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#### Structural Technical Report I October 5, 2006 Structural Concepts / Structural Existing Conditions Report

#### **Executive Summary:**

The Odyssey is a 475,650 SF luxury residential complex located in Arlington, Virginia. It features 2- 3 story townhouses adjacent to 3 levels of underground parking and towers clad with glass curtain walls and brick. There are 16 stories of apartments with suites located on the top floors and retail space on the ground floors. In this first technical report the existing structural conditions of the Odyssey are introduced through detailed descriptions of the foundation, floor, column, and lateral systems. A preliminary analysis of design loads and lateral forces are spot checked on a typical column and shear wall for discrepancies in design criteria. The analyses provide better understanding into loading and code assumptions made through ASCE7-02 provisions.

The wind analysis was carried out under ASCE7-02 section 6 with general building assumptions including disregarded façade curvature and overall rectangular dimensions. The preliminary analysis resulted in an unbalanced leeward to windward wind ratio which may be a result of the preliminary assumptions. A further detailed analysis is required to obtain a specific controlling wind direction and resulting loading envelope. A seismic analysis was carried out under the equivalent lateral force procedure specified in section 9 of ASCE7-02. All seismic factors were chosen through design parameters based upon the building characteristics and location. As a result of the analysis the controlling seismic direction is E-W with a base shear of 2045k.

Design checks upon both gravity and lateral systems were carried out to verify the accuracy of loading assumptions made through code provisions. The 2-way post-tensioned flat slab system was determined acceptable to resist slab moments from typical floor live and dead loads on a typical residential level of the Odyssey. Through the preliminary analysis the slab stresses resulting from post-tensioning maintained values within the ultimate stresses. A column located on the 1<sup>st</sup> level was spot checked to ensure the design reinforcement was adequate to resist accumulated gravity loads over the remaining levels. The loading on the column corresponded closely to given design column load of 2180k and the 12 -#11 bar reinforcement was found adequate up to 2340k. An analysis of the lateral systems will be addressed in the Lateral Systems Analysis and Confirmation Design report. Analysis calculations and observations are found in Appendices A - E as well as descriptive figures of preliminary structural design components and a typical floor plan.

## Structural Systems:

#### Foundation

The primary foundation structures of the Odyssey are concrete footings of various rectangular sizes, depths, and reinforcement throughout the lower garage level footprint. Individual column footings are typical; however 54" deep mat footings distribute larger gravity loads and resist overturning from several integrated shear walls. The primary mat

foundation spans over numerous columns which support shear walls beginning on the 1<sup>st</sup> floor of the building. A second mat footing resists the lateral overturning through core shear walls located around the central elevator shafts depicted in a partial foundation plan shown to the right. Continuous strip footings typically sized at 2'-0" x 1'-4" and support a perimeter bearing wall surrounding the lower garage levels.



#### **Floor Systems**

The floor systems found throughout the Odyssey seemingly vary as much as the space usage in the building. Three distinct systems are noted in the following sections due to size, loading, and use of the supported space:

#### Sub-Level Garage:

The lower garage level (B3) is composed of 4" concrete slab (f'c=5ksi) on grade and reinforced with  $6x6 - w1.4 \times w1.4$  wire mesh on 6mil vapor barrier over 6" compacted gravel with a capacity of 5,500psf.

The remaining lower garage levels through the first floor are primarily 8.5" conventionally reinforced 2-way concrete flat slabs with bottom reinforcement of #4 bars @ 13" o.c. Additional top and bottom reinforcement is specified as needed throughout the floor with varying bar sizes at specified spacing. Drop panels are located at specified

columns and typically extend 4-1/2" below slab with several panels up to 6-1/4" to 8" below the slab. Also found on these floors are reinforced edge beams around larger spans for loading docks, mechanical spaces/shafts, and retail space located on both the upper garage and 1<sup>st</sup> floors. Typical bays sizes for the reinforced 2-way slab system are 25'x25' and 17'x25'.



## $\frac{\text{Tower:}}{2^{nd} - 15^{th}}$

The Odyssey tower is primarily an 8" 2-way post tensioned flat concrete slab (f'c=5ksi) with continuous bottom reinforcement of #4 bars @ 24" o.c in each direction. Negative moment reinforcement of the slab at column junctions is typically #4 bars expanding  $.33l_n$  in both span directions. Added reinforcement at slab openings in the long direction of specified bays is also typically #4 bars. Post tensioning tendons are 7 wire strands spanning columns and mid spans on a typical frame. Floor bays vary in size but 25'x 22' and 25'x



28' are typical with a variation on the 14<sup>th</sup> floor that has post tensioned beams integrated into the 2-way slab to support the rooftop swimming pool. (See Appendix A for a typical floor plan of the  $2^{nd} - 15^{th}$  levels of the Odyssey)

#### 16<sup>th</sup> & Roof

The roof and upper floor system of the western portion of the Odyssey's tower is similar to that of the lower floors, however reinforced concrete edge beams and interior post tensioned beams were included to properly support excess loads from mechanical equipment. Sizes and reinforcement vary between beams and post tension loading varies depending on span and location in the system. The east tower on the  $16^{th}$  level support the pool terrace and is a 11" 2-way post tensioned flat slab(f'c=5ksi) with #5 bars @ 24" o.c. each way and specified areas with added bottom reinforcement typically #5 and #6 bars. Typical floor bay sizes vary with 25'x 22' and 25'x 28' most common throughout these levels.

#### Townhouses

Townhouses which span the length of the site on the east are built integrally with the lower garage levels but do not share the same floor system. The system is 8.5" one-way concrete slab conventionally reinforced with #4 bar @ 13" o.c. and built-in



reinforced edge beams typically 24"x18" and 26"x16" with #6 and #11 reinforcement. Two floor bay sizes are split between the townhouses with 23'x 30' and 19'x 30' spanning the edge beams. The townhouse roof system is also split over the row with the typical one-way concrete slab or cantilevered 12" metal C-joists @ 24" o.c. with metal soffit.

#### **Columns:**

Structural columns of the Odyssey are primarily a simple concrete structure with varied sizes, shapes, and reinforcement dependent on level and location throughout the building. The columns found in the tower of the Odyssey, levels 1-16, support the floor systems and are typically sized at 18"x 26" with #11 bar reinforcement. Round columns are found at the corners of the tower with primarily architectural design influences to not detract from symmetric corner windows with conventional rectangular columns integrated into apartment walls.

The columns located in the lower garage through  $1^{st}$  levels, and partially on  $2^{nd}$  and  $3^{rd}$  levels, serve a dual purpose in the structural design of the Odyssey. Rotated columns are oriented differently at floor slabs, typically rotating 90° from underside to the top side of the floor slab. These columns support the floor systems and are an architectural design to better fit apartment spaces.

Sloping columns are oriented differently from face to face of the slab on the same level. The purpose of these sloping columns is to effectively transmit lateral loads from shear walls and the building edge into the foundation. A further look into the integrated functioning of sloping column and foundation in regard to lateral distribution and moment may provide better analysis of the structures behavior. Both types of columns vary in size with a range in sizes from 18"x 26" to 26" x 42" with #11 bar reinforcement. Column concrete strengths vary by level to resist accumulated gravity loads:

min concrete site	inguis vary by level	i to resist accumula	aleu gravity ioaus.
Levels B3-B1	: f'c = 6000psi	Levels 1-4	: f'c = 8000psi
Levels 5	: f'c = 6000psi	Levels 6-16	: f'c = 5000psi

#### Lateral System:

The lateral resisting systems of the Odyssey are groupings of shear walls placed throughout the floor plan integrated with slab frames. Locations on the exterior wings provide single lateral direction bracing while those at the core provide resistance in both primary directions. The shear walls are depicted below in simplified plans with a generalized description of each wall. *(See Appendix-A for a typical floor plan and shear wall distribution)* 

Shear wall A:

Resists both lateral load directions: North-South & East-West. Location: Surrounds 2 central-north elevator shafts Range: B3 - 4<sup>th</sup> level Size: North-South walls - 1'-2" x 10' Integrated into columns - 14"x 28" Column Reinforcement - 6 #9 bars East-West wall - 10"x17'-10" Wall Reinforcement: #5 & #6 bars @ 12"



#### Shear wall B:

Resists both lateral load directions: North-South & East-West. Location: Surrounds 2 central-south elevator shafts Range: B3 - 4<sup>th</sup> level Size: North-South walls - 1'-2" x 10' Integrated into columns - 14"x 28" Column Reinforcement - 6 #9 bars East-West wall - 10"x17'-0" Wall Reinforcement: #5 & #6 bars @ 12"



Shear wall C, C1: Resists lateral load directions: North-South Location: Surrounding West stair tower. Range: 1st - 16<sup>th</sup> level C1 terminates at 10<sup>th</sup> level Size: North-South walls - 10"x 13'-10.5" Ends attached to columns – 18"x 26" and 24"x 24" Column Reinforcement – (varies) #11 bars Wall Reinforcement: #5 & #6 bars @ 12"

Shear wall E:

Resists lateral load directions: North West-South East Location: Column line X4 - North side of East tower Range: 1st - 14<sup>th</sup> level Size: North-South walls - 10"x 29'-5" Ends attached to columns – 18"x 26" Column Reinforcement – (varies) #11 bars Wall Reinforcement: #5 & #6 bars @ 12"

Codes and Requirements: The Odyssey is designed under: The 1996 BOCA National Building Code The 1996 Virginia Uniform Statewide Building Code with 2000 Amendments Concrete construction in accordance with: American Concrete Institute 318 - "Reinforced Concrete Design" American Concrete Institute 301 – "Specification for Structural Concrete" Building Officials and Code Administrators (BOCA) - Latest Edition Steel construction in accordance with: Building Officials and Code Administrators (BOCA) American Institute of Steel Construction Manual – Allowable stress design (ASD) Masonry construction in accordance with: Building Officials and Code Administrators (BOCA) "Building Code Requirements for Masonry Structures and Specifications for Masonry Structures" - ACI-530 / ACI-530.1 Material strength and details in accordance with: ASTM Standards – Properties of Building Materials

#### Gravity and Lateral Loads:

The gravity and lateral loads for structural analysis were determined in accordance with ASCE7-02. General assumptions for several dead loads were made with interpretation of details and structural component averages. Load factors and adjustments are used when appropriate according to provisions of ASCE7-02 for the analysis of structural components and systems. A list of relevant gravity loads follow:

Gravity: (psf)	)	
Floor l	Live:	
	Residential Units & Corridors	40
	Public Areas	100
	Mech. Room	150
	Pool Terrace	100
	Parking Garage	50
	Stairs and Exits	100
Roof Live:		
	Min. Roof Live Load	30
Roof S	Snow:	
	Roof Snow Load	21
Floor l	Dead:	
	Concrete Slab	100 –150 (varied thickness 8"-12")
	Partitions	8
	Flooring	4
	Ceiling	5
	Mechanical	10
	Beams/Columns	(* varies)

#### Lateral:

A summary of lateral loads calculated in accordance with ASCE7-02 design provisions are presented in the following sections. Refer to Appendices B & C for further detailed procedure and analysis of calculations including generalized assumptions.

#### Wind:

ASCE7-02 Section 6

Wind loads were determined for the Odyssey under the analytical procedure of Section 6, ASCE7-02. General assumptions for the preliminary analysis include simplifying the Odyssey's irregular shape into a general rectangular dimension for accordance of shape limitations set forth by the analytical procedure. Analysis factors were determined through ASCE7-02 references and are detailed in the analysis located in Appendix-B. The factors are dependent on building location, characteristics, and predetermined factors outlined on the structural prints. Building rigidity of both wind loading directions were found to be rigid through generalized and detailed analysis of the fundamental period. (*The fundamental period calculation is found in Seismic Analysis section: Appendix C*)

The windward pressures found through the analytical procedure are low by a comparison ratio to the leeward pressure. Discrepancies in procedure or calculation errors were unable to be found upon review of the analysis. Further investigation into wind loading will be dealt with in a later technical report regarding lateral design. The wind loading was determined not to control the lateral design of the Odyssey.

	Wind	lward	Leev	ward	Total M	IWFRS	
Z(ft)	N-S	E-W	N-S	E-W	N-S	E-W	
0-15	5.18	5.18	-6.50	-6.47	11.68	11.65	
20	5.63	5.63	-6.50	-6.47	12.13	12.11	
25	6.00	6.00	-6.50	-6.47	12.50	12.47	
30	6.36	6.36	-6.50	-6.47	12.86	12.84	
40	6.91	6.91	-6.50	-6.47	13.40	13.38	
50	7.36	7.36	-6.50	-6.47	13.86	13.84	
60	7.72	7.72	-6.50	-6.47	14.22	14.20	
70	8.09	8.09	-6.50	-6.47	14.59	14.56	
80	8.45	8.45	-6.50	-6.47	14.95	14.93	
90	8.72	8.72	-6.50	-6.47	15.22	15.20	
100	9.00	9.00	-6.50	-6.47	15.49	15.47	
120	9.45	9.45	-6.50	-6.47	15.95	15.93	
140	9.91	9.91	-6.50	-6.47	16.40	16.38	
160	10.27	10.27	-6.50	-6.47	16.77	16.74	
180	10.63	10.63	-6.50	-6.47	17.13	17.11	
167	10.40	10.40	-6.50	-6.47	16.89	16.87	

#### Wind Pressure Envelope

#### N-S Distribution (Controlling direction)



#### Seismic:

#### ASCE7-02 Section 9

Seismic loads were determined through the equivalent lateral force procedure outlined in Section 9 of ASCE7-02. All relevant factors and accelerations were found in figures and tables of section 9, which are outlined in the seismic analysis section located in Appendix C. Building and floor weights are based on assumptions of design dead loads according to load provisions of ASCE7-02.

The base shear was 2045 kips in both loading directions with an overturning moment of 215347 ft-k. The base shear to building weight ratio is approximately 4%. The analysis results can be considered acceptable for a low seismic region.

#### Vertical Distribution of Seismic

(E-W)

					Load	Shear	Moment
E-W	W <sub>x</sub>	h <sub>x</sub>	w <sub>x</sub> h <sub>x</sub> <sup>k</sup>	C <sub>vx</sub>	F <sub>x</sub>	V <sub>x</sub>	M <sub>×</sub>
Level, x	(kips)	(ft)			(kips)	(kips)	(ft-kips)
Roof	1507	163	732,728	0.068	139		22,730
16	2460	147.1	1,055,881	0.098	201	139	29,559
15	3253	136.1	1,270,351	0.118	242	340	32,904
14	2978	125.3	1,051,948	0.098	200	582	25,085
13	3379	116	1,086,958	0.101	207	782	23,996
12	3379	106.63	981,264	0.091	187	989	19,913
11	3379	97.3	877,986	0.082	167	1,176	16,258
10	3379	88	777,134	0.072	148	1,343	13,015
9	3379	78.64	677,920	0.063	129	1,491	10,146
8	3379	69.31	581,518	0.054	111	1,620	7,670
7	3379	60	488,065	0.045	93	1,731	5,573
6	3379	50.65	397,302	0.037	76	1,824	3,830
5	3379	41.32	310,263	0.029	59	1,899	2,440
4	3379	32	227,459	0.021	43	1,958	1,385
3	3379	22.66	149,573	0.014	28	2,001	645
2	3379	13.33	78,520	0.007	15	2,030	199
1						2,045	
	$\Sigma =$		$\Sigma =$	$\Sigma =$	$\Sigma =$		$\Sigma =$
	50748		10744870	1.000	2045		215347

#### **E-W Distribution**

	roof				139 K
	level 16	)		,	201 K
			level 15	/	 242 к
			level 14	,	 200 к
			level 13	/	 207 к
			level 12	/	187 K
			level 11	/	167 K
			level 10	/	148 K
			level 9	/	129 k
			level 8	/	111 K
			level 7	/	93 K
			level 6	/	76 K
			level 5	/	59 K
			level 4	/	43 K
			level 3	/	28 K
			level 2		15 K
			level 1		2045 H

#### **Preliminary Analysis / Spot Check Summary:**

#### Gravity

#### Post-Tensioned 2-way Concrete Slab:

A preliminary structural analysis of a 8" 2-way post-tensioned concrete flat slab was carried out under generalized assumptions to better understand the design effects of post-tensioning reinforcement. A typical floor bay was determined to be 25'x 22' excluding the edge panel balcony sections. Slab moments were resolved for residential and corridor live loads with standard dead loads for typical residential levels. Slab moments and calculations can be referenced in Appendix D. Standard top and bottom slab reinforcement of #4 bars was analyzed for resisting the slab moments and was inadequate in mid span and support strips. As a result, post tensioning is required through the slab to maintain an 8" depth with minimal #4 bar reinforcement. The designed 7 wire strand reinforcing tendons are tensioned to 509k in the long frame direction over columns, and 1300k in the short direction through the mid span. The post tensioning analysis was carried out by calculating the slab stresses at both service and initial loading stages and then compared to the ultimate slab stresses. The post tensioning design was adequate to resist the slab moments with resulting stress calculations maintained within initial and service stresses. (Details of calculations and findings of the post tensioned slab analysis are found in Appendix E)

#### Column:

The structural spot check was carried out with a typical 18"x26" column on the 1<sup>st</sup> level of the Odyssey. The column has a tributary area of 625 S.F. and is located at the intersection of column lines F & 7.5. Gravity loads of the remaining levels were calculated to the column including typical floor and roof loads. The axial load resolved on the column was 2162k, which is reasonable for design assumptions of building loads compared to the actual 2180k on the column. The CRSI Design Handbook was used to reference the adequate column reinforcement for a 18"x26" column with design strength of f'c = 8ksi. The given reinforcement of 12 - #11 bars is capable of carrying a design load of 2340k. The typical reinforcement design size in columns throughout the building is determined adequate by spot check requirements for loading assumptions and provisions of ASCE7-02.

