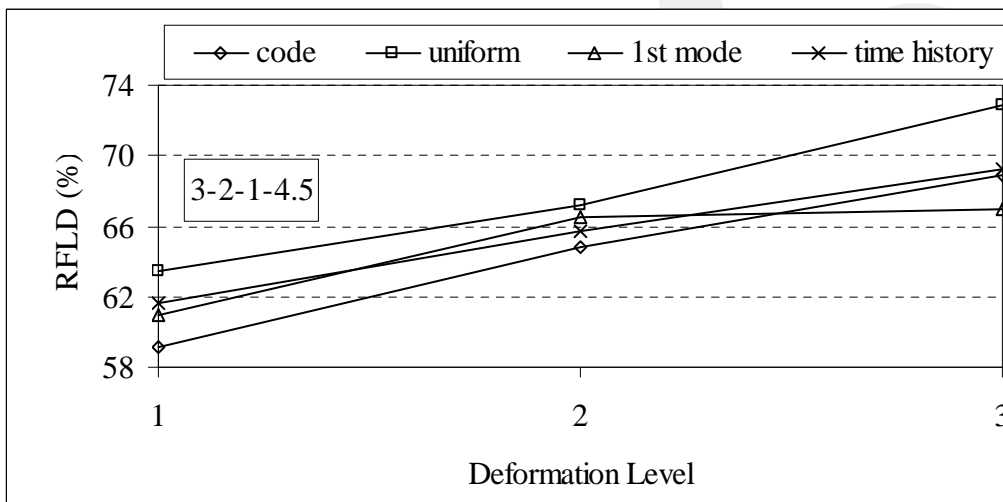
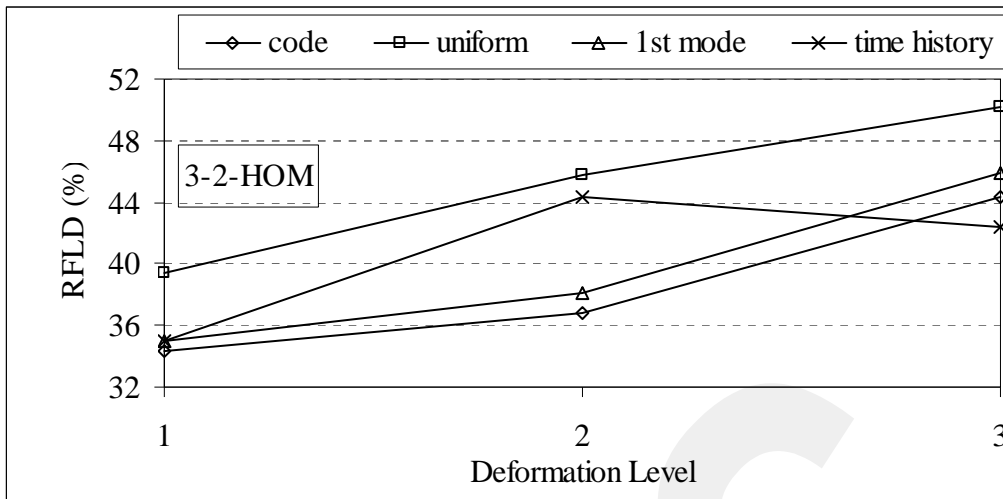


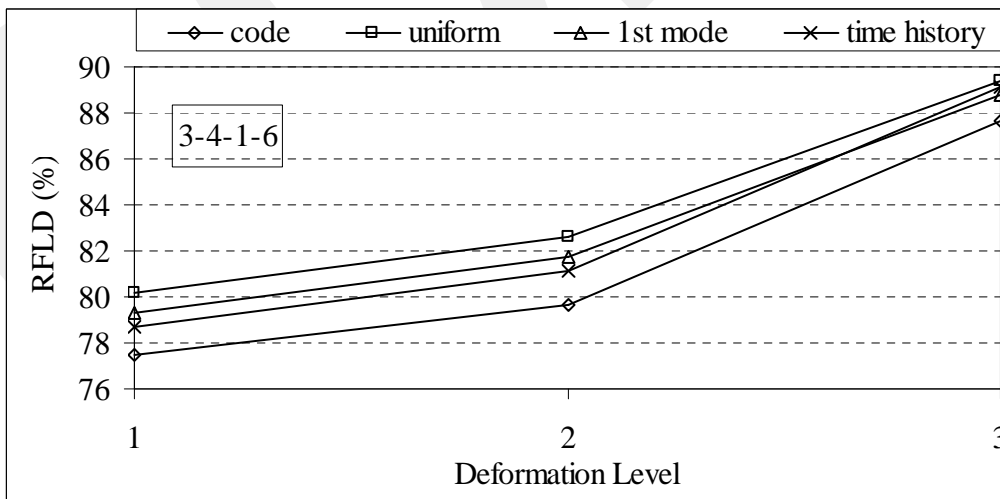
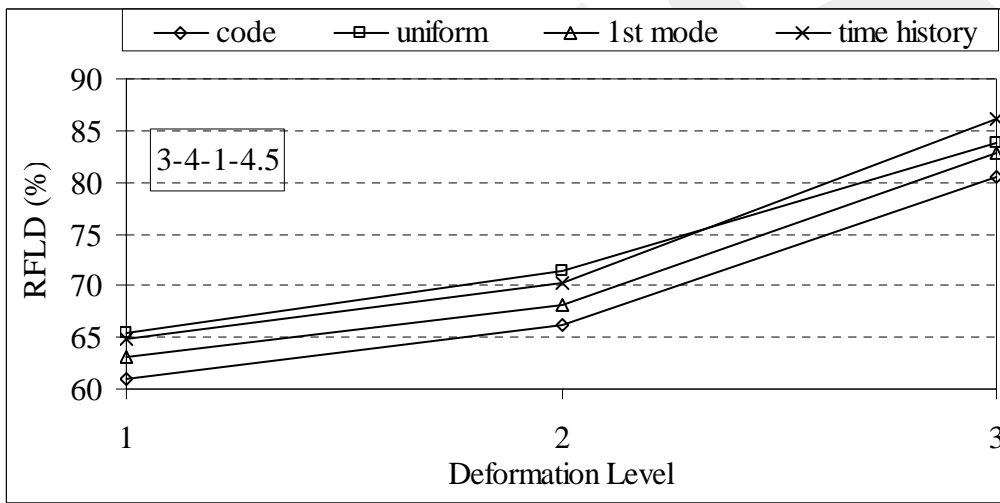
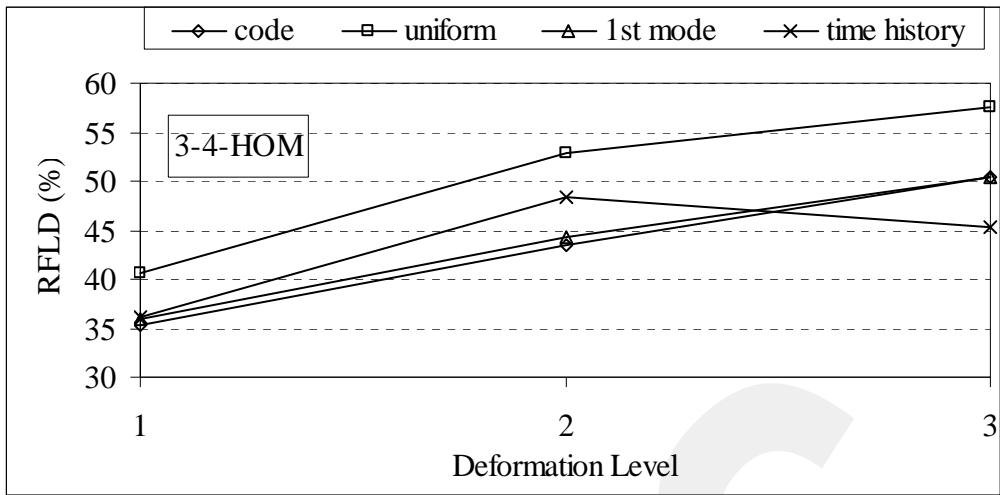


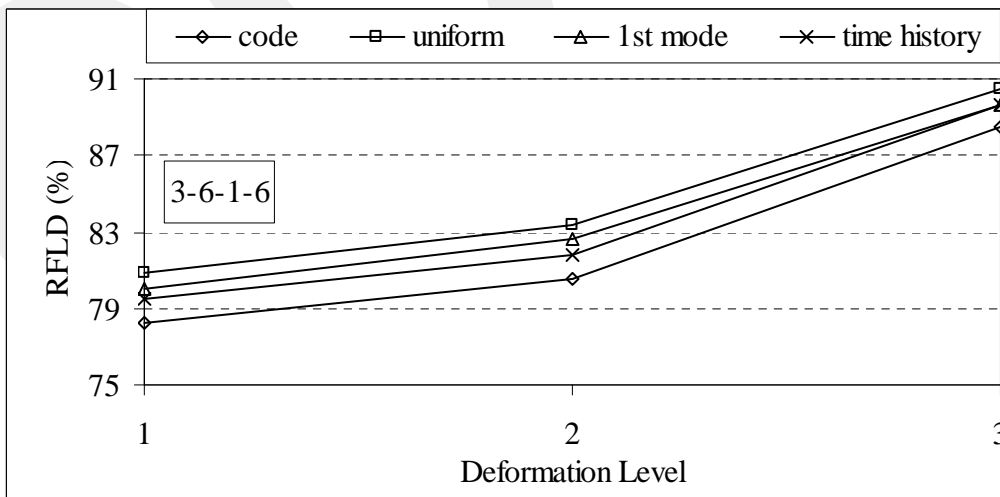
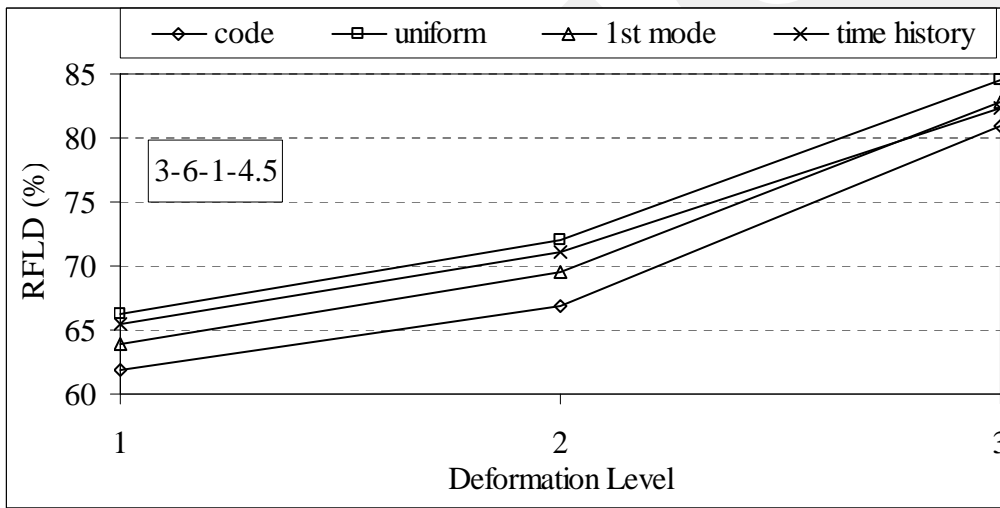
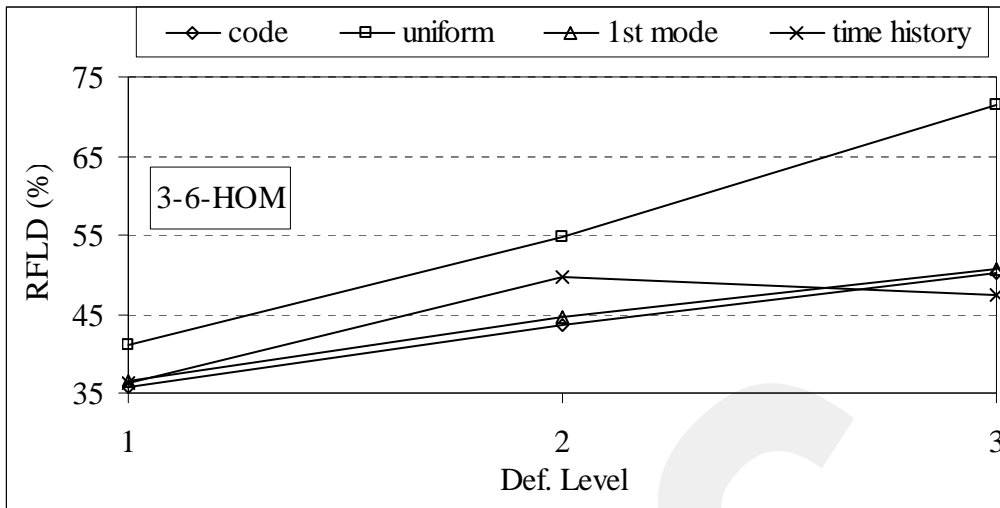


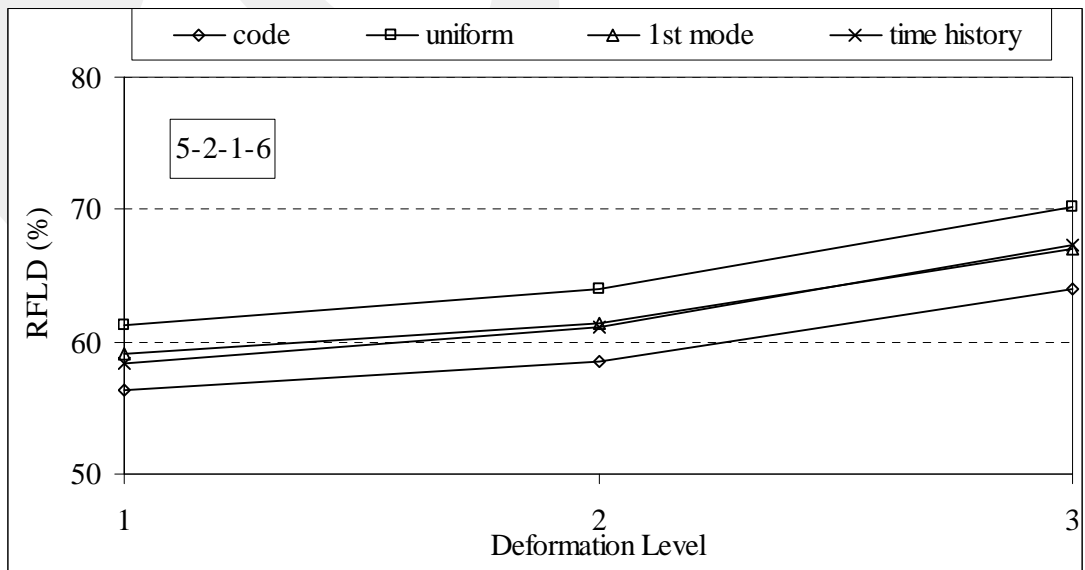
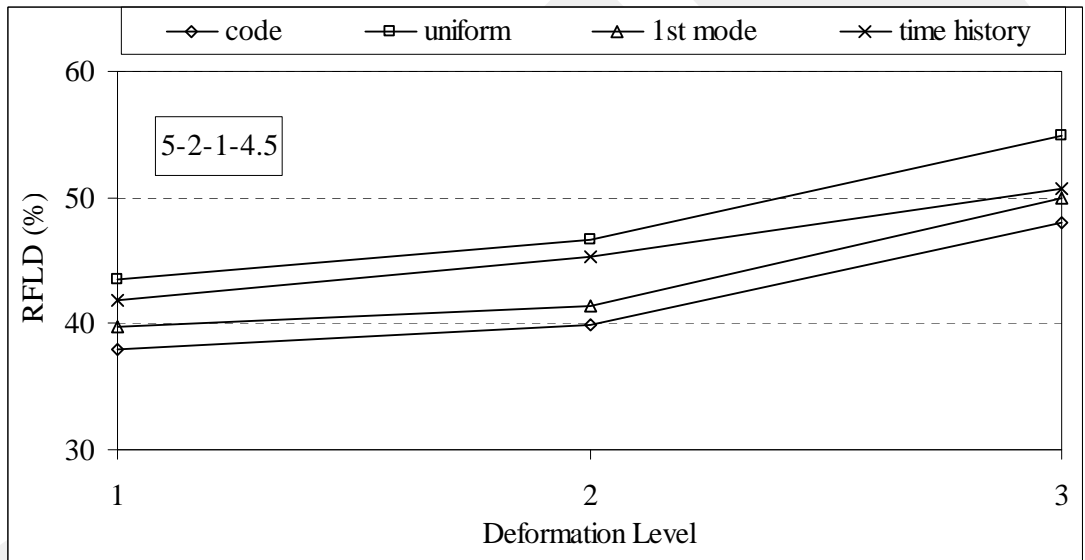
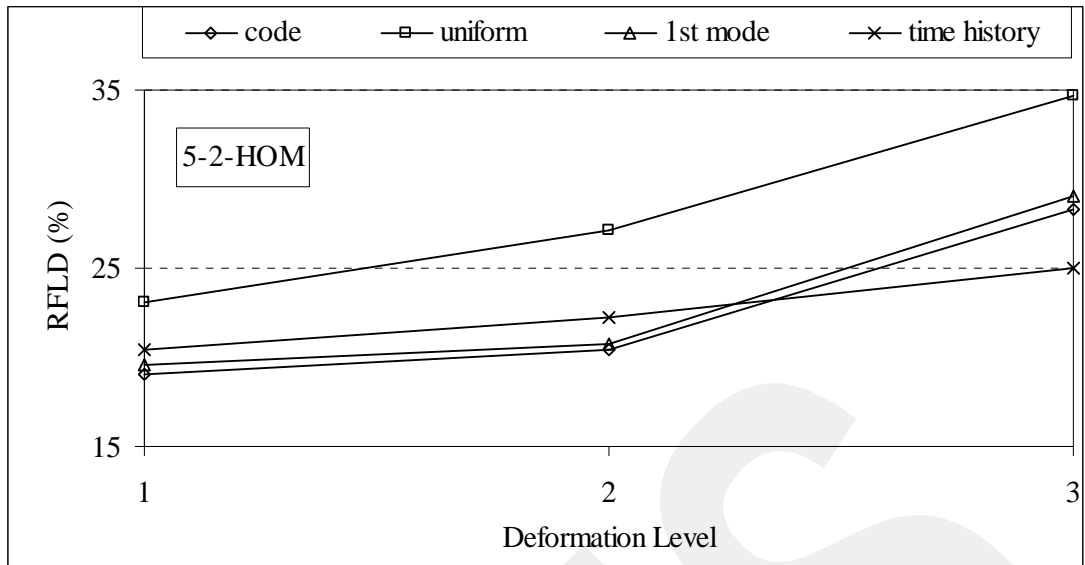
APPENDIX E

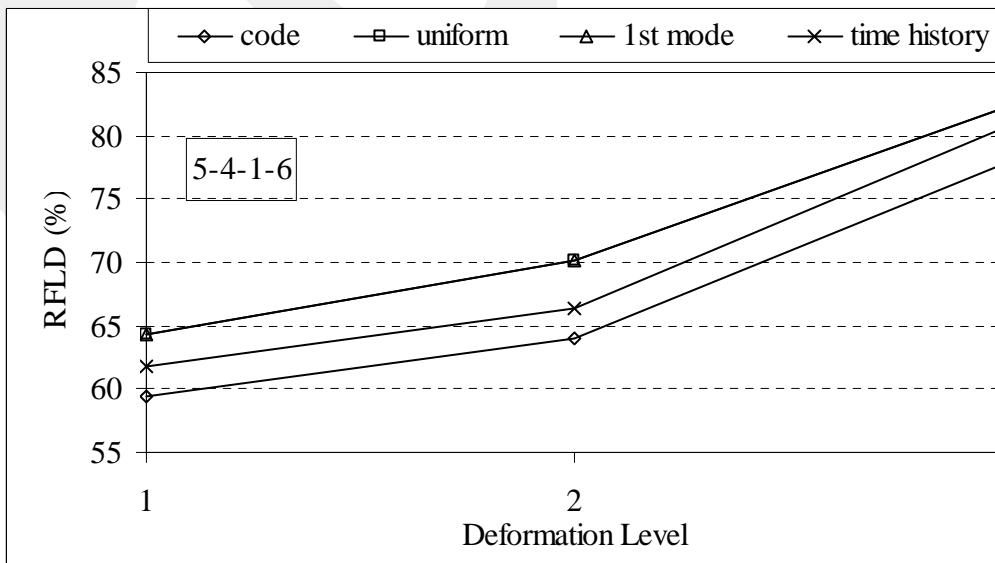
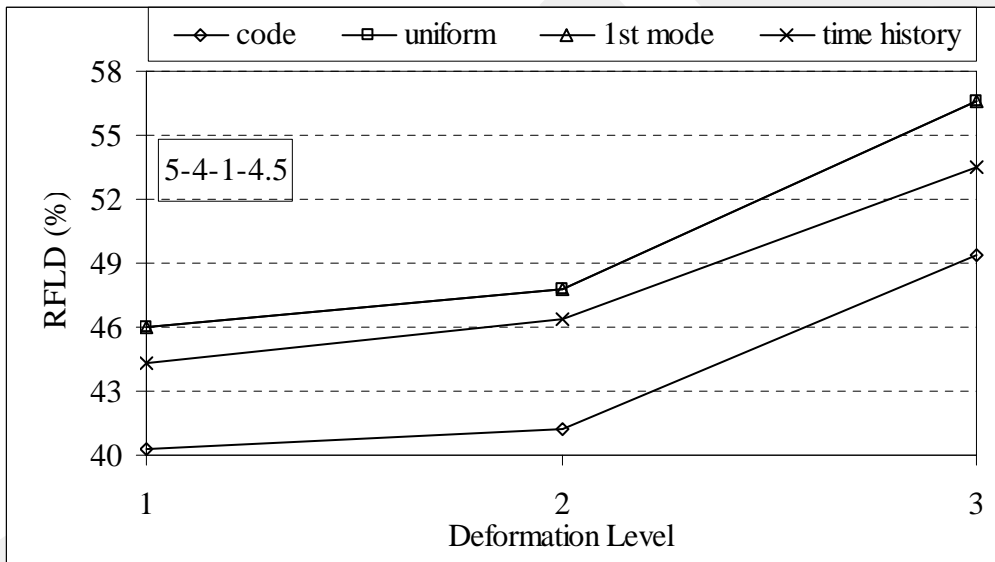
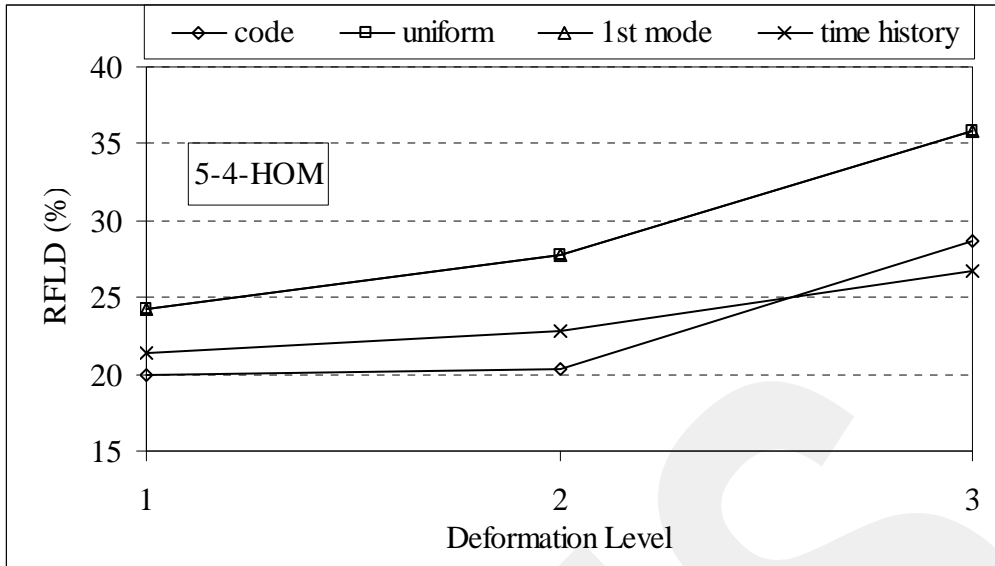
RFLD Diagrams

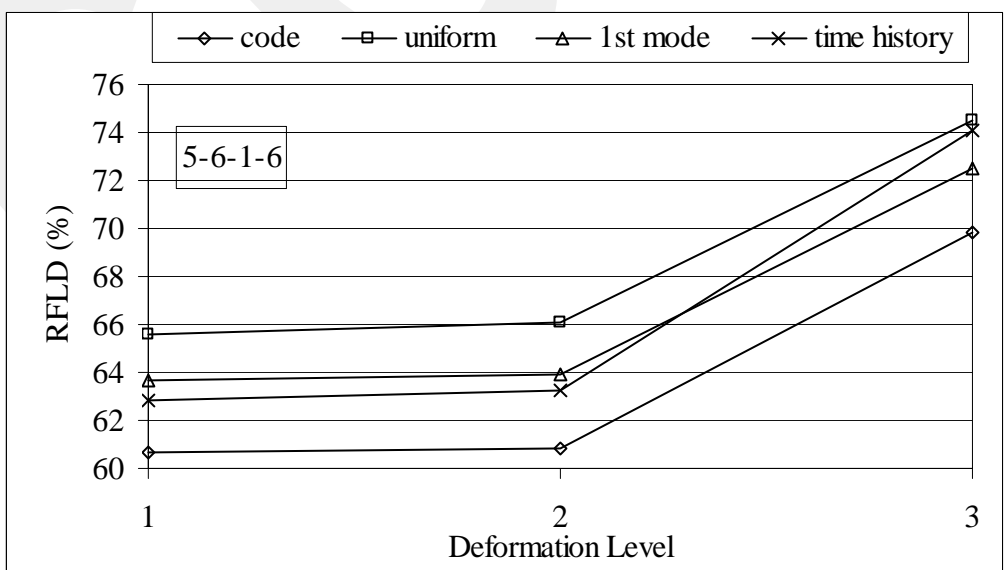
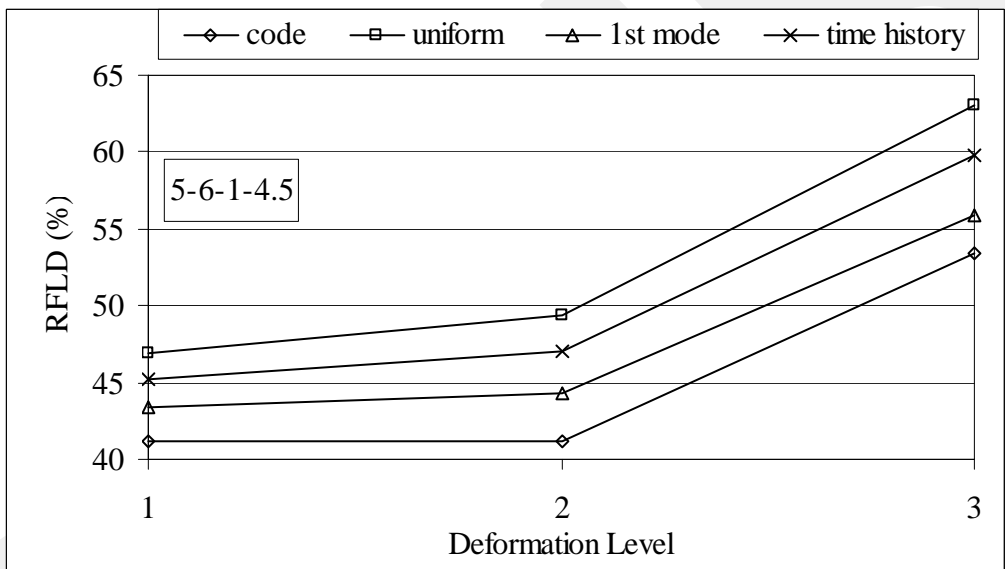
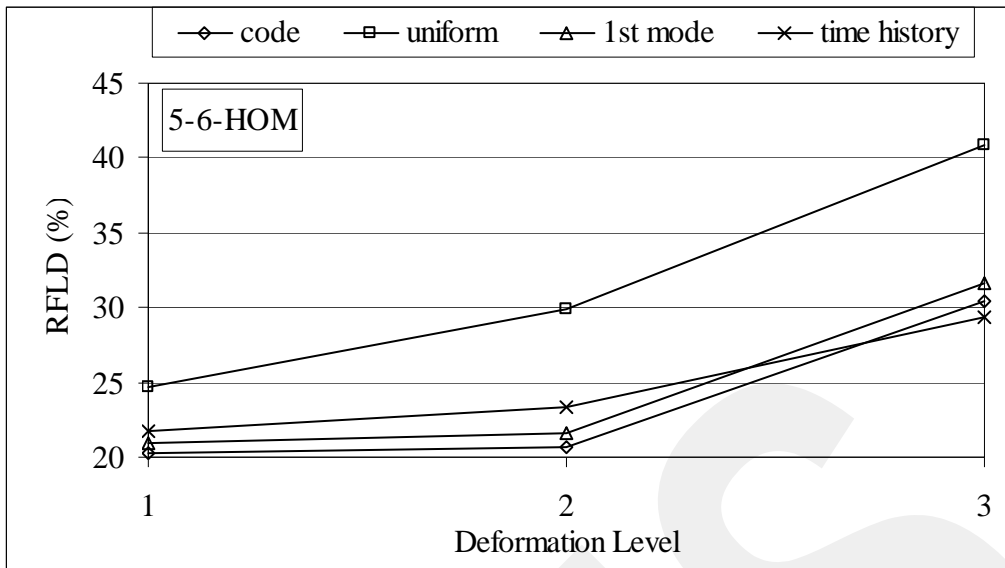