#### Lateral

#### Shear Wall:

Due to the complexity of the lateral systems, the analysis and spot check of the shear walls will be addressed in the Lateral Systems Analysis and Confirmation Design report.

#### **Conclusions/Summary:**

The Odyssey is a multifaceted building including underground parking, retail stores, and 15 levels of residential apartments/condominiums. The existing gravity structural system is 2-way post tensioned flat slab for residential levels and 2-way flat slab with drop panels for the parking levels. The lateral systems are shear walls located at the building core and on the exterior wings integrated with slab frames composed of the concrete columns and 2-way flat slab floor system. Lateral loads were determined in accordance with provisions and design procedures of ASCE7-02 and it was found that seismic loads control the Odyssey's lateral design.

Design checks upon both gravity and lateral systems were carried out to verify the accuracy of loading assumptions made through code provisions. The 2-way post-tensioned flat slab system was determined acceptable to resist slab moments from typical floor live and dead loads on a typical residential level of the Odyssey. Through the preliminary analysis the slab stresses resulting from post-tensioning maintained values within the ultimate stresses. A column located on the 1<sup>st</sup> level was spot checked to ensure the design reinforcement was adequate to resist accumulated gravity loads over the remaining levels. The loading on the column corresponded closely to given design column load of 2180k and the 12 -#11 bar reinforcement was found adequate up to 2340k. An analysis of the lateral systems will be addressed in the Lateral Systems Analysis and Confirmation Design report. Analysis calculations and observations are found in Appendices A - E as well as descriptive figures of preliminary structural design components and a typical floor plan.

# Appendix

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Appendix – A	 Floor Plan
Appendix – B	 Wind Analysis
Appendix – C	 Seismic Analysis
Appendix – D	 Snow Load
Appendix – E	 Gravity Load Check

## **References:**

CRSI Design Handbook 2002

ASCE7-02 Design Code



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$\begin{array}{llllllllllllllllllllllllllllllllllll$	BASIC WIND SPEED: V= 80	МРН	6.	5.4
- BIELDTUCS : Man Word FLORE REDSTRUC SHERE TABLE 6.4 IMADETALES FACTOR : I = 1.0 - CONTRELETED SET SPECE. ENDOURE CATEOURY: ERDIE B - UREND CONDITION CHEMICS (SUTTLE RUMMES) 6.5.6.7 - UREND CONDITION CHEMICAL (ENDORE CATS) 7.8 VELOCITY PRESENCE ENDOLE CORFERENCE K, K. 6.5.6.6 - a) ALL MURES TO OTHER STORE TABLE 6-7 - b) ALL MURES TO OTHER STORE TABLE 6-7 - CONSEL A Z1 & & A A C I & ZMEN 4 B 7.0 1200 UN DAY STORES - ASSUME CONSTRUTS 6.5.6 - ASSUME FLAT: SCREE DESCRETTION 4.5.7.1 - ASSUME FLAT: SCREE DESCRET - (1+1.7.1) SE - 0.8 - (1+1.7.1) SE - 0.8 - (1+1.7.1) SE - 0.8 - (1-1) - (1-	WIND DIRECT EDNALTING EDITING! KAI = 0	.95	6.5	.4.4
$\begin{split} & \text{IMPRETALLE FACTOR ! I = 1.0} & 6.5.5 \\ & \text{CONSTRUCTION SET SPRCE,} \\ & \text{ENDERE CATEGORY ! ERBER B & 6.5.6 \\ & \text{UZBAN AND SUPPOAR AREAS (SUPPE Runness)} & 6.5.6.7 \\ & \text{UPDEND CONSTRUCTION UNLINED (ENDERE CATE)} & 6.5.6.5 \\ & \text{UPDEND CONSTRUCTION UNLINED (ENDERE CATE)} & 6.5.6.5 \\ & \text{UPDEND CONSTRUCTS UNLINED (ENDERE CATE)} & 6.5.6.5 \\ & \text{UPDEND CONSTRUCTS UNLINED (ENDERE CATE)} & FABORE 6.5 \\ & \text{AI AU MURES TO OTHER SISTES} & \text{TRECE 6.5 } \\ & \text{TERCADE E RODUCE CONSTRUCTS } & 6.5.6 \\ & \text{ERDSURE ENDERE CONSTRUCTS } & 6.5.6 \\ & \text{URL MURES TO OTHER SISTES} & \text{TRECE 6.7 } \\ & \text{TERCADE E ARDOLDE CONSTRUCTS } & 6.5.6 \\ & \text{URL MURES TO OTHER SISTES} & \text{TRECE 6.7 } \\ & \text{TRECE 6.7 } & \text{TRECE 6.7 } \\ & \text{TRECE CONSTRUCTS } & 6.5.6 \\ & \text{URL MURES TO OTHER SISTES } & \text{TRECE 6.7 } \\ & \text{TRECE CONSTRUCTS } & 6.5.6 \\ & \text{URL MURES TO OTHER SISTES } & \text{TRECE 6.7 } \\ & \text{TRECE ARDOLDE CONSTRUCTS } & 6.5.6 \\ & \text{URL MURES TO OTHER SISTES } & 0.60 \\ & \text{TRECE CONSTRUCTS } & 6.5.7.1 \\ & \text{ODOCCAPTIC FACTOR : } & KZL = 1.0 \\ & \text{ASSUME FACTOR : } & KZL = 1.0 \\ & \text{ASSUME FACTOR : } & KZL = 1.0 \\ & \text{ASSUME FACTOR : } & KZL = 1.0 \\ & \text{ASSUME FACTOR : } & KZL = 1.0 \\ & \text{ASSUME FACTOR : } & KZL = 1.0 \\ & \text{ASSUME FACTOR : } & KZL = 1.0 \\ & \text{ASSUME FACTOR : } & KZL = 1.0 \\ & \text{ASSUME FACTOR : } & KZL = 1.0 \\ & \text{ASSUME FACTOR : } & KZL = 1.0 \\ & \text{ASSUME FACTOR : } & KZL = 1.0 \\ & \text{ASSUME FACTOR : } & KZL = 1.0 \\ & \text{ASSUME FACTOR : } & KZL = 1.0 \\ & \text{ASSUME FACTOR : } & KZL = 1.0 \\ & \text{ASSUME FACTOR : } & KZL = 1.0 \\ & \text{ASSUME FACTOR : } & KZL = 1.0 \\ & \text{ASSUME FACTOR : } & KZL = 1.0 \\ & \text{ASSUME FACTOR : } & KZL = 1.0 \\ & \text{ASSUME FACTOR : } & \text{ASSUME FACTOR : } & \text{ASSUME FACTOR : } \\ & \text{ASSUME FACTOR : } & \text{ASSUME FACTOR : } & \text{ASSUME FACTOR : } \\ & \text{ASSUME FACTOR : } & \text{ASSUME FACTOR : } & \text{ASSUME FACTOR : } \\ & \text{ASSUME FACTOR : } & \text{ASSUME FACTOR : } & \text{ASSUME FACTOR : } \\ & \text{ASSUME FACTOR : } & \text{ASSUME FACTOR : } & \text{ASSUME FACTOR : } \\ & \text{ASSUME FACTOR : } & \text{ASSUME FACTOR : } \\ &$	- BUTLOTHES: MAN WEND FUELE	REESSTONG SYSTE	on TABLE	= 6-4
$\begin{array}{cccccccccccccccccccccccccccccccccccc$				
$ - Generations Set SPECS, $ $ = Generations Set SPECS, $ $ = Generations Set Specs, $ $ = Generation Set Second Referes (Sience Releases) = G.5.6.2 \\ = Operation Conditions interaction (Exposure Cores) = G.5.6.3 \\ = Operation Conditions interaction (Exposure Cores) = G.5.6.3 \\ = Operation Conditions interaction (Exposure Cores) = G.5.6.3 \\ = Operation Conditions interaction (Exposure Cores) = G.5.6.3 \\ = Operation Conditions interaction (Exposure Cores) = G.5.6.3 \\ = Operation Conditions interaction (Exposure Cores) = G.5.6.3 \\ = Operation Conditions interaction (Exposure Cores) = G.5.6 \\ = Operation (Exposure Constraints) = G.5.6 \\ = Operation (Exposure Fical (Exposure Fical (Exposure Fical (Exposure Fical (Exposure Fical (Exposure Fical (Exposure Constraints) = G.5.7.1 \\ = Operation (Exposure Fical (Exposure Fical (Exposure Fical (Exposure Fical (Exposure Constraints) = G.5.8 \\ = Operation (Exposure Fical (Exposure Fical (Exposure Fical (Exposure Constraints) = G.5.8.1 \\ = Operation (Exposure Constraints) = Oper$	IMPUERANCE FACTOR ! I=1.C		6.5	.5
$ \begin{array}{c} \text{Exposure Catterous Y}: & \text{Errore B} & \text{G.S.G} \\ & \text{UZERNJ AND SEVERAN ARTAS (SUCKE RUMUSS)} & \text{G.S.G.S} \\ & \text{Uputur D} & \text{Constrains uncleared} & (Exposer Catts) & \text{G.S.G.S} \\ & \text{Uputur D} & \text{Constrains uncleared} & (Exposer Catts) & \text{G.S.G.S} \\ \hline & \text{G.S.G.S} & \text{Exposer Catts} & \text{K.K.} & \text{G.S.G.S} \\ \end{array} \\ \hline & \text{JAU MUFRS IN BUSINEE COEFFICIENT K_{S}Kn & \text{G.S.G.S} \\ \hline & \text{JAU MUFRS IN OTURISSIES CASE 2:1 TOESTONS} & \text{K.K.} \\ \hline & \text{Errossere B} \\ \hline & \text{Teronal Inverses Into otures systems} & \text{G.S.G.} & \text{Heller} \\ \hline & \text{Terossere Constraints} & \text{G.S.G.} & \text{Heller} \\ \hline & \text{Terossere A Z1 & G & G & J & C & J & Z \\ \hline & \text{Toestons} & \text{Table G-7} & \text{O.55} \\ \hline & \text{Ressure Constraints} & \text{G.S.G.} & \text{Heller} \\ \hline & \text{Terossere A Z1 & G & G & J & C & J & Z \\ \hline & \text{Toestons} & \text{Table G-7} & \text{O.55} \\ \hline & \text{Ressure Constraints} & \text{G.S.G.} & \text{Heller} \\ \hline & \text{Table G-7} & \text{O.56} \\ \hline & \text{Table G-7} & \text{O.57} \\ \hline & \text{Torossere A Z1 & G & G & J & C & J & Z \\ \hline & \text{Ressure Constraints} & \text{G.S.G.} & \text{Heller} \\ \hline & \text{Table G-7} & \text{O.56} \\ \hline & \text{A Zamos O.66h > Zames = 30'} \\ \hline & Torossere Produce FLAT: Score Distributive four $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $$	- CONSTRUCTION SET SPECE,			
Expose 2 Construct of the B (3.5.6) - UZBAN AND SUBPORAN AREAS (SUCHE RUMPS) (5.5.6.7 - UPWIND CONDITION ONCOMPLANCED (EXPOSED CASS) (5.5.6.7 - UPWIND CONDITION ONCOMPLANCED (EXPOSED CASS) (5.5.6.7 - a) ALL MUTRES TO BUSICOUS CASE 2: ITOUSTON K.K. (6.5.6.6) TERRADU EXPOSURE CONSTRUCTS (6.5.6) TERRADU EXPOSURE CONSTRUCTS (6.5.6) HELE CONSTRUCTS (6.5.7) REPOSURE A Z1 & G & C & E ZAMON TOROCLAPHIC FACTOR ! KZL = 1.0 (6.7.7.2) SO 0.60 H ZMON = 0.6h > ZAMON = 30' HO 0.76 TOROCLAPHIC FACTOR ! KZL = 1.0 (6.7.7.2) SO 0.61 - ASSUME FLAT : SCORE DISCONTINCE (6.5.7) KZL = (1+K,KLS) FILE (6.4) SO 0.45 KZL = (1+K,KLS) FILE (6.4) SO 0.45 KZL = (1+K,KLS) FILE (6.5) KZL = (1/(2/33)) = 4(63.38) FILE (6.4) DO 0.49 HO 1.09 LZ = 1(Z/33)) = 4(63.38) FILE (6.7) INT Q = (1) (10) ITZ = (33/Z) <sup>16</sup> = 0.25 FILE (6.5) FILE (24) <sup>15</sup> (10) ITZ = (33/Z) <sup>16</sup> = 0.25 FILE (7) ST 0.005 KZL = (1+1.779) IZ 0.0 (1) HO 1.17 KZL = (1+1.779) IZ 0.0 SO 0.65 KZL = (1+1.779) IZ 0.0 (1) HO 1.17 KZL = (1+1.779) IZ 0.0 KZL = (1+1.779) I				
- UZBAN AND SIEVERAN AREAS (SUCHE RIEWAS) - UPWEND CONDITION UNCLANCED (ENDONE CATS) - UPWEND CONDITION UNCLANCED (ENDONE CATS) YELDOCTAR PRESSURE EXPLOSIBLE COEFFICIENT K2, Kn 6.5.6.0 ERDOSIZE B - a) ALL MURSS IN OTHER SYSTES TERRATU ENDONE CONSTRAITS 6.5.6 TABLE 6-3 * b) ALL MURSS IN OTHER SYSTES TERRATU ENDONE CONSTRAITS 6.5.6 HERE 6-3 * C. I. E. ZINNOF B 7.0 1200 147 0341 144,0 030 320 1320 100.2 * ZMON = 0.6h > ZMON = 30' TODOCEARTIC FACTOR Y KZL = 1.0 6.7.7.2 SO 0.61 * ZMON = 0.6h > ZMON = 30' TODOCEARTIC FACTOR Y KZL = 1.0 6.7.7.2 SO 0.84 SO 0.70 KZL = (1+K, KLKS) FICE 6-4 B - 204' h = 167' KZL = 1.0 6.5.8.1 B - 204' h = 167' KZ = (1, Z/33) <sup>E</sup> = 463.38 FQ - 6-7 ID 1.17 Q = $\begin{bmatrix} 1 \\ 1+0.53(B+n)^{005} \\ LZ \end{bmatrix}$ = 0.8 FUN 6-5 KZ = 0.025 KZ = 0.025 K2 = 0.	EXPOSURE CATEGORY: ERDER B		6.5.	6
- Upwerd conditions included (Exposed Cars) 6.5-6.5 Verify Pressure Exposure Corrections K, K, 6.5.6.6 - a) All MUTRES to BUZLOUS CASE 2: TONORE - b) All MUTRES to OTHER STORES TERNATU EXPOSURE CONSTRANTS 6.5.6 TERNATU EXPOSURE CONSTRANTS 6.5.6 - $\frac{1}{4}$ ( $\frac{1}{4}$ ) $\frac{1}{6}$ ( $\frac{1}{6}$ ) $\frac{1}{7}$ ( $\frac{1}{7}$ ) $\frac{1}{7}$	- URBAN AND SUBURDAN AREAS	(SURFACE RUCHUESS)	6.5.	6.2
$\begin{array}{ccccc} & & & & & & & & & & & & & & & & &$	- UPWEND CONDITION UNKNAMED	(ExPUDDER CATS)	0.2-	0.5
$\begin{array}{cccc} & Yelderry Pressure E Explose E Coefferent K2, Kn & D. 2.6.0 \\ & ERDSURE B \\ - a) All MUFRS TO BUELOUS CASE 2: TOUSTED \\ \hline Di All MUFRS TO OTHER STOTS & CASE 2: TOUSTED \\ \hline Di All MUFRS TO OTHER STOTS & CASE 2: TOUSTED \\ \hline TABLE 6-7. & TABLE 6-7. & O.57 \\ \hline DI ALL MUFRS TO OTHER STOTS & G. 5.6 \\ \hline TABLE 6-7. & O.57 \\ \hline DI DOLDAR V7 ASHI V4.0 030 320 V3.0 & 100.2 \\ \hline A ZMEU = 0.6h > ZMEU = 30' & 40 & 0.76 \\ \hline TO TO COLORAPTIC FACTOR : KZL = 1.0 & G.7.7.2 & S0 & 0.61 \\ - ASSUME FLAT : SLOPE DISCUETCANT > G. 5.7.1 & 60 & 0.85 \\ K_{ZL} = (1+K, K_{L}K_{S})^{C} & FILE 6-4 & 80 & 0.96 \\ \hline S RSOTD STRUCTES NL 2100 & G.5.8 & 90 & 0.91 \\ \hline B = 224' & h = 167' & 120 & G.5.8.1 & 100 & 0.99 \\ \hline L_{Z} = J(Z/33)^{E} = 463.38 & Fu. 6-6 & KRONDETT \\ \hline I = 0.85 & Fu. 6-6 & KRONDETT \\ \hline I = 0.85 & Fu. 6-6 & KRONDETT \\ \hline I = 0.85 & Fu. 6-6 & KRONDETT \\ \hline I = 0.25 & Fu + 6-5 & x = 0.75 \\ \hline I_{Z} = 0.95 & Fu + 6-5 & x = 0.75 $		K K	1 = 1	6.6
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	VELOCITY PRESSURE EXPLOSURE COEFFICI	Fry Kz, Kn	0.2.0	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	E.R.S.	JEE B ILWORE	TABO	6 6.2
$TEPRATU = APRODURE CONSTRUTS 6.5.6  TEPRATU = EAPRODURE CONSTRUTS 6.5.6  TABLE 6-2 0-5 0.57  TO DOG APHIC FACTOR 1 1/4.0 030 320 1/3.0 100.2 25 0.66  A ZMOU = 0.66 > ZMOU = 30' 20 0.62 25 0.66  A ZMOU = 0.66 > ZMOU = 30' 20 0.62 25 0.66  A ZMOU = 0.66 > ZMOU = 30' 20 0.62 25 0.66  A ZMOU = 0.66 > ZMOU = 30' 20 0.62 25 0.66  A ZMOU = 0.66 > ZMOU = 30' 20 0.62 25 0.66  A ZMOU = 0.66 > ZMOU = 30' 20 0.62 25 0.66  A ZMOU = 0.66 > ZMOU = 30' 20 0.62 25 0.66  A ZMOU = 0.66 > ZMOU = 30' 20 0.62 25 0.66  A ZMOU = 0.66 > ZMOU = 30' 20 0.62 25 0.66  A ZMOU = 0.66 > ZMOU = 30' 20 0.62 25 0.60  A ZMOU = 0.66 > ZMOU = 30' 20 0.62 25 0.60  A ZMOU = 0.66 > ZMOU = 30' 20 0.62 25 0.60  A ZMOU = 0.66 > ZMOU = 0.65 8 40 0.45  A ZMOU = 0.65 M, 21.0 6.5 8.1 100 0.49  B = 224' h = 167' 120 6.5 8.1 100 0.49  U10 1.09  Lz = 1(Z/33)^{E} = 463.38 E0.6-7 100 1.13  A = \left[\frac{1}{1+0.63} \frac{(B+h)^{003}}{(Lz)}\right]^{1/2} = 0.8 E0.6-6  Fa + 6-5  Fz = 0.75  Tz = C(33/z)^{1/6} = 0.25 E0 + 6-5  Fz = 0.75  Tz = C(33/z)^{1/6} = 0.25 E0 + 6-5  Fz = 0.75  Tz = C(44^{2})^{-1} = 0.85  Fz = 0.75  Tz = 1.07 21.0  RED = 0.05 $	- a) ALL MUTKS E ISJELDES CASE	E d' TOESTON	K	K
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Of ALL MUTICS IN OTHER SYSTERS		E.o.e.	RE: B
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	TEORATAL ELONGE CONSTANTS	656	4.121	CASE 2
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	TEDUTO EXTUDUCE CONSTANTS	TARE 6-2	0-15	0.57
B       7.0       17       0341       1/4.0       030       320       1/3.0       100.2       25       0.66         #       Zmou = 0.6h > Zmus = 30'       40       0.76       30       0.67.7.2       30       0.66         Image: Construct = 0.6h > Zmus = 30'       40       0.76       50       0.61         Image: Construct = 0.6h > Zmus = 30'       40       0.76       50       0.61         Image: Construct = 0.6h > Zmus = 30'       40       0.76       50       0.61         Image: Construct = 0.6h > Zmus = 30'       40       0.76       50       0.61         Image: Construct = 0.6h > Zmus = 30'       50       6.5.7.1       50       0.61         Image: Construct = 0.6h > Zmus = 30'       Free 6-4       50       0.85       0.85         Ket = (I+K, K_1K_3)       Free 6-4       50       0.85       0.96         Gust Effect Factore       6.5.8       90       0.96       90       0.96         # Resourd Streamers       1.67'       1.21.0       6.5.8.8.1       100       0.97         Image: Construct = 5       1.21.0       6.5.8.5.8.1       100       1.13       100         Image: Construct = 5       1.21.0       1.21.0       1.17 <td>EXPOSE &amp; ZA &amp; B &amp; Z C O</td> <td>E Znev +</td> <td>20</td> <td>0.62</td>	EXPOSE & ZA & B & Z C O	E Znev +	20	0.62
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	B 20 1200 117 0841 1/4 0130 320	1/20 100.2	25	0.66
$ \begin{array}{c} 1000000000000000000000000000000000000$	+ Z	0.01	30	0.70
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	· EMEN · DIGVI / CINE- VO		40	0.76
- Assume FLAT: SLOPE INSUMERICANT -> 6.5.7.1 60 0.85 $K_{zt} = (1+K_1K_2K_3)^{-1}$ FIG 6-4 70 0.84 $K_{zt} = (1+K_1K_2K_3)^{-1}$ FIG 6-4 80 0.45 GUST EFFECT FACTOR 6.5.8 90 0.46 * REDOLD STRUCTURES 1.21.0 6.5.8.1 100 0.99 B = 224' h = 167' 100 1.13 $L_z = l(z/33)^{\overline{E}} = 463.38$ Fa.6-7 160 1.13 $Q = \begin{bmatrix} 1 & -7^{1/2} & -$	TODY PAPHER FACTOR : KTL=1.0	6.7.7.2	50	0.81
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	- ASSUME FLAT : SLOPE IN SCHEFTCAN	5-> 6.5.7.1	60	0.85
GUST EFFECT FACTOR       6.5.8       90       0.96         * REATE STRATES TO STRATES N, 21.0       6.5.8       90       0.96         B= 224' h= 167'       100       0.99         Lz = $l(\overline{z}/33)^{\overline{z}} = 463.38$ Eq. 6-7       100       1.09         Lz = $l(\overline{z}/33)^{\overline{z}} = 463.38$ Eq. 6-7       100       1.13         Q = $\left[\frac{1}{1+0.63}\left(\frac{B+n}{L_{\overline{z}}}\right)^{005}\right]^{1/2}$ = 0.8       Eu. 6-6'       * RECOTOTY         C4 = 0.02       h = 167'       100       1.13       100       1.17         Q = $\left[\frac{1}{1+0.63}\left(\frac{B+n}{L_{\overline{z}}}\right)^{005}\right]^{1/6} = 0.25$ Eu. 6-6'       * RECOTOTY       C4 = 0.02         M = 167'       Tz = c (33/z)^{1/6} = 0.25       Eu. 6-5'       * = 0.75       Tz = 0.75         Tz = c (33/z)^{1/6} = 0.25 [(1+1.79aT_{\overline{z}} Q)] = 6.8157       Eq. 6-4'       I= 1.07 z 1.1' $\gamma = 9_V, 9_{\overline{z}} = 3.4'$ = 0.85'       * SEE SNEARL       RICTOTY	$K_{74} = (1 + K_1 K_2 K_3)^2$	FIG 6-4	76	0.89
GUST EFFECT FACTOR       6.5.8       90       0.96         * REVERS STRUCTURES 1, 21.0       6.5.8.1       100       0.99         B= 224' h= 167'       100       1.04       100       1.04         Lz = $l(z/33)^{E} = 463.38$ Fa.6-7       160       1.13         Q = $\left[\frac{1}{1+0.63}\left(\frac{B+h}{Lz}\right)^{003}\right]^{1/2}$ = 0.8       Fa.6-7       160       1.13         Q = $\left[\frac{1}{1+0.63}\left(\frac{B+h}{Lz}\right)^{003}\right]^{1/2}$ = 0.8       Fa.6-6       * REVENDENT         C4 = 0.02       H = 167'       X = 0.75       X = 0.75         Tz = C(33/z)^{1/6} = 0.25       Fa + 6-5       X = 0.75         Tz = C(33/z)^{1/6} = 0.25       Fa + 6-5       X = 0.75         Tz = 0.025 $\left(\frac{1+1.79a}{1+1.79v} \overline{z}\right)^{-1}$ 0.85       X = 0.75         Y = 0.025 $\left(\frac{1+1.79v}{1+1.79v} \overline{z}\right)^{-1}$ 0.85       X = 0.75         Y = 0.025 $\left(\frac{1+1.79v}{1+1.79v} \overline{z}\right)^{-1}$ 0.85       X = 0.75         Y = 0.025 $\left(\frac{1+1.79v}{1+1.79v} \overline{z}\right)^{-1}$ 0.85       X = 0.75         Y = 0.025 $\left(\frac{1+1.79v}{1+1.79v} \overline{z}\right)^{-1}$ 0.85       X = 0.75         Y = 0.025 $\left(\frac{1+1.79v}{1+1.79v} \overline{z}\right)^{-1}$ 0.85       X = 0.75			80	0.93
* REVERS STRUCTURES 1, 21.0 6.5.8.1 100 0.99 B= 224' h= 167' 100 1.09 $L_z = l(z/33)^{\overline{e}} = 463.38$ Eq. 6-7 160 1.13 $Q = \begin{bmatrix} 1 \\ 1+0.63(\frac{B+h}{L_z})^{003} \end{bmatrix}^2 = 0.8$ Eq. 6-7 160 1.13 $Q = \begin{bmatrix} 1 \\ 1+0.63(\frac{B+h}{L_z})^{003} \end{bmatrix}^2 = 0.8$ Eq. 6-6 * REVERTING $L_z = c(33/z)^{16} = 0.25$ Eq. 6-6 * REVERTING $T_z = c(33/z)^{16} = 0.25$ Eq. 6-6 * $T_z = 0.02$ $T_z = c(33/z)^{16} = 0.25$ Eq. 6-6 $T_z = 0.75$ $T_z = c(33/z)^{16} = 0.25$ Eq. 6-6 $T_z = 0.75$ $T_z = c(33/z)^{16} = 0.25$ Eq. 6-6 $T_z = 0.75$ $T_z = c(33/z)^{16} = 0.25$ Eq. 6-6 $T_z = 0.75$ $T_z = c(33/z)^{16} = 0.25$ Eq. 6-6 $T_z = 0.75$ $T_z = c(33/z)^{16} = 0.25$ Eq. 6-6 $T_z = 0.75$ $T_z = c(33/z)^{16} = 0.25$ Eq. 6-6 $T_z = 0.75$ $T_z = c(33/z)^{16} = 0.25$ Eq. 6-6 $T_z = 0.75$ $T_z = 0.75$ $T_z = 0.75$ $T_z = 0.75$ $T_z = 0.75$ $T_z = 0.75$	GUST EFFECT FACTOR	6.5.8	90	0,96
$B = 224'  h = 167' \qquad 120  1.04 \\ 140  1.09 \\ 140  1.09 \\ 140  1.09 \\ 140  1.09 \\ 140  1.09 \\ 140  1.17 \\ 180  180  180 \\ 180  180  180  180 \\ 180  18$	* REVERS STRUCTURES 1, 21.0	6.5.8.1	100	0.99
$L_{\overline{z}} = \int (\overline{z}/33)^{\overline{z}} = 463.38 \qquad F_{\overline{u}}.6-7 \qquad 100 \qquad 1.09 \\ 1.09 \qquad 1.09 \qquad 1.09 \\ 1.00 \qquad 1.13 \\ 100 \qquad 1.17 \\ 100 \qquad 100 \qquad 100 \\ 100 \qquad 100 \\ 100 \qquad 100 \qquad 100 \\ 100 $	B= 224' h= 167'		120	1.04
$L_{z} = l(\overline{z}/33)^{e} = 463.38 \qquad Eq. 6-7 \qquad 100 \qquad 1.13 \\ RO \qquad 1.17 \qquad Rectar = \left[\frac{1}{1+0.63}\left(\frac{B+h}{2z}\right)^{1/2}\right] = 0.8 \qquad Eq. 6-6 \qquad * Rectar OFT \\ C_{4} = 0.02 \qquad h = 167' \\ T_{\overline{z}} = c(33/\overline{z})^{1/6} = 0.25 \qquad Eq. 6-5 \qquad * = 0.75 \\ T_{\overline{z}} = 6.925\left[\frac{(1+1.79aT_{\overline{z}}a)}{1+1.79vT_{\overline{z}}}\right] = 6.8157  Eq. 6-41 \qquad f_{\overline{z}} = 1.07 \ z_{1.7} \\ \Rightarrow 9v, 9v_{\overline{z}} = 3.4 \qquad = 0.85 \qquad * SEE SNEAR \\ RICTOTT \end{cases}$			140	1.09
$Q = \begin{bmatrix} 1 \\ 1 + 0.63 (\frac{B+n}{L_{z}})^{1/2} \\ = 0.8 \\ = 0.8 \\ = 0.02 \\ M = 167' \\ T_{z} = c (33/z)^{1/6} = 0.25 \\ G_{z} = 0.25 \\ F_{0} + 6-5 \\ G_{z} = 0.75 \\ T_{z} = C(33/z)^{1/6} = 0.25 \\ G_{z} = 0.25 \\ F_{0} + 6-5 \\ T_{z} = 0.75 \\$	A		160	1.13
$Q = \begin{bmatrix} 1 \\ 1 + 0.63 (B+h)^{003} \end{bmatrix}^{2} = 0.8  \text{Eur 6-6}  \text{* Rivitolity} \\ C_{4} = 0.02 \\ M = 167' \\ T_{\overline{2}} = C (33/\overline{2})^{1/6} = 0.25  \text{Eur 6-5} \\ F_{\overline{2}} = 0.25  \text{Eur 6-5} \\ G_{\overline{1}} = 0.25 \begin{bmatrix} (1+1.79aT_{\overline{2}}a) \\ 1 + 1.79vT_{\overline{2}} \end{bmatrix} = 0.8157  \text{Eq 6-41} \\ f_{\overline{2}} = 1.07 \times 1. \\ 9yv, 9g = 3.4  \text{eq 6.855} \\ \text{Kintoir}  \text{Kintoir} \\ \text{Rivitoir} \\ \text{Rivitoir } \\ \text{Rivitoir} \\ \text{Rivitoir} \\ \text{Rivitoir } \\ \text{Rivitoir } \\ \text{Rivitoir} \\ \text{Rivitoir } \\ \ \text{Rivit } \\ \ \text{Rivitoir } \\ \ \text{Rivitoir } \\ \ Rivi$	L== l(Z/33)== 463.32	Eq. 6-7		1.17
$\begin{bmatrix}  +0.63 (\frac{B+n}{L_{z}})^{603}   = 0.8 & Eu. 6-6 & * RIOTOLTY \\ C_{4} = 0.02 & C_{4} = 0.02 \\ N = 167' \\ T_{\overline{z}} = c (33/z)^{16} = 0.25 & E_{0} + 6-5 & x = 0.75 \\ C_{\overline{z}} = 0.925 \left[ (1+1.79a T_{\overline{z}} Q)^{-1} \right] = 0.8157 & E_{\overline{z}} 6-41 & f_{\overline{z}} = 1.07 \ge 1. \\ \gamma q_{Y}, q_{\overline{y}} = 3.4 & = 0.85 & * SEE SNFARL \\ RIOTOLT & R$	$L_{\bar{z}} = l(\bar{z}/33)^{\bar{z}} = 463.38$	Eq. 6-7	180	
$\begin{aligned} I = (2z) \\ I = (33/z)^{1/6} = 0.25 \\ G_{\pm} = 0.$	$L_{\bar{z}} = l(\bar{z}/33)^{\bar{e}} = 463.38$ $Q = \int 1 - \int 1^{1/2} dz$	Ea. 6-7	180	
$I_{\overline{z}} = C \left( \frac{33}{\overline{z}} \right)^{1/6} = 0.25 \qquad E_{0.85} = 0.75 \qquad x = 0.75 \qquad $	$L_{\overline{z}} = l(\overline{z}/33)^{\overline{e}} = 463.38$ $Q = \int \frac{1}{1+0.63/(B+n)^{0.03}} = 0.8$	Eq. 6-7	180 * RIUT	OET Y
$\begin{aligned} I_{\overline{z}} &= c \left( \frac{33}{\overline{z}} \right)^{5} &= 0.25 \\ G_{\overline{z}}^{=} &= 6.925 \left[ \frac{(1+1)7q_{\alpha}I_{\overline{z}}\Omega}{1+1)7q_{\nu}I_{\overline{z}}} \right]^{-} &= 6.8157  Eq. 6-11 \\ f_{\overline{z}}^{=} &= 1.07  z.1. \\ g_{\nu}, g_{\eta}^{=} &= 3.4 \\ \end{array} $	$L_{\overline{z}} = l(\overline{z}/33)^{\overline{e}} = 463.38$ $Q = \left[\frac{1}{1+0.63(\frac{B+n}{L_{\overline{z}}})^{0.03}}\right]^{1/2} = 0.8$	Ea. 6-6.	180 * RTOT. Ct	0ET4 = 0.02
$G_{\mp} = 6.925 \left[ \frac{(1+1)7q_{0} I_{\mp} Q}{1+1)7q_{0} I_{\mp} Q} \right] = 6.8157  Eq. 6-11 \qquad f_{\mp} [C_{4}h^{*}]^{T}$ $\Rightarrow q_{V}, q_{\xi} = 3.4 \qquad = 0.85 \qquad * SEE SNFARM RIDITOIT$	$L_{\bar{z}} = \int (\bar{z}/33)^{\bar{z}} = 463.38$ $Q = \left[\frac{1}{1+0.63(\frac{B+n}{L_{\bar{z}}})^{0.63}}\right]^{1/2} = 0.8$	Eu. 6-6.	180 * RTUT. C4	0274 = 0.02 = 167'
$G_{\mp} = 6.925 \left[ \frac{(1+1)7q_{0} I_{\Xi} Q}{1+1)7q_{v} I_{\Xi}} \right] = 6.8157  Eq. 6-41 \qquad f_{\mp} = 1.07 \ 21.$ $\Rightarrow q_{v}, q_{q} = 3.4 \qquad = 0.85 \qquad \qquad$	$L_{\overline{z}} = \int (\overline{z}/33)^{\overline{e}} = 463.38$ $Q = \left[\frac{1}{1+0.63(\frac{B+n}{L_{\overline{z}}})^{0.03}}\right]^{1/2} = 0.8$ $I_{\overline{z}} = C(33/\overline{z})^{1/6} = 0.25$	Ea. 6-5	180 * RTOT. Ct N	0ET = 0.02 = 167' = 0.75
4 = 1.67 21. $3 = 9_{V}, 9_{Q} = 3.4$ = 0.85 Rictoir Rictoir	$L_{\bar{z}} = \int (\bar{z}/33)^{\bar{z}} = 463.38$ $Q = \left[\frac{1}{1+0.63(\frac{B+n}{L_{\bar{z}}})^{003}}\right]^{1/2} = 0.8$ $I_{\bar{z}} = c(33/\bar{z})^{1/6} = 0.25$	Ea. 6-7 Ea. 6-6.	180 * RIOT. Ct N * =	0ET = 0.02 = 167' = 0.75 FGh*]=1
+ 94,94 = 3.4 = 0.85 * * SEE SNFARM RICTOIT	$L_{\overline{z}} = l(\overline{z}/33)^{\overline{z}} = 463.38$ $Q = \left[\frac{1}{1+0.63(\frac{B+h}{L_{\overline{z}}})^{003}}\right]^{1/2} = 0.8$ $I_{\overline{z}} = c(33/\overline{z})^{1/6} = 0.25$ $G = 6.925 \left[\frac{(1+1.79aI_{\overline{z}}Q)}{2}\right] = 0.81$	Ea. 6-7 Ea. 6-6 Ea. + 6-5	180 * RIOT. C+ N *= T_4 0	0ET = 0.02 = 167' = 0.75 [C4h*]
RICTOIT	$L_{\overline{z}} = l(\overline{z}/33)^{\overline{e}} = 463.38$ $Q = \left[\frac{1}{ +0.63(\frac{B+n}{L_{\overline{z}}})^{6}}\right]^{1/2} = 0.8$ $I_{\overline{z}} = c(33/\overline{z})^{1/6} = 0.25$ $G_{\underline{z}} = 6.925\left[\frac{(1+1.79g)I_{\overline{z}}Q}{1+1.79y}I_{\overline{z}}\right] = 6.81$	Ea. 6-7 Ea. 6-6 Ea. 6-5	180 * REUT. Ct N *= Ta' L +=	0274 = 0.02 = 167' = 0.75 [C44"] 1.07 21.
	$L_{\overline{z}} = l(\overline{z}/33)^{\overline{e}} = 463.38$ $Q = \left[\frac{1}{ +0.03(\frac{B+n}{L_{\overline{z}}})^{0.03}}\right]^{1/2} = 0.8$ $I_{\overline{z}} = c(33/\overline{z})^{1/6} = 0.25$ $G_{\underline{z}} = 6.925\left[\frac{(1+1.7q_{\overline{u}}I_{\overline{z}}Q)}{1+1.7q_{\overline{u}}I_{\overline{z}}}\right] = 6.81$ $\Rightarrow q_{\overline{u}}, q_{\overline{u}} = 3.4$	Eu. 6-7 Eu. 6-6 Eu. + 6-5	180 * Rivit Cit N * Ta U + * SE	0274 = 0.02 = 167' = 0.75 [CGH*] <sup>-1</sup> 1.07 2 1. ESAFARW