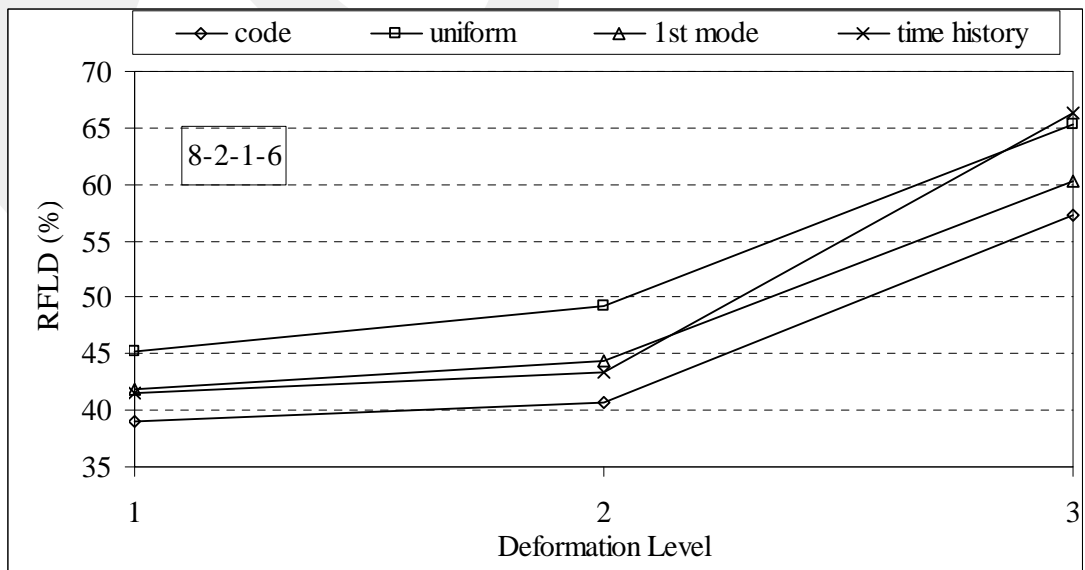
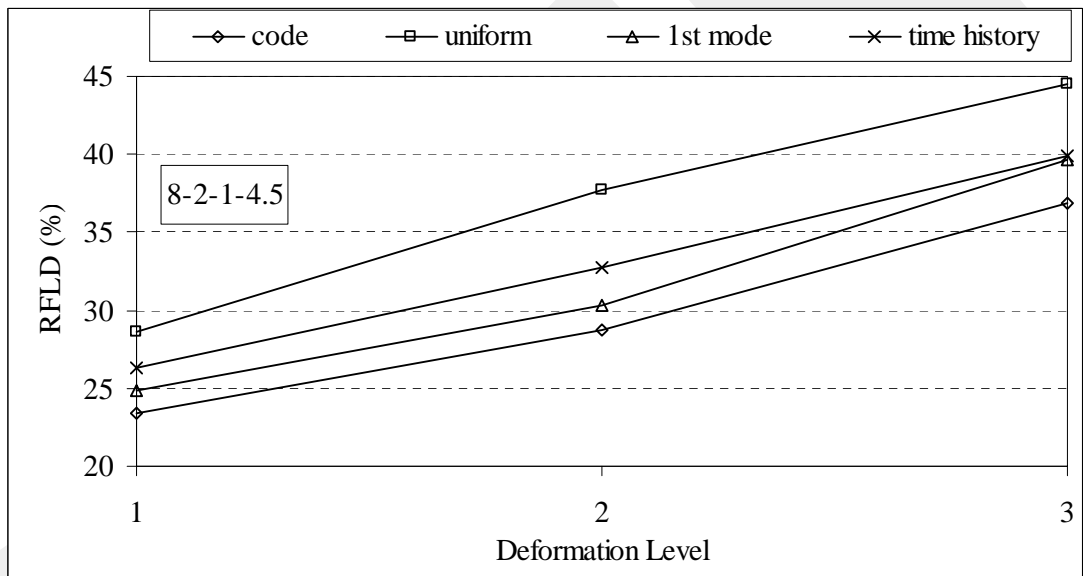
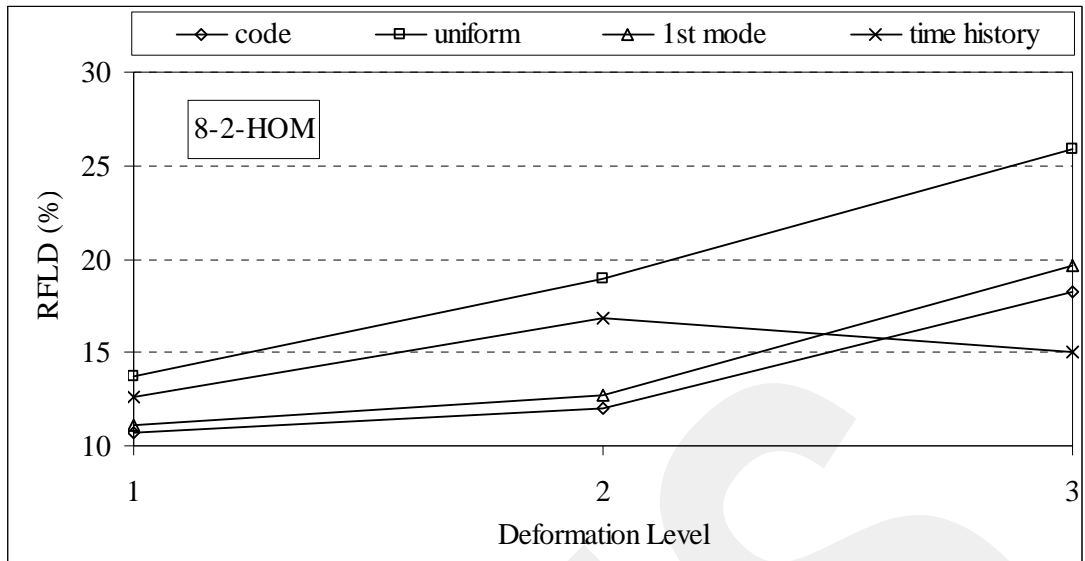


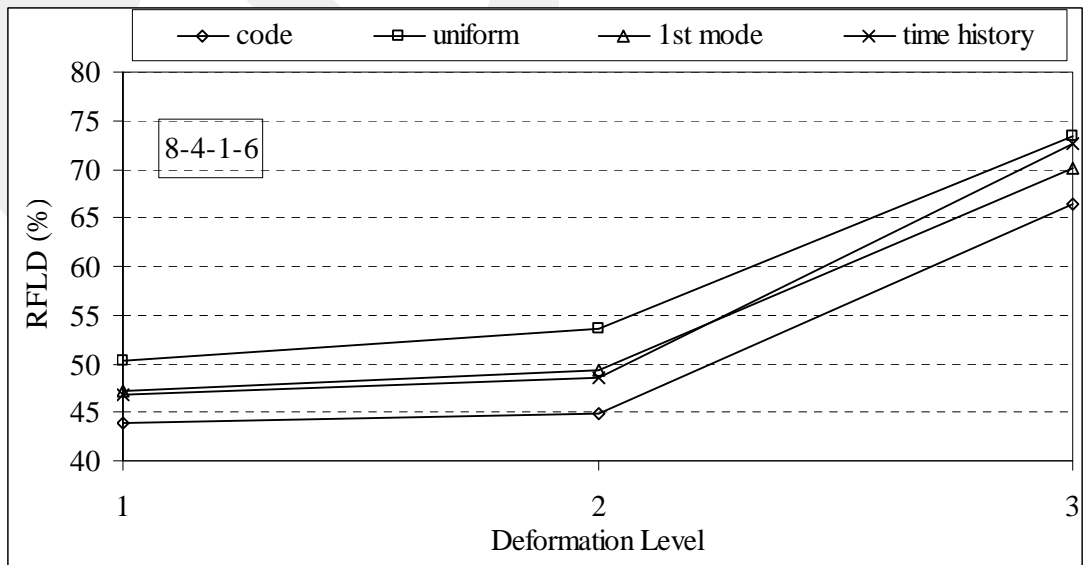
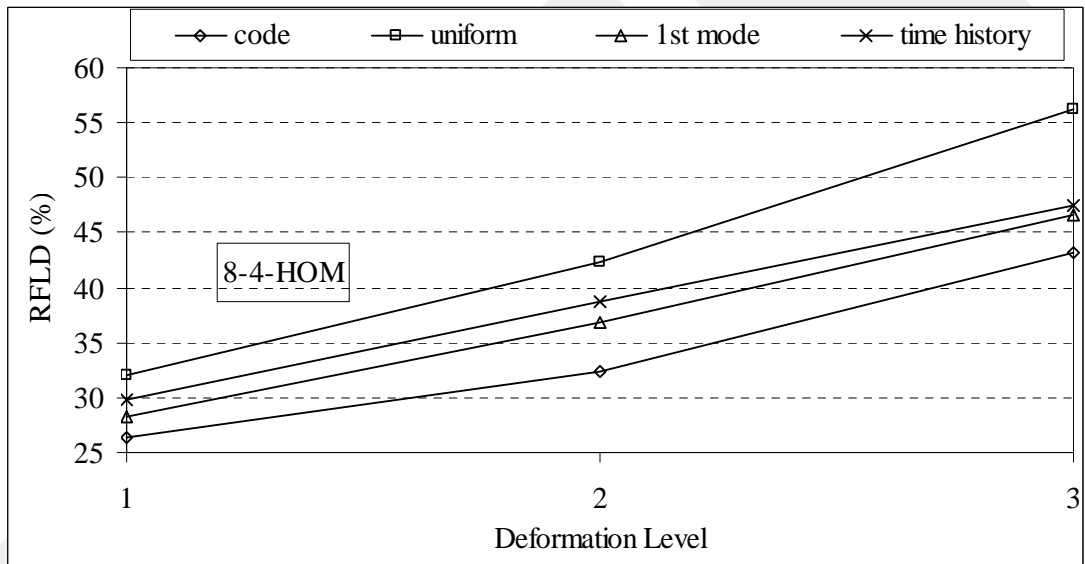
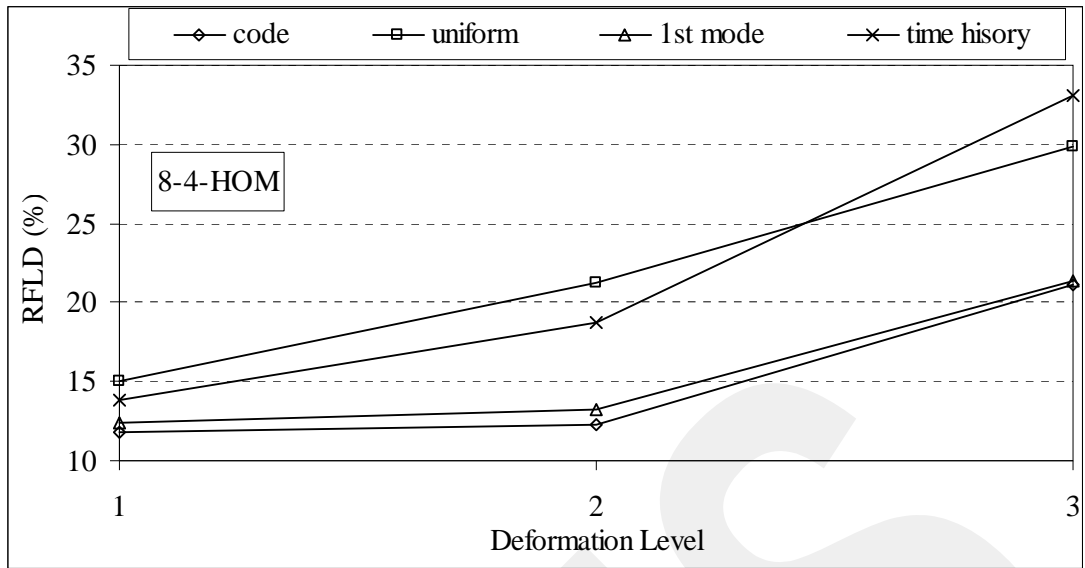


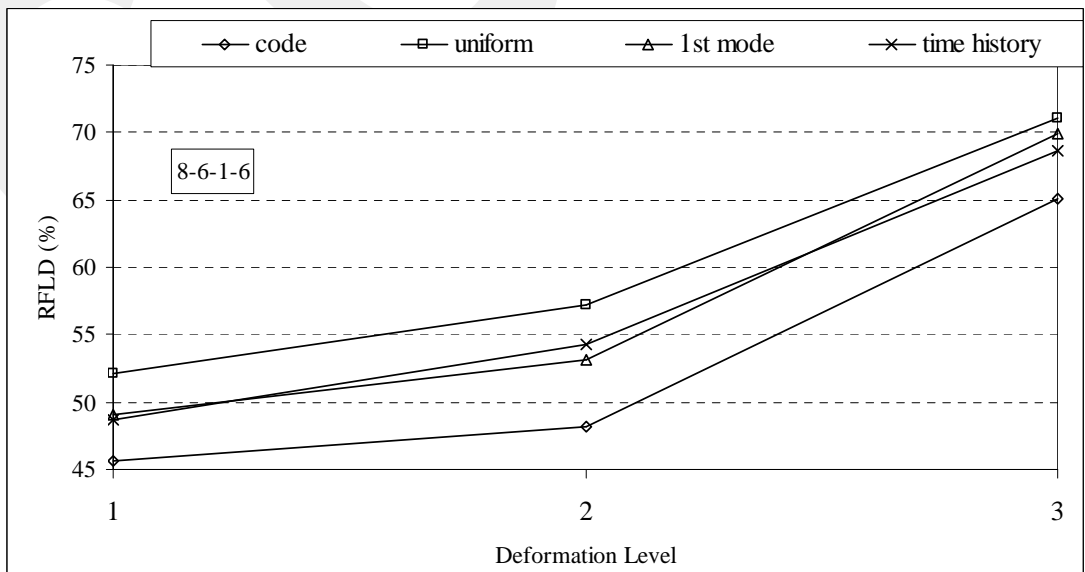
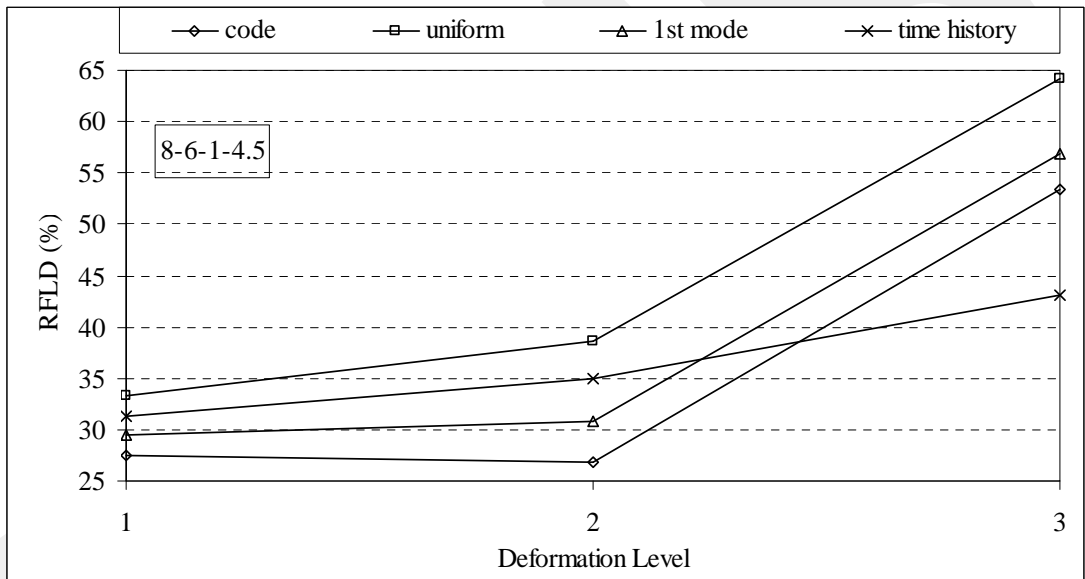
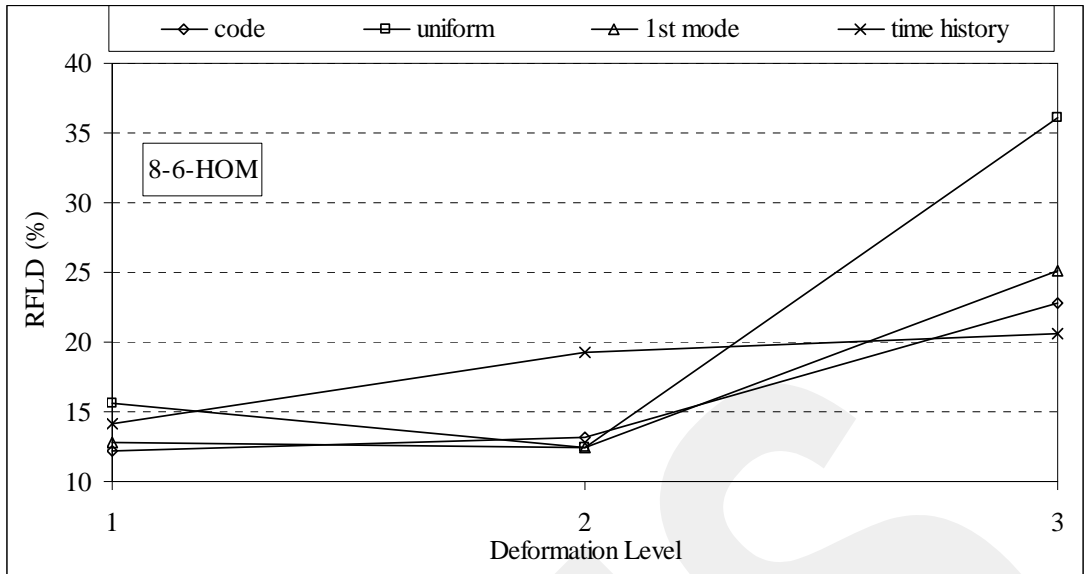












APPENDIX F

Soft Story Checks

3-2-HOM

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	91.750	0.430	0.107	0.036		0.614			100.00%
2	3	91.750	0.323	0.175	0.058	1.628	1.184	1.628	100.00%	100.00%
1	3	91.750	0.148	0.148	0.049	0.844		0.844	100.00%	
						NO B2 IRREG.	B2 IRREG.		NO B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	110.802	0.430	0.089	0.030		0.521			100.00%
2	3	110.802	0.341	0.171	0.057	1.920	1.011	1.920	100.00%	100.00%
1	3	110.802	0.170	0.170	0.057	0.989		0.989	100.00%	
						NO B2 IRREG.	B2 IRREG.		NO B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	93.483	0.430	0.103	0.034		0.587			100.00%
2	3	93.483	0.327	0.176	0.059	1.704	1.174	1.704	100.00%	100.00%
1	3	93.483	0.150	0.150	0.050	0.852		0.852	100.00%	
						NO B2 IRREG.	B2 IRREG.		NO B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	93.938	0.430	0.104	0.035		0.589			100.00%
2	3	93.938	0.326	0.176	0.059	1.697	1.170	1.697	100.00%	100.00%
1	3	93.938	0.150	0.150	0.050	0.855		0.855	100.00%	
						NO B2 IRREG.	B2 IRREG.		NO B2 IRREG.	

DEFORMATION LEVEL-1



3-2-HOM

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	258.574	1.542	0.340	0.113		0.537			100.00%
2	3	258.574	1.201	0.634	0.211	1.861	1.116	1.861	100.00%	100.00%
1	3	258.574	0.568	0.568	0.189	0.896		0.896	100.00%	
						NO B2 IRREG.	B2 IRREG.		NO B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	284.450	1.542	0.249	0.083		0.424			100.00%
2	3	284.450	1.293	0.588	0.196	2.360	0.834	2.360	100.00%	100.00%
1	3	284.450	0.705	0.705	0.235	1.199		1.199	100.00%	
						B2 IRREG.	B2 IRREG.		NO B2 IRREG.	

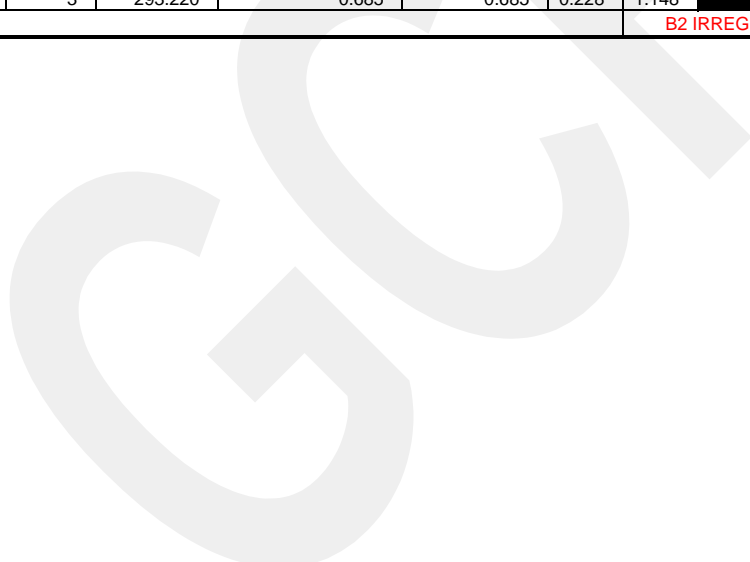
1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	259.828	1.542	0.323	0.108		0.512			100.00%
2	3	259.828	1.219	0.632	0.211	1.955	1.077	1.955	100.00%	100.00%
1	3	259.828	0.587	0.587	0.196	0.928		0.928	100.00%	
						NO B2 IRREG.	B2 IRREG.		NO B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	293.220	1.542	0.261	0.087		0.437			100.00%
2	3	293.220	1.281	0.597	0.199	2.287	0.871	2.287	100.00%	100.00%
1	3	293.220	0.685	0.685	0.228	1.148		1.148	100.00%	
						B2 IRREG.	B2 IRREG.		NO B2 IRREG.	

DEFORMATION LEVEL-2



3-2-HOM

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	281.593	4.039	0.663	0.221		0.419			100.00%
2	3	281.593	3.376	1.584	0.528	2.389	0.884	2.389	100.00%	100.00%
1	3	281.593	1.791	1.791	0.597	1.131		1.131	100.00%	
						B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	310.638	4.039	0.459	0.153		0.296			100.00%
2	3	310.638	3.579	1.551	0.517	3.376	0.764	3.376	100.00%	100.00%
1	3	310.638	2.029	2.029	0.676	1.308		1.308	100.00%	
						B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

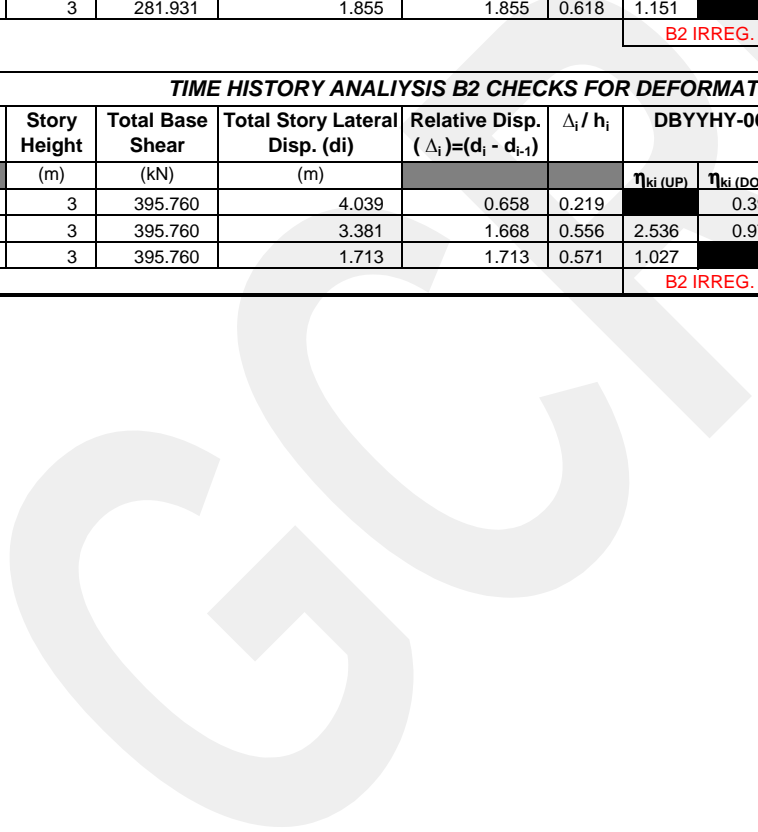
1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	281.931	4.039	0.572	0.191		0.355			100.00%
2	3	281.931	3.466	1.612	0.537	2.816	0.869	2.816	100.00%	100.00%
1	3	281.931	1.855	1.855	0.618	1.151		1.151	100.00%	
						B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	395.760	4.039	0.658	0.219		0.394			100.00%
2	3	395.760	3.381	1.668	0.556	2.536	0.974	2.536	100.00%	100.00%
1	3	395.760	1.713	1.713	0.571	1.027		1.027	100.00%	
						B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

DEFORMATION LEVEL-3



3-2-1-4.5

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	92.875	0.725	0.105	0.035		0.549			100.00%
2	3	92.875	0.620	0.192	0.064	1.821	0.670	1.821	100.00%	100.00%
1	4.5	92.875	0.429	0.429	0.095	1.492		2.238	66.67%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	101.987	0.725	0.085	0.028		0.472			100.00%
2	3	101.987	0.640	0.180	0.060	2.120	0.586	2.120	100.00%	100.00%
1	4.5	101.987	0.460	0.460	0.102	1.706		2.559	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	96.681	0.725	0.095	0.032		0.506			100.00%
2	3	96.681	0.630	0.188	0.063	1.975	0.637	1.975	100.00%	100.00%
1	4.5	96.681	0.442	0.442	0.098	1.570		2.355	66.67%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	99.436	0.725	0.097	0.032		0.535			100.00%
2	3	99.436	0.628	0.181	0.060	1.868	0.608	1.868	100.00%	100.00%
1	4.5	99.436	0.447	0.447	0.099	1.644		2.467	66.67%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

DEFORMATION LEVEL-1

3-2-1-4.5

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	199.449	2.202	0.227	0.076		0.413			100.00%
2	3	199.449	1.975	0.549	0.183	2.422	0.577	2.422	100.00%	100.00%
1	4.5	199.449	1.426	1.426	0.317	1.732		2.599	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	208.237	2.202	0.194	0.065		0.366			100.00%
2	3	208.237	2.008	0.529	0.176	2.730	0.536	2.730	100.00%	100.00%
1	4.5	208.237	1.480	1.480	0.329	1.866		2.800	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	202.330	2.202	0.222	0.074		0.430			100.00%
2	3	202.330	1.980	0.515	0.172	2.324	0.528	2.324	100.00%	100.00%
1	4.5	202.330	1.465	1.465	0.326	1.896		2.843	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	222.700	2.202	0.211	0.070		0.388			100.00%
2	3	222.700	1.991	0.544	0.181	2.581	0.564	2.581	100.00%	100.00%
1	4.5	222.700	1.447	1.447	0.322	1.773		2.660	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

DEFORMATION LEVEL-2

3-2-1-4.5

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	220.254	4.873	0.152	0.051		0.112			100.00%
2	3	220.254	4.721	1.362	0.454	8.947	0.608	8.947	100.00%	100.00%
1	4.5	220.254	3.360	3.360	0.747	1.645		2.468	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	232.134	4.873	0.272	0.091		0.258			100.00%
2	3	232.134	4.602	1.053	0.351	3.875	0.445	3.875	100.00%	100.00%
1	4.5	232.134	3.549	3.549	0.789	2.246		3.370	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	224.532	4.873	0.361	0.120		0.289			100.00%
2	3	224.532	4.512	1.251	0.417	3.463	0.575	3.463	100.00%	100.00%
1	4.5	224.532	3.261	3.261	0.725	1.738		2.607	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	308.100	4.873	0.367	0.122		0.324			100.00%
2	3	308.100	4.506	1.134	0.378	3.086	0.504	3.086	100.00%	100.00%
1	4.5	308.100	3.372	3.372	0.749	1.982		2.974	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

DEFORMATION LEVEL-3

3-2-1-6

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	94.000	1.291	0.105	0.035		0.500			100.00%
2	3	94.000	1.186	0.210	0.070	2.000	0.431	2.000	100.00%	100.00%
1	6	94.000	0.975	0.975	0.163	2.319		4.637	50.00%	
						B2 IRREG.	B2 IRREG.	B2 IRREG.		