						H4 (Z)	9z (15)	1kgel
	VELOCE PRESIDE					0-15	7.94	
	YELOLATY THESEDER		92= 13.	4264 NZ		20	8.63	
	11- = 0.00256 Kak	2+Kd V3	- (16/A2)	Ed-6	-15	25	9,19	
	1 /167-160 /1 -	112/126	241) 12 6	264 (1.13)	- 15 937	30	9,75	
· · ·	$qh = \left(\frac{1}{120 - 100}\right)(1.17$	-1115 1(1314	2041+ 12.1	1004(110)	- 15.100	40	10.58	
	ENCLOSURE CLASSIFICAT	TON	64	: 6.5	.11.1	50	11.28	
						60	11.84	
000	Frender Burlow	x	+ 0.18	F36-6-	5	20	12.59	
			- 0.18			40	12.37	
S H S S				1 5 11	2	100	13.79	
5000	EXTERNAL PRESSURE COEFFS	TUTENTS		6. 5	~	120	14.48	
1442	1150 000 × 14/2	= ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	22.11	TABLE	6-6	140	15,18	
55.5	WANNALES - (15	2 - March	VALUE 3	11 00 2		160	15.74	
D.	I FELLARD I (UR	1= 1.0	,			180	16.29	
Vdi		5						
AM	CP P							
9	DESTON WITHO LOAD			6.5.12.	2			
	MOIN WIND FORCE-R	RESISTENCE	SATEMS					
	= P RIFLOT	115		6.5.12	1.5.			
	$R_{2} = q G C_{p} - q H$	sepit 1	(15/ff2)	Ea. 6	5-17			
	REGELS SOLLOS Pz = 96Cp - gitt WINDWARD PH = 926Cp	5CP; ]	(15/A+2)	Ea. 6	5-17			
	Pz = 96Cp - gitt WINDWARD Pr = 926Cp	567.T	(15/4+2) Winds	Ea. 6 ward	5-17 Leews	ard	Total MN	WFRS
	REALS SOLULA PZ = 96Cp - gitt WINDWARD PH = 926Cp LEEWARD	SCP: T	(15/4+2) Winds N-S	Ea 6 ward E-W	Leews N-S	ard E-W	Total MV N-S	WFRS E-W
	REALD SOLULA Pz = 96Cp - git WINDWARD PH = 926Cp LEEWARD P. = 96(2Cp	Z(ft) 0-15	(15/4+2) Winds N-S 5.18	Ea 6 ward E-W 5.18	Leews N-S -6.50	ard	Total MV N-S 11.68	WFRS E-W 11
	Pz = 96Cp - gitt WINDWARD PH = 926Cp LEEWARD Pl = 946Cp	Z(ft) 0-15 20	(15/4+2) Winds N-S 5.18 5.63	ward <u>E-W</u> 5.18 5.63	Leewa N-S -6.50 -6.50	ard E-W 6.47	Total MN N-S 11.68 12.13	WFRS <u>E-W</u> 11 12
	REALS SOLULA PZ = 96Cp - gitt WINDWARD PH = 926Cp LEEWARD PJ = 946Cp	Z(ft) 0-15 20 25	Winds N-S 5.18 5.63 6.00	ward 5.18 5.63 6.00	Leewa N-S -6.50 -6.50 -6.50	ard E-W -6.47 -6.47 -6.47	Total MV N-S 11.68 12.13 12.50	WFRS <u>E-W</u> 11 12 12
	REALS SOLUL Pz = 96Cp - git WINDWARD PH = 926Cp LEEWARD Pe = 946Cp	Z(ft) 0-15 20 25 30	(15/4+2) Winds N-S 5.18 5.63 6.00 6.36	Ea 6 Ward E-W 5.18 5.63 6.00 6.36	Leewa N-S -6.50 -6.50 -6.50 -6.50	ard	Total MV N-S 11.68 12.13 12.50 12.86	WFRS E-W 11 12 12 12
	REALS SOLUL Pz = 96Cp - git WINDWARD P= 926Cp LEEWARD Pe = 946Cp	Z(ft) 0-15 20 25 30 40	(15/A+2) Winds N-S 5.18 5.63 6.00 6.36 6.91	ward E-W 5.18 5.63 6.00 6.36 6.91	Leewa N-S -6.50 -6.50 -6.50 -6.50 -6.50 -6.50	ard E-W -6.47 -6.47 -6.47 -6.47 -6.47 -6.47	Total M N-S 11.68 12.13 12.50 12.86 13.40	WFRS E-W 11 12 12 12 13
	REALLS SOLULA $P_2 = qGCp - qift$ WINDWARD $P_4 = q_2GCp$ $L_{EEWARD}$ $P_d = q_hGCp$	Z(ft) 0-15 20 25 30 40 50	Winds N-S 5.18 5.63 6.00 6.36 6.91 7.36	ward E-W 5.18 5.63 6.00 6.36 6.91 7.36	Leewa N-S -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50	ard E-W -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47	Total MV N-S 11.68 12.13 12.50 12.86 13.40 13.86	WFRS E-W 11 12 12 12 13 13
	REALLS SOLULA $P_2 = qGCp - qift$ WINDWARD $P_{H} = q_2GCp$ $L = P_0 = qhGCp$ $P_0 = qhGCp$	Z(ft) 0-15 20 25 30 40 50 60	Winds N-S 5.18 5.63 6.00 6.36 6.91 7.36 7.72	E-W 5.18 5.63 6.00 6.36 6.91 7.36 7.72	Leewa N-S -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50	ard -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47	Total MV N-S 11.68 12.13 12.50 12.86 13.40 13.86 14.22	WFRS E-W 11 12 12 12 13 13 13 13
	REALS SOLULA $P_2 = qGCp - qH$ WINDWARD $P_{H} = qZGCp$ $L = P_1 = qHGCp$	Z(ft) 0.15 20 25 30 40 50 60 70	Winds N-S 5.18 5.63 6.00 6.36 6.91 7.36 7.72 8.09	ward E-W 5.18 5.63 6.00 6.36 6.91 7.36 7.72 8.09	Leewa N-S -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50	ard E-W -6.47 -6.47 -6.47 -6.47 -6.47 -6.47	Total M N-S 11.68 12.13 12.50 12.86 13.40 13.86 14.22 14.59	WFRS E-W 11 12 12 12 13 13 14 14
	REALS SOLULA $P_2 = qGCp - qift$ WINDWARD $P_4 = q_2GCp$ LEEWARD $P_d = qhGCp$	Z(ft) 0-15 20 25 30 40 50 60 70 80	Winds N-S 5.18 5.63 6.00 6.36 6.91 7.36 7.72 8.09 8.45	ward E-W 5.18 5.63 6.00 6.36 6.91 7.36 7.72 8.09 8.45	Leews N-S -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50	ard -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47	Total MV N-S 11.68 12.13 12.50 12.86 13.40 13.86 14.22 14.59 14.95	WFRS E-W 11 12 12 12 13 13 13 14 14 14
	REALS SOLULA $P_2 = qGCp - qift$ $WINDWARD P_H = q_2GCpL = qhGCpP_l = qhGCp$	Z(ft) 0-15 20 25 30 40 50 60 70 80 90	Winds N-S 5.18 5.63 6.00 6.36 6.91 7.36 7.72 8.09 8.45 8.72	ward E-W 5.18 5.63 6.00 6.36 6.91 7.36 7.72 8.09 8.45 8.72	Leewa N-S -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50	ard E-W -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47	Total MV N-S 11.68 12.13 12.50 12.86 13.40 13.86 13.86 14.22 14.95 14.95 15.22	WFRS E-W 11 12 12 12 13 13 13 13 14 14 14 14 14
	REALS SOLULA $P_2 = qG(p - q)A$ $WINDWARD P_4 = q_2GCpL = q_hGCpP_1 = q_hGCp$	Z(ft) 0.15 20 25 30 40 50 60 70 80 90 100	Winds N-S 5.18 5.63 6.00 6.36 6.91 7.36 7.72 8.09 8.45 8.72 9.00	ward E-W 5.18 5.63 6.00 6.36 6.91 7.36 7.72 8.09 8.45 8.72 9.00	Leews N-S -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50	ard E-W -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47	Total M N-S 11.68 12.13 12.50 12.86 13.40 13.86 14.22 14.59 14.95 15.22 15.49	WFRS E-W 11 12 12 12 13 13 14 14 14 14 15 15
	REALS SOLULA $P_2 = qG(p - q)A$ $WINDWARD P_4 = q_2GCpLEEWARDP_d = q_hGCp$	Z(ft) 0-15 20 25 30 40 50 60 70 80 90 100 120	Winds N-S 5.18 5.63 6.00 6.36 6.91 7.36 7.72 8.09 8.45 8.72 9.00 9.45 8.72	ward E-W 5.18 5.63 6.00 6.36 6.91 7.36 7.72 8.09 8.45 8.72 9.00 9.45	Leews N-S -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50	ard E-W -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47	Total MV N-S 11.68 12.13 12.50 12.86 13.40 13.86 14.22 14.59 14.95 15.22 15.49 15.95	WFRS E-W 11 12 12 12 12 12 13 13 13 14 14 14 14 14 15 15
	REALS SOLUL $P_2 = qG(p - q)H$ $WINDWARD P_H = q_2GCpL = qhGCpP_l = qhGCp$	Z(ft) 0-15 20 25 30 40 50 60 70 80 90 100 120 120 140	Winds N-S 5.18 5.63 6.00 6.36 6.91 7.36 7.72 8.09 8.45 8.72 9.00 9.45 9.91 40.07	ward E-W 5.18 5.63 6.00 6.36 6.91 7.36 7.72 8.09 8.45 8.72 9.00 9.45 9.91 4.02	Leewa N-S -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50	ard E-W -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47	Total MV N-S 11.68 12.13 12.50 12.86 13.40 13.86 13.40 13.86 14.22 14.95 14.95 15.22 15.49 15.95 16.40	WFRS E-W 11 12 12 12 13 13 14 14 14 14 14 15 15 15 16 16 16 16 16 16 16 16 16 16
	REALS SOLULA $P_2 = q GC_p - q H$ WINDWARD $P_4 = q_2 GC_p$ $L = q h G C_p$ $P_1 = q h G C_p$	Z(ft) 0.15 20 25 30 40 50 60 70 80 90 100 120 140 160 180	(15/4+2) Winds N-S 5.18 5.63 6.00 6.36 6.91 7.36 7.72 8.09 8.45 8.72 9.00 9.45 9.91 10.27 10.62	ward E-W 5.18 5.63 6.00 6.36 6.91 7.36 7.72 8.09 8.45 8.72 9.00 9.45 9.91 10.27 10.62	Leewa N-S -6.50	ard E-W -6.47 -7.57	Total M N-S 11.68 12.13 12.50 12.86 13.40 13.86 14.22 14.59 14.95 15.22 15.22 15.49 15.95 16.40 16.77 17.12	WFRS E-W 11 12 12 12 12 13 13 14 14 14 14 15 15 15 16 16 16 17
	REALS SOLULA $P_2 = qGCp - qift$ WINDWARD $P_4 = q_2GCp$ $L_{EE}WARD$ $P_d = qhGCp$	Z(ft) 0-15 20 25 30 40 50 60 70 80 90 100 120 140 160 180	Wind N-S 5.18 5.63 6.00 6.36 6.91 7.36 7.72 8.09 8.45 8.72 9.00 9.45 9.91 10.27 10.63	ward E-W 5.18 5.63 6.00 6.36 6.91 7.36 7.72 8.09 8.45 8.72 9.00 9.45 8.72 9.00 9.45 9.91 10.27 10.63	Leews N-S -6.50	ard E-W -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47 -6.47	Total M N-S 11.68 12.13 12.50 12.86 13.40 13.86 14.22 14.59 14.95 15.22 15.49 15.95 16.40 16.77 17.13	WFRS E-W 11 12 12 12 12 13 13 13 14 14 14 14 15 15 15 16 16 16 17
	REALS SOLULA $P_2 = qGCp - qift$ WINDWARD $P_4 = q_2GCp$ L = qhGCp $P_1 = qhGCp$	Z(ft)         0-15         20         25         30         40         50         60         70         80         90         100         120         140         160         180         –         167	(15/A+2) Winds N-S 5.18 5.63 6.00 6.36 6.91 7.36 7.72 8.09 8.45 8.72 9.00 9.45 9.91 10.27 10.63 10.40	ward E-W 5.18 5.63 6.00 6.36 6.91 7.36 7.72 8.09 8.45 8.72 9.00 9.45 8.72 9.00 9.45 9.91 10.27 10.63 10.40	Leews N-S -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50 -6.50	ard E-W -6.47 -7.47	Total MV N-S 11.68 12.13 12.50 12.86 13.40 13.86 14.22 14.95 15.22 14.95 15.22 15.49 15.95 16.40 16.77 17.13 16.89	WFRS E-W 11 12 12 12 13 13 14 14 14 14 14 14 15 15 15 16 16 17 16