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	98.503	1.291	0.085	0.028		0.435			100.00%
2	3	98.503	1.206	0.195	0.065	2.298	0.386	2.298	100.00%	100.00%
1	6	98.503	1.011	1.011	0.168	2.589		5.177	50.00%	
						B2 IRREG.	B2 IRREG.	B2 IRREG.		

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	96.858	1.291	0.091	0.030		0.453			100.00%
2	3	96.858	1.200	0.201	0.067	2.207	0.404	2.207	100.00%	100.00%
1	6	96.858	0.998	0.998	0.166	2.478		4.956	50.00%	
						B2 IRREG.	B2 IRREG.	B2 IRREG.		

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	97.361	1.291	0.094	0.031		0.460			100.00%
2	3	97.361	1.197	0.205	0.068	2.172	0.413	2.172	100.00%	100.00%
1	6	97.361	0.992	0.992	0.165	2.424		4.848	50.00%	
						B2 IRREG.	B2 IRREG.	B2 IRREG.		

DEFORMATION LEVEL-1

3-2-1-6

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	163.275	2.633	0.186	0.062		0.478			100.00%
2	3	163.275	2.447	0.389	0.130	2.092	0.378	2.092	100.00%	100.00%
1	6	163.275	2.058	2.058	0.343	2.644		5.288	50.00%	
						B2 IRREG.	B2 IRREG.	B2 IRREG.		

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	166.129	2.633	0.149	0.050		0.427			100.00%
2	3	166.129	2.484	0.349	0.116	2.340	0.327	2.340	100.00%	100.00%
1	6	166.129	2.134	2.134	0.356	3.054		6.108	50.00%	
						B2 IRREG.	B2 IRREG.	B2 IRREG.		

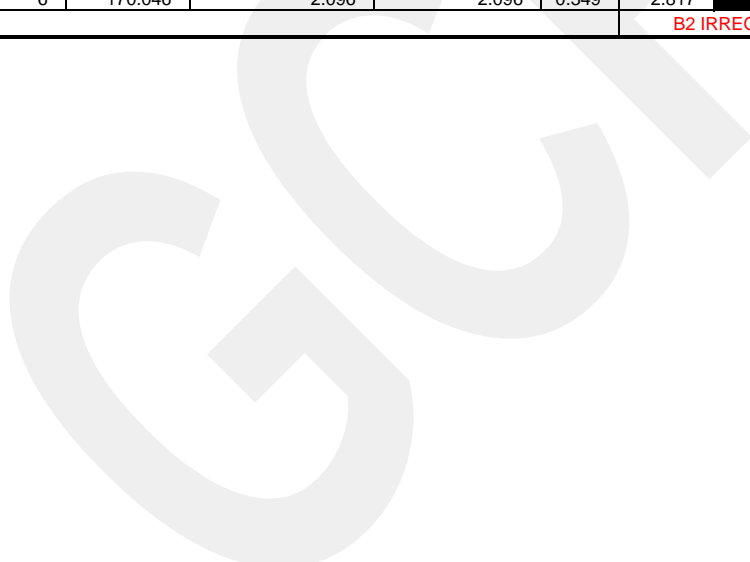
1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	164.989	2.633	0.158	0.053		0.432			100.00%
2	3	164.989	2.475	0.367	0.122	2.315	0.348	2.315	100.00%	100.00%
1	6	164.989	2.108	2.108	0.351	2.872		5.745	50.00%	
						B2 IRREG.	B2 IRREG.	B2 IRREG.		

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	170.046	2.633	0.165	0.055		0.442			100.00%
2	3	170.046	2.469	0.372	0.124	2.261	0.355	2.261	100.00%	100.00%
1	6	170.046	2.096	2.096	0.349	2.817		5.634	50.00%	
						B2 IRREG.	B2 IRREG.	B2 IRREG.		

DEFORMATION LEVEL-2



3-2-1-6

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	168.800	5.146	0.202	0.067		0.440			100.00%
2	3	168.800	4.944	0.458	0.153	2.274	0.204	2.274	100.00%	100.00%
1	6	168.800	4.486	4.486	0.748	4.892		9.784	50.00%	
						B2 IRREG.	B2 IRREG.	B2 IRREG.		

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	169.121	5.146	0.177	0.059		0.451			100.00%
2	3	169.121	4.969	0.393	0.131	2.219	0.172	2.219	100.00%	100.00%
1	6	169.121	4.577	4.577	0.763	5.829		11.658	50.00%	
						B2 IRREG.	B2 IRREG.	B2 IRREG.		

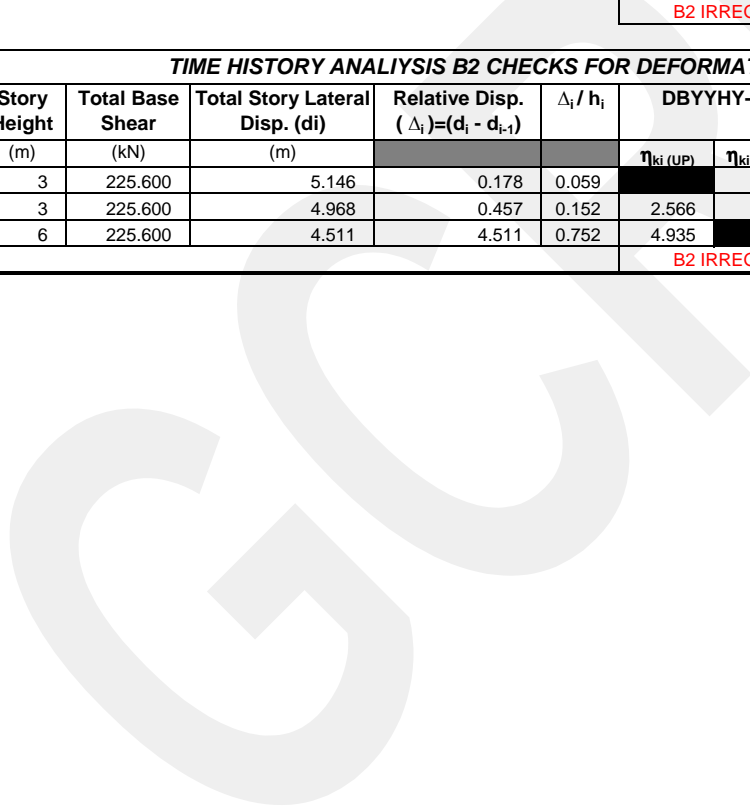
1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	169.176	5.146	0.156	0.052		0.369			100.00%
2	3	169.176	4.990	0.422	0.141	2.709	0.185	2.709	100.00%	100.00%
1	6	169.176	4.568	4.568	0.761	5.409		10.819	50.00%	
						B2 IRREG.	B2 IRREG.	B2 IRREG.		

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	225.600	5.146	0.178	0.059		0.390			100.00%
2	3	225.600	4.968	0.457	0.152	2.566	0.203	2.566	100.00%	100.00%
1	6	225.600	4.511	4.511	0.752	4.935		9.871	50.00%	
						B2 IRREG.	B2 IRREG.	B2 IRREG.		

DEFORMATION LEVEL-3



3-4-HOM

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	179.750	0.452	0.110	0.037		0.600			100.00%
2	3	179.750	0.342	0.183	0.061	1.667	1.146	1.667	100.00%	100.00%
1	3	179.750	0.159	0.159	0.053	0.873		0.873	100.00%	
						NO B2 IRREG.	B2 IRREG.		NO B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	217.389	0.452	0.090	0.030		0.505			100.00%
2	3	217.389	0.362	0.178	0.059	1.980	0.972	1.980	100.00%	100.00%
1	3	217.389	0.183	0.183	0.061	1.028		1.028	100.00%	
						NO B2 IRREG.	B2 IRREG.		NO B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	183.822	0.452	0.105	0.035		0.569			100.00%
2	3	183.822	0.347	0.184	0.061	1.758	1.133	1.758	100.00%	100.00%
1	3	183.822	0.163	0.163	0.054	0.883		0.883	100.00%	
						NO B2 IRREG.	B2 IRREG.		NO B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	185.400	0.452	0.104	0.035		0.565			100.00%
2	3	185.400	0.348	0.184	0.061	1.771	1.131	1.771	100.00%	100.00%
1	3	185.400	0.163	0.163	0.054	0.884		0.884	100.00%	
						NO B2 IRREG.	B2 IRREG.		NO B2 IRREG.	

DEFORMATION LEVEL-1

3-4-HOM

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	568.873	1.922	0.359	0.120		0.493			100.00%
2	3	568.873	1.563	0.729	0.243	2.030	0.874	2.030	100.00%	100.00%
1	3	568.873	0.834	0.834	0.278	1.144		1.144	100.00%	
						B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	622.896	1.922	0.269	0.090		0.422			100.00%
2	3	622.896	1.653	0.638	0.213	2.368	0.628	2.368	100.00%	100.00%
1	3	622.896	1.015	1.015	0.338	1.592		1.592	100.00%	
						B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	572.092	1.922	0.338	0.113		0.461			100.00%
2	3	572.092	1.584	0.733	0.244	2.169	0.862	2.169	100.00%	100.00%
1	3	572.092	0.851	0.851	0.284	1.160		1.160	100.00%	
						B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	684.000	1.922	0.287	0.096		0.406			100.00%
2	3	684.000	1.635	0.707	0.236	2.463	0.761	2.463	100.00%	100.00%
1	3	684.000	0.929	0.929	0.310	1.314		1.314	100.00%	
						B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

DEFORMATION LEVEL-2

3-4-HOM

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	587.065	4.014	0.357	0.119		0.219			100.00%
2	3	587.065	3.656	1.632	0.544	4.568	0.807	4.568	100.00%	100.00%
1	3	587.065	2.024	2.024	0.675	1.240		1.240	100.00%	
						B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	653.999	4.014	0.296	0.099		0.210			100.00%
2	3	653.999	3.717	1.410	0.470	4.762	0.611	4.762	100.00%	100.00%
1	3	653.999	2.307	2.307	0.769	1.636		1.636	100.00%	
						B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	589.097	4.014	0.368	0.123		0.227			100.00%
2	3	589.097	3.646	1.623	0.541	4.413	0.802	4.413	100.00%	100.00%
1	3	589.097	2.023	2.023	0.674	1.246		1.246	100.00%	
						B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	896.243	4.014	0.504	0.168		0.298			100.00%
2	3	896.243	3.510	1.688	0.563	3.352	0.927	3.352	100.00%	100.00%
1	3	896.243	1.821	1.821	0.607	1.079		1.079	100.00%	
						B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

DEFORMATION LEVEL-3

3-4-1-4.5

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. ($\Delta_i = d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	181.625	0.778	0.106	0.035		0.537			100.00%
2	3	181.625	0.672	0.197	0.066	1.861	0.623	1.861	100.00%	100.00%
1	4.5	181.625	0.475	0.475	0.106	1.605		2.408	66.67%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. ($\Delta_i = d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	200.135	0.778	0.085	0.028		0.459			100.00%
2	3	200.135	0.693	0.185	0.062	2.179	0.544	2.179	100.00%	100.00%
1	4.5	200.135	0.509	0.509	0.113	1.838		2.758	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. ($\Delta_i = d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	189.342	0.778	0.094	0.031		0.490			100.00%
2	3	189.342	0.684	0.192	0.064	2.039	0.588	2.039	100.00%	100.00%
1	4.5	189.342	0.491	0.491	0.109	1.701		2.551	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. ($\Delta_i = d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	198.200	0.778	0.086	0.029		0.463			100.00%
2	3	198.200	0.692	0.187	0.062	2.160	0.555	2.160	100.00%	100.00%
1	4.5	198.200	0.505	0.505	0.112	1.801		2.702	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

DEFORMATION LEVEL-1

3-4-1-4.5

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. ($\Delta_i = d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	389.054	1.988	0.232	0.077		0.528			100.00%
2	3	389.054	1.756	0.440	0.147	1.895	0.501	1.895	100.00%	100.00%
1	4.5	389.054	1.316	1.316	0.292	1.996		2.994	66.67%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. ($\Delta_i = d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	400.994	1.988	0.173	0.058		0.438			100.00%
2	3	400.994	1.815	0.395	0.132	2.285	0.417	2.285	100.00%	100.00%
1	4.5	400.994	1.420	1.420	0.316	2.400		3.599	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. ($\Delta_i = d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	391.388	1.988	0.219	0.073		0.525			100.00%
2	3	391.388	1.769	0.416	0.139	1.904	0.462	1.904	100.00%	100.00%
1	4.5	391.388	1.352	1.352	0.301	2.165		3.247	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. ($\Delta_i = d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	423.043	1.988	0.179	0.060		0.435			100.00%
2	3	423.043	1.809	0.411	0.137	2.298	0.441	2.298	100.00%	100.00%
1	4.5	423.043	1.398	1.398	0.311	2.267		3.401	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

DEFORMATION LEVEL-2

3-4-1-4.5

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. ($\Delta_i = d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	404.363	3.802	0.223	0.074		0.431			100.00%
2	3	404.363	3.579	0.517	0.172	2.318	0.253	2.318	100.00%	100.00%
1	4.5	404.363	3.062	3.062	0.680	3.949		5.924	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. ($\Delta_i = d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	416.477	3.802	0.184	0.061		0.431			100.00%
2	3	416.477	3.617	0.428	0.143	2.321	0.201	2.321	100.00%	100.00%
1	4.5	416.477	3.189	3.189	0.709	4.969		7.453	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. ($\Delta_i = d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	404.275	3.802	0.351	0.117		1.176			100.00%
2	3	404.275	3.451	0.298	0.099	0.850	0.142	0.850	100.00%	100.00%
1	4.5	404.275	3.152	3.152	0.701	7.043		10.564	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. ($\Delta_i = d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	604.296	3.802	0.029	0.010		0.057			100.00%
2	3	604.296	3.773	0.502	0.167	17.443	0.230	17.443	100.00%	100.00%
1	4.5	604.296	3.271	3.271	0.727	4.344		6.516	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

DEFORMATION LEVEL-3

3-4-1-6

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
	(m)	(kN)	(m)								
3	3	183.500	1.415	0.105	0.035		0.489			100.00%	
2	3	183.500	1.311	0.214	0.071	2.047	0.390	2.047	100.00%	100.00%	
1	6	183.500	1.097	1.097	0.183	2.561		5.123	50.00%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
	(m)	(kN)	(m)								
3	3	191.586	1.415	0.083	0.028		0.422			100.00%	
2	3	191.586	1.332	0.198	0.066	2.371	0.348	2.371	100.00%	100.00%	
1	6	191.586	1.134	1.134	0.189	2.870		5.740	50.00%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
	(m)	(kN)	(m)								
3	3	188.906	1.415	0.089	0.030		0.438			100.00%	
2	3	188.906	1.326	0.204	0.068	2.281	0.363	2.281	100.00%	100.00%	
1	6	188.906	1.122	1.122	0.187	2.754		5.508	50.00%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
	(m)	(kN)	(m)								
3	3	189.807	1.415	0.094	0.031		0.452			100.00%	
2	3	189.807	1.322	0.207	0.069	2.213	0.372	2.213	100.00%	100.00%	
1	6	189.807	1.114	1.114	0.186	2.685		5.370	50.00%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

DEFORMATION LEVEL-1

3-4-1-6

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. ($\Delta_i = d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	384.136	3.427	0.222	0.074		0.466			100.00%
2	3	384.136	3.205	0.477	0.159	2.147	0.349	2.147	100.00%	100.00%
1	6	384.136	2.728	2.728	0.455	2.862		5.724	50.00%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. ($\Delta_i = d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	387.666	3.427	0.170	0.057		0.401			100.00%
2	3	387.666	3.256	0.425	0.142	2.494	0.300	2.494	100.00%	100.00%
1	6	387.666	2.831	2.831	0.472	3.331		6.662	50.00%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. ($\Delta_i = d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	385.942	3.427	0.185	0.062		0.419			100.00%
2	3	385.942	3.242	0.442	0.147	2.385	0.316	2.385	100.00%	100.00%
1	6	385.942	2.800	2.800	0.467	3.169		6.338	50.00%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. ($\Delta_i = d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	398.300	3.427	0.195	0.065		0.431			100.00%
2	3	398.300	3.232	0.452	0.151	2.320	0.325	2.320	100.00%	100.00%
1	6	398.300	2.780	2.780	0.463	3.075		6.150	50.00%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

DEFORMATION LEVEL-2

3-4-1-6

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. ($\Delta_i = d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	397.631	6.160	0.226	0.075		0.426			100.00%
2	3	397.631	5.933	0.532	0.177	2.347	0.197	2.347	100.00%	100.00%
1	6	397.631	5.402	5.402	0.900	5.081		10.163	50.00%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. ($\Delta_i = d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	398.279	6.160	0.191	0.064		0.412			100.00%
2	3	398.279	5.969	0.462	0.154	2.426	0.168	2.426	100.00%	100.00%
1	6	398.279	5.507	5.507	0.918	5.954		11.908	50.00%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. ($\Delta_i = d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	397.644	6.160	0.193	0.064		0.387			100.00%
2	3	397.644	5.967	0.498	0.166	2.585	0.182	2.585	100.00%	100.00%
1	6	397.644	5.469	5.469	0.912	5.490		10.981	50.00%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. ($\Delta_i = d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
3	3	511.100	6.160	0.177	0.059		0.359			100.00%
2	3	511.100	5.983	0.492	0.164	2.782	0.179	2.782	100.00%	100.00%
1	6	511.100	5.491	5.491	0.915	5.580		11.161	50.00%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

DEFORMATION LEVEL-3

3-6-HOM

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	267.750	0.460	0.110	0.037		0.594			100.00%
2	3	267.750	0.349	0.185	0.062	1.683	1.132	1.683	100.00%	100.00%
1	3	267.750	0.164	0.164	0.055	0.884		0.884	100.00%	
						NO B2 IRREG.		B2 IRREG.	NO B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	322.134	0.460	0.090	0.030		0.498			100.00%
2	3	322.134	0.370	0.181	0.060	2.007	0.957	2.007	100.00%	100.00%
1	3	322.134	0.189	0.189	0.063	1.045		1.045	100.00%	
						B2 IRREG.		B2 IRREG.	NO B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	274.201	0.460	0.105	0.035		0.562			100.00%
2	3	274.201	0.355	0.187	0.062	1.780	1.117	1.780	100.00%	100.00%
1	3	274.201	0.167	0.167	0.056	0.895		0.895	100.00%	
						NO B2 IRREG.		B2 IRREG.	NO B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	274.800	0.460	0.107	0.036		0.572			100.00%
2	3	274.800	0.353	0.186	0.062	1.747	1.118	1.747	100.00%	100.00%
1	3	274.800	0.167	0.167	0.056	0.895		0.895	100.00%	
						NO B2 IRREG.		B2 IRREG.	NO B2 IRREG.	

DEFORMATION LEVEL-1

3-6-HOM

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
3	3	833.092	1.891	0.352	0.117		0.494			100.00%	
2	3	833.092	1.539	0.712	0.237	2.025	0.862	2.025	100.00%	100.00%	
1	3	833.092	0.827	0.827	0.276	1.160		1.160	100.00%		
						B2 IRREG.		B2 IRREG.		NO B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
3	3	895.425	1.891	0.259	0.086		0.435			100.00%	
2	3	895.425	1.632	0.596	0.199	2.301	0.576	2.301	100.00%	100.00%	
1	3	895.425	1.036	1.036	0.345	1.737		1.737	100.00%		
						B2 IRREG.		B2 IRREG.		NO B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
3	3	837.300	1.891	0.330	0.110		0.461			100.00%	
2	3	837.300	1.561	0.715	0.238	2.169	0.846	2.169	100.00%	100.00%	
1	3	837.300	0.846	0.846	0.282	1.182		1.182	100.00%		
						B2 IRREG.		B2 IRREG.		NO B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
3	3	980.641	1.891	0.285	0.095		0.427			100.00%	
2	3	980.641	1.606	0.668	0.223	2.341	0.713	2.341	100.00%	100.00%	
1	3	980.641	0.938	0.938	0.313	1.403		1.403	100.00%		
						B2 IRREG.		B2 IRREG.		NO B2 IRREG.	

DEFORMATION LEVEL-2



3-6-HOM

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
3	3	855.532	3.965	0.377	0.126		0.235			100.00%	
2	3	855.532	3.588	1.601	0.534	4.247	0.805	4.247	100.00%	100.00%	
1	3	855.532	1.987	1.987	0.662	1.242		1.242	100.00%		
						B2 IRREG.		B2 IRREG.		NO B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
3	3	930.692	3.965	0.289	0.096		0.342			100.00%	
2	3	930.692	3.676	0.847	0.282	2.928	0.299	2.928	100.00%	100.00%	
1	3	930.692	2.829	2.829	0.943	3.340		3.340	100.00%		
						B2 IRREG.		B2 IRREG.		NO B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
3	3	858.757	3.965	0.352	0.117		0.220			100.00%	
2	3	858.757	3.613	1.602	0.534	4.553	0.797	4.553	100.00%	100.00%	
1	3	858.757	2.011	2.011	0.670	1.255		1.255	100.00%		
						B2 IRREG.		B2 IRREG.		NO B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
3	3	1278.000	3.965	0.425	0.142		0.256			100.00%	
2	3	1278.000	3.540	1.661	0.554	3.909	0.884	3.909	100.00%	100.00%	
1	3	1278.000	1.879	1.879	0.626	1.131		1.131	100.00%		
						B2 IRREG.		B2 IRREG.		NO B2 IRREG.	

DEFORMATION LEVEL-3

3-6-1-4.5

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	270.375	0.799	0.106	0.035		0.533			100.00%
2	3	270.375	0.693	0.199	0.066	1.877	0.605	1.877	100.00%	100.00%
1	4.5	270.375	0.494	0.494	0.110	1.653		2.480	66.67%	
						NO B2 IRREG.		B2 IRREG.	B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	295.074	0.799	0.084	0.028		0.453			100.00%
2	3	295.074	0.715	0.185	0.062	2.207	0.525	2.207	100.00%	100.00%
1	4.5	295.074	0.529	0.529	0.118	1.904		2.855	66.67%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	281.981	0.799	0.094	0.031		0.485			100.00%
2	3	281.981	0.705	0.194	0.065	2.061	0.569	2.061	100.00%	100.00%
1	4.5	281.981	0.511	0.511	0.114	1.758		2.637	66.67%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	293.800	0.799	0.088	0.029		0.468			100.00%
2	3	293.800	0.711	0.188	0.063	2.139	0.539	2.139	100.00%	100.00%
1	4.5	293.800	0.523	0.523	0.116	1.855		2.782	66.67%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

DEFORMATION LEVEL-1

3-6-1-4.5

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
3	3	557.791	1.924	0.221	0.074		0.530			100.00%	
2	3	557.791	1.703	0.416	0.139	1.885	0.485	1.885	100.00%	100.00%	
1	4.5	557.791	1.287	1.287	0.286	2.060		3.090	66.67%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
3	3	564.014	1.924	0.163	0.054		0.435			100.00%	
2	3	564.014	1.761	0.374	0.125	2.301	0.405	2.301	100.00%	100.00%	
1	4.5	564.014	1.387	1.387	0.308	2.471		3.707	66.67%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
3	3	560.468	1.924	0.189	0.063		0.474			100.00%	
2	3	560.468	1.735	0.399	0.133	2.110	0.447	2.110	100.00%	100.00%	
1	4.5	560.468	1.337	1.337	0.297	2.236		3.353	66.67%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
3	3	596.600	1.924	0.172	0.057		0.447			100.00%	
2	3	596.600	1.752	0.385	0.128	2.238	0.422	2.238	100.00%	100.00%	
1	4.5	596.600	1.367	1.367	0.304	2.367		3.551	66.67%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

DEFORMATION LEVEL-2

3-6-1-4.5

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	575.019	3.719	0.231	0.077		0.483			
2	3	575.019	3.488	0.479	0.160	2.071	0.239	2.071	100.00%	100.00%
1	4.5	575.019	3.008	3.008	0.669	4.186		6.279	66.67%	
						B2 IRREG.	B2 IRREG.	B2 IRREG.		

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	575.190	3.719	0.169	0.056		0.415			100.00%
2	3	575.190	3.550	0.408	0.136	2.412	0.195	2.412	100.00%	100.00%
1	4.5	575.190	3.142	3.142	0.698	5.136		7.704	66.67%	
						B2 IRREG.	B2 IRREG.	B2 IRREG.		

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	575.162	3.719	0.197	0.066		0.445			100.00%
2	3	575.162	3.522	0.443	0.148	2.247	0.216	2.247	100.00%	100.00%
1	4.5	575.162	3.079	3.079	0.684	4.631		6.947	66.67%	
						B2 IRREG.	B2 IRREG.	B2 IRREG.		

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	820.500	3.719	0.199	0.066		0.433			100.00%
2	3	820.500	3.520	0.460	0.153	2.312	0.225	2.312	100.00%	100.00%
1	4.5	820.500	3.060	3.060	0.680	4.435		6.652	66.67%	
						B2 IRREG.	B2 IRREG.	B2 IRREG.		

DEFORMATION LEVEL-3

3-6-1-6

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
3	3	273.000	1.467	0.104	0.035		0.485			100.00%	
2	3	273.000	1.362	0.215	0.072	2.061	0.375	2.061	100.00%	100.00%	
1	6.0	273.000	1.147	1.147	0.191	2.669		5.337	50.00%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
3	3	284.657	1.467	0.083	0.028		0.417			100.00%	
2	3	284.657	1.384	0.198	0.066	2.397	0.334	2.397	100.00%	100.00%	
1	6.0	284.657	1.186	1.186	0.198	2.995		5.990	50.00%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
3	3	280.949	1.467	0.089	0.030		0.434			100.00%	
2	3	280.949	1.378	0.204	0.068	2.305	0.348	2.305	100.00%	100.00%	
1	6.0	280.949	1.174	1.174	0.196	2.877		5.754	50.00%		
						B2 IRREG.		B2 IRREG.		NO B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
3	3	282.859	1.467	0.092	0.031		0.442			100.00%	
2	3	282.859	1.374	0.209	0.070	2.261	0.359	2.261	100.00%	100.00%	
1	6.0	282.859	1.165	1.165	0.194	2.788		5.577	50.00%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

DEFORMATION LEVEL-1

3-6-1-6

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	546.721	3.351	0.211	0.070		0.480			100.00%
2	3	546.721	3.139	0.440	0.147	2.082	0.326	2.082	100.00%	100.00%
1	6.0	546.721	2.700	2.700	0.450	3.070		6.139	50.00%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	549.548	3.351	0.161	0.054		0.408			100.00%
2	3	549.548	3.189	0.395	0.132	2.451	0.283	2.451	100.00%	100.00%
1	6.0	549.548	2.794	2.794	0.466	3.537		7.073	50.00%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	549.065	3.351	0.175	0.058		0.427			100.00%
2	3	549.065	3.176	0.409	0.136	2.344	0.296	2.344	100.00%	100.00%
1	6.0	549.065	2.767	2.767	0.461	3.382		6.764	50.00%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
3	3	565.600	3.351	0.181	0.060		0.420			100.00%
2	3	565.600	3.170	0.430	0.143	2.381	0.314	2.381	100.00%	100.00%
1	6.0	565.600	2.740	2.740	0.457	3.186		6.372	50.00%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

DEFORMATION LEVEL-2



3-6-1-6

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
3	3	561.451	6.070	0.216	0.072		0.444			100.00%	
2	3	561.451	5.854	0.486	0.162	2.251	0.181	2.251	100.00%	100.00%	
1	6.0	561.451	5.368	5.368	0.895	5.524		11.048	50.00%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
3	3	561.637	6.070	0.165	0.055		0.404			100.00%	
2	3	561.637	5.904	0.410	0.137	2.477	0.149	2.477	100.00%	100.00%	
1	6.0	561.637	5.495	5.495	0.916	6.709		13.418	50.00%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
3	3	562.087	6.070	0.179	0.060		0.399			100.00%	
2	3	562.087	5.890	0.449	0.150	2.503	0.165	2.503	100.00%	100.00%	
1	6.0	562.087	5.441	5.441	0.907	6.054		12.109	50.00%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
3	3	739.200	6.070	0.181	0.060		0.402			100.00%	
2	3	739.200	5.889	0.449	0.150	2.485	0.165	2.485	100.00%	100.00%	
1	6.0	739.200	5.440	5.440	0.907	6.058		12.116	50.00%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

DEFORMATION LEVEL-3

5-2-HOM

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	166.641	0.685	0.076	0.025		0.600			100.00%
4	3	166.641	0.609	0.126	0.042	1.667	0.756	1.667	100.00%	100.00%
3	3	166.641	0.483	0.167	0.056	1.322	0.903	1.322	100.00%	100.00%
2	3	166.641	0.316	0.185	0.062	1.107	1.419	1.107	100.00%	100.00%
1	3	166.641	0.130	0.130	0.043	0.705		0.705	100.00%	
						NO B2 IRREG.		B2 IRREG.	NO B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	212.898	0.685	0.058	0.019		0.539			100.00%
4	3	212.898	0.627	0.107	0.036	1.854	0.670	1.854	100.00%	100.00%
3	3	212.898	0.520	0.160	0.053	1.492	0.796	1.492	100.00%	100.00%
2	3	212.898	0.359	0.201	0.067	1.256	1.273	1.256	100.00%	100.00%
1	3	212.898	0.158	0.158	0.053	0.786		0.786	100.00%	
						NO B2 IRREG.		B2 IRREG.	NO B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	171.503	0.685	0.069	0.023		0.563			100.00%
4	3	171.503	0.616	0.123	0.041	1.777	0.726	1.777	100.00%	100.00%
3	3	171.503	0.494	0.169	0.056	1.378	0.887	1.378	100.00%	100.00%
2	3	171.503	0.325	0.190	0.063	1.127	1.418	1.127	100.00%	100.00%
1	3	171.503	0.134	0.134	0.045	0.705		0.705	100.00%	
						NO B2 IRREG.		B2 IRREG.	NO B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	183.900	0.685	0.014	0.005		0.078			100.00%
4	3	183.900	0.672	0.174	0.058	12.819	1.044	12.819	100.00%	100.00%
3	3	183.900	0.498	0.167	0.056	0.958	0.875	0.958	100.00%	100.00%
2	3	183.900	0.331	0.191	0.064	1.143	1.359	1.143	100.00%	100.00%
1	3	183.900	0.140	0.140	0.047	0.736		0.736	100.00%	
						B2 IRREG.		B2 IRREG.	NO B2 IRREG.	