#### WIND SHEAR ON LEVEL

NOTE: SIMPLIFIED ASSUMPTIONS TAKEN ESR DESTREBUTEON OVER FACH LEVEL.

- · LEVEL HEIGHTS TAKEN AS TREBUTARY HE/LEVEL
- · WIND LOAD DISTRIBUTION TAKEN AS AVERAGE OVER LEVEL.

EETS EETS EETS

#### Vertical Distribution of Wind Forces

Wind Loadi	ng(N-S)											Wind Load	Shear	Moment
	Story Height	Elevation	Tributary	Tributary	Tributary	Wind Load	Wind Load	Shear	Moment		N-S	Fx	Vx	Mx
Level	(ft.)	(ft.)	Height (ft.)	Width (ft.)	Area (ft <sup>2</sup> )	(psf)	(k)	(k)	(ft - k)		Level, x	(K)	(k)	(ft - k)
Roof	4	162.95	12	183	2196	16.8	37	37	-		Roof	37	37	-
16	16	146.95	13.5	183	2471	16.5	41	78	590.3		16	41	78	590
15	11	135.95	10.83	183	1982	16.3	32	110	1444.5		15	32	110	1445
14	10.66	125.29	9.995	224	2239	16	36	146	2616.7		14	36	146	2617
13	9.33	115.96	9.33	224	2090	15.5	32	178	3976.8		13	32	178	3977
12	9.33	106.63	9.33	224	2090	15.5	32	211	5639.2		12	32	211	5639
11	9.33	97.30	9.33	224	2090	15.4	32	243	7603.8		11	32	243	7604
10	9.33	87.97	9.33	224	2090	15.2	32	275	9868.8		10	32	275	9869
9	9.33	78.64	9.33	224	2090	14.9	31	306	12430.0		9	31	306	12430
8	9.33	69.31	9.33	224	2090	14.6	31	336	15281.9		8	31	336	15282
7	9.33	59.98	9.33	224	2090	14.2	30	366	18418.4		7	30	366	18418
6	9.33	50.65	9.33	224	2090	13.9	29	395	21831.8		6	29	395	21832
5	9.33	41.32	9.33	224	2090	13.6	28	423	25516.2		5	28	423	25516
4	9.33	31.99	9.33	224	2090	13	27	450	29465.8		4	27	450	29466
3	9.33	22.66	9.33	224	2090	12.5	26	477	33668.9		3	26	477	33669
2	9.33	13.33	11.33	224	2538	11.7	30	506	38115.8		2	30	506	38116
1	13.33	0.00	6.665	224	1493	-	-	-	44864.9		1	-	-	44865
														Σ=
														271333.8

												1		
Wind Loadi	ng(E-W)											Wind Load	Shear	Moment
	Story Height	Elevation	Tributary	Tributary	Tributary	Wind Load	Wind Load	Shear	Moment		E-W	Fx	Vx	Mx
Level	(ft.)	(ft.)	Height (ft.)	Width (ft.)	Area (ft <sup>2</sup> )	(psf)	(K)	(K)	(ft - k)		Level, x	(K)	(K)	(ft - k)
Roof	4	162.95	12	62	744	16.5	12	12	-		Roof	12	12	-
16	16	146.95	13.5	62	837	16.3	14	26	196.4		16	14	26	196
15	11	135.95	10.83	62	671	16.1	11	37	481.5		15	11	37	482
14	10.66	125.29	9.995	222	2219	15.8	35	72	873.1		14	35	72	873
13	9.33	115.96	9.33	222	2071	15.3	32	103	1542.8		13	32	103	1543
12	9.33	106.63	9.33	222	2071	15.2	31	135	2508.3		12	31	135	2508
11	9.33	97.30	9.33	222	2071	15.1	31	166	3767.5		11	31	166	3767
10	9.33	87.97	9.33	222	2071	14.9	31	197	5318.5		10	31	197	5318
9	9.33	78.64	9.33	222	2071	14.7	30	228	7157.4		9	30	228	7157
8	9.33	69.31	9.33	222	2071	14.3	30	257	9280.4		8	30	257	9280
7	9.33	59.98	9.33	222	2071	14	29	286	11679.8		7	29	286	11680
6	9.33	50.65	9.33	222	2071	13.7	28	315	14349.7		6	28	315	14350
5	9.33	41.32	9.33	222	2071	13.3	28	342	17284.4		5	28	342	17284
4	9.33	31.99	9.33	222	2071	12.8	27	369	20476.0		4	27	369	20476
3	9.33	22.66	9.33	222	2071	12.3	25	394	23915.1		3	25	394	23915
2	9.33	13.33	11.33	222	2515	11.4	29	423	27591.8		2	29	423	27592
1	13.33	0.00	6.665	222	1480	-	-	-	33227.1		1	-	-	33227
														Σ=
														179649.8

Vertical Distribution of Wind Forces

### **N-S** Distribution



#### Wind Direction

### **E-W** Distribution

_	roof	
	level 16	
	level	15
	level	14
	level	13
	level	12
	level	11
	level	10
	level	9
	level	8
	level	7
	level	6
	level	5
	level	4
	level	3
	level	2
	level	1



	Fair Array F	RE PRIVER	ASCE7-02
	EQUEVALANT LOTARAC TO		SECT. 9
	SEISMIC DESIGN PL	RAMETERS	
	/ or ATTON!	ARITAVATAN, VA	
	# OF STORIES!	N=16	
	INTER STORY HE	he = VARIES + 9'-4" (TYP)	
	BUTLDONG HE:	hn= 167'	
	SETEMER 1755 GROUP!	I	TABLE 9.1.3
ETS	ORNANCY IMPORTANCE!	1.0	TABLE 9.1.4
H	SITE CLASSIFICATION!	A	9,4,1.2
000	ACCELERATIONS !		
4	0.25-7	Sc= 0.199-5	FIG. 9,4,1,1(a)
2-14	1.05 >	5,= 0.069-5	FIG. 9,4,1,1(6)
0	SITE CLASS FACTOR :	Fg = 0,80	TARE 9,4.1.20
9	SITE CLASS BACOR '	Fy = 0.80	TABLE 9.4.1.26
(HI)	ADJUSTED ACCERPATIONS:	Smg= Fa Sa + 0.148 4-5	9.4.1.2.4-1
MIN	(MAXIMOM)	Sm, = FV S, + 0.050 g-5	9.4.1.2.4-2
3)	DESIGN SPECTRAL		
	RESPUNSE ACCELERATIONS	505= 2/3 5ms + 0.0999-5	9.4.1,2.5-1
		Soi = 2/3 Soi > 0.0339-5	9.4.1.2.5-2
	SEBMEC DESELAN CATEGORY	A	9.4.2.10/6
	RESPONSE MODIFICATION	R=3	TABLE 9,5.2.2
	DEFLECTION MODIFICATION	Ca= 5	
	ALLOWABLE STORT DREFT	1 = 0.02 hst	TABLE 9.5.2.8
	FUNDAMENTAL PERFOD		9.5.5.3.2
	SHEAR WALLS		EU 9,5.5.3.2-2
			Ea 9.5.5.3.2-3
	$T_q = \frac{0.0019}{\text{JCw}} hn$		
	$C_{\omega} = \frac{100}{A_{B}} \sum_{i=1}^{\infty} \left(\frac{h_{n}}{h_{i}}\right)^{2} \frac{A_{i}}{\left(1+0.85\left(\frac{h_{i}}{D_{i}}\right)\right)^{2}}$	2	
	VERTICAL DISTRIBUTION OF SEISMIC FORCES		
	$\overline{F}_X = C_{YX} V$	Eq. 9,5,5,4-1	
	Cyx = Wxhx E	a 9,5,5,4-2	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
	L wihik ,		£
	OVERTURNENCE		
	$M_{x} = \sum_{i=1}^{n} F_{i}(h_{i} - h_{x})$	Ea 9.5.5.6	•

Location:	Arlington, Virginia		
Number of Stories:	N = 16		
Inner Story Height:	hs =  varies - 9'4" typ.		
Building Height:	hn = 167		
Seismic Use Group:	1	Table:	9.1.3
Occupancy Importance:	l = 1.0	Table:	9.1.4
Site Classification:	A		9.4.1.2
Accelerations:			
0.2 s	Ss = 0.19	Figure:	9.4.1.1(a)
1.0 s	S1 = 0.06	Figure:	9.4.1.1(b)
Site Class Factor:	Fa = 0.8	Table:	9.4.1.2(a)
	Fv = 0.8	Table:	9.4.1.2(b)
Adjusted Accelerations:	Sms = 0.152		9.4.1.2.4-1
(max.)	Sm1 = 0.048		9.4.1.2.4-2
esign Spectral Response	S <sub>DS</sub> = 0.101		9.4.1.2.5-1
Accelerations:	S <sub>01</sub> = 0.032		9.4.1.2.5-2
Seismic Design Category:	A		9.4.2.1(a/b)
Response Modification:	R = 3	Table:	9.5.2.2
Deflection Modification:	Cd = 5		

	Eundomonto	Deried			
	rundamenta	rerioa			
	A <sub>B</sub>	22000			
11	hn	167.000			
	N-S				
	Shearwalls	A	В	С	E
	t	1.167	1.167	0.833	-
	Di	10.000	10.000	13.875	-
	A <sub>t</sub>	11.670	11.670	11.563	-
	h	32.000	32.000	147.000	-
	Σ <sub>9.5.5.32-3</sub>	66.919	66.919	0.158	-
	Cw	0.609			
	Та	0.407			
	E-W				
	Shearwalls	A	В	С	E
	t	0.800	0.800	-	0.800
	Di	20.167	19.330	-	29.417
	A <sub>t</sub>	16.134	15.464	-	23.533
	h	32.000	32.000	-	125.300
	Σ <sub>9.5.5.32-3</sub>	142.213	128.615	-	2.603
	Cw	1.243			

2	ROUF: MAD ROOF AREA: 6100 SF. (ROUGH TAKE OFF)
	DEAD: HERENETER! 502 FT (ROUTINGE OFF)
	PTITO TOBLATTANI 075 PSF
	MEMBRANE! I BF
	CONCRETE ! 100 PSF (BASED ON & CONCRETE SLAB)
	CONCRETE BRANS: 63 PSF (ASSUMED AJU. SEZE: WAND. =  KLF)
S S S	1/2 GP. CETTER: 5 1035 * PSF BASED OFF CUM, LEADTH OF 1A=0 : 10 PSF BEAMS EVER AVE. FLOY LOPA
00 SHEE	TOTAL GROOF : 191.75 POF
42 1	ROUF! 15th LEVEL - POUL TERRACE AREA: 100005F (Exculored Rouc)
22-1	DEAD PRIEMETRE: 515 FT.
ů	TILE DAVERS: 15 PSF
IPA.	(ANSCRETE 112.5 PSF (BASED ON AND. (E) EVALUES FROM B" = 11"]
	1/2" GYP CERLOL: 5 PSF
3	MEP : 10 PSF
	TOTAL gross: 143.5 PSF
	FLOOR: 16th LEVEL ARBA 9700 SF (RUSHITAKE OFF)
	DEAD : PRASMETER: SOZA (ROULIT TAKE OFF)
	FLOORING: 4 PSF
	(DARRETE SAB: 150 PSF (BASED ON 12" CONCRETE SLAB)
	CONCRETE BEAMS : 30 PSF
	1/2" GYP CERER: 5 PSF
	MEP IOPF
	PURTE ARRA: LUDPS= (STRUCTURAL SET)
	TOTAL 910th 307 psf
	FLOOR: 15th LEVEL AREA: 9700 SF (ROUGH TAKE-OFF)
	DEAD: PERIMETER! SO2 FT (ROULITAKE-OPE)
	FLODE WG : 9 FOF
	(JULRETRESAS: 112.5 (BASED ON AVALLE) [UPPCLES FROM 8" 11"])
	1/2" GYP LEADL! SPSF
	MEP 10PSIE
	LIVE!
	TOTO A REAL 179.5 PS F
	JUIM 915

REMATURE FLOORS: (1-14) LEVELS AREA: 22,000 PSF "(AUG.) PERENERAL' BOD FT. \* (RUCHATANEOFF) DEAQ: FLOORENSE' 4 PSF CONTRATE SLAB: 100 PST (BASED ON S'(4 SLAB) PACTITERS: 8 PSF 1/2 GYP CEELOG: 5 PSF MEP : IDPSF LIVE! 50 SHEETS 100 SHEETS 200 SHEETS Apr & Coresson: 40 pot (STRUCTURAL SET) TOTAL 940000 167 pot 22-141 22-142 22-144 PERDMETER WALL! DEAD : ExTERENT WALL: JUNE: 56.0 pol (STUD BRECK VENER / WENCH SYSTEM) SNOW LOND ! SNOW: YSACH: 4.2 pole (20% OF FLAT ROUG LOAD)

EAMPAD"

	Area	Perimeter	Total q	Weight (w <sub>x</sub> )	
	(SF)	(ft)	(PSF)	(Kips)	
Main Roof	6100	502	191.75	1507.019	
Roof: Level 15	10000	515	143.5	1588.7172	
Floor: Level 16	9711	502	207	2459.969	
Floor: Level 15	9711	502	139.5	1663.9165	
Level 14	19453	850	127	2977.947	w/floor 2-13
Levels 2-13	23111	850	127	35665.272	3379.205
Level 1	18476	850	127	-	
			$W = \Sigma W =$	45862.8407	
		E-W			
<b>q</b> <sub>wall</sub>		Base Shear			hs
(PSF)		(Kips)	Cs (Ta, E-W)	Level	(ft)
56		V = Cs * W	0.037	1	13.33
		2044.871		2 - 13	9.33
			Cs	14	10.66
exp. K		N-S	0.034	15	11
k;.5≤Ta≤2.5		Base Shear		16	16
1.21		(Kips)	Cs (Ta, N-S)	Roof	4
		V = Cs * W	0.026		
		2044.871			
			Cs (Min.)	Cs (Ta02)	Ta - (.02)
			0.045	0.036	0.93

ses	ŧ			0	<u>Б</u>	4	50	ø	n	ω	5	g	0		0	0	5	5 S	<del>م</del>			L‡	
nic For	Momer	Ŵ	(ft-kips	22,73	29,55	32,90	25,08	23,99	19,91	16,25	13,01	10,14	29'2	5,57	3,83	2,44	1,38	64	19	'		2153/	
of Seisi	Shear	××	(kips)	0	139	340	582	782	686	1176	1343	1491	1620	1731	1824	1899	1958	2001	2030	2045			
stribution	Load	Fx	(kips)	139	201	242	200	207	187	167	148	129	111	8	76	53	43	28	15				
Vertical D		s-N	Level, x	Roof	16	15	14	13	12	11	10	<b>б</b>	ω	7	9	S	4	m	2	-			
	Moment	Mx	(ft-kips)	22,730	29,559	32,904	25,085	23,996	19,913	16,258	13,015	10,146	7,670	5,573	3,830	2,440	1,385	645	199		=	215347	
	Shear	٧×	(kips)		139	340	582	782	986	1,176	1,343	1,491	1,620	1,731	1,824	1,899	1,958	2,001	2,030	2,045			
	Load	Fx	(kips)	139	201	242	200	207	187	167	148	129	111	93	76	59	43	28	15		=2	2045	
		Cur		0.068	0.098	0.118	0.098	0.101	0.091	0.082	0.072	0.063	0.054	0.045	0.037	0.029	0.021	0.014	0.007		=	1.000	
		w <sub>z</sub> h <sub>z</sub> *		732,728	1,055,881	1,270,351	1,051,948	1,086,958	981,264	877,986	777,134	677,920	581,518	488,065	397,302	310,263	227,459	149,573	78,520		=	10744870	
se		۳ <u>"</u>	(#)	163	147.1	136.1	125.3	116	106.63	97.3	88	78.64	69.31	60	50.65	41.32	32	22.66	13.33				
Seismic Forc		w	(kips)	1507	2460	3253	2978	3379	3379	3379	3379	3379	3379	3379	3379	3379	3379	3379	3379		=2	50748	
ertical Distribution of		N-N	Level, x	Roof	16	15	14	13	12	11	10	6	8	7	9	5	4	3	2	1			
>																						-	

	-				Load	Shear	Moment			Load	Shear	Moment	
w,x		h <sub>x</sub>	w*h*	C	F <sub>x</sub>	٧×	M <sub>x</sub>		E-W	F×	×۸	M×	
(kips		(#)			(kips)	(kips)	(ft-kips)	Ľ	evel, x	(kips)	(kips)	(ft-kips)	
150	~	163	732,728	0.068	139		22,730		Roof	139	0	22,730	
246		147.1	1,055,881	0.098	201	139	29,559		16	201	139	29,559	
325		136.1	1,270,351	0.118	242	340	32,904		15	242	340	32,904	
297	ω	125.3	1,051,948	0.098	200	582	25,085		14	200	582	25,085	
33	79	116	1,086,958	0.101	207	782	23,996		13	207	782	23,996	
ŝ	79	106.63	981,264	0.091	187	989	19,913		12	187	989	19,913	
ŝ	79	97.3	877,986	0.082	167	1,176	16,258		11	167	1176	16,258	
ä	879	88	777,134	0.072	148	1,343	13,015		10	148	1343	13,015	
Ж	379	78.64	677,920	0.063	129	1,491	10,146		6	129	1491	10,146	
Ж	879	69.31	581,518	0.054	111	1,620	7,670		ω	111	1620	7,670	
č	379	60	488,065	0.045	83	1,731	5,573		7	83	1731	5,573	
ŝ	379	50.65	397,302	0.037	76	1,824	3,830		6	76	1824	3,830	
ε Γ	379	41.32	310,263	0.029	65	1,899	2,440		5	59	1899	2,440	
č	379	32	227,459	0.021	43	1,958	1,385		4	43	1958	1,385	
č	379	22.66	149,573	0.014	28	2,001	645		e	28	2001	645	
ς Γ	379	13.33	78,520	200.0	15	2,030	199		2	15	2030	199	
						2,045			1		2045		
	=		=	=	2=		=2					=2	
20	748		10744870	1.000	2045		215347					215347	

## **N-S** Distribution

roof	<u>/</u> 139 К		
level 16	∠ 201 к		
 level 15		2	242 K
	level 14	/	200 K
	level 13	2	207 K
	level 12	2	187 K
	level 11	/	167 K
	level 10	/	148 K
	level 9	/	129 k
	level 8	/	111 K
	level 7	/	93 K
	level 6		76 K
	level 5		59 K
	level 4		43 K
	level 3		28 K
	level 2		15 K
	level 1		2045 k

## E-W Distribution

ro	of			139 K
lev	vel 16		,	201 K
		level 15	/	242 K
		level 14	,	200 к
		level 13	/	207 K
		level 12	/	187 K
		level 11	1	167 K
		level 10	/	148 K
		level 9	/	129 k
		level 8	4	111 K
 		level 7	/	93 K
		level 6	/	76 K
		level 5	/	59 K
		level 4	/	43 K
		level 3	/	28 K
		level 2	/	15 K
		level 1		2045 K

	Appendix – D SNOW LOA	AD	
)	ROOF SNOW LOND		ASCE7-02
	GROUND SNOW LOAD:	Rg = 30 PSF	7.2
	THERMAL FACTOR:	Ct= 1.0	7.3.2
	SNOW EXPOSURE FACTOR!	Ce = 0.7	7.3.1
0 SHEETS 0 SHEETS	IMPORTANCE FACTOR ! * CATEGORT : II	I=1.00	7.3.3
22-142 10 22-144 20	FLAT ROOF SNOW LOADS: Pt: 0.7CeC+Ipg	Pt= 14,7psf	7.3
AMPAD"	* STRUCTURAL SET DESIGNED:	Pt= 21 psf	

## Appendix – E GRAVITY LOAD CHECK

	Incorrowii IST I EVEL (F	17.5	)					
	ETTE: 10 " YOL"	1	10.4		1			
	DICE: 10 A AD	0	0 0		1			
-	P-0 10 + 11	0	6	75	[]			22
	KEDAR 12 411		0		4			-
-	ty i oo the	0	26					
-	p; 200		0		1			
		0	0 0		1			
	LOADS!				1			
-	ROOF LEVEL! DEAD		LIVE		95	;		
-	8 CONESIARS :	100	KOOF	: 30				
	BAMSI	25	MECH	150				
	CONFER ;	5		180				
	MEP	10						
		140						
	16th LEVEL: DEAD		LIVE					
	12" CONC SLAB	: 150	RELEC	: 100				
	PAETETONS	: 8	Collezade	1 40				
	CLO/FLR :	9		148				
	MEP	10						
	(15') COLUMNO !	15						
		192						
	15th Level: DEAD		LIVE:					
	S" CINC SIAS	100	colesper:	40				
	PARITIONS	8		40				
	CLUIFLR "	9						
	MED	10						
	(III) COLUMN :	10						
		137						
	2ND = 14th / EVEL: DEAD:		LIVE					
	A" COJC. SLAR:	100	CORREDY	: 40				
	PARTERNAS	8		40				
	CLG-IFIR	9						
	MEP :	10						
	(E') COLUMN :	7						
		134						
	Courses Inan'							
	(1-12D+	1.61	- 3465	DIRE				
	ton - ling t	NUC	510	- P3F .				
	P-11×A	-	3460 Der	(15:25)				
	in which the		UNFO A	(aunac)				
	D - 142	K .	a Dian	K (Array)				
	FA = dlod		-r and	(reade)	04		1. m	
	CRST DESTON HANDBO	xc	2002		9011			
	RECTANGULAR COUMS	5:	18"+26"					
			12- #11	RENFORCEN	TUS			
		1	DP = DRG	INK SP.	10	OK		

			R	ECTA	NGU	LAR	TIED	col	UMN	IS 18	8″ × 2	6″			
Short	oolumn	is – r	io side	sway		Mina	-		1	f'c	= 8,00	00 psi	$f_y = d\rho$	60,00	0 psi
Doru	ngara	Δ	01 11	10F a.A.	5	MA,-		H .		φ.	M III III III	оп-кара	i que	in ispa	Zero
BARS	RHO	x	Max	Сар	0%	fy	251	o fy	50%	6 fy	100	% fy	.1 <sup>7</sup> c	Ag	Axial
		S	φм	φP	$\phi$ M	φP	φм	$\phi \mathbb{P}$	φМ	¢₽	$\phi \mathbf{M}$	¢₽	φM	$\phi \mathbb{P}$	Load ¢M
10-#11	3.33	MA Mi	5714 3793	2247 2247	9438 6133	1599 1546	10307 6490	1339 1278	10852 6684	1113	11632 6931	749	10082 6131	374 374	9068 5771
10-110	2.71	MA	5448	2160	8627	1576	9294	1314	9626	1102	10006	776	8601	374	7512
4L - 35 10-#11	3.33	MA	5610	2160	6169 8979	1400	9714	1348	10124	1121	10684	767	9507	374	4930 8953
4L - 3S 10-#14	4.81	MI MA	3840 6018	2247 2452	6420 9811	1528 1760	6871 10756	1275 1446	7140	1056 1181	7524 12411	700 759	6441 11522	374 374	5876 11987
4L - 3S 10-#10	2.71	MI MA	4095 5299	2452 2160	7030 8311	1644 1586	7634 8873	1364 1323	8064 9099	1108 1121	8755 9227	674 780	7800 8028	374 374	8115 7170
5L-2S	2.22	М	3844 5432	2160	6476 8505	1483 1636	6969	1233	7271	1030	7708	707	6196 8765	374	4914 8426
51 - 25	4 91	M	3958	2247	6786	1521	7340	1258	7712	1042	8302	691	6849 10520	374	5853
51 - 28	4.01	M	4257	2452	7546	1638	8295	1341	8870	1089	9846	663	8509	374	8109
12#10	3.26	MA	5753	2236	9600 9724	1602	10420	1328	11003	1115	11845	754	10190	374	8974 5807
12/10	326	MA	5664	2236	9123 9727	1623	9930 9950	1348	10402	1122	11052	770	9694 9729	374	8937 5935
12,011	4.00	MA	5868	2340	9577	1683	10481	1390	11059	1146	11956	760	10824	374	10599
12-#10	326	MA	5617	2236	8807	1633	9509	1356	9875	1141	10283	774	9114	374	8558
5L - 3S 12-#11	4.00	MA	3871 5693	2236 2340	6476 9193	1694	6969 9970	1282	10421	1064	11013	710 763	6561 10072	374 374	10102
5L - 3S 12-#14	5.77	MA	3991 6138	2340 2587	6786 10114	1584 1859	7340	1317 1540	7712	1081 1248	8302 12875	692 752	7221 12374	374 374	6943 13716
5L - 3S 12.410	3.26	MI MA	4306 5410	2587 2238	7546 8491	1728 1639	8295 9090	1424 1377	8870 9354	1144	9646 9582	662 790	8899 8584	374 374	9596 8306
6L - 2S	4.00	M	3970	2236	6783	1530	7363	1267	7751	1050	8359	701	6875	374	5818
6L - 2S	4.00	MA	4107	2340	7152	1579	7808	1300	8284	1067	9080	684	9360 7657	374	6926
14/10	3.80	MA	5879	2312	9619 6240	1671 1629	10556	1382	11178	1143	12117	764 710	10787	374 274	10361
14/10	3.80	MA	5734	2312	9303	1680	10145	1390	10651	1162	11338	768	10199	374	9950
5L - 4S 14-#11	4.67	MA	3956 5951	2312 2433	6544 9792	1600 1752	7053 10737	1319 1456	7370 11356	1085 1193	7864 12286	713 756	6968 11379	374 374	6662 11783
5L - 4S 14- <i>1</i> /10	3.80	MI MA	4094 5630	2433 2312	6864 8987	1662 1686	7437 9726	1361 1411	7828 10130	1106 1169	8487 10637	693 784	7670 9663	374 374	7760 9703
6L - 3S	4.07	М	3998	2312	6783	1583	7363	1316	7751	1084	8359	704	7221	374	6729
6L - 3S	9.07	MA	4141	2433	7152	1642	7808	1359	8284	1107	9080	685	8005	374	8004
14-#10 7L - 2S	3.80	MA MI	5622 4096	2312	8631 7090	1703 1577	9518 7756	1417 1301	9632 8231	1188 1071	9954 9012	800 695	9093 7553	374 374	9224 6717
16- <i>1</i> /10	4.34	MA	5949 2009	2388	9799 9947	1728	10781	1424	11427	1182	12394	762	11284	374 974	11346
16-#10	4.34	MA	3990 5847	2366	9483	1003	10362	1445	10906	1189	6022 11693	704 778	10743	374	11082
6L - 4S 16 #11	5.33	MI MA	4083 6088	2388 2526	6851 10015	1647 1818	7446 10995	1353 1506	7650 11659	1106 1226	8517 12709	707 767	7642 11979	374 374	7504 12953
6L - 4S	4.34	М	4245	2526 2388	7230	1721	7906 0054	1403 1451	8400 10407	1131	9265 11010	686 794	8444	374 374	8765
7L - 3S	4.04	MI	4125	2388	7090	1630	7756	1350	8231	1105	9012	698	7884	374	7622
18-#10 6L - 5≎	4.88	MA Mi	6064 4124	2463 2463	9980 6951	1781 1700	10998	1479 1472	11681 7004	1210 1340	12749 8675	772 698	11822	374 374	12465
18-#10	4.88	MA	9129 5958 4210	2463	9623 74.00	1798	10590	1485 1997	11183	1229	12065	788	11242	374 374	12015
rL - 45	5.45		9210	2903	1100	1050	1040	1007	0000	1120	10404	701	04297 4 004 0	074	0300
204/10 7L - 58	5.43	ма М	6174 4251	2539 2539	7261	1645 1747	7964	1519 1436	8474	1250 1160	13121 9328	782 692	12316 8637	374 374	13415 9037