DEFORMATION LEVEL-1

5-2-HOM

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	428.276	2.135	0.198	0.066		0.641			100.00%
4	3	428.276	1.937	0.310	0.103	1.561	0.570	1.561	100.00%	100.00%
3	3	428.276	1.627	0.543	0.181	1.753	0.837	1.753	100.00%	100.00%
2	3	428.276	1.085	0.648	0.216	1.195	1.487	1.195	100.00%	100.00%
1	3	428.276	0.436	0.436	0.145	0.672		0.672	100.00%	
						NO B2 IRREG.		B2 IRREG.	NO B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	496.757	2.135	0.141	0.047		0.527			100.00%
4	3	496.757	1.994	0.268	0.089	1.899	0.576	1.899	100.00%	100.00%
3	3	496.757	1.727	0.464	0.155	1.735	0.679	1.735	100.00%	100.00%
2	3	496.757	1.262	0.684	0.228	1.472	1.181	1.472	100.00%	100.00%
1	3	496.757	0.579	0.579	0.193	0.846		0.846	100.00%	
						NO B2 IRREG.		B2 IRREG.	NO B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	431.515	2.135	0.178	0.059		0.541			100.00%
4	3	431.515	1.958	0.328	0.109	1.849	0.621	1.849	100.00%	100.00%
3	3	431.515	1.629	0.529	0.176	1.611	0.806	1.611	100.00%	100.00%
2	3	431.515	1.100	0.656	0.219	1.241	1.479	1.241	100.00%	100.00%
1	3	431.515	0.444	0.444	0.148	0.676		0.676	100.00%	
						NO B2 IRREG.		B2 IRREG.	NO B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	475.600	2.135	0.169	0.056		0.544			100.00%
4	3	475.600	1.966	0.311	0.104	1.837	0.612	1.837	100.00%	100.00%
3	3	475.600	1.655	0.508	0.169	1.633	0.757	1.633	100.00%	100.00%
2	3	475.600	1.147	0.672	0.224	1.322	1.412	1.322	100.00%	100.00%
1	3	475.600	0.476	0.476	0.159	0.708		0.708	100.00%	
						NO B2 IRREG.		B2 IRREG.	NO B2 IRREG.	

DEFORMATION LEVEL-2

5-2-HOM

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	476.838	5.651	0.276	0.092		0.406			100.00%	
4	3	476.838	5.375	0.680	0.227	2.464	0.504	2.464	100.00%	100.00%	
3	3	476.838	4.695	1.349	0.450	1.984	0.772	1.984	100.00%	100.00%	
2	3	476.838	3.345	1.748	0.583	1.296	1.094	1.296	100.00%	100.00%	
1	3	476.838	1.597	1.597	0.532	0.914		0.914	100.00%		
						B2 IRREG.		B2 IRREG.		NO B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	548.643	5.651	0.200	0.067		0.412			100.00%	
4	3	548.643	5.451	0.486	0.162	2.426	0.417	2.426	100.00%	100.00%	
3	3	548.643	4.965	1.165	0.388	2.398	0.632	2.398	100.00%	100.00%	
2	3	548.643	3.800	1.843	0.614	1.583	0.942	1.583	100.00%	100.00%	
1	3	548.643	1.957	1.957	0.652	1.062		1.062	100.00%		
						B2 IRREG.		B2 IRREG.		NO B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	479.952	5.651	0.251	0.084		0.394			100.00%	
4	3	479.952	5.400	0.637	0.212	2.536	0.474	2.536	100.00%	100.00%	
3	3	479.952	4.763	1.343	0.448	2.109	0.755	2.109	100.00%	100.00%	
2	3	479.952	3.420	1.779	0.593	1.324	1.084	1.324	100.00%	100.00%	
1	3	479.952	1.641	1.641	0.547	0.923		0.923	100.00%		
						B2 IRREG.		B2 IRREG.		NO B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	701.104	5.651	0.261	0.087		0.349			100.00%	
4	3	701.104	5.390	0.747	0.249	2.865	0.497	2.865	100.00%	100.00%	
3	3	701.104	4.643	1.505	0.502	2.013	0.873	2.013	100.00%	100.00%	
2	3	701.104	3.138	1.723	0.574	1.145	1.218	1.145	100.00%	100.00%	
1	3	701.104	1.414	1.414	0.471	0.821		0.821	100.00%		
						B2 IRREG.		B2 IRREG.		NO B2 IRREG.	

DEFORMATION LEVEL-3

5-2-1-4.5

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	168.399	0.924	0.075	0.025		0.604			100.00%
4	3	168.399	0.849	0.125	0.042	1.657	0.743	1.657	100.00%	100.00%
3	3	168.399	0.724	0.168	0.056	1.347	0.817	1.347	100.00%	100.00%
2	3	168.399	0.556	0.205	0.068	1.224	0.878	1.224	100.00%	100.00%
1	4.5	168.399	0.351	0.351	0.078	1.139		1.708	66.67%	
						NO B2 IRREG.		B2 IRREG.	B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	197.949	0.924	0.056	0.019		0.549			100.00%
4	3	197.949	0.868	0.102	0.034	1.823	0.665	1.823	100.00%	100.00%
3	3	197.949	0.766	0.153	0.051	1.504	0.724	1.504	100.00%	100.00%
2	3	197.949	0.613	0.212	0.071	1.382	0.790	1.382	100.00%	100.00%
1	4.5	197.949	0.402	0.402	0.089	1.266		1.898	66.67%	
						NO B2 IRREG.		B2 IRREG.	B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	177.051	0.924	0.065	0.022		0.564			100.00%
4	3	177.051	0.858	0.116	0.039	1.774	0.702	1.774	100.00%	100.00%
3	3	177.051	0.742	0.165	0.055	1.424	0.785	1.424	100.00%	100.00%
2	3	177.051	0.577	0.210	0.070	1.273	0.859	1.273	100.00%	100.00%
1	4.5	177.051	0.367	0.367	0.082	1.163		1.745	66.67%	
						NO B2 IRREG.		B2 IRREG.	B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	190.800	0.924	0.060	0.020		0.558			100.00%
4	3	190.800	0.864	0.107	0.036	1.791	0.678	1.791	100.00%	100.00%
3	3	190.800	0.757	0.158	0.053	1.474	0.748	1.474	100.00%	100.00%
2	3	190.800	0.599	0.212	0.071	1.337	0.820	1.337	100.00%	100.00%
1	4.5	190.800	0.387	0.387	0.086	1.220		1.830	66.67%	
						NO B2 IRREG.		B2 IRREG.	B2 IRREG.	

DEFORMATION LEVEL-1

5-2-1-4.5

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	341.263	2.053	0.154	0.051		0.603			100.00%
4	3	341.263	1.899	0.255	0.085	1.658	0.728	1.658	100.00%	100.00%
3	3	341.263	1.643	0.351	0.117	1.373	0.742	1.373	100.00%	100.00%
2	3	341.263	1.293	0.473	0.158	1.348	0.865	1.348	100.00%	100.00%
1	4.5	341.263	0.820	0.820	0.182	1.157		1.735	66.67%	
						NO B2 IRREG.		B2 IRREG.	B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	373.371	2.053	0.109	0.036		0.552			100.00%
4	3	373.371	1.944	0.197	0.066	1.811	0.648	1.811	100.00%	100.00%
3	3	373.371	1.747	0.304	0.101	1.543	0.627	1.543	100.00%	100.00%
2	3	373.371	1.443	0.485	0.162	1.594	0.759	1.594	100.00%	100.00%
1	4.5	373.371	0.958	0.958	0.213	1.317		1.976	66.67%	
						NO B2 IRREG.		B2 IRREG.	B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	349.114	2.053	0.131	0.044		0.564			100.00%
4	3	349.114	1.921	0.232	0.077	1.772	0.686	1.772	100.00%	100.00%
3	3	349.114	1.689	0.339	0.113	1.458	0.677	1.458	100.00%	100.00%
2	3	349.114	1.350	0.500	0.167	1.477	0.883	1.477	100.00%	100.00%
1	4.5	349.114	0.850	0.850	0.189	1.132		1.698	66.67%	
						NO B2 IRREG.		B2 IRREG.	B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	377.600	2.053	0.114	0.038		0.551			100.00%
4	3	377.600	1.939	0.206	0.069	1.814	0.652	1.814	100.00%	100.00%
3	3	377.600	1.733	0.316	0.105	1.534	0.650	1.534	100.00%	100.00%
2	3	377.600	1.417	0.486	0.162	1.539	0.784	1.539	100.00%	100.00%
1	4.5	377.600	0.931	0.931	0.207	1.275		1.913	66.67%	
						NO B2 IRREG.		B2 IRREG.	B2 IRREG.	

DEFORMATION LEVEL-2

5-2-1-4.5

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	394.098	5.440	0.209	0.070		0.514			100.00%	
4	3	394.098	5.230	0.407	0.136	1.944	0.496	1.944	100.00%	100.00%	
3	3	394.098	4.824	0.820	0.273	2.015	0.589	2.015	100.00%	100.00%	
2	3	394.098	4.004	1.393	0.464	1.699	0.800	1.699	100.00%	100.00%	
1	4.5	394.098	2.611	2.611	0.580	1.250		1.875	66.67%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	430.692	5.440	0.116	0.039		0.383			100.00%	
4	3	430.692	5.324	0.302	0.101	2.610	0.472	2.610	100.00%	100.00%	
3	3	430.692	5.021	0.641	0.214	2.120	0.459	2.120	100.00%	100.00%	
2	3	430.692	4.380	1.397	0.466	2.179	0.702	2.179	100.00%	100.00%	
1	4.5	430.692	2.983	2.983	0.663	1.424		2.135	66.67%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	402.288	5.440	0.181	0.060		0.503			100.00%	
4	3	402.288	5.259	0.360	0.120	1.990	0.460	1.990	100.00%	100.00%	
3	3	402.288	4.899	0.782	0.261	2.174	0.560	2.174	100.00%	100.00%	
2	3	402.288	4.117	1.398	0.466	1.787	0.771	1.787	100.00%	100.00%	
1	4.5	402.288	2.719	2.719	0.604	1.297		1.945	66.67%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	531.455	5.440	0.165	0.055		0.474			100.00%	
4	3	531.455	5.275	0.348	0.116	2.111	0.467	2.111	100.00%	100.00%	
3	3	531.455	4.927	0.745	0.248	2.140	0.522	2.140	100.00%	100.00%	
2	3	531.455	4.182	1.427	0.476	1.915	0.777	1.915	100.00%	100.00%	
1	4.5	531.455	2.755	2.755	0.612	1.288		1.932	66.67%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

DEFORMATION LEVEL-3

5-2-1-6

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	170.156	1.363	0.076	0.025		0.608			100.00%
4	3	170.156	1.287	0.124	0.041	1.644	0.732	1.644	100.00%	100.00%
3	3	170.156	1.163	0.170	0.057	1.367	0.752	1.367	100.00%	100.00%
2	3	170.156	0.993	0.226	0.075	1.330	0.588	1.330	100.00%	100.00%
1	6	170.156	0.768	0.768	0.128	1.700		3.399	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	188.115	1.363	0.055	0.018		0.558			100.00%
4	3	188.115	1.308	0.099	0.033	1.791	0.661	1.791	100.00%	100.00%
3	3	188.115	1.209	0.150	0.050	1.513	0.670	1.513	100.00%	100.00%
2	3	188.115	1.059	0.223	0.074	1.493	0.535	1.493	100.00%	100.00%
1	6	188.115	0.836	0.836	0.139	1.869		3.739	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	179.644	1.363	0.062	0.021		0.567			100.00%
4	3	179.644	1.301	0.110	0.037	1.763	0.684	1.763	100.00%	100.00%
3	3	179.644	1.191	0.160	0.053	1.463	0.707	1.463	100.00%	100.00%
2	3	179.644	1.031	0.227	0.076	1.414	0.563	1.414	100.00%	100.00%
1	6	179.644	0.805	0.805	0.134	1.776		3.552	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	180.030	1.363	0.067	0.022		0.598			100.00%
4	3	180.030	1.296	0.112	0.037	1.673	0.683	1.673	100.00%	100.00%
3	3	180.030	1.184	0.164	0.055	1.464	0.729	1.464	100.00%	100.00%
2	3	180.030	1.020	0.225	0.075	1.372	0.566	1.372	100.00%	100.00%
1	6	180.030	0.795	0.795	0.133	1.767		3.533	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

DEFORMATION LEVEL-1

5-2-1-6

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	288.381	2.712	0.133	0.044		0.613			100.00%
4	3	288.381	2.579	0.217	0.072	1.632	0.712	1.632	100.00%	100.00%
3	3	288.381	2.362	0.304	0.101	1.404	0.646	1.404	100.00%	100.00%
2	3	288.381	2.058	0.471	0.157	1.548	0.593	1.548	100.00%	100.00%
1	6	288.381	1.587	1.587	0.265	1.686		3.371	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	300.850	2.712	0.094	0.031		0.566			100.00%
4	3	300.850	2.618	0.165	0.055	1.766	0.639	1.766	100.00%	100.00%
3	3	300.850	2.453	0.259	0.086	1.565	0.562	1.565	100.00%	100.00%
2	3	300.850	2.194	0.460	0.153	1.779	0.531	1.779	100.00%	100.00%
1	6	300.850	1.734	1.734	0.289	1.884		3.768	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	295.777	2.712	0.107	0.036		0.574			100.00%
4	3	295.777	2.604	0.187	0.062	1.743	0.670	1.743	100.00%	100.00%
3	3	295.777	2.417	0.279	0.093	1.492	0.591	1.492	100.00%	100.00%
2	3	295.777	2.138	0.472	0.157	1.691	0.567	1.691	100.00%	100.00%
1	6	295.777	1.666	1.666	0.278	1.764		3.527	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	305.600	2.712	0.106	0.035		0.557			100.00%
4	3	305.600	2.606	0.190	0.063	1.794	0.662	1.794	100.00%	100.00%
3	3	305.600	2.416	0.287	0.096	1.511	0.607	1.511	100.00%	100.00%
2	3	305.600	2.129	0.473	0.158	1.648	0.571	1.648	100.00%	100.00%
1	6	305.600	1.656	1.656	0.276	1.751		3.501	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

DEFORMATION LEVEL-2

5-2-1-6

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	325.171	5.736	0.169	0.056		1.700			100.00%	
4	3	325.171	5.567	0.099	0.033	0.588	0.137	0.588	100.00%	100.00%	
3	3	325.171	5.468	0.725	0.242	7.307	0.676	7.307	100.00%	100.00%	
2	3	325.171	4.743	1.073	0.358	1.480	0.585	1.480	100.00%	100.00%	
1	6	325.171	3.669	3.669	0.612	1.709		3.418	50.00%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	338.805	5.736	0.121	0.040		0.563			100.00%	
4	3	338.805	5.615	0.215	0.072	1.778	0.516	1.778	100.00%	100.00%	
3	3	338.805	5.401	0.416	0.139	1.939	0.436	1.939	100.00%	100.00%	
2	3	338.805	4.984	0.954	0.318	2.292	0.474	2.292	100.00%	100.00%	
1	6	338.805	4.030	4.030	0.672	2.111		4.222	50.00%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	332.665	5.736	0.134	0.045		0.560			100.00%	
4	3	332.665	5.602	0.239	0.080	1.785	0.732	1.785	100.00%	100.00%	
3	3	332.665	5.363	0.327	0.109	1.367	0.275	1.367	100.00%	100.00%	
2	3	332.665	5.035	1.188	0.396	3.630	0.618	3.630	100.00%	100.00%	
1	6	332.665	3.847	3.847	0.641	1.619		3.238	50.00%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	401.502	5.736	0.173	0.058		0.735			100.00%	
4	3	401.502	5.563	0.236	0.079	1.360	0.501	1.360	100.00%	100.00%	
3	3	401.502	5.327	0.471	0.157	1.996	0.474	1.996	100.00%	100.00%	
2	3	401.502	4.856	0.993	0.331	2.109	0.514	2.109	100.00%	100.00%	
1	6	401.502	3.862	3.862	0.644	1.944		3.888	50.00%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

DEFORMATION LEVEL-3

5-4-HOM

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	322.734	0.685	0.071	0.024		0.577			100.00%
4	3	322.734	0.614	0.124	0.041	1.734	0.745	1.734	100.00%	100.00%
3	3	322.734	0.490	0.166	0.055	1.341	0.888	1.341	100.00%	100.00%
2	3	322.734	0.323	0.187	0.062	1.126	1.373	1.126	100.00%	100.00%
1	3	322.734	0.136	0.136	0.045	0.728		0.728	100.00%	
						NO B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	410.777	0.685	0.053	0.018		0.512			100.00%
4	3	410.777	0.632	0.104	0.035	1.954	0.657	1.954	100.00%	100.00%
3	3	410.777	0.528	0.159	0.053	1.522	0.781	1.522	100.00%	100.00%
2	3	410.777	0.369	0.203	0.068	1.281	1.225	1.281	100.00%	100.00%
1	3	410.777	0.166	0.166	0.055	0.816		0.816	100.00%	
						NO B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	333.493	0.685	0.064	0.021		0.536			100.00%
4	3	333.493	0.621	0.119	0.040	1.866	0.711	1.866	100.00%	100.00%
3	3	333.493	0.502	0.168	0.056	1.406	0.871	1.406	100.00%	100.00%
2	3	333.493	0.334	0.193	0.064	1.148	1.369	1.148	100.00%	100.00%
1	3	333.493	0.141	0.141	0.047	0.731		0.731	100.00%	
						NO B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	355.672	0.685	0.062	0.021		0.532			100.00%
4	3	355.672	0.623	0.116	0.039	1.881	0.702	1.881	100.00%	100.00%
3	3	355.672	0.507	0.166	0.055	1.425	0.854	1.425	100.00%	100.00%
2	3	355.672	0.341	0.194	0.065	1.171	1.325	1.171	100.00%	100.00%
1	3	355.672	0.147	0.147	0.049	0.755		0.755	100.00%	
						NO B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

DEFORMATION LEVEL-1

5-4-HOM

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	893.800	2.288	0.201	0.067		0.508			100.00%
4	3	893.800	2.087	0.395	0.132	1.969	0.717	1.969	100.00%	100.00%
3	3	893.800	1.692	0.551	0.184	1.394	0.816	1.394	100.00%	100.00%
2	3	893.800	1.140	0.675	0.225	1.225	1.452	1.225	100.00%	100.00%
1	3	893.800	0.465	0.465	0.155	0.689		0.689	100.00%	
						NO B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	1050.414	2.288	0.139	0.046		0.498			100.00%
4	3	1050.414	2.149	0.279	0.093	2.007	0.566	2.007	100.00%	100.00%
3	3	1050.414	1.870	0.493	0.164	1.767	0.664	1.767	100.00%	100.00%
2	3	1050.414	1.377	0.743	0.248	1.507	1.172	1.507	100.00%	100.00%
1	3	1050.414	0.634	0.634	0.211	0.853		0.853	100.00%	
						B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	908.001	2.288	0.194	0.065		0.564			100.00%
4	3	908.001	2.094	0.344	0.115	1.774	0.619	1.774	100.00%	100.00%
3	3	908.001	1.749	0.556	0.185	1.615	0.788	1.615	100.00%	100.00%
2	3	908.001	1.193	0.706	0.235	1.269	1.448	1.269	100.00%	100.00%
1	3	908.001	0.487	0.487	0.162	0.691		0.691	100.00%	
						NO B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	998.400	2.288	0.172	0.057		0.523			100.00%
4	3	998.400	2.116	0.328	0.109	1.911	0.606	1.911	100.00%	100.00%
3	3	998.400	1.788	0.541	0.180	1.649	0.747	1.649	100.00%	100.00%
2	3	998.400	1.247	0.724	0.241	1.339	1.385	1.339	100.00%	100.00%
1	3	998.400	0.523	0.523	0.174	0.722		0.722	100.00%	
						NO B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

DEFORMATION LEVEL-2

5-4-HOM

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	1004.954	5.763	0.266	0.089		0.393			100.00%
4	3	1004.954	5.497	0.677	0.226	2.547	0.509	2.547	100.00%	100.00%
3	3	1004.954	4.820	1.329	0.443	1.963	0.723	1.963	100.00%	100.00%
2	3	1004.954	3.490	1.839	0.613	1.383	1.113	1.383	100.00%	100.00%
1	3	1004.954	1.652	1.652	0.551	0.899		0.899	100.00%	
						B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	1154.580	5.763	0.179	0.060		0.393			100.00%
4	3	1154.580	5.584	0.456	0.152	2.547	0.398	2.547	100.00%	100.00%
3	3	1154.580	5.128	1.145	0.382	2.513	0.596	2.513	100.00%	100.00%
2	3	1154.580	3.983	1.921	0.640	1.678	0.932	1.678	100.00%	100.00%
1	3	1154.580	2.062	2.062	0.687	1.073		1.073	100.00%	
						B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	1011.718	5.763	0.232	0.077		0.384			100.00%
4	3	1011.718	5.530	0.606	0.202	2.607	0.444	2.607	100.00%	100.00%
3	3	1011.718	4.925	1.366	0.455	2.255	0.734	2.255	100.00%	100.00%
2	3	1011.718	3.558	1.860	0.620	1.362	1.095	1.362	100.00%	100.00%
1	3	1011.718	1.699	1.699	0.566	0.913		0.913	100.00%	
						B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	1437.480	5.763	0.227	0.076		0.348			100.00%
4	3	1437.480	5.535	0.654	0.218	2.877	0.444	2.877	100.00%	100.00%
3	3	1437.480	4.881	1.473	0.491	2.252	0.790	2.252	100.00%	100.00%
2	3	1437.480	3.408	1.864	0.621	1.265	1.208	1.265	100.00%	100.00%
1	3	1437.480	1.543	1.543	0.514	0.828		0.828	100.00%	
						B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

DEFORMATION LEVEL-3

5-4-1-4.5

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	325.664	0.937	0.070	0.023		0.577			100.00%
4	3	325.664	0.868	0.121	0.040	1.734	0.731	1.734	100.00%	100.00%
3	3	325.664	0.747	0.165	0.055	1.368	0.806	1.368	100.00%	100.00%
2	3	325.664	0.582	0.205	0.068	1.241	0.814	1.241	100.00%	100.00%
1	4.5	325.664	0.377	0.377	0.084	1.229		1.843	66.67%	
						NO B2 IRREG.	B2 IRREG.		B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	380.097	0.937	0.050	0.017		0.517			100.00%
4	3	380.097	0.887	0.097	0.032	1.935	0.651	1.935	100.00%	100.00%
3	3	380.097	0.790	0.149	0.050	1.537	0.711	1.537	100.00%	100.00%
2	3	380.097	0.641	0.210	0.070	1.406	0.731	1.406	100.00%	100.00%
1	4.5	380.097	0.431	0.431	0.096	1.368		2.052	66.67%	
						NO B2 IRREG.	B2 IRREG.		B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	344.851	0.937	0.059	0.020		0.532			100.00%
4	3	344.851	0.879	0.111	0.037	1.880	0.686	1.880	100.00%	100.00%
3	3	344.851	0.768	0.161	0.054	1.457	0.769	1.457	100.00%	100.00%
2	3	344.851	0.607	0.209	0.070	1.300	0.791	1.300	100.00%	100.00%
1	4.5	344.851	0.397	0.397	0.088	1.265		1.897	66.67%	
						NO B2 IRREG.	B2 IRREG.		B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	366.220	0.937	0.055	0.018		0.526			100.00%
4	3	366.220	0.883	0.104	0.035	1.901	0.671	1.901	100.00%	100.00%
3	3	366.220	0.779	0.155	0.052	1.490	0.739	1.490	100.00%	100.00%
2	3	366.220	0.624	0.209	0.070	1.352	0.756	1.352	100.00%	100.00%
1	4.5	366.220	0.415	0.415	0.092	1.323		1.984	66.67%	
						NO B2 IRREG.	B2 IRREG.		B2 IRREG.	

DEFORMATION LEVEL-1

5-4-1-4.5

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	698.055	2.134	0.149	0.050		0.555			100.00%
4	3	698.055	1.985	0.269	0.090	1.802	0.749	1.802	100.00%	100.00%
3	3	698.055	1.717	0.358	0.119	1.334	0.749	1.334	100.00%	100.00%
2	3	698.055	1.358	0.478	0.159	1.335	0.815	1.335	100.00%	100.00%
1	4.5	698.055	0.880	0.880	0.196	1.227		1.840	66.67%	
						NO B2 IRREG.	B2 IRREG.		B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	773.712	2.134	0.103	0.034		0.515			100.00%
4	3	773.712	2.032	0.199	0.066	1.941	0.636	1.941	100.00%	100.00%
3	3	773.712	1.833	0.313	0.104	1.573	0.627	1.573	100.00%	100.00%
2	3	773.712	1.520	0.499	0.166	1.595	0.734	1.595	100.00%	100.00%
1	4.5	773.712	1.021	1.021	0.227	1.363		2.044	66.67%	
						NO B2 IRREG.	B2 IRREG.		B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	727.466	2.134	0.124	0.041		0.541			100.00%
4	3	727.466	2.010	0.229	0.076	1.848	0.660	1.848	100.00%	100.00%
3	3	727.466	1.781	0.347	0.116	1.515	0.699	1.515	100.00%	100.00%
2	3	727.466	1.434	0.497	0.166	1.431	0.795	1.431	100.00%	100.00%
1	4.5	727.466	0.937	0.937	0.208	1.257		1.886	66.67%	
						NO B2 IRREG.	B2 IRREG.		B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	777.900	2.134	0.106	0.035		0.502			100.00%
4	3	777.900	2.028	0.212	0.071	1.992	0.648	1.992	100.00%	100.00%
3	3	777.900	1.816	0.327	0.109	1.542	0.655	1.542	100.00%	100.00%
2	3	777.900	1.489	0.499	0.166	1.527	0.757	1.527	100.00%	100.00%
1	4.5	777.900	0.990	0.990	0.220	1.321		1.982	66.67%	
						NO B2 IRREG.	B2 IRREG.		B2 IRREG.	

DEFORMATION LEVEL-2

5-4-1-4.5

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	823.224	5.441	0.195	0.065		0.496			100.00%
4	3	823.224	5.246	0.394	0.131	2.016	0.499	2.016	100.00%	100.00%
3	3	823.224	4.852	0.790	0.263	2.006	0.575	2.006	100.00%	100.00%
2	3	823.224	4.062	1.374	0.458	1.739	0.767	1.739	100.00%	100.00%
1	4.5	823.224	2.688	2.688	0.597	1.304		1.956	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	889.737	5.441	0.127	0.042		0.491			100.00%
4	3	889.737	5.314	0.259	0.086	2.037	0.433	2.037	100.00%	100.00%
3	3	889.737	5.054	0.599	0.200	2.310	0.436	2.310	100.00%	100.00%
2	3	889.737	4.456	1.375	0.458	2.295	0.669	2.295	100.00%	100.00%
1	4.5	889.737	3.081	3.081	0.685	1.494		2.241	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	846.785	5.441	0.160	0.053		0.482			100.00%
4	3	846.785	5.281	0.332	0.111	2.077	0.461	2.077	100.00%	100.00%
3	3	846.785	4.949	0.720	0.240	2.168	0.521	2.168	100.00%	100.00%
2	3	846.785	4.229	1.381	0.460	1.918	0.727	1.918	100.00%	100.00%
1	4.5	846.785	2.849	2.849	0.633	1.376		2.064	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	1079.720	5.441	0.145	0.048		0.470			100.00%
4	3	1079.720	5.296	0.308	0.103	2.126	0.448	2.126	100.00%	100.00%
3	3	1079.720	4.989	0.687	0.229	2.234	0.495	2.234	100.00%	100.00%
2	3	1079.720	4.302	1.389	0.463	2.022	0.716	2.022	100.00%	100.00%
1	4.5	1079.720	2.912	2.912	0.647	1.397		2.096	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

DEFORMATION LEVEL-3

5-4-1-6

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	328.594	1.416	0.069	0.023		0.578			100.00%
4	3	328.594	1.347	0.119	0.040	1.730	0.720	1.730	100.00%	100.00%
3	3	328.594	1.228	0.165	0.055	1.390	0.740	1.390	100.00%	100.00%
2	3	328.594	1.063	0.223	0.074	1.351	0.531	1.351	100.00%	100.00%
1	6	328.594	0.840	0.840	0.140	1.885		3.769	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	360.465	1.416	0.049	0.016		0.522			100.00%
4	3	360.465	1.367	0.093	0.031	1.917	0.646	1.917	100.00%	100.00%
3	3	360.465	1.274	0.144	0.048	1.549	0.656	1.549	100.00%	100.00%
2	3	360.465	1.130	0.219	0.073	1.523	0.482	1.523	100.00%	100.00%
1	6	360.465	0.911	0.911	0.152	2.075		4.149	50.00%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	346.867	1.416	0.055	0.018		0.531			100.00%
4	3	346.867	1.361	0.103	0.034	1.885	0.667	1.885	100.00%	100.00%
3	3	346.867	1.259	0.154	0.051	1.499	0.691	1.499	100.00%	100.00%
2	3	346.867	1.105	0.223	0.074	1.447	0.506	1.447	100.00%	100.00%
1	6	346.867	0.882	0.882	0.147	1.978		3.956	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	347.960	1.416	0.055	0.018		0.534			100.00%
4	3	347.960	1.360	0.104	0.035	1.873	0.665	1.873	100.00%	100.00%
3	3	347.960	1.257	0.156	0.052	1.505	0.695	1.505	100.00%	100.00%
2	3	347.960	1.100	0.225	0.075	1.439	0.514	1.439	100.00%	100.00%
1	6	347.960	0.876	0.876	0.146	1.947		3.895	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

DEFORMATION LEVEL-1

5-4-1-6

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	671.348	3.381	0.143	0.048		0.590			100.00%	
4	3	671.348	3.239	0.242	0.081	1.695	0.705	1.695	100.00%	100.00%	
3	3	671.348	2.997	0.343	0.114	1.419	0.700	1.419	100.00%	100.00%	
2	3	671.348	2.654	0.490	0.163	1.429	0.453	1.429	100.00%	100.00%	
1	6	671.348	2.164	2.164	0.361	2.207		4.415	50.00%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	683.685	3.381	0.095	0.032		0.525			100.00%	
4	3	683.685	3.286	0.181	0.060	1.906	0.646	1.906	100.00%	100.00%	
3	3	683.685	3.106	0.280	0.093	1.547	0.615	1.547	100.00%	100.00%	
2	3	683.685	2.826	0.455	0.152	1.625	0.383	1.625	100.00%	100.00%	
1	6	683.685	2.371	2.371	0.395	2.608		5.216	50.00%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	678.372	3.381	0.110	0.037		0.545			100.00%	
4	3	678.372	3.271	0.202	0.067	1.836	0.658	1.836	100.00%	100.00%	
3	3	678.372	3.069	0.307	0.102	1.521	0.649	1.521	100.00%	100.00%	
2	3	678.372	2.762	0.474	0.158	1.540	0.414	1.540	100.00%	100.00%	
1	6	678.372	2.288	2.288	0.381	2.416		4.831	50.00%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	702.050	3.381	0.116	0.039		0.535			100.00%	
4	3	702.050	3.265	0.217	0.072	1.871	0.674	1.871	100.00%	100.00%	
3	3	702.050	3.049	0.322	0.107	1.484	0.664	1.484	100.00%	100.00%	
2	3	702.050	2.727	0.485	0.162	1.506	0.432	1.506	100.00%	100.00%	
1	6	702.050	2.242	2.242	0.374	2.313		4.627	50.00%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

DEFORMATION LEVEL-2

5-4-1-6

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	698.587	6.075	0.159	0.053		0.565			100.00%
4	3	698.587	5.916	0.281	0.094	1.769	0.753	1.769	100.00%	100.00%
3	3	698.587	5.635	0.373	0.124	1.327	0.692	1.327	100.00%	100.00%
2	3	698.587	5.262	0.540	0.180	1.446	0.229	1.446	100.00%	100.00%
1	6	698.587	4.722	4.722	0.787	4.376		8.751	50.00%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	702.214	6.075	0.105	0.035		0.613			100.00%
4	3	702.214	5.970	0.172	0.057	1.632	0.576	1.632	100.00%	100.00%
3	3	702.214	5.798	0.299	0.100	1.735	0.593	1.735	100.00%	100.00%
2	3	702.214	5.499	0.504	0.168	1.687	0.202	1.687	100.00%	100.00%
1	6	702.214	4.996	4.996	0.833	4.959		9.917	50.00%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	701.189	6.075	0.129	0.043		0.646			100.00%
4	3	701.189	5.946	0.200	0.067	1.548	0.600	1.548	100.00%	100.00%
3	3	701.189	5.746	0.333	0.111	1.666	0.616	1.666	100.00%	100.00%
2	3	701.189	5.413	0.541	0.180	1.623	0.222	1.623	100.00%	100.00%
1	6	701.189	4.872	4.872	0.812	4.507		9.014	50.00%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	925.763	6.075	0.097	0.032		0.511			100.00%
4	3	925.763	5.978	0.190	0.063	1.959	0.605	1.959	100.00%	100.00%
3	3	925.763	5.788	0.314	0.105	1.653	0.540	1.653	100.00%	100.00%
2	3	925.763	5.473	0.583	0.194	1.854	0.238	1.854	100.00%	100.00%
1	6	925.763	4.891	4.891	0.815	4.196		8.392	50.00%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

DEFORMATION LEVEL-3

5-6-HOM

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	478.828	0.685	0.070	0.023		0.568			100.00%
4	3	478.828	0.615	0.123	0.041	1.761	0.742	1.761	100.00%	100.00%
3	3	478.828	0.492	0.166	0.055	1.349	0.884	1.349	100.00%	100.00%
2	3	478.828	0.326	0.188	0.063	1.132	1.354	1.132	100.00%	100.00%
1	3	478.828	0.139	0.139	0.046	0.739		0.739	100.00%	
						NO B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	608.553	0.685	0.052	0.017		0.501			100.00%
4	3	608.553	0.634	0.103	0.034	1.995	0.653	1.995	100.00%	100.00%
3	3	608.553	0.531	0.158	0.053	1.532	0.775	1.532	100.00%	100.00%
2	3	608.553	0.373	0.204	0.068	1.291	1.208	1.291	100.00%	100.00%
1	3	608.553	0.169	0.169	0.056	0.828		0.828	100.00%	
						NO B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	495.500	0.685	0.062	0.021		0.525			100.00%
4	3	495.500	0.623	0.118	0.039	1.904	0.707	1.904	100.00%	100.00%
3	3	495.500	0.505	0.168	0.056	1.415	0.865	1.415	100.00%	100.00%
2	3	495.500	0.337	0.194	0.065	1.156	1.350	1.156	100.00%	100.00%
1	3	495.500	0.143	0.143	0.048	0.741		0.741	100.00%	
						NO B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	528.200	0.685	0.060	0.020		0.522			100.00%
4	3	528.200	0.625	0.115	0.038	1.916	0.697	1.916	100.00%	100.00%
3	3	528.200	0.510	0.166	0.055	1.435	0.849	1.435	100.00%	100.00%
2	3	528.200	0.344	0.195	0.065	1.178	1.305	1.178	100.00%	100.00%
1	3	528.200	0.149	0.149	0.050	0.766		0.766	100.00%	
						NO B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

DEFORMATION LEVEL-1

5-6-HOM

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	1474.367	2.277	0.216	0.072		0.563			100.00%
4	3	1474.367	2.061	0.384	0.128	1.778	0.698	1.778	100.00%	100.00%
3	3	1474.367	1.677	0.550	0.183	1.434	0.838	1.434	100.00%	100.00%
2	3	1474.367	1.127	0.656	0.219	1.194	1.393	1.194	100.00%	100.00%
1	3	1474.367	0.471	0.471	0.157	0.718		0.718	100.00%	
						NO B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	1664.005	2.277	0.197	0.066		0.688			100.00%
4	3	1664.005	2.080	0.286	0.095	1.453	0.685	1.453	100.00%	100.00%
3	3	1664.005	1.794	0.418	0.139	1.460	0.600	1.460	100.00%	100.00%
2	3	1664.005	1.376	0.696	0.232	1.666	1.024	1.666	100.00%	100.00%
1	3	1664.005	0.680	0.680	0.227	0.976		0.976	100.00%	
						NO B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	1490.441	2.277	0.188	0.063		0.519			100.00%
4	3	1490.441	2.089	0.362	0.121	1.927	0.656	1.927	100.00%	100.00%
3	3	1490.441	1.727	0.551	0.184	1.524	0.808	1.524	100.00%	100.00%
2	3	1490.441	1.175	0.682	0.227	1.238	1.385	1.238	100.00%	100.00%
1	3	1490.441	0.493	0.493	0.164	0.722		0.722	100.00%	
						NO B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	1579.000	2.277	0.181	0.060		0.517			100.00%
4	3	1579.000	2.096	0.349	0.116	1.934	0.655	1.934	100.00%	100.00%
3	3	1579.000	1.747	0.533	0.178	1.527	0.779	1.527	100.00%	100.00%
2	3	1579.000	1.214	0.684	0.228	1.283	1.291	1.283	100.00%	100.00%
1	3	1579.000	0.530	0.530	0.177	0.775		0.775	100.00%	
						NO B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

DEFORMATION LEVEL-2

5-6-HOM

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	1612.799	5.620	0.259	0.086		0.458			100.00%
4	3	1612.799	5.360	0.567	0.189	2.186	0.439	2.186	100.00%	100.00%
3	3	1612.799	4.793	1.291	0.430	2.276	0.721	2.276	100.00%	100.00%
2	3	1612.799	3.502	1.790	0.597	1.387	1.046	1.387	100.00%	100.00%
1	3	1612.799	1.712	1.712	0.571	0.956		0.956	100.00%	
						B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	1826.688	5.620	0.169	0.056		0.462			100.00%
4	3	1826.688	5.451	0.366	0.122	2.166	0.442	2.166	100.00%	100.00%
3	3	1826.688	5.085	0.827	0.276	2.262	0.421	2.262	100.00%	100.00%
2	3	1826.688	4.258	1.965	0.655	2.375	0.857	2.375	100.00%	100.00%
1	3	1826.688	2.293	2.293	0.764	1.167		1.167	100.00%	
						B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	1621.766	5.620	0.224	0.075		0.441			100.00%
4	3	1621.766	5.396	0.509	0.170	2.270	0.398	2.270	100.00%	100.00%
3	3	1621.766	4.887	1.279	0.426	2.516	0.699	2.516	100.00%	100.00%
2	3	1621.766	3.608	1.831	0.610	1.431	1.030	1.431	100.00%	100.00%
1	3	1621.766	1.777	1.777	0.592	0.971		0.971	100.00%	
						B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	2272.000	5.620	0.196	0.065		0.358			100.00%
4	3	2272.000	5.424	0.546	0.182	2.791	0.400	2.791	100.00%	100.00%
3	3	2272.000	4.878	1.365	0.455	2.500	0.733	2.500	100.00%	100.00%
2	3	2272.000	3.513	1.863	0.621	1.365	1.129	1.365	100.00%	100.00%
1	3	2272.000	1.650	1.650	0.550	0.886		0.886	100.00%	
						B2 IRREG.	B2 IRREG.	NO B2 IRREG.		

DEFORMATION LEVEL-3

5-6-1-4.5

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	482.930	0.944	0.068	0.023		0.566			100.00%	
4	3	482.930	0.876	0.119	0.040	1.765	0.727	1.765	100.00%	100.00%	
3	3	482.930	0.757	0.164	0.055	1.375	0.802	1.375	100.00%	100.00%	
2	3	482.930	0.593	0.204	0.068	1.246	0.790	1.246	100.00%	100.00%	
1	4.5	482.930	0.388	0.388	0.086	1.266		1.899	66.67%		
						NO B2 IRREG.	B2 IRREG.	B2 IRREG.			

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	562.173	0.944	0.048	0.016		0.505			100.00%	
4	3	562.173	0.896	0.096	0.032	1.981	0.646	1.981	100.00%	100.00%	
3	3	562.173	0.800	0.148	0.049	1.549	0.707	1.549	100.00%	100.00%	
2	3	562.173	0.652	0.209	0.070	1.414	0.709	1.414	100.00%	100.00%	
1	4.5	562.173	0.443	0.443	0.098	1.411		2.116	66.67%		
						NO B2 IRREG.	B2 IRREG.	B2 IRREG.			

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	512.005	0.944	0.057	0.019		0.519			100.00%	
4	3	512.005	0.887	0.109	0.036	1.926	0.681	1.926	100.00%	100.00%	
3	3	512.005	0.778	0.160	0.053	1.468	0.764	1.468	100.00%	100.00%	
2	3	512.005	0.619	0.209	0.070	1.308	0.766	1.308	100.00%	100.00%	
1	4.5	512.005	0.409	0.409	0.091	1.305		1.958	66.67%		
						NO B2 IRREG.	B2 IRREG.	B2 IRREG.			

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	540.500	0.944	0.053	0.018		0.519			100.00%	
4	3	540.500	0.891	0.102	0.034	1.929	0.662	1.929	100.00%	100.00%	
3	3	540.500	0.789	0.154	0.051	1.510	0.733	1.510	100.00%	100.00%	
2	3	540.500	0.636	0.210	0.070	1.364	0.737	1.364	100.00%	100.00%	
1	4.5	540.500	0.426	0.426	0.095	1.356		2.034	66.67%		
						NO B2 IRREG.	B2 IRREG.	B2 IRREG.			

DEFORMATION LEVEL-1

5-6-1-4.5

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	1096.542	2.187	0.154	0.051		0.566			100.00%
4	3	1096.542	2.033	0.271	0.090	1.766	0.700	1.766	100.00%	100.00%
3	3	1096.542	1.762	0.388	0.129	1.429	0.819	1.429	100.00%	100.00%
2	3	1096.542	1.374	0.473	0.158	1.220	0.787	1.220	100.00%	100.00%
1	4.5	1096.542	0.901	0.901	0.200	1.270		1.906	66.67%	
						NO B2 IRREG.	B2 IRREG.	B2 IRREG.		

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	1201.324	2.187	0.104	0.035		0.505			100.00%
4	3	1201.324	2.083	0.205	0.068	1.979	0.641	1.979	100.00%	100.00%
3	3	1201.324	1.878	0.320	0.107	1.560	0.670	1.560	100.00%	100.00%
2	3	1201.324	1.558	0.478	0.159	1.492	0.663	1.492	100.00%	100.00%
1	4.5	1201.324	1.080	1.080	0.240	1.508		2.262	66.67%	
						B2 IRREG.	B2 IRREG.	B2 IRREG.		

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	1146.945	2.187	0.127	0.042		0.520			100.00%
4	3	1146.945	2.060	0.244	0.081	1.925	0.671	1.925	100.00%	100.00%
3	3	1146.945	1.815	0.364	0.121	1.491	0.753	1.491	100.00%	100.00%
2	3	1146.945	1.451	0.483	0.161	1.327	0.749	1.327	100.00%	100.00%
1	4.5	1146.945	0.968	0.968	0.215	1.334		2.002	66.67%	
						NO B2 IRREG.	B2 IRREG.	B2 IRREG.		

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	1199.000	2.187	0.115	0.038		0.514			100.00%
4	3	1199.000	2.072	0.223	0.074	1.946	0.658	1.946	100.00%	100.00%
3	3	1199.000	1.849	0.339	0.113	1.520	0.702	1.520	100.00%	100.00%
2	3	1199.000	1.510	0.483	0.161	1.425	0.705	1.425	100.00%	100.00%
1	4.5	1199.000	1.027	1.027	0.228	1.418		2.126	66.67%	
						NO B2 IRREG.	B2 IRREG.	B2 IRREG.		

DEFORMATION LEVEL-2

5-6-1-4.5

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	1298.695	4.999	0.190	0.063		0.545			100.00%	
4	3	1298.695	4.809	0.349	0.116	1.834	0.557	1.834	100.00%	100.00%	
3	3	1298.695	4.459	0.627	0.209	1.794	0.540	1.794	100.00%	100.00%	
2	3	1298.695	3.832	1.161	0.387	1.852	0.652	1.852	100.00%	100.00%	
1	4.5	1298.695	2.671	2.671	0.594	1.534		2.301	66.67%		
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	1364.532	4.999	0.124	0.041		0.504			100.00%	
4	3	1364.532	4.875	0.246	0.082	1.984	0.442	1.984	100.00%	100.00%	
3	3	1364.532	4.629	0.558	0.186	2.264	0.605	2.264	100.00%	100.00%	
2	3	1364.532	4.071	0.922	0.307	1.653	0.439	1.653	100.00%	100.00%	
1	4.5	1364.532	3.149	3.149	0.700	2.276		3.414	66.67%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	1321.320	4.999	0.154	0.051		0.504			100.00%	
4	3	1321.320	4.845	0.307	0.102	1.985	0.538	1.985	100.00%	100.00%	
3	3	1321.320	4.538	0.570	0.190	1.860	0.485	1.860	100.00%	100.00%	
2	3	1321.320	3.968	1.175	0.392	2.061	0.631	2.061	100.00%	100.00%	
1	4.5	1321.320	2.793	2.793	0.621	1.584		2.376	66.67%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	1673.000	4.999	0.134	0.045		0.482			100.00%	
4	3	1673.000	4.865	0.278	0.093	2.073	0.542	2.073	100.00%	100.00%	
3	3	1673.000	4.587	0.513	0.171	1.845	0.474	1.845	100.00%	100.00%	
2	3	1673.000	4.074	1.082	0.361	2.109	0.542	2.109	100.00%	100.00%	
1	4.5	1673.000	2.992	2.992	0.665	1.843		2.765	66.67%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

DEFORMATION LEVEL-3

5-6-1-6

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
5	3	487.031	1.445	0.066	0.022		0.566			100.00%
4	3	487.031	1.379	0.117	0.039	1.765	0.715	1.765	100.00%	100.00%
3	3	487.031	1.262	0.163	0.054	1.398	0.736	1.398	100.00%	100.00%
2	3	487.031	1.099	0.222	0.074	1.359	0.507	1.359	100.00%	100.00%
1	6	487.031	0.877	0.877	0.146	1.974		3.948	50.00%	
						NO B2 IRREG.		B2 IRREG.	B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
5	3	532.563	1.445	0.046	0.015		0.508			100.00%
4	3	532.563	1.399	0.091	0.030	1.968	0.639	1.968	100.00%	100.00%
3	3	532.563	1.308	0.142	0.047	1.564	0.652	1.564	100.00%	100.00%
2	3	532.563	1.166	0.218	0.073	1.533	0.460	1.533	100.00%	100.00%
1	6	532.563	0.948	0.948	0.158	2.174		4.347	50.00%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
5	3	513.882	1.445	0.052	0.017		0.517			100.00%
4	3	513.882	1.393	0.100	0.033	1.934	0.661	1.934	100.00%	100.00%
3	3	513.882	1.293	0.152	0.051	1.514	0.685	1.514	100.00%	100.00%
2	3	513.882	1.141	0.222	0.074	1.459	0.482	1.459	100.00%	100.00%
1	6	513.882	0.920	0.920	0.153	2.075		4.149	50.00%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height	Total Base Shear	Total Story Lateral Disp. (di)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
	(m)	(kN)	(m)							
5	3	515.500	1.445	0.053	0.018		0.517			100.00%
4	3	515.500	1.392	0.103	0.034	1.935	0.656	1.935	100.00%	100.00%
3	3	515.500	1.289	0.157	0.052	1.524	0.700	1.524	100.00%	100.00%
2	3	515.500	1.132	0.224	0.075	1.428	0.494	1.428	100.00%	100.00%
1	6	515.500	0.908	0.908	0.151	2.025		4.049	50.00%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

DEFORMATION LEVEL-1

5-6-1-6

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	1165.793	3.523	0.158	0.053		0.565			100.00%
4	3	1165.793	3.365	0.280	0.093	1.769	0.713	1.769	100.00%	100.00%
3	3	1165.793	3.085	0.393	0.131	1.403	0.715	1.403	100.00%	100.00%
2	3	1165.793	2.693	0.549	0.183	1.399	0.513	1.399	100.00%	100.00%
1	6	1165.793	2.143	2.143	0.357	1.951		3.902	50.00%	
						NO B2 IRREG.		B2 IRREG.	B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	1233.863	3.523	0.107	0.036		0.507			100.00%
4	3	1233.863	3.416	0.211	0.070	1.973	0.634	1.973	100.00%	100.00%
3	3	1233.863	3.205	0.333	0.111	1.577	0.611	1.577	100.00%	100.00%
2	3	1233.863	2.873	0.545	0.182	1.638	0.468	1.638	100.00%	100.00%
1	6	1233.863	2.327	2.327	0.388	2.135		4.270	50.00%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	1212.128	3.523	0.122	0.041		0.515			100.00%
4	3	1212.128	3.401	0.237	0.079	1.942	0.656	1.942	100.00%	100.00%
3	3	1212.128	3.164	0.361	0.120	1.524	0.654	1.524	100.00%	100.00%
2	3	1212.128	2.803	0.552	0.184	1.529	0.491	1.529	100.00%	100.00%
1	6	1212.128	2.251	2.251	0.375	2.038		4.076	50.00%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
5	3	1227.000	3.523	0.123	0.041		0.506			100.00%
4	3	1227.000	3.400	0.244	0.081	1.978	0.659	1.978	100.00%	100.00%
3	3	1227.000	3.156	0.370	0.123	1.516	0.663	1.516	100.00%	100.00%
2	3	1227.000	2.786	0.558	0.186	1.508	0.501	1.508	100.00%	100.00%
1	6	1227.000	2.228	2.228	0.371	1.996		3.993	50.00%	
						NO B2 IRREG.		B2 IRREG.	B2 IRREG.	

DEFORMATION LEVEL-2

5-6-1-6

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	1347.216	6.710	0.189	0.063		0.565			100.00%	
4	3	1347.216	6.521	0.335	0.112	1.769	0.690	1.769	100.00%	100.00%	
3	3	1347.216	6.186	0.485	0.162	1.448	0.477	1.448	100.00%	100.00%	
2	3	1347.216	5.701	1.017	0.339	2.097	0.434	2.097	100.00%	100.00%	
1	6	1347.216	4.684	4.684	0.781	2.302		4.604	50.00%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	1370.484	6.710	0.126	0.042		0.513			100.00%	
4	3	1370.484	6.584	0.246	0.082	1.948	0.593	1.948	100.00%	100.00%	
3	3	1370.484	6.338	0.414	0.138	1.686	0.448	1.686	100.00%	100.00%	
2	3	1370.484	5.924	0.924	0.308	2.231	0.369	2.231	100.00%	100.00%	
1	6	1370.484	5.001	5.001	0.833	2.706		5.413	50.00%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	1363.085	6.710	0.144	0.048		0.520			100.00%	
4	3	1363.085	6.566	0.277	0.092	1.925	0.612	1.925	100.00%	100.00%	
3	3	1363.085	6.289	0.453	0.151	1.634	0.467	1.634	100.00%	100.00%	
2	3	1363.085	5.835	0.971	0.324	2.142	0.399	2.142	100.00%	100.00%	
1	6	1363.085	4.864	4.864	0.811	2.505		5.010	50.00%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
5	3	1573.000	6.710	0.131	0.044		0.512			100.00%	
4	3	1573.000	6.579	0.256	0.085	1.953	0.594	1.953	100.00%	100.00%	
3	3	1573.000	6.323	0.431	0.144	1.684	0.468	1.684	100.00%	100.00%	
2	3	1573.000	5.892	0.921	0.307	2.137	0.371	2.137	100.00%	100.00%	
1	6	1573.000	4.971	4.971	0.829	2.699		5.397	50.00%		
						B2 IRREG.		B2 IRREG.		B2 IRREG.	

DEFORMATION LEVEL-3

8-2-HOM

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
8	3	290.438	1.021	0.067	0.022		0.699			100.00%	
7	3	290.438	0.954	0.095	0.032	1.430	0.785	1.430	100.00%	100.00%	
6	3	290.438	0.859	0.121	0.040	1.274	0.853	1.274	100.00%	100.00%	
5	3	290.438	0.738	0.142	0.047	1.173	0.903	1.173	100.00%	100.00%	
4	3	290.438	0.595	0.158	0.053	1.107	0.949	1.107	100.00%	100.00%	
3	3	290.438	0.438	0.166	0.055	1.054	1.022	1.054	100.00%	100.00%	
2	3	290.438	0.272	0.163	0.054	0.979	1.488	0.979	100.00%	100.00%	
1	3	290.438	0.109	0.109	0.036	0.672		0.672	100.00%		
						NO B2 IRREG.		NO .B2 IRREG.		NO B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
8	3	388.013	1.021	0.050	0.017		0.667			100.00%	
7	3	388.013	0.971	0.075	0.025	1.500	0.732	1.500	100.00%	100.00%	
6	3	388.013	0.896	0.102	0.034	1.366	0.791	1.366	100.00%	100.00%	
5	3	388.013	0.794	0.129	0.043	1.264	0.833	1.264	100.00%	100.00%	
4	3	388.013	0.665	0.155	0.052	1.201	0.869	1.201	100.00%	100.00%	
3	3	388.013	0.510	0.179	0.060	1.151	0.931	1.151	100.00%	100.00%	
2	3	388.013	0.331	0.192	0.064	1.074	1.373	1.074	100.00%	100.00%	
1	3	388.013	0.140	0.140	0.047	0.728		0.728	100.00%		
						NO B2 IRREG.		B2 IRREG.		NO B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
8	3	302.876	1.021	0.058	0.019		0.663			100.00%	
7	3	302.876	0.963	0.088	0.029	1.508	0.748	1.508	100.00%	100.00%	
6	3	302.876	0.875	0.117	0.039	1.337	0.824	1.337	100.00%	100.00%	
5	3	302.876	0.758	0.142	0.047	1.214	0.883	1.214	100.00%	100.00%	
4	3	302.876	0.616	0.161	0.054	1.133	0.935	1.133	100.00%	100.00%	
3	3	302.876	0.455	0.172	0.057	1.069	1.016	1.069	100.00%	100.00%	
2	3	302.876	0.283	0.169	0.056	0.984	1.488	0.984	100.00%	100.00%	
1	3	302.876	0.114	0.114	0.038	0.672		0.672	100.00%		
						NO B2 IRREG.		B2 IRREG.		NO B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
8	3	354.900	1.021	0.055	0.018		0.682			100.00%	
7	3	354.900	0.966	0.080	0.027	1.466	0.741	1.466	100.00%	100.00%	
6	3	354.900	0.886	0.108	0.036	1.350	0.808	1.350	100.00%	100.00%	
5	3	354.900	0.777	0.134	0.045	1.238	0.855	1.238	100.00%	100.00%	
4	3	354.900	0.643	0.157	0.052	1.169	0.897	1.169	100.00%	100.00%	
3	3	354.900	0.486	0.175	0.058	1.115	0.960	1.115	100.00%	100.00%	
2	3	354.900	0.311	0.182	0.061	1.041	1.411	1.041	100.00%	100.00%	
1	3	354.900	0.129	0.129	0.043	0.709		0.709	100.00%		
						NO B2 IRREG.		NO .B2 IRREG.		NO B2 IRREG.	