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	CONCRETE SLAB:			1	12.5	Π-
•	DESCRIPTION	A:	3			
	SLAB: 2	1-WAY to=	8			
	£	= 5KSE				
	RETNERGY MENT	#4024'00 1	SOTHWATS I	-		22'
	Netra PORCEASA	10-440 000	IMMI	=	#4ans	
		REINFORMENT: #4024'0C Community 10-#44 & community $f_{ij} = 60^{481}$ COLUMN : 18'x20' S $f'_{ij} = 50^{481}$ COLUMN : 18'x20' S $f'_{ij} = 50^{481}$ S $f'_{ij} = 50^{481}$ S DEAD (RE) LEVE: (RE) DEAD (RE) $f'_{ij} = 50^{481}$ S DEAD (RE) $f'_{ij} = 50^{481}$ S DEAD (RE) $f'_{ij} = 50^{481}$ $f'_{ij} = 50$				
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		#4 @ 24"	O.C. BOTH WA	15 -> Az=	0.4 to 2	40) 200) 2003 ft-k
	INTERIOR	DANEL				
	INTERIOR	DANEL				22' 
	INTERIOR	DANEL MOMENT:	Mas (1) []	(216.41)(22')	(22.833) 010	
	INTERIOR	DAVEL MOMENT:	Mo= Wulit	= (216,4)(22')	(22.833) <sup>°</sup> <u>-</u> 310	
	INTERIOR STATE	DANEL MOMENT:	Mo= Wolin	= (216.4)(22') 8	$\frac{1}{3} \frac{1}{3} \frac{1}$	
	INTERIOR	DANEL MOMENT:	$\begin{array}{ccccc} & & & & & & & & & & & & & & & & &$			
	INTERIOR STATIC	DANEL MOMENT: STRIP	Mo= Wulth	= (216.4)(22') 8 STRID WEDTH	(22.833) <sup>7</sup> = 310 Mu (ftoFWTRTH	».3 ft-k
	INTERIOR STATIC LOCATION SUPPORT	DAVEL MOMENT: STRIP C.S. 75%	Mo= Wulth 8 TOTAL MU	= (216.4)(22') 8 STRID WEDTH	$\frac{(22.833)^2}{M_0/(4+oFWSRTH)} = 310$	».3 ft-k
	INTERIOR STATIC LOCATION SUPPORT 0.65 MU	DAVEL MOMENT: STRIP C.S. 75% M.S. 25%	Mo= Wult/n 8 TOTAL MU 151,3 A-K 50.4 A-K	= (216.4)(22') 8 STRID WEDTH 11' 11'	$\frac{6 \text{ gWoc}}{25'}$ $\frac{1}{25'}$ $\frac{1}{25$	
	INTERIOR STATIC LOCATION SUPPORT 0.65 MU NITEDAN	DANEL MOMENT: STRIP C.S. 75% M.S. 25% C.S. 60%	Mo= Wulz/n 8 TOTAL MU 151,3 A-K 50.4 A-K 65.2 A-K	= (216.4)(22') 8 STRID WEDTH 11' 11' 11'	$\frac{(22.833)^{2}}{M_{2}(4+0FW3R3TH)} = 310$ $\frac{M_{2}(4+0FW3R3TH)}{13,75} + \frac{4+K}{2}$ $\frac{4}{6} + \frac{4+K}{2}$ $\frac{6}{6} + \frac{6+K}{2}$	».3 ft-k
	INTERIOR STATES LOCATION SUPPORT 0.65 MU MIDSDAN 0.35 MU	DANEL MOMENT: STRIP C.S. 75% M.S. 25% C.S. 60% N.S. 40%	Mo= Wulz/n 8 TOTAL MU 151,3 A-K 50.4 A-K 65.2 A-K 43,4 A-K	= (216.4)(22') 8 STRID WEDTH 11' 11' 11' 11' 11'	$\frac{(22.833)}{M_{3}(A_{to}FWSRT#)} = 310$ $\frac{M_{3}(A_{to}FWSRT#)}{13.75} = 310$ $\frac{H_{4}}{F_{2}}$ $\frac{H_{4}}{G} = \frac{H_{4}}{F_{4}}$ $\frac{H_{4}}{F_{4}}$	». 3 ft-k
	INTERIOR STATIC LECATION SUPPORT 0.65 MU MITEDAN 0.35 MU	DANEL MOMENT: STRIP C.S. 75% M.S. 25% C.S. 60% N.S. 40%	Mo= Wulzla B TOTAL MU 151,3 A-K 50.4 A-K 65.2 A-K 43,4 A-K BOTTON	= (216.4)(22') 8 STRID WEDTH II' II' II' II' II' II' II' II' II' II	$ \frac{(22.833)}{(4.6FW3637)} = 310 $ $ \frac{M_3 (4.6FW3637)}{13.75} = 310 $ $ \frac{13.75}{4.6} = \frac{4.5}{4.7} $ $ \frac{4.6}{4.7} = \frac{4.5}{4.7} $ $ \frac{4.6}{4.7} = \frac{4.5}{4.7} $	». 3 ft-k
	INTERIOR STATES LOCATION SUPPORT 0.65 MU MIDSOM	DANEL MOMENT: STRIP C.S. 75% M.S. 25% C.S. 60% N.S. 40%	Mo= Wulzla B TOTAL MU 151,3 A-K 50.4 A-K 43.4 A-K BOTTON RETUSFORCHENT	= (216.4)(22') 8 STRID WEDTH II' II' II' II' II' II' II' II' II' II	$ \frac{(22.833)}{(4.6FW3637)} = 310 $ $ \frac{M_3 (4.6FW3637)}{13.75} = 310 $ $ \frac{13.75}{4.6} = \frac{4.5}{4.7} $ $ \frac{4.6}{4.7} = \frac{4.7}{4.7} $ $ \frac{4.6}{4.7} = \frac{4.7}{4.7} $ $ \frac{4.7}{4.7} = \frac{4.7}{4.7} $	5.3 ft-k
	INTERIOR SPATTO LOCATION SUPPORT 0.65 MU MIDSDAN MIDSDAN	DAVIEL MOMENT: STRIP C.S. 75% M.S. 25% C.S. 60% M.S. 40% U ! CHECK a= A-C	Mo= Wollin TOTAL MU 151,3 A-K 50.4 A-K 65.2 A-K 43.4 A-K BOTTON RETUFORCUENT 4 (015)(60)	= (216.4)(22') 8 STRID WEDTH 11' 11' 11' 11' 11' 11' 11' 11	$ \begin{array}{c} (22.833) \\ \hline M_{3} (AtoFWARTH) \\ \hline 13.75 \\ \hline 4.6 \\ \hline 4.6 \\ \hline 4.4 \\ \hline 4 \\ \hline 5 \\ \hline 4 \\ \hline 5 \\ \hline 6 \\ \hline 5 \\ \hline 6 \\ \hline 6 \\ \hline 6 \\ \hline 7 \\ \hline 7$	2.3 ft-k
	INTERIOR SPATER SUPPORT O.65 MU MIDSOM MIDSOM	DAVIEL MOMENT: STRIP C.S. 75% M.S. 25% C.S. 60% M.S. 40% J ! CHECK a= ASP 085C.	Mo= Wollin B TOTAL MU 151,3 A+K 50.4 A+K 65.2 A+K 43.4 A+K BOTTON RETUFORCUENT 4 = (0.15)(60) 0.85(5)(0%)	= (216.4)(22') 8 STRID WEDTH 11' 11' 11' 11' 11' 11' 11' 11	$\frac{(22.833)^{2}}{(4.6)^{2}} = 310$ $\frac{M_{3}(A_{10},F_{WMRT})}{(13.75)^{\frac{41}{2}}}$ $\frac{13.75}{4.6}$ $\frac{4.6}{4.7}$	2.3 ft-k 1764 5-,5-25=68
	INTERIOR STATES LOCATION SUPPORT 0.65 MU MIDSOM MIDSOM	DAVIEL MOMENT: STRIP C.S. 75% M.S. 25% C.S. 60% N.S. 40% J ! CHECK a= ASP 0050	Mo= Wollin TOTAL MU 151,3 A+K 50.4 A+K 65.2 A+K 43.4 A+K BOTTON RETUFORCUENT 4 = (0.15)(60) 6' 0.85(5)(10").	= (216.4)(22') 8 STRID WEDTH 11' 11' 11' 11' 11' 11' 11' 11	$\frac{(22.833)^{2}}{(4.6)^{2}} = 310$ $\frac{M_{3}(A_{10})^{2}}{(4.6)^{2}} = 310$ $\frac{M_{3}(A_{10})^{2}}{(4.6)^{2}} = \frac{4}{32}$ $\frac{4}{4} = \frac{4}{4} + \frac{4}$	2.3 ft-k 17€4 5-,5-25=68
	INTERIOR STATES LOCATION SUPPORT 0.65 MU MIDSDAN 0.35 MU	DAVIEL - MOMENT: STRIP C.S. 75% M.S. 25% C.S. 60% M.S. 40% J ! CHECK a= ASP 0005C	Mo= Wultin B TOTAL MU 151,3 A+K 50.4 A+K 65.2 A+K 43.4 A+K BOTTON RETUFORCUENT 4 = (0.15)(60) b' = 0.85(5)(10").	= (216.4)(22') 8 STRID WEDTH 11' 11' 11' 11' 11' 11' 11' 11	(22.833) = 310 M. (AtoFWARTH 13,75 4 K 13,75 4 K 4,6 4 K 4,6 4 K 4 4 Atr 4 4 Atr 4 4 Atr 6 0.2 0.2 0.2 0.2 0.2 0.1705 V/n/1) -	1.3 ft-k 1.8 525=61 4 2 ft-r, 1
	INTERIOR STATES LECATTER SUPPORT 0.65 MJ MIDSOM	DAVIEL - MOMENT: STRIP C.S. 75% M.S. 25% C.S. 60% M.S. 40% J ! CHECK a= ASP a035% MM= \$A.	$M_{0} = \frac{W_{0} l_{2} l_{n}}{8}$ $T_{0TAL} M_{0}$ $I = 1, 3 + k$ $50.4 + k$ $65.2 + k$ $43.4 + k$ $B_{0} = 0$ $RETUFFORCHENT$ $H = \frac{(0.15)(60)}{0.85(5)(2^{n})}$ $5 + \sqrt{(d - \frac{9}{2})} = 0.9$	= (216.4)(22') 8 STRID WEDTH 11' 11' 11' 11' 11' 11' 11' 11	$\frac{(22.833)^{2}}{(22.833)^{2}} = 310$ $\frac{M_{3}(A+oFWSMTH)}{13,75} = 310$ $\frac{13,75}{4} = \frac{4+K}{4}$ $\frac{4,6}{4} = \frac{4+K}{4}$ $\frac{4}{4} = \frac{4+K}{4}$ $\frac{4}{4} = \frac{4-K}{4}$ $\frac{4}{4} = \frac{4-K}{4}$ $\frac{4}{4} = \frac{4-K}{4}$ $\frac{4}{4} = \frac{6}{4} = 6$	9.3 H-K 1764 5-,5-25=61 4.3 A-K
	INTERIOR STATES LOCATTON SUPPORT 0.65 MU MIDSOM MIDSOM	DAVIEL MOMENT: C.S. 75% M.S. 25% C.S. 60% M.S. 40% J ! CHECK a= ASP apSC dMn= \$A.	$M_{0} = \frac{W_{0} l_{2} l_{n}}{8}$ $T_{0TAL} M_{0}$ $I \leq I, 3 f + k$ $50.4 f + k$ $65.2 f + k$ $65.2 f + k$ $65.2 f + k$ $65.2 f + k$ $B_{0} = 0.85(5)(0^{2})$ $c_{1} = 0.85(5)(0^{2})$ $c_{2} = 0.85(5)(0^{2})$ $c_{3} = 0.85(5)(0^{2})$	= (216.4)(22') 8 STRID WEDTH 11' 11' 11' 11' 11' 11' 11' 11	$\frac{(22.833)^{2}}{(22.833)^{2}} = 310$ $\frac{M_{2}(A+0FWSMTH}{13,75} = 310$ $\frac{13,75}{4} = \frac{4+1}{5}$ $\frac{4}{4} = \frac{6}{4} = \frac{6}{4}$ $\frac{6}{4} = \frac{6}{4} = \frac{6}{4}$	9.3 H-K 9.8 H-K 9.8 H-K 9.555 = 6.1 4.3 H-K 4.4 < 6
	INTERIOR STATES LOCATION SUPPORT O.65 MU MIDSDAN 0.35 MU MIDSDAN SURVET	DAVIEL MOMENT: STRIP C.S. 75% M.S. 25% C.S. 60% M.S. 40% J ! CHECK a= ASP a050 dMn= &A : CHECK &	$M_{0} = \frac{W_{0} l_{2} l_{n}}{8}$ $T_{0TAL} M_{0}$ $I \leq I, 3 f + k$ $50.4 f + k$ $65.2 f + k$ $75.2 f + k$ $15.2 f + k$	= (216.4)(22') 8 STRID WEATH 11' 11' 11' 11' 11' 11' 11' 11	$\frac{(22.833)^{2}}{(22.833)^{2}} = 310$ $\frac{M_{2}(A_{10} + \omega_{303} +$	9.3 H-K 9.3 H-K 9.3 H-K 9.3 H-K 4.3 H-K 4.3 H-K 4.3 K-K 4.3 K-K 4.3 K-K
	INTERIOR STATES SUPPORT O.65 MU MIDSDAN B.35 MJ MIDSDAN SURVET	DAVIEL - MOMENT: STRIP C.S. 75% M.S. 25% C.S. 60% M.S. 40% J ! CHECK a= ASC a05C dMA= dA : CHECK & a= (1)	$M_{0} = \frac{W_{0} l_{2} l_{n}}{8}$ $T_{0TAL} M_{0}$ $I \leq I, 3 f + k$ $50.4 f + k$ $65.2 f + k$ $43.4 f + k$ $Borrow REDUFORCHENT 4 = (0.15)(60) cb' = 0.85(5)(2'') sf_{4}(d - \frac{a_{2}}{2}) = 0.1 TOFORCHENT oril(60) = 0.11$	= (216.4)(22') 8 STRID WEATH 11' 11' 11' 11' 11' 11' 11' 11	$\frac{(22.833)^{2}}{(22.833)^{2}} = 310$ $\frac{M_{2}(A_{10} + \omega_{303} +$	9.3 H-K 9.3 H-K 5-25=61 4.3 A-K + < 6
	INTERIOR STATES SUPPORT O.65 MU MIDSDAN B.35 MU MIDSDAN SURVET	DAVIEL - MOMENT: STRIP C.S. 75% M.S. 25% C.S. 60% M.S. 40% J ! CHECK a= ASC a05C dMA= dA : CHECK & a= (1) 0;	$M_{0} = \frac{W_{0} l_{2} l_{n}}{8}$ $T_{0TAL} M_{0}$ $I \leq I, 3 f + k$ $50.4 f + k$ $65.2 f + k$ $43.4 f + k$ $Bottor $ $REDUFORCHENT 4 = (0.15)(60) cb' = 0.85(5)(2'') sf_{4}(d - \frac{a_{2}}{2}) = 0.11 TOTEORCHENT 0.11(60) = 0.11$	= (216.4)(22') 8 STRID WEATH 11' 11' 11' 11' 11' 11' 11' 11	$\frac{(22.833)^{2}}{(22.833)^{2}} = 310$ $\frac{M_{2}(A+0FW30374)}{(13.75)^{4+K}}$ $\frac{13.75}{(4.6)^{4+K}}$ $\frac{4}{(4.6)^{4+K}}$ $\frac{4}{(4.6)^{4+K}}$ $\frac{4}{(4.6)^{4+K}}$ $\frac{4}{(4.6)^{4+K}}$ $\frac{4}{(4.6)^{4+K}}$ $\frac{4}{(4.6)^{4+K}}$ $\frac{6}{(4.6)^{2}}$ $\frac{6}{($	9.3 H-K 9.3 H-K 9.3 H-K 4.3 H-K 4.3 H-K 4.3 K-K 4.3 K-K 4.3 K-K 4.3 K-K
	INTERIOR STATES SUPPORT O.65 MU MIDSDAN 0.35 MU MIDSDAN SURVET	DAVIEL - MOMENT: STRIP C.S. 75% M.S. 25% C.S. 60% M.S. 40% J ! CHECK a= ASC a05C dMn = dA : CHECK & a= (1)	$M_{0} = \frac{W_{0} l_{2} l_{n}}{8}$ $T_{0TAL} M_{0}$ $I \leq I, 3 f + k$ $50.4 f + k$ $65.2 f + k$ $43.4 f + k$ $REDUFORCHENT$ $H = (0.15)(60)$ $cb' = 0.85(5)(2'')$ $sf_{4}(d - \frac{a_{2}}{2}) = 0.1$ $TO = 0.11$ $D = 0.11$ $D \leq (5)(12) = 0.11$	= (216.4)(22') 8 STRID WEDTH 11' 11' 11' 11' 11' 11' 11' 11	$\frac{(22.833)^{2}}{(22.833)^{2}} = 310$ $\frac{M_{2}(A+0FUSERTH)}{13,75} = 310$ $\frac{13,75}{4} = \frac{4}{5}$ $\frac{4}{4}, 6 = \frac{4}{5}$ $\frac{4}{4} = \frac{4}{5}$ $\frac{4}{4} = \frac{4}{5}$ $\frac{4}{4} = \frac{4}{5}$ $\frac{4}{5} = \frac{150}{2}$ $\frac{150}{2} = \frac{150}{2}$ $\frac{150}{2} = \frac{150}{2}$	9.3 ft-k 9.3 ft-k 4.3 <u>ft-k</u> 4.3 <u>ft-k</u> < 6
	INTERIOR STATES SUPPORT O.65 MU MIDSDAN D.35 MU MIDSDAN SURVET	DAVIEL - MOMENT: STRIP C.S. 75% M.S. 25% C.S. 60% M.S. 40% J : CHECK a= ASC a05C dMn = QA C.AECK RE a= (1) of dMn = 0)	$M_{0} = \frac{W_{0} l_{2} l_{n}}{8}$ $T_{0TAL} M_{0}$ $I \leq I, 3 f + k$ $50.4 f + k$ $65.2 f + k$ $43.4 f + k$ $REDUFORCHENT$ $H = (0.15)(60)$ $cb' = 0.85(5)(2'')$ $Sf_{4}(d - \frac{a_{2}}{2}) = 0.11$ $TO = 0.11$ $D = (0.1)(60)(6.5 - 1)$	= (216.4)(22') 8 STRID WEDTH 11' 11' 11' 11' 11' 11' 11' 11	$\frac{(22.833)^{2}}{(22.833)^{2}} = 310$ $\frac{M_{2}(A+0FUSERTH)}{13,75} = 310$ $\frac{13,75}{4} + \frac{4+5}{5}$ $\frac{4}{4} + \frac{6}{4} + \frac{6}$	9.3 H-K 9.3 H-K 4.3 <u>H-K</u> < 6 324
	INTERIOR STATES SUPPORT O.65 MU MIDSDAN D.35 MU MIDSDAN SUPART	DAVIEL - MOMENT: STRIP C.S. 75% M.S. 25% C.S. 60% M.S. 40% J : CHECK a= ASC a05C dMn = QA CAECK RE a= (1 0)	$M_{0} = \frac{W_{0} l_{2} l_{n}}{8}$ $T_{0TAL} M_{0}$ $I \leq I, 3 f + k$ $50.4 f + k$ $65.2 f + k$ $43.4 f + k$ $REDUFORCHENT$ $H = (0.15)(60)$ $1b' = 0.85(5)(2'')$ $5f_{4}(d - \frac{a_{2}}{2}) = 0.11$ $TO = 0.11$ $D = 0.11(00)(6.5 - 1)$	= (216.4)(22') 8 STRID WEDTH 11' 11' 11' 11' 11' 11' 11' 11	$\frac{(22.833)^{2}}{(22.833)^{2}} = 310$ $\frac{M_{2} (A+0FUSERTH)}{13,75} = 310$ $\frac{13,75}{4} = \frac{4}{5}$ $\frac{4}{4}, 6 = \frac{4}{5}$ $\frac{4}{4} = \frac{4}{5}$ $\frac{4}{4} = \frac{4}{5}$ $\frac{4}{4} = \frac{4}{5}$ $\frac{4}{5} = \frac{150}{2}$ $\frac{150}{2} (\sqrt{4})^{2} = \frac{0.1705}{2} (\sqrt{4})^{2} = \frac{0.1705}{2} (\sqrt{4})^{2} = \frac{0.1705}{2} (\sqrt{4})^{2} = \frac{150}{2}$	9.3 H-K 9764 6-,525=61 4.3 AL-K 4.3 AL-K 4.4
	INTERIOR STATES LOCATION SUPPORT O.65 MU MIDSOM MIDSOM SUPPORT	DAVIEL MOMENT: STRIP C.S. 75% M.S. 25% C.S. 60% M.S. 40% U ! CHECK a= ASC aBSC dMn = QA CHECK & a= (1) 0% D = -	$M_{0} = \frac{W_{0} l_{2} l_{n}}{8}$ $T_{0TAL} M_{0}$ $I = 1, 3 f + k$ $50.4 f + k$ $65.2 f + k$ $43.4 f + k$ $Borrow$ $REDUFDECUENT$ $4 = (0.5)(60)$ $cb' = 0.85(5)(2'')$ $5f_{4}(d - \frac{a}{2}) = 0.1$ $TOTEDECUENT$ $0.1)(60) = 0.11$ $05(5)(12) = 0.11$ $05(5)(12) = 0.11$	= (216.4)(22') 8 STRID WEDTH 11' 11' 11' 11' 11' 11' 11' 11	$\frac{(22.833)^{2}}{(22.833)^{2}} = 310$ $\frac{M_{0}(A+oFWSRSTH}{13,75} + \frac{4}{25}$ $\frac{4}{13,75} + \frac{4}{13}$ $\frac{4}{13,75} + $	5.3 ft-k 17/4 5-,5-25=6: 4.3 ft-k 14.3 ft-k 14.5 ft-k 14.5 ft-k
	INTERIOR STATES LOCATION SUPPORT O.65 MU MIDSOM MIDSOM SURJET	DAVIEL MOMENT: STRIP C.S. 75% M.S. 25% C.S. 60% N.S. 40% U! CHECK a= ASC ABSC OMM = OMM - ON POST TRUST	$M_{0} = \frac{W_{0} l_{2} l_{n}}{8}$ $T_{0TAL} M_{0}$ $I = I, 3 ft-k$ $50.4 ft-k$ $65.2 ft-k$ $43.41 ft-k$ $Borrow$ $REDUFDEC UFNT$ $4 = (0.15)(60)$ $cb' = 0.85(5)(2'')$ $5fy(d - \frac{a}{2}) = 0.1$ $TOTEDECENENT 0.1)(bo) = 0.11$ $05(5)(12) = 0.11$ $05(5)(12) = 0.11$ $05(5)(12) = 0.11$	$= \frac{(216.4)(22')}{8}$ STRID WEDTH $  '   '   '   '   '   '   '   '   '   $	$\frac{(22.833)^{2}}{(22.833)^{2}} = 310$ $\frac{M_{0} (f_{1-0} \in W_{STRT} + 13, 75)^{\frac{11}{25}}}{(13, 75)^{\frac{11}{25}}} = \frac{4}{(15)^{\frac{11}{25}}} = \frac{4}{(15)^{\frac{11}{25}}} = \frac{4}{(15)^{\frac{11}{25}}} = \frac{4}{(15)^{\frac{11}{25}}} = \frac{4}{(15)^{\frac{11}{25}}} = \frac{6}{(15)^{\frac{11}{25}}} = \frac{6}{($	9.3 ft-k 974 6-,5-,25= 61 4.3 ft-k 4.3 ft-k 61 74
	INTERIOR STATES LOCATION SUPPORT O.65 MU MIDSOM MIDSOM SURJET	DAVIEL MOMENT: STRIP C.S. 75% M.S. 25% C.S. 60% N.S. 40% U! CHECK a= ASC ABSC AMM = ON AMM = ON POST TRUST	$M_{0} = \frac{W_{0} l_{2} l_{n}}{8}$ $T_{0TAL} M_{0}$ $I = 1, 3 ft - k$ $50.4 ft - k$ $65.2 ft - k$ $43.41 ft - k$ $Borrow$ $REDUFDEC WENT$ $4 = (0.15)(60)$ $cb' = 0.85(5)(2'')$ $5fy(d - 9'_{2}) = 0.1$ $TOI $ $For Forecoment$ $0,1)(60) = 0.11$ $05(5)(12) = 0.11$ $05(5)(12) = 0.11$ $05(5)(12) = 0.11$	= (216.4)(22') 8 STRID WEDTH 11' 11' 11' 11' 11' 11' 11' 11	$\frac{(22.833)^{2}}{(22.833)^{2}} = 310$ $\frac{M_{0} / (f_{1-0} \in W_{3}) \times H_{2}}{(13,75)^{2}}$ $\frac{H_{1}}{(13,75)^{2}}$ $\frac{H_{1}}{(15)^{2}}$	5.3 ft-k 5% 4.3 <u>ft-k</u> 4.3 <u>ft-k</u> 5% 4.3 <u>ft-k</u> 5%
	INTERIOR STATES LOCATION SUPPORT O.65 MU MIDSOM MIDSOM SURJET	DAVIEL MOMENT: STRIP C.S. 75% M.S. 25% C.S. 60% N.S. 40% U ! CHECK a= ASP a850 OMM = OA CHECK & a= (1) OMM = OA POST TRUST	$M_{0} = \frac{W_{0} l_{2} l_{n}}{8}$ $T_{0TAL} M_{0}$ $I = 1, 3 ft + k$ $50.4 ft + k$ $65.2 ft + k$ $43.41 ft + k$ $REDUFDEC WENT$ $4 = (0.15)(60)$ $15^{1} = 0.85(5)(2^{n})$ $5f_{4}(d - \frac{a}{2}) = 0.1$ $TOTEDECENENT 0.1)(60) = 0.11 05(5)(12) = 0.11$	= (216.4)(22') 8 STRID WEDTH 11' 11' 11' 11' 11' 11' 11' 11	$\frac{(22.833)^{2}}{(22.833)^{2}} = 310$ $\frac{M_{0} / (f_{1-0} \in W S N S T + 1)}{(13.75)^{2}}$ $\frac{H_{0}}{(13.75)^{2}}$ $\frac{H_{0}}{($	5.3 ft-k 5% 4.3 ft-k 4.3 ft-k 5% 4.3 ft-k 6%