DEFORMATION LEVEL-1

8-2-HOM

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
8	3	802.736	3.462	0.189	0.063		0.704			100.00%	
7	3	802.736	3.274	0.268	0.089	1.421	0.782	1.421	100.00%	100.00%	
6	3	802.736	3.005	0.343	0.114	1.278	0.819	1.278	100.00%	100.00%	
5	3	802.736	2.663	0.419	0.140	1.222	0.825	1.222	100.00%	100.00%	
4	3	802.736	2.244	0.508	0.169	1.212	0.842	1.212	100.00%	100.00%	
3	3	802.736	1.736	0.603	0.201	1.188	0.839	1.188	100.00%	100.00%	
2	3	802.736	1.133	0.719	0.240	1.193	1.734	1.193	100.00%	100.00%	
1	3	802.736	0.415	0.415	0.138	0.577		0.577	100.00%		
						NO B2 IRREG.		NO .B2 IRREG.		NO B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
8	3	933.974	3.462	0.130	0.043		0.684			100.00%	
7	3	933.974	3.333	0.190	0.063	1.463	0.738	1.463	100.00%	100.00%	
6	3	933.974	3.143	0.257	0.086	1.354	0.777	1.354	100.00%	100.00%	
5	3	933.974	2.886	0.331	0.110	1.287	0.738	1.287	100.00%	100.00%	
4	3	933.974	2.555	0.448	0.149	1.355	0.693	1.355	100.00%	100.00%	
3	3	933.974	2.107	0.647	0.216	1.443	0.803	1.443	100.00%	100.00%	
2	3	933.974	1.460	0.806	0.269	1.246	1.230	1.246	100.00%	100.00%	
1	3	933.974	0.655	0.655	0.218	0.813		0.813	100.00%		
						NO B2 IRREG.		NO .B2 IRREG.		NO B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
8	3	811.387	3.462	0.160	0.053		0.669			100.00%	
7	3	811.387	3.302	0.240	0.080	1.495	0.746	1.495	100.00%	100.00%	
6	3	811.387	3.063	0.321	0.107	1.340	0.790	1.340	100.00%	100.00%	
5	3	811.387	2.742	0.406	0.135	1.266	0.760	1.266	100.00%	100.00%	
4	3	811.387	2.335	0.535	0.178	1.316	0.879	1.316	100.00%	100.00%	
3	3	811.387	1.801	0.608	0.203	1.138	0.808	1.138	100.00%	100.00%	
2	3	811.387	1.193	0.753	0.251	1.237	1.710	1.237	100.00%	100.00%	
1	3	811.387	0.440	0.440	0.147	0.585		0.585	100.00%		
						NO B2 IRREG.		NO .B2 IRREG.		NO B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
8	3	988.100	3.462	0.121	0.040		0.656			100.00%	
7	3	988.100	3.341	0.185	0.062	1.523	0.693	1.523	100.00%	100.00%	
6	3	988.100	3.156	0.267	0.089	1.443	0.814	1.443	100.00%	100.00%	
5	3	988.100	2.889	0.328	0.109	1.228	0.686	1.228	100.00%	100.00%	
4	3	988.100	2.561	0.478	0.159	1.457	0.693	1.457	100.00%	100.00%	
3	3	988.100	2.083	0.690	0.230	1.444	0.853	1.444	100.00%	100.00%	
2	3	988.100	1.393	0.809	0.270	1.172	1.384	1.172	100.00%	100.00%	
1	3	988.100	0.584	0.584	0.195	0.722		0.722	100.00%		
						NO B2 IRREG.		B2 IRREG.		NO B2 IRREG.	

DEFORMATION LEVEL-2

8-2-HOM

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	864.141	8.316	0.239	0.080		0.720			100.00%
7	3	864.141	8.077	0.332	0.111	1.389	0.697	1.389	100.00%	100.00%
6	3	864.141	7.745	0.477	0.159	1.435	0.482	1.435	100.00%	100.00%
5	3	864.141	7.268	0.988	0.329	2.073	0.758	2.073	100.00%	100.00%
4	3	864.141	6.280	1.305	0.435	1.320	0.779	1.320	100.00%	100.00%
3	3	864.141	4.975	1.675	0.558	1.284	0.940	1.284	100.00%	100.00%
2	3	864.141	3.300	1.782	0.594	1.064	1.175	1.064	100.00%	100.00%
1	3	864.141	1.517	1.517	0.506	0.851		0.851	100.00%	
						B2 IRREG.		B2 IRREG.	NO B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	1000.761	8.316	0.183	0.061		0.738			100.00%
7	3	1000.761	8.133	0.248	0.083	1.356	0.749	1.356	100.00%	100.00%
6	3	1000.761	7.886	0.330	0.110	1.334	0.655	1.334	100.00%	100.00%
5	3	1000.761	7.556	0.505	0.168	1.528	0.505	1.528	100.00%	100.00%
4	3	1000.761	7.051	0.999	0.333	1.980	0.579	1.980	100.00%	100.00%
3	3	1000.761	6.052	1.725	0.575	1.727	0.791	1.727	100.00%	100.00%
2	3	1000.761	4.327	2.179	0.726	1.264	1.014	1.264	100.00%	100.00%
1	3	1000.761	2.148	2.148	0.716	0.986		0.986	100.00%	
						NO B2 IRREG.		B2 IRREG.	NO B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	872.408	8.316	0.207	0.069		0.688			100.00%
7	3	872.408	8.109	0.301	0.100	1.453	0.687	1.453	100.00%	100.00%
6	3	872.408	7.808	0.438	0.146	1.455	0.572	1.455	100.00%	100.00%
5	3	872.408	7.370	0.766	0.255	1.749	0.575	1.749	100.00%	100.00%
4	3	872.408	6.603	1.332	0.444	1.738	0.759	1.738	100.00%	100.00%
3	3	872.408	5.272	1.754	0.585	1.317	0.929	1.317	100.00%	100.00%
2	3	872.408	3.518	1.888	0.629	1.077	1.158	1.077	100.00%	100.00%
1	3	872.408	1.630	1.630	0.543	0.864		0.864	100.00%	
						NO B2 IRREG.		B2 IRREG.	NO B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	1128.846	8.316	0.729	0.243		0.902			100.00%
7	3	1128.846	7.587	0.808	0.269	1.109	0.920	1.109	100.00%	100.00%
6	3	1128.846	6.780	0.878	0.293	1.086	1.139	1.086	100.00%	100.00%
5	3	1128.846	5.902	0.771	0.257	0.878	0.817	0.878	100.00%	100.00%
4	3	1128.846	5.131	0.943	0.314	1.223	0.689	1.223	100.00%	100.00%
3	3	1128.846	4.189	1.369	0.456	1.452	0.874	1.452	100.00%	100.00%
2	3	1128.846	2.820	1.567	0.522	1.145	1.251	1.145	100.00%	100.00%
1	3	1128.846	1.253	1.253	0.418	0.799		0.799	100.00%	
						NO B2 IRREG.		NO .B2 IRREG.	NO B2 IRREG.	

DEFORMATION LEVEL-3

8-2-1-4.5

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	292.969	1.236	0.070	0.023		0.714			100.00%
7	3	292.969	1.166	0.097	0.032	1.401	0.793	1.401	100.00%	100.00%
6	3	292.969	1.069	0.123	0.041	1.262	0.854	1.262	100.00%	100.00%
5	3	292.969	0.946	0.144	0.048	1.171	0.900	1.171	100.00%	100.00%
4	3	292.969	0.802	0.160	0.053	1.111	0.935	1.111	100.00%	100.00%
3	3	292.969	0.643	0.171	0.057	1.069	0.938	1.069	100.00%	100.00%
2	3	292.969	0.472	0.182	0.061	1.066	0.943	1.066	100.00%	100.00%
1	4.5	292.969	0.290	0.290	0.064	1.061		1.591	66.67%	
NO B2 IRREG.						B2 IRREG.		B2 IRREG.		

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	367.294	1.236	0.051	0.017		0.688			100.00%
7	3	367.294	1.184	0.075	0.025	1.453	0.745	1.453	100.00%	100.00%
6	3	367.294	1.110	0.100	0.033	1.343	0.798	1.343	100.00%	100.00%
5	3	367.294	1.009	0.126	0.042	1.253	0.836	1.253	100.00%	100.00%
4	3	367.294	0.883	0.151	0.050	1.197	0.862	1.197	100.00%	100.00%
3	3	367.294	0.733	0.175	0.058	1.160	0.856	1.160	100.00%	100.00%
2	3	367.294	0.558	0.204	0.068	1.168	0.865	1.168	100.00%	100.00%
1	4.5	367.294	0.354	0.354	0.079	1.156		1.734	66.67%	
NO B2 IRREG.						B2 IRREG.		B2 IRREG.		

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	312.314	1.236	0.059	0.020		0.682			100.00%
7	3	312.314	1.177	0.087	0.029	1.467	0.755	1.467	100.00%	100.00%
6	3	312.314	1.090	0.115	0.038	1.325	0.823	1.325	100.00%	100.00%
5	3	312.314	0.974	0.140	0.047	1.216	0.874	1.216	100.00%	100.00%
4	3	312.314	0.834	0.160	0.053	1.144	0.913	1.144	100.00%	100.00%
3	3	312.314	0.674	0.176	0.059	1.095	0.921	1.095	100.00%	100.00%
2	3	312.314	0.498	0.191	0.064	1.086	0.930	1.086	100.00%	100.00%
1	4.5	312.314	0.307	0.307	0.068	1.075		1.612	66.67%	
NO B2 IRREG.						B2 IRREG.		B2 IRREG.		

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	337.100	1.236	0.057	0.019		0.692			100.00%
7	3	337.100	1.179	0.082	0.027	1.445	0.759	1.445	100.00%	100.00%
6	3	337.100	1.097	0.109	0.036	1.318	0.807	1.318	100.00%	100.00%
5	3	337.100	0.988	0.134	0.045	1.239	0.858	1.239	100.00%	100.00%
4	3	337.100	0.854	0.157	0.052	1.165	0.891	1.165	100.00%	100.00%
3	3	337.100	0.697	0.176	0.059	1.123	0.899	1.123	100.00%	100.00%
2	3	337.100	0.521	0.196	0.065	1.112	0.900	1.112	100.00%	100.00%
1	4.5	337.100	0.326	0.326	0.072	1.111		1.667	66.67%	
NO B2 IRREG.						B2 IRREG.		B2 IRREG.		

DEFORMATION LEVEL-1

8-2-1-4.5

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	683.984	3.363	0.171	0.057		0.726			100.00%
7	3	683.984	3.192	0.235	0.078	1.378	0.797	1.378	100.00%	100.00%
6	3	683.984	2.956	0.296	0.099	1.255	0.857	1.255	100.00%	100.00%
5	3	683.984	2.661	0.345	0.115	1.167	0.891	1.167	100.00%	100.00%
4	3	683.984	2.316	0.387	0.129	1.122	0.877	1.122	100.00%	100.00%
3	3	683.984	1.929	0.441	0.147	1.140	0.842	1.140	100.00%	100.00%
2	3	683.984	1.488	0.524	0.175	1.187	0.814	1.187	100.00%	100.00%
1	4.5	683.984	0.964	0.964	0.214	1.228		1.842	66.67%	
NO B2 IRREG.						B2 IRREG.		B2 IRREG.		

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	745.934	3.363	0.116	0.039		0.706			100.00%
7	3	745.934	3.247	0.164	0.055	1.416	0.766	1.416	100.00%	100.00%
6	3	745.934	3.082	0.214	0.071	1.306	0.799	1.306	100.00%	100.00%
5	3	745.934	2.868	0.268	0.089	1.251	0.822	1.251	100.00%	100.00%
4	3	745.934	2.599	0.327	0.109	1.217	0.777	1.217	100.00%	100.00%
3	3	745.934	2.273	0.421	0.140	1.288	0.720	1.288	100.00%	100.00%
2	3	745.934	1.852	0.584	0.195	1.389	0.690	1.389	100.00%	100.00%
1	4.5	745.934	1.269	1.269	0.282	1.448		2.172	66.67%	
NO B2 IRREG.						B2 IRREG.		B2 IRREG.		

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	701.147	3.363	0.143	0.048		0.696			100.00%
7	3	701.147	3.220	0.205	0.068	1.437	0.763	1.437	100.00%	100.00%
6	3	701.147	3.015	0.268	0.089	1.310	0.827	1.310	100.00%	100.00%
5	3	701.147	2.747	0.324	0.108	1.209	0.861	1.209	100.00%	100.00%
4	3	701.147	2.423	0.377	0.126	1.161	0.836	1.161	100.00%	100.00%
3	3	701.147	2.046	0.451	0.150	1.196	0.782	1.196	100.00%	100.00%
2	3	701.147	1.595	0.577	0.192	1.279	0.849	1.279	100.00%	100.00%
1	4.5	701.147	1.018	1.018	0.226	1.178		1.766	66.67%	
NO B2 IRREG.						B2 IRREG.		B2 IRREG.		

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	774.100	3.363	0.120	0.040		0.668			100.00%
7	3	774.100	3.243	0.179	0.060	1.497	0.755	1.497	100.00%	100.00%
6	3	774.100	3.064	0.237	0.079	1.324	0.812	1.324	100.00%	100.00%
5	3	774.100	2.827	0.292	0.097	1.232	0.839	1.232	100.00%	100.00%
4	3	774.100	2.535	0.348	0.116	1.192	0.768	1.192	100.00%	100.00%
3	3	774.100	2.187	0.453	0.151	1.302	0.717	1.302	100.00%	100.00%
2	3	774.100	1.734	0.632	0.211	1.395	0.860	1.395	100.00%	100.00%
1	4.5	774.100	1.102	1.102	0.245	1.162		1.744	66.67%	
NO B2 IRREG.						B2 IRREG.		B2 IRREG.		

DEFORMATION LEVEL-2

8-2-1-4.5

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	750.382	7.426	0.217	0.072		0.749			100.00%
7	3	750.382	7.208	0.290	0.097	1.335	0.807	1.335	100.00%	100.00%
6	3	750.382	6.918	0.360	0.120	1.239	0.780	1.239	100.00%	100.00%
5	3	750.382	6.558	0.461	0.154	1.282	0.658	1.282	100.00%	100.00%
4	3	750.382	6.097	0.701	0.234	1.520	0.634	1.520	100.00%	100.00%
3	3	750.382	5.396	1.105	0.368	1.577	0.714	1.577	100.00%	100.00%
2	3	750.382	4.291	1.549	0.516	1.401	0.848	1.401	100.00%	100.00%
1	4.5	750.382	2.742	2.742	0.609	1.180		1.770	66.67%	
NO B2 IRREG.						B2 IRREG.		B2 IRREG.		

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	816.742	7.426	0.160	0.053		0.742			100.00%
7	3	816.742	7.266	0.215	0.072	1.348	0.790	1.348	100.00%	100.00%
6	3	816.742	7.051	0.273	0.091	1.267	0.795	1.267	100.00%	100.00%
5	3	816.742	6.778	0.343	0.114	1.258	0.684	1.258	100.00%	100.00%
4	3	816.742	6.435	0.502	0.167	1.462	0.529	1.462	100.00%	100.00%
3	3	816.742	5.933	0.949	0.316	1.890	0.564	1.890	100.00%	100.00%
2	3	816.742	4.984	1.683	0.561	1.774	0.765	1.774	100.00%	100.00%
1	4.5	816.742	3.301	3.301	0.734	1.308		1.962	66.67%	
NO B2 IRREG.						B2 IRREG.		B2 IRREG.		

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	765.542	7.426	0.186	0.062		0.723			100.00%
7	3	765.542	7.239	0.258	0.086	1.383	0.781	1.383	100.00%	100.00%
6	3	765.542	6.982	0.330	0.110	1.280	0.788	1.280	100.00%	100.00%
5	3	765.542	6.652	0.419	0.140	1.269	0.830	1.269	100.00%	100.00%
4	3	765.542	6.233	0.504	0.168	1.205	0.443	1.205	100.00%	100.00%
3	3	765.542	5.729	1.139	0.380	2.258	0.692	2.258	100.00%	100.00%
2	3	765.542	4.590	1.646	0.549	1.445	0.839	1.445	100.00%	100.00%
1	4.5	765.542	2.943	2.943	0.654	1.192		1.788	66.67%	
B2 IRREG.						B2 IRREG.		B2 IRREG.		

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	1108.679	7.426	0.151	0.050		0.693			100.00%
7	3	1108.679	7.275	0.217	0.072	1.443	0.738	1.443	100.00%	100.00%
6	3	1108.679	7.058	0.294	0.098	1.354	0.742	1.354	100.00%	100.00%
5	3	1108.679	6.763	0.397	0.132	1.348	0.635	1.348	100.00%	100.00%
4	3	1108.679	6.366	0.625	0.208	1.574	0.573	1.574	100.00%	100.00%
3	3	1108.679	5.742	1.089	0.363	1.744	0.646	1.744	100.00%	100.00%
2	3	1108.679	4.653	1.687	0.562	1.549	0.854	1.549	100.00%	100.00%
1	4.5	1108.679	2.965	2.965	0.659	1.172		1.757	66.67%	
NO B2 IRREG.						B2 IRREG.		B2 IRREG.		

DEFORMATION LEVEL-3

8-2-1-6

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	295.500	1.615	0.073	0.024		0.730			
7	3	295.500	1.542	0.100	0.033	1.370	0.800	1.370	100.00%	100.00%
6	3	295.500	1.442	0.125	0.042	1.251	0.857	1.251	100.00%	100.00%
5	3	295.500	1.316	0.146	0.049	1.167	0.900	1.167	100.00%	100.00%
4	3	295.500	1.170	0.162	0.054	1.111	0.923	1.111	100.00%	100.00%
3	3	295.500	1.008	0.176	0.059	1.084	0.873	1.084	100.00%	100.00%
2	3	295.500	0.832	0.202	0.067	1.145	0.640	1.145	100.00%	100.00%
1	6	295.500	0.630	0.630	0.105	1.563		3.126	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	348.555	1.615	0.053	0.018		0.708			
7	3	348.555	1.562	0.075	0.025	1.412	0.757	1.412	100.00%	100.00%
6	3	348.555	1.487	0.099	0.033	1.321	0.806	1.321	100.00%	100.00%
5	3	348.555	1.387	0.123	0.041	1.241	0.840	1.241	100.00%	100.00%
4	3	348.555	1.264	0.147	0.049	1.191	0.857	1.191	100.00%	100.00%
3	3	348.555	1.117	0.171	0.057	1.167	0.798	1.167	100.00%	100.00%
2	3	348.555	0.946	0.215	0.072	1.253	0.588	1.253	100.00%	100.00%
1	6	348.555	0.731	0.731	0.122	1.701		3.402	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	318.820	1.615	0.060	0.020		0.702			
7	3	318.820	1.555	0.086	0.029	1.424	0.762	1.424	100.00%	100.00%
6	3	318.820	1.469	0.113	0.038	1.312	0.823	1.312	100.00%	100.00%
5	3	318.820	1.356	0.137	0.046	1.215	0.866	1.215	100.00%	100.00%
4	3	318.820	1.220	0.158	0.053	1.154	0.893	1.154	100.00%	100.00%
3	3	318.820	1.062	0.177	0.059	1.120	0.843	1.120	100.00%	100.00%
2	3	318.820	0.885	0.210	0.070	1.186	0.621	1.186	100.00%	100.00%
1	6	318.820	0.675	0.675	0.113	1.611		3.221	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	317.900	1.615	0.063	0.021		0.741			
7	3	317.900	1.552	0.085	0.028	1.349	0.752	1.349	100.00%	100.00%
6	3	317.900	1.467	0.113	0.038	1.329	0.825	1.329	100.00%	100.00%
5	3	317.900	1.354	0.137	0.046	1.212	0.862	1.212	100.00%	100.00%
4	3	317.900	1.217	0.159	0.053	1.161	0.891	1.161	100.00%	100.00%
3	3	317.900	1.058	0.179	0.060	1.123	0.850	1.123	100.00%	100.00%
2	3	317.900	0.880	0.210	0.070	1.177	0.628	1.177	100.00%	100.00%
1	6	317.900	0.669	0.669	0.112	1.593		3.186	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

DEFORMATION LEVEL-1

8-2-1-6

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	546.829	3.174	0.142	0.047		0.739			100.00%
7	3	546.829	3.032	0.192	0.064	1.353	0.805	1.353	100.00%	100.00%
6	3	546.829	2.840	0.239	0.080	1.242	0.861	1.242	100.00%	100.00%
5	3	546.829	2.601	0.277	0.092	1.162	0.900	1.162	100.00%	100.00%
4	3	546.829	2.324	0.308	0.103	1.111	0.923	1.111	100.00%	100.00%
3	3	546.829	2.016	0.334	0.111	1.084	0.859	1.084	100.00%	100.00%
2	3	546.829	1.682	0.389	0.130	1.164	0.601	1.164	100.00%	100.00%
1	6	546.829	1.294	1.294	0.216	1.665		3.329	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	605.954	3.174	0.072	0.024		0.508			100.00%
7	3	605.954	3.102	0.141	0.047	1.968	0.770	1.968	100.00%	100.00%
6	3	605.954	2.961	0.183	0.061	1.298	0.815	1.298	100.00%	100.00%
5	3	605.954	2.778	0.225	0.075	1.227	0.844	1.227	100.00%	100.00%
4	3	605.954	2.553	0.266	0.089	1.185	0.852	1.185	100.00%	100.00%
3	3	605.954	2.287	0.312	0.104	1.173	0.758	1.173	100.00%	100.00%
2	3	605.954	1.974	0.412	0.137	1.320	0.528	1.320	100.00%	100.00%
1	6	605.954	1.562	1.562	0.260	1.894		3.788	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	573.085	3.174	0.117	0.039		0.717			100.00%
7	3	573.085	3.058	0.162	0.054	1.395	0.772	1.395	100.00%	100.00%
6	3	573.085	2.895	0.210	0.070	1.295	0.828	1.295	100.00%	100.00%
5	3	573.085	2.685	0.254	0.085	1.207	0.868	1.207	100.00%	100.00%
4	3	573.085	2.431	0.293	0.098	1.151	0.889	1.151	100.00%	100.00%
3	3	573.085	2.138	0.329	0.110	1.125	0.816	1.125	100.00%	100.00%
2	3	573.085	1.809	0.403	0.134	1.225	0.573	1.225	100.00%	100.00%
1	6	573.085	1.406	1.406	0.234	1.745		3.490	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	591.300	3.174	0.117	0.039		0.710			100.00%
7	3	591.300	3.057	0.165	0.055	1.409	0.767	1.409	100.00%	100.00%
6	3	591.300	2.892	0.215	0.072	1.303	0.824	1.303	100.00%	100.00%
5	3	591.300	2.677	0.261	0.087	1.214	0.873	1.214	100.00%	100.00%
4	3	591.300	2.416	0.299	0.100	1.146	0.893	1.146	100.00%	100.00%
3	3	591.300	2.117	0.335	0.112	1.120	0.827	1.120	100.00%	100.00%
2	3	591.300	1.782	0.405	0.135	1.209	0.588	1.209	100.00%	100.00%
1	6	591.300	1.377	1.377	0.230	1.700		3.400	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

DEFORMATION LEVEL-2

8-2-1-6

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	637.597	6.119	0.204	0.068		0.777			100.00%
7	3	637.597	5.915	0.263	0.088	1.287	0.773	1.287	100.00%	100.00%
6	3	637.597	5.652	0.340	0.113	1.294	0.940	1.294	100.00%	100.00%
5	3	637.597	5.312	0.362	0.121	1.064	0.974	1.064	100.00%	100.00%
4	3	637.597	4.950	0.372	0.124	1.027	0.784	1.027	100.00%	100.00%
3	3	637.597	4.578	0.474	0.158	1.276	0.794	1.276	100.00%	100.00%
2	3	637.597	4.104	0.597	0.199	1.259	0.341	1.259	100.00%	100.00%
1	6	637.597	3.507	3.507	0.584	2.935		5.869	50.00%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	653.771	6.119	0.149	0.050		0.783			100.00%
7	3	653.771	5.971	0.190	0.063	1.278	0.807	1.278	100.00%	100.00%
6	3	653.771	5.781	0.235	0.078	1.239	0.839	1.239	100.00%	100.00%
5	3	653.771	5.545	0.281	0.094	1.192	0.912	1.192	100.00%	100.00%
4	3	653.771	5.265	0.308	0.103	1.097	0.794	1.097	100.00%	100.00%
3	3	653.771	4.957	0.388	0.129	1.259	0.675	1.259	100.00%	100.00%
2	3	653.771	4.569	0.575	0.192	1.482	0.288	1.482	100.00%	100.00%
1	6	653.771	3.995	3.995	0.666	3.477		6.953	50.00%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	647.055	6.119	0.165	0.055		0.685			100.00%
7	3	647.055	5.955	0.240	0.080	1.459	0.870	1.459	100.00%	100.00%
6	3	647.055	5.714	0.276	0.092	1.149	0.848	1.149	100.00%	100.00%
5	3	647.055	5.438	0.326	0.109	1.180	0.877	1.180	100.00%	100.00%
4	3	647.055	5.113	0.371	0.124	1.140	0.904	1.140	100.00%	100.00%
3	3	647.055	4.741	0.411	0.137	1.106	0.640	1.106	100.00%	100.00%
2	3	647.055	4.330	0.642	0.214	1.562	0.348	1.562	100.00%	100.00%
1	6	647.055	3.689	3.689	0.615	2.875		5.750	50.00%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	842.010	6.119	0.105	0.035		0.709			100.00%
7	3	842.010	6.014	0.148	0.049	1.410	0.755	1.410	100.00%	100.00%
6	3	842.010	5.866	0.196	0.065	1.324	0.781	1.324	100.00%	100.00%
5	3	842.010	5.671	0.251	0.084	1.281	0.854	1.281	100.00%	100.00%
4	3	842.010	5.420	0.294	0.098	1.171	0.760	1.171	100.00%	100.00%
3	3	842.010	5.126	0.387	0.129	1.316	0.568	1.316	100.00%	100.00%
2	3	842.010	4.740	0.680	0.227	1.760	0.335	1.760	100.00%	100.00%
1	6	842.010	4.059	4.059	0.677	2.983		5.966	50.00%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

DEFORMATION LEVEL-3

8-4-HOM

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
8	3	555.563	0.940	0.051	0.017		0.636			100.00%	
7	3	555.563	0.889	0.080	0.027	1.572	0.750	1.572	100.00%	100.00%	
6	3	555.563	0.808	0.107	0.036	1.333	0.830	1.333	100.00%	100.00%	
5	3	555.563	0.701	0.129	0.043	1.205	0.884	1.205	100.00%	100.00%	
4	3	555.563	0.572	0.146	0.049	1.131	0.929	1.131	100.00%	100.00%	
3	3	555.563	0.426	0.157	0.052	1.076	0.996	1.076	100.00%	100.00%	
2	3	555.563	0.269	0.158	0.053	1.004	1.426	1.004	100.00%	100.00%	
1	3	555.563	0.111	0.111	0.037	0.701		0.701	100.00%		
						NO B2 IRREG.		B2 IRREG.		NO B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
8	3	736.063	0.940	0.036	0.012		0.587			100.00%	
7	3	736.063	0.904	0.061	0.020	1.704	0.687	1.704	100.00%	100.00%	
6	3	736.063	0.844	0.088	0.029	1.456	0.762	1.456	100.00%	100.00%	
5	3	736.063	0.755	0.116	0.039	1.311	0.811	1.311	100.00%	100.00%	
4	3	736.063	0.639	0.143	0.048	1.234	0.848	1.234	100.00%	100.00%	
3	3	736.063	0.496	0.169	0.056	1.179	0.906	1.179	100.00%	100.00%	
2	3	736.063	0.328	0.186	0.062	1.103	1.314	1.103	100.00%	100.00%	
1	3	736.063	0.142	0.142	0.047	0.761		0.761	100.00%		
						NO B2 IRREG.		B2 IRREG.		NO B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
8	3	583.577	0.940	0.042	0.014		0.586			100.00%	
7	3	583.577	0.898	0.072	0.024	1.706	0.705	1.706	100.00%	100.00%	
6	3	583.577	0.826	0.102	0.034	1.418	0.795	1.418	100.00%	100.00%	
5	3	583.577	0.724	0.128	0.043	1.258	0.860	1.258	100.00%	100.00%	
4	3	583.577	0.595	0.149	0.050	1.163	0.914	1.163	100.00%	100.00%	
3	3	583.577	0.446	0.164	0.055	1.095	0.988	1.095	100.00%	100.00%	
2	3	583.577	0.282	0.166	0.055	1.012	1.425	1.012	100.00%	100.00%	
1	3	583.577	0.116	0.116	0.039	0.702		0.702	100.00%		
						NO B2 IRREG.		B2 IRREG.		NO B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
8	3	669.400	0.940	0.044	0.015		0.583			100.00%	
7	3	669.400	0.896	0.075	0.025	1.715	0.750	1.715	100.00%	100.00%	
6	3	669.400	0.822	0.100	0.033	1.333	0.859	1.333	100.00%	100.00%	
5	3	669.400	0.722	0.116	0.039	1.163	0.826	1.163	100.00%	100.00%	
4	3	669.400	0.606	0.140	0.047	1.210	0.867	1.210	100.00%	100.00%	
3	3	669.400	0.466	0.162	0.054	1.153	0.930	1.153	100.00%	100.00%	
2	3	669.400	0.304	0.174	0.058	1.075	1.344	1.075	100.00%	100.00%	
1	3	669.400	0.130	0.130	0.043	0.744		0.744	100.00%		
						NO B2 IRREG.		NO B2 IRREG.		NO B2 IRREG.	

DEFORMATION LEVEL-1

8-4-HOM

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
8	3	1651.092	3.070	0.160	0.053		0.663				
7	3	1651.092	2.911	0.241	0.080	1.508	0.751	1.508	100.00%	100.00%	
6	3	1651.092	2.670	0.321	0.107	1.332	0.823	1.332	100.00%	100.00%	
5	3	1651.092	2.349	0.390	0.130	1.216	0.839	1.216	100.00%	100.00%	
4	3	1651.092	1.959	0.465	0.155	1.192	0.837	1.192	100.00%	100.00%	
3	3	1651.092	1.494	0.555	0.185	1.194	0.985	1.194	100.00%	100.00%	
2	3	1651.092	0.939	0.563	0.188	1.015	1.499	1.015	100.00%	100.00%	
1	3	1651.092	0.376	0.376	0.125	0.667		0.667	100.00%		
						NO B2 IRREG.		B2 IRREG.		NO B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
8	3	1880.241	3.070	0.095	0.032		0.598				
7	3	1880.241	2.975	0.160	0.053	1.673	0.693	1.673	100.00%	100.00%	
6	3	1880.241	2.815	0.230	0.077	1.443	0.760	1.443	100.00%	100.00%	
5	3	1880.241	2.585	0.303	0.101	1.316	0.775	1.316	100.00%	100.00%	
4	3	1880.241	2.281	0.391	0.130	1.290	0.760	1.290	100.00%	100.00%	
3	3	1880.241	1.890	0.515	0.172	1.316	0.711	1.316	100.00%	100.00%	
2	3	1880.241	1.375	0.725	0.242	1.407	1.114	1.407	100.00%	100.00%	
1	3	1880.241	0.650	0.650	0.217	0.898		0.898	100.00%		
						B2 IRREG.		B2 IRREG.		NO B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
8	3	1677.701	3.070	0.123	0.041		0.635				
7	3	1677.701	2.947	0.194	0.065	1.574	0.655	1.574	100.00%	100.00%	
6	3	1677.701	2.753	0.296	0.099	1.526	0.786	1.526	100.00%	100.00%	
5	3	1677.701	2.456	0.377	0.126	1.272	0.778	1.272	100.00%	100.00%	
4	3	1677.701	2.079	0.485	0.162	1.286	0.830	1.286	100.00%	100.00%	
3	3	1677.701	1.595	0.584	0.195	1.205	0.968	1.205	100.00%	100.00%	
2	3	1677.701	1.011	0.603	0.201	1.033	1.478	1.033	100.00%	100.00%	
1	3	1677.701	0.408	0.408	0.136	0.677		0.677	100.00%		
						NO B2 IRREG.		B2 IRREG.		NO B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
8	3	1981.000	3.070	0.093	0.031		0.586				
7	3	1981.000	2.977	0.159	0.053	1.707	0.682	1.707	100.00%	100.00%	
6	3	1981.000	2.818	0.233	0.078	1.465	0.749	1.465	100.00%	100.00%	
5	3	1981.000	2.585	0.311	0.104	1.335	0.762	1.335	100.00%	100.00%	
4	3	1981.000	2.274	0.408	0.136	1.312	0.720	1.312	100.00%	100.00%	
3	3	1981.000	1.866	0.567	0.189	1.390	0.784	1.390	100.00%	100.00%	
2	3	1981.000	1.299	0.723	0.241	1.275	1.256	1.275	100.00%	100.00%	
1	3	1981.000	0.576	0.576	0.192	0.796		0.796	100.00%		
						NO B2 IRREG.		B2 IRREG.		NO B2 IRREG.	

DEFORMATION LEVEL-2

8-4-HOM

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
8	3	1776.983	7.475	0.184	0.061		0.683			100.00%	
7	3	1776.983	7.291	0.270	0.090	1.464	0.700	1.464	100.00%	100.00%	
6	3	1776.983	7.021	0.385	0.128	1.428	0.629	1.428	100.00%	100.00%	
5	3	1776.983	6.636	0.612	0.204	1.591	0.542	1.591	100.00%	100.00%	
4	3	1776.983	6.024	1.129	0.376	1.844	0.717	1.844	100.00%	100.00%	
3	3	1776.983	4.895	1.575	0.525	1.395	0.902	1.395	100.00%	100.00%	
2	3	1776.983	3.321	1.745	0.582	1.108	1.108	1.108	100.00%	100.00%	
1	3	1776.983	1.575	1.575	0.525	0.903		0.903	100.00%		
						NO B2 IRREG.		B2 IRREG.		NO B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
8	3	2012.089	7.475	0.124	0.041		0.598			100.00%	
7	3	2012.089	7.350	0.208	0.069	1.673	0.766	1.673	100.00%	100.00%	
6	3	2012.089	7.142	0.272	0.091	1.306	0.699	1.306	100.00%	100.00%	
5	3	2012.089	6.870	0.389	0.130	1.431	0.703	1.431	100.00%	100.00%	
4	3	2012.089	6.481	0.554	0.185	1.423	0.356	1.423	100.00%	100.00%	
3	3	2012.089	5.927	1.557	0.519	2.812	0.727	2.812	100.00%	100.00%	
2	3	2012.089	4.370	2.142	0.714	1.376	0.962	1.376	100.00%	100.00%	
1	3	2012.089	2.228	2.228	0.743	1.040		1.040	100.00%		
						B2 IRREG.		B2 IRREG.		NO B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
8	3	1787.509	7.475	0.149	0.050		0.615			100.00%	
7	3	1787.509	7.326	0.242	0.081	1.625	0.691	1.625	100.00%	100.00%	
6	3	1787.509	7.083	0.351	0.117	1.447	0.635	1.447	100.00%	100.00%	
5	3	1787.509	6.733	0.552	0.184	1.574	0.507	1.574	100.00%	100.00%	
4	3	1787.509	6.181	1.089	0.363	1.973	0.626	1.973	100.00%	100.00%	
3	3	1787.509	5.091	1.741	0.580	1.598	0.991	1.598	100.00%	100.00%	
2	3	1787.509	3.351	1.756	0.585	1.009	1.101	1.009	100.00%	100.00%	
1	3	1787.509	1.595	1.595	0.532	0.909		0.909	100.00%		
						NO B2 IRREG.		B2 IRREG.		NO B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310		
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down	
8	3	2800.289	7.475	0.121	0.040		0.598			100.00%	
7	3	2800.289	7.354	0.202	0.067	1.672	0.690	1.672	100.00%	100.00%	
6	3	2800.289	7.152	0.293	0.098	1.448	0.724	1.448	100.00%	100.00%	
5	3	2800.289	6.859	0.404	0.135	1.381	0.618	1.381	100.00%	100.00%	
4	3	2800.289	6.455	0.654	0.218	1.619	0.521	1.619	100.00%	100.00%	
3	3	2800.289	5.801	1.255	0.418	1.919	0.605	1.919	100.00%	100.00%	
2	3	2800.289	4.545	2.075	0.692	1.653	0.840	1.653	100.00%	100.00%	
1	3	2800.289	2.470	2.470	0.823	1.190		1.190	100.00%		
						NO B2 IRREG.		B2 IRREG.		NO B2 IRREG.	

DEFORMATION LEVEL-3

8-4-1-4.5

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	559.781	1.149	0.052	0.017		0.646			100.00%
7	3	559.781	1.097	0.080	0.027	1.549	0.754	1.549	100.00%	100.00%
6	3	559.781	1.017	0.106	0.035	1.326	0.829	1.326	100.00%	100.00%
5	3	559.781	0.910	0.128	0.043	1.206	0.880	1.206	100.00%	100.00%
4	3	559.781	0.782	0.146	0.049	1.136	0.916	1.136	100.00%	100.00%
3	3	559.781	0.636	0.159	0.053	1.092	0.915	1.092	100.00%	100.00%
2	3	559.781	0.477	0.174	0.058	1.093	0.860	1.093	100.00%	100.00%
1	4.5	559.781	0.303	0.303	0.067	1.163		1.744	66.67%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	692.711	1.149	0.035	0.012		0.601			100.00%
7	3	692.711	1.113	0.059	0.020	1.663	0.694	1.663	100.00%	100.00%
6	3	692.711	1.055	0.085	0.028	1.441	0.767	1.441	100.00%	100.00%
5	3	692.711	0.970	0.110	0.037	1.304	0.812	1.304	100.00%	100.00%
4	3	692.711	0.860	0.136	0.045	1.232	0.841	1.232	100.00%	100.00%
3	3	692.711	0.724	0.162	0.054	1.189	0.833	1.189	100.00%	100.00%
2	3	692.711	0.562	0.194	0.065	1.200	0.791	1.200	100.00%	100.00%
1	4.5	692.711	0.368	0.368	0.082	1.265		1.897	66.67%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	601.223	1.149	0.041	0.014		0.599			100.00%
7	3	601.223	1.107	0.069	0.023	1.670	0.707	1.670	100.00%	100.00%
6	3	601.223	1.038	0.098	0.033	1.413	0.790	1.413	100.00%	100.00%
5	3	601.223	0.940	0.124	0.041	1.266	0.849	1.266	100.00%	100.00%
4	3	601.223	0.817	0.146	0.049	1.178	0.890	1.178	100.00%	100.00%
3	3	601.223	0.671	0.164	0.055	1.124	0.894	1.124	100.00%	100.00%
2	3	601.223	0.507	0.183	0.061	1.118	0.846	1.118	100.00%	100.00%
1	4.5	601.223	0.324	0.324	0.072	1.182		1.772	66.67%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	644.500	1.149	0.039	0.013		0.593			100.00%
7	3	644.500	1.110	0.065	0.022	1.686	0.703	1.686	100.00%	100.00%
6	3	644.500	1.045	0.092	0.031	1.423	0.783	1.423	100.00%	100.00%
5	3	644.500	0.953	0.118	0.039	1.278	0.834	1.278	100.00%	100.00%
4	3	644.500	0.834	0.142	0.047	1.200	0.874	1.200	100.00%	100.00%
3	3	644.500	0.693	0.162	0.054	1.144	0.865	1.144	100.00%	100.00%
2	3	644.500	0.530	0.188	0.063	1.157	0.821	1.157	100.00%	100.00%
1	4.5	644.500	0.343	0.343	0.076	1.218		1.827	29.63%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

DEFORMATION LEVEL-1

8-4-1-4.5

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	1375.588	3.278	0.132	0.044		0.603			100.00%
7	3	1375.588	3.146	0.220	0.073	1.659	0.824	1.659	100.00%	100.00%
6	3	1375.588	2.926	0.266	0.089	1.213	0.832	1.213	100.00%	100.00%
5	3	1375.588	2.660	0.320	0.107	1.202	0.877	1.202	100.00%	100.00%
4	3	1375.588	2.340	0.365	0.122	1.141	0.946	1.141	100.00%	100.00%
3	3	1375.588	1.974	0.386	0.129	1.057	0.735	1.057	100.00%	100.00%
2	3	1375.588	1.588	0.525	0.175	1.360	0.740	1.360	100.00%	100.00%
1	4.5	1375.588	1.063	1.063	0.236	1.351		2.026	66.67%	
						NO B2 IRREG.	B2 IRREG.	B2 IRREG.		

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	1471.266	3.278	0.081	0.027		0.619			100.00%
7	3	1471.266	3.197	0.131	0.044	1.615	0.704	1.615	100.00%	100.00%
6	3	1471.266	3.066	0.186	0.062	1.421	0.771	1.421	100.00%	100.00%
5	3	1471.266	2.881	0.241	0.080	1.298	0.812	1.298	100.00%	100.00%
4	3	1471.266	2.640	0.297	0.099	1.232	0.785	1.232	100.00%	100.00%
3	3	1471.266	2.343	0.379	0.126	1.275	0.657	1.275	100.00%	100.00%
2	3	1471.266	1.964	0.576	0.192	1.523	0.623	1.523	100.00%	100.00%
1	4.5	1471.266	1.388	1.388	0.308	1.605		2.408	66.67%	
						NO B2 IRREG.	B2 IRREG.	B2 IRREG.		

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	1399.060	3.278	0.101	0.034		0.610			100.00%
7	3	1399.060	3.177	0.166	0.055	1.639	0.714	1.639	100.00%	100.00%
6	3	1399.060	3.011	0.233	0.078	1.401	0.796	1.401	100.00%	100.00%
5	3	1399.060	2.778	0.293	0.098	1.256	0.841	1.256	100.00%	100.00%
4	3	1399.060	2.485	0.348	0.116	1.189	0.842	1.189	100.00%	100.00%
3	3	1399.060	2.138	0.413	0.138	1.188	0.800	1.188	100.00%	100.00%
2	3	1399.060	1.725	0.516	0.172	1.250	0.641	1.250	100.00%	100.00%
1	4.5	1399.060	1.208	1.208	0.269	1.561		2.341	66.67%	
						NO B2 IRREG.	B2 IRREG.	B2 IRREG.		

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	1552.000	3.278	0.087	0.029		0.605			100.00%
7	3	1552.000	3.191	0.144	0.048	1.652	0.702	1.652	100.00%	100.00%
6	3	1552.000	3.047	0.205	0.068	1.424	0.774	1.424	100.00%	100.00%
5	3	1552.000	2.842	0.265	0.088	1.293	0.815	1.293	100.00%	100.00%
4	3	1552.000	2.577	0.325	0.108	1.226	0.808	1.226	100.00%	100.00%
3	3	1552.000	2.252	0.402	0.134	1.237	0.694	1.237	100.00%	100.00%
2	3	1552.000	1.850	0.579	0.193	1.440	0.683	1.440	100.00%	100.00%
1	4.5	1552.000	1.271	1.271	0.282	1.463		2.195	66.67%	
						NO B2 IRREG.	B2 IRREG.	B2 IRREG.		

DEFORMATION LEVEL-2

8-4-1-4.5

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	1498.555	6.465	0.161	0.054		0.568			100.00%
7	3	1498.555	6.304	0.284	0.095	1.760	0.930	1.760	100.00%	100.00%
6	3	1498.555	6.020	0.305	0.102	1.076	0.808	1.076	100.00%	100.00%
5	3	1498.555	5.715	0.378	0.126	1.238	0.919	1.238	100.00%	100.00%
4	3	1498.555	5.336	0.412	0.137	1.088	0.500	1.088	100.00%	100.00%
3	3	1498.555	4.925	0.824	0.275	2.002	0.630	2.002	100.00%	100.00%
2	3	1498.555	4.101	1.307	0.436	1.587	0.702	1.587	100.00%	100.00%
1	4.5	1498.555	2.793	2.793	0.621	1.424		2.137	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	1584.241	6.465	0.107	0.036		0.667			100.00%
7	3	1584.241	6.358	0.161	0.054	1.499	0.731	1.499	100.00%	100.00%
6	3	1584.241	6.197	0.220	0.073	1.368	0.837	1.368	100.00%	100.00%
5	3	1584.241	5.976	0.263	0.088	1.194	0.713	1.194	100.00%	100.00%
4	3	1584.241	5.713	0.369	0.123	1.403	0.634	1.403	100.00%	100.00%
3	3	1584.241	5.344	0.582	0.194	1.577	0.518	1.577	100.00%	100.00%
2	3	1584.241	4.762	1.125	0.375	1.931	0.464	1.931	100.00%	100.00%
1	4.5	1584.241	3.637	3.637	0.808	2.156		3.234	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	1519.731	6.465	0.129	0.043		0.653			100.00%
7	3	1519.731	6.336	0.198	0.066	1.532	0.749	1.532	100.00%	100.00%
6	3	1519.731	6.138	0.265	0.088	1.336	0.769	1.336	100.00%	100.00%
5	3	1519.731	5.874	0.344	0.115	1.301	0.753	1.301	100.00%	100.00%
4	3	1519.731	5.529	0.457	0.152	1.329	0.632	1.329	100.00%	100.00%
3	3	1519.731	5.072	0.723	0.241	1.581	0.541	1.581	100.00%	100.00%
2	3	1519.731	4.350	1.335	0.445	1.847	0.665	1.847	100.00%	100.00%
1	4.5	1519.731	3.014	3.014	0.670	1.505		2.257	66.67%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	2044.441	6.465	0.088	0.029		0.600			100.00%
7	3	2044.441	6.377	0.147	0.049	1.667	0.685	1.667	100.00%	100.00%
6	3	2044.441	6.230	0.215	0.072	1.460	0.730	1.460	100.00%	100.00%
5	3	2044.441	6.016	0.294	0.098	1.370	0.674	1.370	100.00%	100.00%
4	3	2044.441	5.722	0.436	0.145	1.483	0.556	1.483	100.00%	100.00%
3	3	2044.441	5.286	0.785	0.262	1.800	0.546	1.800	100.00%	100.00%
2	3	2044.441	4.501	1.436	0.479	1.830	0.703	1.830	100.00%	100.00%
1	4.5	2044.441	3.065	3.065	0.681	1.423		2.134	66.67%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

DEFORMATION LEVEL-3

8-4-1-6

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	564.000	1.538	0.053	0.018		0.656			100.00%
7	3	564.000	1.485	0.080	0.027	1.524	0.758	1.524	100.00%	100.00%
6	3	564.000	1.405	0.106	0.035	1.319	0.829	1.319	100.00%	100.00%
5	3	564.000	1.298	0.128	0.043	1.206	0.879	1.206	100.00%	100.00%
4	3	564.000	1.170	0.146	0.049	1.137	0.902	1.137	100.00%	100.00%
3	3	564.000	1.025	0.161	0.054	1.108	0.851	1.108	100.00%	100.00%
2	3	564.000	0.863	0.190	0.063	1.175	0.563	1.175	100.00%	100.00%
1	6	564.000	0.674	0.674	0.112	1.777		3.555	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	654.467	1.538	0.035	0.012		0.614			100.00%
7	3	654.467	1.503	0.057	0.019	1.627	0.703	1.627	100.00%	100.00%
6	3	654.467	1.446	0.081	0.027	1.423	0.770	1.423	100.00%	100.00%
5	3	654.467	1.364	0.106	0.035	1.298	0.816	1.298	100.00%	100.00%
4	3	654.467	1.259	0.130	0.043	1.226	0.832	1.226	100.00%	100.00%
3	3	654.467	1.129	0.156	0.052	1.202	0.776	1.202	100.00%	100.00%
2	3	654.467	0.973	0.201	0.067	1.288	0.519	1.288	100.00%	100.00%
1	6	654.467	0.773	0.773	0.129	1.927		3.853	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	609.952	1.538	0.040	0.013		0.612			100.00%
7	3	609.952	1.498	0.065	0.022	1.634	0.709	1.634	100.00%	100.00%
6	3	609.952	1.432	0.092	0.031	1.410	0.787	1.410	100.00%	100.00%
5	3	609.952	1.340	0.117	0.039	1.271	0.840	1.271	100.00%	100.00%
4	3	609.952	1.223	0.139	0.046	1.191	0.865	1.191	100.00%	100.00%
3	3	609.952	1.084	0.161	0.054	1.156	0.817	1.156	100.00%	100.00%
2	3	609.952	0.922	0.197	0.066	1.224	0.544	1.224	100.00%	100.00%
1	6	609.952	0.725	0.725	0.121	1.837		3.674	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	609.800	1.538	0.039	0.013		0.589			100.00%
7	3	609.800	1.499	0.066	0.022	1.699	0.717	1.699	100.00%	100.00%
6	3	609.800	1.433	0.092	0.031	1.394	0.773	1.394	100.00%	100.00%
5	3	609.800	1.341	0.119	0.040	1.293	0.844	1.293	100.00%	100.00%
4	3	609.800	1.222	0.141	0.047	1.185	0.865	1.185	100.00%	100.00%
3	3	609.800	1.081	0.163	0.054	1.157	0.822	1.157	100.00%	100.00%
2	3	609.800	0.918	0.198	0.066	1.216	0.551	1.216	100.00%	100.00%
1	6	609.800	0.720	0.720	0.120	1.814		3.629	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

DEFORMATION LEVEL-1

8-4-1-6

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	1009.249	2.846	0.097	0.032		0.663			100.00%
7	3	1009.249	2.749	0.146	0.049	1.509	0.761	1.509	100.00%	100.00%
6	3	1009.249	2.603	0.193	0.064	1.315	0.819	1.315	100.00%	100.00%
5	3	1009.249	2.410	0.235	0.078	1.220	0.890	1.220	100.00%	100.00%
4	3	1009.249	2.175	0.264	0.088	1.124	0.909	1.124	100.00%	100.00%
3	3	1009.249	1.911	0.290	0.097	1.100	0.846	1.100	100.00%	100.00%
2	3	1009.249	1.621	0.343	0.114	1.182	0.537	1.182	100.00%	100.00%
1	6	1009.249	1.277	1.277	0.213	1.861		3.722	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	1098.174	2.846	0.063	0.021		0.630			100.00%
7	3	1098.174	2.783	0.100	0.033	1.588	0.711	1.588	100.00%	100.00%
6	3	1098.174	2.683	0.141	0.047	1.407	0.775	1.407	100.00%	100.00%
5	3	1098.174	2.543	0.181	0.060	1.290	0.816	1.290	100.00%	100.00%
4	3	1098.174	2.362	0.222	0.074	1.226	0.835	1.226	100.00%	100.00%
3	3	1098.174	2.139	0.266	0.089	1.198	0.768	1.198	100.00%	100.00%
2	3	1098.174	1.873	0.347	0.116	1.303	0.455	1.303	100.00%	100.00%
1	6	1098.174	1.526	1.526	0.254	2.199		4.398	50.00%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	1054.153	2.846	0.073	0.024		0.624			100.00%
7	3	1054.153	2.774	0.116	0.039	1.603	0.716	1.603	100.00%	100.00%
6	3	1054.153	2.657	0.163	0.054	1.397	0.790	1.397	100.00%	100.00%
5	3	1054.153	2.495	0.206	0.069	1.266	0.839	1.266	100.00%	100.00%
4	3	1054.153	2.289	0.245	0.082	1.192	0.844	1.192	100.00%	100.00%
3	3	1054.153	2.043	0.291	0.097	1.184	0.833	1.184	100.00%	100.00%
2	3	1054.153	1.753	0.349	0.116	1.201	0.497	1.201	100.00%	100.00%
1	6	1054.153	1.404	1.404	0.234	2.011		4.023	50.00%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	1078.106	2.846	0.072	0.024		0.605			100.00%
7	3	1078.106	2.774	0.119	0.040	1.653	0.713	1.653	100.00%	100.00%
6	3	1078.106	2.655	0.167	0.056	1.403	0.788	1.403	100.00%	100.00%
5	3	1078.106	2.487	0.213	0.071	1.269	0.845	1.269	100.00%	100.00%
4	3	1078.106	2.275	0.252	0.084	1.184	0.872	1.184	100.00%	100.00%
3	3	1078.106	2.023	0.289	0.096	1.147	0.823	1.147	100.00%	100.00%
2	3	1078.106	1.734	0.351	0.117	1.215	0.508	1.215	100.00%	100.00%
1	6	1078.106	1.383	1.383	0.230	1.970		3.940	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

DEFORMATION LEVEL-2

8-4-1-6

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	1140.296	5.541	0.128	0.043		0.695			100.00%
7	3	1140.296	5.413	0.183	0.061	1.438	0.890	1.438	100.00%	100.00%
6	3	1140.296	5.230	0.206	0.069	1.124	0.736	1.124	100.00%	100.00%
5	3	1140.296	5.024	0.280	0.093	1.358	0.820	1.358	100.00%	100.00%
4	3	1140.296	4.744	0.342	0.114	1.220	0.986	1.220	100.00%	100.00%
3	3	1140.296	4.402	0.347	0.116	1.014	0.911	1.014	100.00%	100.00%
2	3	1140.296	4.055	0.381	0.127	1.098	0.207	1.098	100.00%	100.00%
1	6	1140.296	3.675	3.675	0.612	4.828		9.657	50.00%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	1154.373	5.541	0.083	0.028		0.683			100.00%
7	3	1154.373	5.458	0.122	0.041	1.465	0.740	1.465	100.00%	100.00%
6	3	1154.373	5.335	0.165	0.055	1.351	0.793	1.351	100.00%	100.00%
5	3	1154.373	5.170	0.208	0.069	1.261	0.868	1.261	100.00%	100.00%
4	3	1154.373	4.962	0.240	0.080	1.152	0.992	1.152	100.00%	100.00%
3	3	1154.373	4.723	0.242	0.081	1.008	0.582	1.008	100.00%	100.00%
2	3	1154.373	4.481	0.415	0.138	1.718	0.204	1.718	100.00%	100.00%
1	6	1154.373	4.066	4.066	0.678	4.898		9.796	50.00%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	1145.812	5.541	0.097	0.032		0.767			100.00%
7	3	1145.812	5.444	0.127	0.042	1.304	0.649	1.304	100.00%	100.00%
6	3	1145.812	5.317	0.195	0.065	1.541	0.805	1.541	100.00%	100.00%
5	3	1145.812	5.122	0.242	0.081	1.242	0.813	1.242	100.00%	100.00%
4	3	1145.812	4.880	0.298	0.099	1.230	0.923	1.230	100.00%	100.00%
3	3	1145.812	4.582	0.323	0.108	1.084	0.867	1.084	100.00%	100.00%
2	3	1145.812	4.259	0.373	0.124	1.153	0.192	1.153	100.00%	100.00%
1	6	1145.812	3.886	3.886	0.648	5.215		10.431	50.00%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	1606.881	5.541	0.061	0.020		0.619			100.00%
7	3	1606.881	5.480	0.098	0.033	1.617	0.683	1.617	100.00%	100.00%
6	3	1606.881	5.382	0.144	0.048	1.464	0.747	1.464	100.00%	100.00%
5	3	1606.881	5.238	0.193	0.064	1.338	0.782	1.338	100.00%	100.00%
4	3	1606.881	5.045	0.247	0.082	1.279	0.792	1.279	100.00%	100.00%
3	3	1606.881	4.798	0.311	0.104	1.263	0.678	1.263	100.00%	100.00%
2	3	1606.881	4.487	0.460	0.153	1.476	0.228	1.476	100.00%	100.00%
1	6	1606.881	4.027	4.027	0.671	4.382		8.764	50.00%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

DEFORMATION LEVEL-3

8-6-HOM

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYHY-06		ABYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	820.688	0.915	0.046	0.015		0.612			100.00%
7	3	820.688	0.869	0.076	0.025	1.635	0.738	1.635	100.00%	100.00%
6	3	820.688	0.793	0.103	0.034	1.355	0.822	1.355	100.00%	100.00%
5	3	820.688	0.690	0.125	0.042	1.217	0.878	1.217	100.00%	100.00%
4	3	820.688	0.565	0.143	0.048	1.139	0.923	1.139	100.00%	100.00%
3	3	820.688	0.422	0.154	0.051	1.084	0.987	1.084	100.00%	100.00%
2	3	820.688	0.268	0.156	0.052	1.013	1.403	1.013	100.00%	100.00%
1	3	820.688	0.112	0.112	0.037	0.713		0.713	100.00%	
						NO B2 IRREG.		B2 IRREG.		NO B2 IRREG.

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYHY-06		ABYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	1084.196	0.915	0.031	0.010		0.553			100.00%
7	3	1084.196	0.884	0.056	0.019	1.808	0.671	1.808	100.00%	100.00%
6	3	1084.196	0.828	0.084	0.028	1.490	0.752	1.490	100.00%	100.00%
5	3	1084.196	0.743	0.112	0.037	1.329	0.803	1.329	100.00%	100.00%
4	3	1084.196	0.632	0.139	0.046	1.245	0.842	1.245	100.00%	100.00%
3	3	1084.196	0.492	0.165	0.055	1.188	0.898	1.188	100.00%	100.00%
2	3	1084.196	0.327	0.184	0.061	1.114	1.294	1.114	100.00%	100.00%
1	3	1084.196	0.143	0.143	0.048	0.773		0.773	100.00%	
						NO B2 IRREG.		B2 IRREG.		NO B2 IRREG.