EXTERIOR PANEL STATIC MOMENT Mo= (216.4 Y25)(20.5)2 = 284.2 CH-K STREP UTOTI+ MU/CH OF LUDOFIL TOTAL MG STRIP LOCATION C.S. 70% 11.1 139.3 12.5' INT SUPPORT 4.8 M.S 30% 59.7 12.5 0.70 Mo 50 SHEETS 100 SHEETS 200 SHEETS C.S 608% 88.7 12.5 7.1 MEDSPAN M.5 40% 59.1 12,5' 4.73 0,52 Mo 73,9 n.s' 5.9 C.S. 100% EXT SUPPORT M.S. 0% 0 12.5' 0 0,26 MD 22-141 22-142 22-144 MIDSPAU : CHECK RENSFORMENT # 46 24 OK. A5= ,1 EAMPAD" d= 6.5" Q= (011)(60) . 0.11765 dMn= 0.9(0.1)(60)(6.5 - 11755)(1/2) = 2.9 4+ ENT SUPPORT: CHECK RENTORMANT HUE 36" D.C. As= ,057 1=6.5 a = (0\$8 (00) = .078 0.85(5)(12) OMn= 0.9 (0.002 (00) (6.5 - 2) (1/2) = 1,95 2+ INT SUPPORT ! CHECK REDITORINENT HY CO24 "O.C. AS-1 1=6.5 a = (0.1100) 0.85(5)(21 = 0.11705 QMA = Q.9(0.1/00)(6.5- 11765)(1/2)= 2.9 K+H POST. TRUSIDNEWS REQUIRED IN SLAPS.

	FOUE 32' PUT
	EXTERCIOR FRINEL (MO), 45-7
	FOST I FINGLONDUCE 17
	LOADTNG: MAX SPRUSCE INITIAL
	WS = 167 PS= WS = 100 PS=
	MOMENTS: MAX INSTIAL
	No= Wo (2h) 243 131.3 H
	B 5576"-4 231"-K
	MTOSTORN (M.S) (SV(4)MO 547.3"-4 3277"-"
000000000000000000000000000000000000000	FIT 5000007 (M.S) (0%)MO
104	
52-14	COMPRESSION: Pe= 1300 " n=.85 SECTION: S= 50 = 1600 PM
6	PE:= 1105" A= 1200 JUZ
MIPAL	N - == 5' N' - 5 K= 2
	STRESSES : +COS +C. 00
A A A A A A A A A A A A A A A A A A A	Ocs = , Otc = 0 Uts = Missec = 100 Ucr + 100 Utr - 50 tcr
	STORSS CHECK :
	INT SUPPORT (M.S) SERVICE
	OTTOP = - 1105" + (1105"YB") - 552.6"-K - , 8"" > Jes
	120023 160023 160023
	4 / w// -P
	OBOT = - 1105 - (1105)(3) + 552.6 = -2.6 5 - C OCS
	1000 104 1000 104 1000 00
	MIDSDAN (M.S) - SERVICE.
	0 TOP = 1105" _ (1105" (3") + 54713"" = -; "31" 4 OCS
	120022 16002 1600 WT
	1105° (1105×13") 547.3"-4 = 265×55 (54-
	0 BUT = 120002 1000 2 1600 W
	INT SOPPOR (MS) - TNITTAL
	(TENDE 1300", (1300")(3") 557.6"-" - 1,0"5" > OTE
	101 100 100 100 TUS
	1300 (1300 4 (300 4 552.6"3,17 2 Ocs
	(DOT = 120005 160023 160024
	NTOSOA N (MS) - TNETTAL
	PHOLONY (INIS) - THE IT
	100 p = 1000 - (000 20) + 000 = - (0 2 0 23
	JB = 1300 (300 (23) - 547.3" - 3,17 > Ju
	1200 TN2 1600 TN3 1600 TN