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYHY-06		ABYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	864.134	0.915	0.037	0.012		0.555			100.00%
7	3	864.134	0.878	0.067	0.022	1.801	0.690	1.801	100.00%	100.00%
6	3	864.134	0.811	0.098	0.033	1.449	0.785	1.449	100.00%	100.00%
5	3	864.134	0.713	0.124	0.041	1.273	0.852	1.273	100.00%	100.00%
4	3	864.134	0.589	0.146	0.049	1.174	0.906	1.174	100.00%	100.00%
3	3	864.134	0.443	0.161	0.054	1.103	0.979	1.103	100.00%	100.00%
2	3	864.134	0.282	0.164	0.055	1.022	1.402	1.022	100.00%	100.00%
1	3	864.134	0.117	0.117	0.039	0.713		0.713	100.00%	
						NO B2 IRREG.		B2 IRREG.		NO B2 IRREG.

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYHY-06		ABYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	975.600	0.915	0.039	0.013		0.558			100.00%
7	3	975.600	0.876	0.070	0.023	1.792	0.696	1.792	100.00%	100.00%
6	3	975.600	0.806	0.101	0.034	1.438	0.881	1.438	100.00%	100.00%
5	3	975.600	0.706	0.114	0.038	1.135	0.847	1.135	100.00%	100.00%
4	3	975.600	0.592	0.135	0.045	1.180	0.859	1.180	100.00%	100.00%
3	3	975.600	0.457	0.157	0.052	1.165	0.919	1.165	100.00%	100.00%
2	3	975.600	0.300	0.171	0.057	1.088	1.321	1.088	100.00%	100.00%
1	3	975.600	0.129	0.129	0.043	0.757		0.757	100.00%	
						NO B2 IRREG.		B2 IRREG.		NO B2 IRREG.

DEFORMATION LEVEL-1

8-6-HOM

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	2780.924	3.213	0.159	0.053		0.594			100.00%
7	3	2780.924	3.053	0.268	0.089	1.683	0.744	1.683	100.00%	100.00%
6	3	2780.924	2.785	0.361	0.120	1.344	0.818	1.344	100.00%	100.00%
5	3	2780.924	2.424	0.441	0.147	1.222	0.912	1.222	100.00%	100.00%
4	3	2780.924	1.983	0.484	0.161	1.097	0.917	1.097	100.00%	100.00%
3	3	2780.924	1.499	0.528	0.176	1.091	0.965	1.091	100.00%	100.00%
2	3	2780.924	0.971	0.547	0.182	1.036	1.288	1.036	100.00%	100.00%
1	3	2780.924	0.425	0.425	0.142	0.777		0.777	100.00%	
						NO B2 IRREG.		B2 IRREG.		NO B2 IRREG.

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	3219.699	3.213	0.097	0.032		0.564			100.00%
7	3	3219.699	3.116	0.172	0.057	1.774	0.676	1.774	100.00%	100.00%
6	3	3219.699	2.944	0.254	0.085	1.478	0.745	1.478	100.00%	100.00%
5	3	3219.699	2.690	0.341	0.114	1.343	0.811	1.343	100.00%	100.00%
4	3	3219.699	2.349	0.421	0.140	1.233	0.806	1.233	100.00%	100.00%
3	3	3219.699	1.928	0.522	0.174	1.241	0.784	1.241	100.00%	100.00%
2	3	3219.699	1.405	0.666	0.222	1.275	0.902	1.275	100.00%	100.00%
1	3	3219.699	0.739	0.739	0.246	1.109		1.109	100.00%	
						NO B2 IRREG.		B2 IRREG.		NO B2 IRREG.

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	2899.963	3.213	0.128	0.043		0.567			100.00%
7	3	2899.963	3.085	0.226	0.075	1.763	0.683	1.763	100.00%	100.00%
6	3	2899.963	2.859	0.330	0.110	1.463	0.787	1.463	100.00%	100.00%
5	3	2899.963	2.529	0.420	0.140	1.271	0.838	1.271	100.00%	100.00%
4	3	2899.963	2.109	0.500	0.167	1.193	0.905	1.193	100.00%	100.00%
3	3	2899.963	1.609	0.553	0.184	1.105	0.947	1.105	100.00%	100.00%
2	3	2899.963	1.056	0.584	0.195	1.056	1.238	1.056	100.00%	100.00%
1	3	2899.963	0.472	0.472	0.157	0.808		0.808	100.00%	
						NO B2 IRREG.		B2 IRREG.		NO B2 IRREG.

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	3354.000	3.213	0.102	0.034		0.569			100.00%
7	3	3354.000	3.111	0.179	0.060	1.757	0.673	1.757	100.00%	100.00%
6	3	3354.000	2.932	0.266	0.089	1.486	0.751	1.486	100.00%	100.00%
5	3	3354.000	2.666	0.354	0.118	1.331	0.796	1.331	100.00%	100.00%
4	3	3354.000	2.312	0.445	0.148	1.257	0.795	1.257	100.00%	100.00%
3	3	3354.000	1.867	0.560	0.187	1.258	0.816	1.258	100.00%	100.00%
2	3	3354.000	1.307	0.687	0.229	1.226	1.107	1.226	100.00%	100.00%
1	3	3354.000	0.620	0.620	0.207	0.904		0.904	100.00%	
						NO B2 IRREG.		B2 IRREG.		NO B2 IRREG.

DEFORMATION LEVEL-2

8-6-HOM

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYHY-06		ABYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	3065.193	6.927	0.177	0.059		0.589			100.00%
7	3	3065.193	6.751	0.300	0.100	1.698	0.736	1.698	100.00%	100.00%
6	3	3065.193	6.451	0.407	0.136	1.359	0.513	1.359	100.00%	100.00%
5	3	3065.193	6.044	0.794	0.265	1.950	1.135	1.950	100.00%	100.00%
4	3	3065.193	5.249	0.700	0.233	0.881	0.522	0.881	100.00%	100.00%
3	3	3065.193	4.549	1.342	0.447	1.917	0.823	1.917	100.00%	100.00%
2	3	3065.193	3.207	1.631	0.544	1.215	1.034	1.215	100.00%	100.00%
1	3	3065.193	1.576	1.576	0.525	0.967		0.967	100.00%	
						NO B2 IRREG.		B2 IRREG.		NO B2 IRREG.

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYHY-06		ABYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	3365.623	6.927	0.120	0.040		0.605			100.00%
7	3	3365.623	6.807	0.198	0.066	1.652	0.697	1.652	100.00%	100.00%
6	3	3365.623	6.609	0.285	0.095	1.435	0.758	1.435	100.00%	100.00%
5	3	3365.623	6.324	0.375	0.125	1.319	0.822	1.319	100.00%	100.00%
4	3	3365.623	5.949	0.457	0.152	1.217	0.533	1.217	100.00%	100.00%
3	3	3365.623	5.492	0.857	0.286	1.877	0.402	1.877	100.00%	100.00%
2	3	3365.623	4.635	2.133	0.711	2.488	0.852	2.488	100.00%	100.00%
1	3	3365.623	2.502	2.502	0.834	1.173		1.173	100.00%	
						NO B2 IRREG.		B2 IRREG.		NO B2 IRREG.

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYHY-06		ABYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	3086.712	6.927	0.150	0.050		0.584			100.00%
7	3	3086.712	6.777	0.257	0.086	1.711	0.685	1.711	100.00%	100.00%
6	3	3086.712	6.520	0.376	0.125	1.461	0.798	1.461	100.00%	100.00%
5	3	3086.712	6.145	0.471	0.157	1.254	0.671	1.254	100.00%	100.00%
4	3	3086.712	5.674	0.702	0.234	1.491	0.486	1.491	100.00%	100.00%
3	3	3086.712	4.972	1.445	0.482	2.059	0.810	2.059	100.00%	100.00%
2	3	3086.712	3.527	1.783	0.594	1.234	1.023	1.234	100.00%	100.00%
1	3	3086.712	1.743	1.743	0.581	0.978		0.978	100.00%	
						B2 IRREG.		B2 IRREG.		NO B2 IRREG.

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYHY-06		ABYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	4408.170	6.927	0.178	0.059		0.545			100.00%
7	3	4408.170	6.749	0.327	0.109	1.833	0.662	1.833	100.00%	100.00%
6	3	4408.170	6.422	0.495	0.165	1.511	0.700	1.511	100.00%	100.00%
5	3	4408.170	5.927	0.706	0.235	1.429	0.848	1.429	100.00%	100.00%
4	3	4408.170	5.221	0.833	0.278	1.179	0.656	1.179	100.00%	100.00%
3	3	4408.170	4.388	1.270	0.423	1.525	0.752	1.525	100.00%	100.00%
2	3	4408.170	3.118	1.688	0.563	1.330	1.181	1.330	100.00%	100.00%
1	3	4408.170	1.430	1.430	0.477	0.847		0.847	100.00%	
						NO B2 IRREG.		B2 IRREG.		NO B2 IRREG.

DEFORMATION LEVEL-3

8-6-1-4.5

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	826.594	1.123	0.046	0.015		0.618			100.00%
7	3	826.594	1.077	0.075	0.025	1.617	0.740	1.617	100.00%	100.00%
6	3	826.594	1.002	0.101	0.034	1.351	0.820	1.351	100.00%	100.00%
5	3	826.594	0.901	0.124	0.041	1.219	0.874	1.219	100.00%	100.00%
4	3	826.594	0.777	0.141	0.047	1.145	0.910	1.145	100.00%	100.00%
3	3	826.594	0.636	0.155	0.052	1.099	0.908	1.099	100.00%	100.00%
2	3	826.594	0.480	0.171	0.057	1.101	0.830	1.101	100.00%	100.00%
1	4.5	826.594	0.309	0.309	0.069	1.205		1.807	66.67%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	1018.089	1.123	0.030	0.010		0.564			100.00%
7	3	1018.089	1.093	0.054	0.018	1.773	0.676	1.773	100.00%	100.00%
6	3	1018.089	1.039	0.080	0.027	1.479	0.755	1.479	100.00%	100.00%
5	3	1018.089	0.959	0.106	0.035	1.324	0.804	1.324	100.00%	100.00%
4	3	1018.089	0.854	0.131	0.044	1.244	0.834	1.244	100.00%	100.00%
3	3	1018.089	0.722	0.158	0.053	1.199	0.827	1.199	100.00%	100.00%
2	3	1018.089	0.565	0.191	0.064	1.210	0.764	1.210	100.00%	100.00%
1	4.5	1018.089	0.374	0.374	0.083	1.310		1.964	66.67%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	889.828	1.123	0.036	0.012		0.564			100.00%
7	3	889.828	1.088	0.064	0.021	1.772	0.689	1.772	100.00%	100.00%
6	3	889.828	1.024	0.092	0.031	1.451	0.779	1.451	100.00%	100.00%
5	3	889.828	0.932	0.118	0.039	1.283	0.839	1.283	100.00%	100.00%
4	3	889.828	0.813	0.141	0.047	1.191	0.882	1.191	100.00%	100.00%
3	3	889.828	0.672	0.160	0.053	1.133	0.886	1.133	100.00%	100.00%
2	3	889.828	0.512	0.180	0.060	1.129	0.816	1.129	100.00%	100.00%
1	4.5	889.828	0.332	0.332	0.074	1.225		1.838	66.67%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	958.200	1.123	0.033	0.011		0.567			100.00%
7	3	958.200	1.090	0.059	0.020	1.765	0.684	1.765	100.00%	100.00%
6	3	958.200	1.031	0.086	0.029	1.463	0.771	1.463	100.00%	100.00%
5	3	958.200	0.945	0.112	0.037	1.298	0.822	1.298	100.00%	100.00%
4	3	958.200	0.833	0.136	0.045	1.217	0.858	1.217	100.00%	100.00%
3	3	958.200	0.696	0.159	0.053	1.165	0.857	1.165	100.00%	100.00%
2	3	958.200	0.538	0.185	0.062	1.168	0.790	1.168	100.00%	100.00%
1	4.5	958.200	0.352	0.352	0.078	1.266		1.900	66.67%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

DEFORMATION LEVEL-1

8-6-1-4.5

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYHY-06		ABYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	1865.475	2.671	0.107	0.036		0.549			100.00%
7	3	1865.475	2.564	0.194	0.065	1.822	0.620	1.822	100.00%	100.00%
6	3	1865.475	2.369	0.314	0.105	1.613	1.120	1.613	100.00%	100.00%
5	3	1865.475	2.056	0.280	0.093	0.893	0.874	0.893	100.00%	100.00%
4	3	1865.475	1.776	0.320	0.107	1.144	0.910	1.144	100.00%	100.00%
3	3	1865.475	1.455	0.352	0.117	1.099	0.908	1.099	100.00%	100.00%
2	3	1865.475	1.103	0.388	0.129	1.102	0.813	1.102	100.00%	100.00%
1	4.5	1865.475	0.716	0.716	0.159	1.230		1.845	66.67%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYHY-06		ABYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	2177.247	2.671	0.066	0.022		0.562			100.00%
7	3	2177.247	2.604	0.118	0.039	1.779	0.682	1.779	100.00%	100.00%
6	3	2177.247	2.486	0.173	0.058	1.467	0.758	1.467	100.00%	100.00%
5	3	2177.247	2.312	0.229	0.076	1.320	0.805	1.320	100.00%	100.00%
4	3	2177.247	2.083	0.284	0.095	1.242	0.832	1.242	100.00%	100.00%
3	3	2177.247	1.799	0.342	0.114	1.202	0.802	1.202	100.00%	100.00%
2	3	2177.247	1.458	0.426	0.142	1.246	0.619	1.246	100.00%	100.00%
1	4.5	2177.247	1.032	1.032	0.229	1.616		2.425	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYHY-06		ABYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	1972.599	2.671	0.128	0.043		0.895			100.00%
7	3	1972.599	2.542	0.143	0.048	1.117	0.611	1.117	100.00%	100.00%
6	3	1972.599	2.399	0.234	0.078	1.637	0.886	1.637	100.00%	100.00%
5	3	1972.599	2.165	0.264	0.088	1.128	0.840	1.128	100.00%	100.00%
4	3	1972.599	1.900	0.315	0.105	1.190	0.881	1.190	100.00%	100.00%
3	3	1972.599	1.586	0.357	0.119	1.135	0.877	1.135	100.00%	100.00%
2	3	1972.599	1.228	0.407	0.136	1.140	0.744	1.140	100.00%	100.00%
1	4.5	1972.599	0.821	0.821	0.182	1.344		2.016	29.63%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYHY-06		ABYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	2184.000	2.671	0.075	0.025		0.568			100.00%
7	3	2184.000	2.596	0.132	0.044	1.760	0.680	1.760	100.00%	100.00%
6	3	2184.000	2.464	0.193	0.064	1.470	0.773	1.470	100.00%	100.00%
5	3	2184.000	2.271	0.250	0.083	1.294	0.823	1.294	100.00%	100.00%
4	3	2184.000	2.020	0.304	0.101	1.215	0.852	1.215	100.00%	100.00%
3	3	2184.000	1.716	0.357	0.119	1.174	0.835	1.174	100.00%	100.00%
2	3	2184.000	1.359	0.427	0.142	1.197	0.688	1.197	100.00%	100.00%
1	4.5	2184.000	0.932	0.932	0.207	1.454		2.181	66.67%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

DEFORMATION LEVEL-2

8-6-1-4.5

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYHY-06		ABYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	2257.615	4.884	0.145	0.048		0.657			100.00%
7	3	2257.615	4.739	0.220	0.073	1.523	0.794	1.523	100.00%	100.00%
6	3	2257.615	4.519	0.277	0.092	1.259	0.779	1.259	100.00%	100.00%
5	3	2257.615	4.242	0.356	0.119	1.283	0.877	1.283	100.00%	100.00%
4	3	2257.615	3.886	0.406	0.135	1.140	0.905	1.140	100.00%	100.00%
3	3	2257.615	3.480	0.448	0.149	1.104	1.046	1.104	100.00%	100.00%
2	3	2257.615	3.032	0.428	0.143	0.956	0.247	0.956	100.00%	100.00%
1	4.5	2257.615	2.604	2.604	0.579	4.054		6.081	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYHY-06		ABYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	2294.887	4.884	0.098	0.033		0.710			100.00%
7	3	2294.887	4.786	0.138	0.046	1.408	0.703	1.408	100.00%	100.00%
6	3	2294.887	4.647	0.197	0.066	1.422	0.834	1.422	100.00%	100.00%
5	3	2294.887	4.451	0.236	0.079	1.199	0.750	1.199	100.00%	100.00%
4	3	2294.887	4.215	0.314	0.105	1.333	0.793	1.333	100.00%	100.00%
3	3	2294.887	3.900	0.396	0.132	1.260	1.074	1.260	100.00%	100.00%
2	3	2294.887	3.504	0.369	0.123	0.931	0.177	0.931	100.00%	100.00%
1	4.5	2294.887	3.135	3.135	0.697	5.663		8.495	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYHY-06		ABYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	2275.164	4.884	0.108	0.036		0.630			100.00%
7	3	2275.164	4.776	0.172	0.057	1.587	0.669	1.587	100.00%	100.00%
6	3	2275.164	4.604	0.257	0.086	1.494	0.803	1.494	100.00%	100.00%
5	3	2275.164	4.348	0.320	0.107	1.246	0.845	1.246	100.00%	100.00%
4	3	2275.164	4.028	0.378	0.126	1.184	0.862	1.184	100.00%	100.00%
3	3	2275.164	3.650	0.439	0.146	1.161	1.010	1.161	100.00%	100.00%
2	3	2275.164	3.210	0.435	0.145	0.990	0.235	0.990	100.00%	100.00%
1	4.5	2275.164	2.776	2.776	0.617	4.255		6.383	66.67%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYHY-06		ABYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	2893.849	4.884	0.126	0.042		0.611			100.00%
7	3	2893.849	4.758	0.206	0.069	1.636	0.708	1.636	100.00%	100.00%
6	3	2893.849	4.552	0.291	0.097	1.412	0.784	1.412	100.00%	100.00%
5	3	2893.849	4.261	0.371	0.124	1.275	0.826	1.275	100.00%	100.00%
4	3	2893.849	3.889	0.449	0.150	1.211	0.800	1.211	100.00%	100.00%
3	3	2893.849	3.440	0.562	0.187	1.250	0.724	1.250	100.00%	100.00%
2	3	2893.849	2.878	0.776	0.259	1.381	0.553	1.381	100.00%	100.00%
1	4.5	2893.849	2.102	2.102	0.467	1.807		2.710	66.67%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

DEFORMATION LEVEL-3

8-6-1-6

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	832.500	1.520	0.047	0.016		0.626			100.00%
7	3	832.500	1.473	0.075	0.025	1.597	0.742	1.597	100.00%	100.00%
6	3	832.500	1.399	0.100	0.033	1.347	0.820	1.347	100.00%	100.00%
5	3	832.500	1.298	0.122	0.041	1.219	0.870	1.219	100.00%	100.00%
4	3	832.500	1.176	0.141	0.047	1.150	0.901	1.150	100.00%	100.00%
3	3	832.500	1.035	0.156	0.052	1.110	0.843	1.110	100.00%	100.00%
2	3	832.500	0.879	0.186	0.062	1.187	0.536	1.187	100.00%	100.00%
1	6	832.500	0.693	0.693	0.115	1.867		3.734	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	960.472	1.520	0.030	0.010		0.574			100.00%
7	3	960.472	1.490	0.052	0.017	1.741	0.682	1.741	100.00%	100.00%
6	3	960.472	1.438	0.076	0.025	1.467	0.758	1.467	100.00%	100.00%
5	3	960.472	1.362	0.100	0.033	1.320	0.805	1.320	100.00%	100.00%
4	3	960.472	1.262	0.125	0.042	1.243	0.827	1.243	100.00%	100.00%
3	3	960.472	1.137	0.151	0.050	1.209	0.771	1.209	100.00%	100.00%
2	3	960.472	0.987	0.195	0.065	1.296	0.494	1.296	100.00%	100.00%
1	6	960.472	0.791	0.791	0.132	2.026		4.052	50.00%	
						B2 IRREG.		B2 IRREG.		B2 IRREG.

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	900.500	1.520	0.034	0.011		0.574			100.00%
7	3	900.500	1.486	0.059	0.020	1.744	0.690	1.744	100.00%	100.00%
6	3	900.500	1.426	0.086	0.029	1.449	0.774	1.449	100.00%	100.00%
5	3	900.500	1.341	0.111	0.037	1.293	0.828	1.293	100.00%	100.00%
4	3	900.500	1.229	0.134	0.045	1.208	0.860	1.208	100.00%	100.00%
3	3	900.500	1.095	0.156	0.052	1.163	0.810	1.163	100.00%	100.00%
2	3	900.500	0.939	0.193	0.064	1.235	0.517	1.235	100.00%	100.00%
1	6	900.500	0.746	0.746	0.124	1.935		3.870	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-1

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYYHY-06		ABYYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	899.700	1.520	0.035	0.012		0.581			100.00%
7	3	899.700	1.485	0.060	0.020	1.721	0.698	1.721	100.00%	100.00%
6	3	899.700	1.425	0.086	0.029	1.433	0.768	1.433	100.00%	100.00%
5	3	899.700	1.339	0.112	0.037	1.302	0.824	1.302	100.00%	100.00%
4	3	899.700	1.227	0.136	0.045	1.214	0.862	1.214	100.00%	100.00%
3	3	899.700	1.091	0.158	0.053	1.160	0.815	1.160	100.00%	100.00%
2	3	899.700	0.933	0.194	0.065	1.228	0.524	1.228	100.00%	100.00%
1	6	899.700	0.740	0.740	0.123	1.909		3.818	50.00%	
						NO B2 IRREG.		B2 IRREG.		B2 IRREG.

DEFORMATION LEVEL-1

8-6-1-6

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYHY-06		ABYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	2018.623	3.935	0.115	0.038		0.631			100.00%
7	3	2018.623	3.820	0.183	0.061	1.585	0.745	1.585	100.00%	100.00%
6	3	2018.623	3.637	0.246	0.082	1.342	0.821	1.342	100.00%	100.00%
5	3	2018.623	3.391	0.299	0.100	1.218	0.870	1.218	100.00%	100.00%
4	3	2018.623	3.092	0.344	0.115	1.149	0.895	1.149	100.00%	100.00%
3	3	2018.623	2.748	0.384	0.128	1.117	0.821	1.117	100.00%	100.00%
2	3	2018.623	2.363	0.468	0.156	1.218	0.494	1.218	100.00%	100.00%
1	6	2018.623	1.895	1.895	0.316	2.026		4.051	50.00%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYHY-06		ABYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	2128.446	3.935	0.068	0.023		0.581			100.00%
7	3	2128.446	3.867	0.117	0.039	1.720	0.686	1.720	100.00%	100.00%
6	3	2128.446	3.750	0.170	0.057	1.458	0.760	1.458	100.00%	100.00%
5	3	2128.446	3.580	0.224	0.075	1.316	0.804	1.316	100.00%	100.00%
4	3	2128.446	3.356	0.279	0.093	1.243	0.833	1.243	100.00%	100.00%
3	3	2128.446	3.077	0.335	0.112	1.201	0.682	1.201	100.00%	100.00%
2	3	2128.446	2.742	0.491	0.164	1.466	0.436	1.466	100.00%	100.00%
1	6	2128.446	2.251	2.251	0.375	2.293		4.586	50.00%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYHY-06		ABYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	2092.510	3.935	0.081	0.027		0.580			100.00%
7	3	2092.510	3.854	0.140	0.047	1.724	0.693	1.724	100.00%	100.00%
6	3	2092.510	3.714	0.202	0.067	1.444	0.775	1.444	100.00%	100.00%
5	3	2092.510	3.512	0.260	0.087	1.290	0.828	1.290	100.00%	100.00%
4	3	2092.510	3.252	0.314	0.105	1.208	0.855	1.208	100.00%	100.00%
3	3	2092.510	2.938	0.368	0.123	1.170	0.769	1.170	100.00%	100.00%
2	3	2092.510	2.570	0.478	0.159	1.301	0.457	1.301	100.00%	100.00%
1	6	2092.510	2.092	2.092	0.349	2.186		4.373	50.00%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-2

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYHY-06		ABYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	2134.000	3.935	0.086	0.029		0.581			100.00%
7	3	2134.000	3.849	0.148	0.049	1.720	0.695	1.720	100.00%	100.00%
6	3	2134.000	3.701	0.213	0.071	1.439	0.780	1.439	100.00%	100.00%
5	3	2134.000	3.488	0.273	0.091	1.282	0.837	1.282	100.00%	100.00%
4	3	2134.000	3.215	0.326	0.109	1.194	0.862	1.194	100.00%	100.00%
3	3	2134.000	2.889	0.378	0.126	1.160	1.003	1.160	100.00%	100.00%
2	3	2134.000	2.511	0.377	0.126	0.997	0.353	0.997	100.00%	100.00%
1	6	2134.000	2.134	2.134	0.356	2.830		5.660	50.00%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

DEFORMATION LEVEL-2

8-6-1-6

CODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYHY-06		ABYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	2186.884	7.022	0.264	0.088		1.244			100.00%
7	3	2186.884	6.757	0.213	0.071	0.804	0.757	0.804	100.00%	100.00%
6	3	2186.884	6.545	0.281	0.094	1.321	0.849	1.321	100.00%	100.00%
5	3	2186.884	6.264	0.331	0.110	1.178	1.117	1.178	100.00%	100.00%
4	3	2186.884	5.933	0.296	0.099	0.896	0.665	0.896	100.00%	100.00%
3	3	2186.884	5.637	0.445	0.148	1.503	0.713	1.503	100.00%	100.00%
2	3	2186.884	5.192	0.625	0.208	1.403	0.273	1.403	100.00%	100.00%
1	6	2186.884	4.568	4.568	0.761	3.657		7.314	50.00%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

UNIFORM LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYHY-06		ABYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	2210.019	7.022	0.079	0.026		0.609			100.00%
7	3	2210.019	6.942	0.130	0.043	1.641	0.699	1.641	100.00%	100.00%
6	3	2210.019	6.813	0.186	0.062	1.431	0.793	1.431	100.00%	100.00%
5	3	2210.019	6.627	0.234	0.078	1.262	0.884	1.262	100.00%	100.00%
4	3	2210.019	6.393	0.265	0.088	1.131	0.587	1.131	100.00%	100.00%
3	3	2210.019	6.128	0.451	0.150	1.703	0.653	1.703	100.00%	100.00%
2	3	2210.019	5.677	0.691	0.230	1.531	0.277	1.531	100.00%	100.00%
1	6	2210.019	4.986	4.986	0.831	3.610		7.221	50.00%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

1st MODE LOAD PATTERN B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYHY-06		ABYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	2199.251	7.022	0.098	0.033		0.614			100.00%
7	3	2199.251	6.923	0.160	0.053	1.629	0.710	1.629	100.00%	100.00%
6	3	2199.251	6.763	0.225	0.075	1.408	0.785	1.408	100.00%	100.00%
5	3	2199.251	6.538	0.287	0.096	1.274	0.831	1.274	100.00%	100.00%
4	3	2199.251	6.251	0.345	0.115	1.203	0.849	1.203	100.00%	100.00%
3	3	2199.251	5.906	0.407	0.136	1.178	0.687	1.178	100.00%	100.00%
2	3	2199.251	5.499	0.593	0.198	1.457	0.242	1.457	100.00%	100.00%
1	6	2199.251	4.906	4.906	0.818	4.140		8.280	50.00%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

TIME HISTORY ANALYSIS B2 CHECKS FOR DEFORMATION LEVEL-3

Story #	Story Height (m)	Total Base Shear (kN)	Total Story Lateral Disp. (di) (m)	Relative Disp. (Δ_i)=($d_i - d_{i-1}$)	Δ_i / h_i	DBYHY-06		ABYHY-98	FEMA-310	
						η_{ki} (UP)	η_{ki} (DOWN)	η_{ki}	Up	Down
8	3	2783.858	7.022	0.157	0.052		0.816			100.00%
7	3	2783.858	6.864	0.193	0.064	1.225	0.817	1.225	100.00%	100.00%
6	3	2783.858	6.672	0.236	0.079	1.224	0.828	1.224	100.00%	100.00%
5	3	2783.858	6.436	0.285	0.095	1.208	0.833	1.208	100.00%	100.00%
4	3	2783.858	6.151	0.342	0.114	1.200	0.890	1.200	100.00%	100.00%
3	3	2783.858	5.809	0.384	0.128	1.124	0.633	1.124	100.00%	100.00%
2	3	2783.858	5.425	0.607	0.202	1.581	0.252	1.581	100.00%	100.00%
1	6	2783.858	4.818	4.818	0.803	3.968		7.937	50.00%	
						B2 IRREG.		B2 IRREG.	B2 IRREG.	

DEFORMATION LEVEL-3