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November 14, 2011
U7-C-NINA-NRC-110138

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
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Rockville MD 20852-2738

South Texas Project
Units 3 and 4
Docket Nos. 52-012 and 52-013
Supplemental Response to Request for Additional Information

During audits of May 23-27, 2011, July 25-29, 2011, and September 27-30, 2011, the NRC Staff requested that Nuclear Innovation North America LLC (NINA) provide additional information to support the review of the Combined License Application (COLA). Attached is a supplemental response to NRC staff questions included in Request for Additional Information (RAI) 03.08.04-30 and 03.08.04-34 related to COLA Part 2, Tier 2, Section 3.8.

There are no commitments in this letter.

If you have any questions regarding these responses, please contact me at (361) 972-7136 or Bill Mookhoek at (361) 972-7274.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 11/14/11

Scott Head
Manager, Regulatory Affairs
South Texas Project Units 3 & 4

jep

Attachments:

RAI 03.08.04-30, Supplement 7
RAI 03.08.04-34, Supplement 2

D091
NRO

STI 33047979

cc: w/o attachment except*
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RAI 03.08.04-30, Supplement 7

QUESTION:

Follow-up to Question 03.08.04-23

In response to staff question requesting additional information (Letter U7-C-STP-NRC-100036, dated February 10, 2010) about how various steel and concrete elements of site-specific structures are designed, and the design results, the applicant provided some analysis and design information. The applicant also referred to the Supplement 2 response to Question 03.07.01-13 (Letter U7-C-STP-NRC-090230, dated 12/30/09) for pertinent design summary information. In order for the staff to conclude that the design of site-specific structures meet the requirements of GDC 2 by meeting the guidance provided in SRP 3.8.4 and 3.8.5, or otherwise, the applicant is requested to provide the following additional information:

1. The applicant states in the response that a three dimensional finite element analysis (FEA) is used for structural analysis and design of the UHS/RSW Pump House. FSAR Section 3H.6.6.1 states that analysis for the seismic loads was performed using equivalent static loads and the induced forces due to X, Y, and Z seismic excitations were combined using the SRSS method of combination. However, the applicant did not describe how the equivalent static loads due to seismic excitation were determined and applied to the static FEA model from the results of soil structure interaction (SSI) analysis used for determination of seismic response. Therefore, the applicant is requested to provide details of how seismic response analysis results from dynamic SSI analysis were transferred to the static FEA model, including how the effects of accidental torsion were included in the analysis and design of UHS/RSW Pump house. Please also update FSAR with the information, as appropriate.

2. The applicant stated in its response that the modulus of subgrade reaction for static loading was calculated as the average of the local values at nine locations under the foundation. The applicant is requested to provide these nine values, and explain why it is considered appropriate to use the average value. Please also explain how the foundation subgrade modulus was used for calculating nodal springs for the FEA model, and how the effect due to coupling of soil springs was considered in the analysis.

3. For seismic loading, the applicant has outlined a hand-calculated procedure that utilizes published formulas and charts to estimate the foundation spring constants. According to this procedure, the equivalent modulus and Poisson's ratio of a layered soil system are first estimated using the cumulative strain energy method. The resulting values are then used in the equations for computation of the spring constants for a rigid foundation of an arbitrary shape embedded in a uniform half-space. The shear moduli used for individual layers are strain compatible values, and include the mean, upper bound, and lower bound soil cases.
The approximate procedure outlined above for developing the foundation spring constants does not take into account the pressure distribution under the base slab. Furthermore, this procedure does not account for the frequency dependence of these springs. As such, the applicant is requested to provide a justification for not considering the effects of pressure

distribution and system frequency in developing the foundation dynamic springs including describing the impact on the calculated results.

4. The applicant's response does not provide details as to how the soil springs calculated under static and seismic loadings are inputted to the 3-D static FEA model to calculate the design stresses. Therefore, the applicant is requested to describe in detail how the static and seismic soil springs are inputted into the FEA model, and how the results are obtained for stress evaluations. Specifically, the applicant is requested to explain if the two sets of springs were used in a single model, and how the two sets were combined to a single set of springs. Otherwise, if the two sets of springs were applied to separate FEA models, describe how the load combinations were performed. The applicant is also requested to provide sufficient detail to assist staff in understanding how static and seismic soil springs are used in the FEA model and results combined for stress evaluations.

5. In the FSAR mark-up of Sections 3H.6.6.3.1 and 3H.6.6.3.2 provided with the response, the applicant identifies the method used by the applicant for combining forces and moments. In this method, for each reinforcing zone, the maximum force or moment is coupled with the corresponding moment or force for design for the same load combination. It is not clear if this method of combining forces and moments for design will envelop the worst combination of forces and moments for all elements in a reinforcing zone. Therefore, the applicant is requested to describe the method of combining forces and moments used by the applicant with a typical example of a reinforcing zone, and demonstrate that this method of combination will yield the worst combination of forces and moments that should be considered for design.

6. The staff notes that in the FSAR mark-up of Section 3H.6.6.3.1 provided with the response, the reported values of soil springs for the RSW Pump House are significantly larger than those for the UHS basin. The applicant is requested to confirm these values, and explain the reason for the large difference.

7. The response did not include any information about the maximum static and dynamic bearing pressures under the foundations of UHS/RSW Pump House. The applicant is requested to provide the maximum static and dynamic bearing pressure under the foundations of UHS/RSW Pump House, compare these values with the maximum allowable static and dynamic bearing pressures, and include this information in the FSAR.

8. In its response to Question 03.07.01-19 (letter U7-C-STP-NRC-100129, dated June 7, 2010), the applicant provided analysis and design information for the seismic category I Diesel Generator Fuel Oil Storage Vault (DGFOSV) a which was not previously included in the FSAR. The information included in the response does not describe how structural analysis and design of the structure was performed. Also, reference is made to FSAR Section 3H.6.4 for design loads. FSAR Section 3H.6.4 has been updated several times in various responses, and it is not clear where this information can be found. Therefore, the applicant is requested to provide complete structural analysis and design information for the DGFOSV to ensure it meets acceptance criteria 1 through 7 of SRP 3.8.4 and 3.8.5. The staff needs this information to conclude that the DGFOSV is designed to withstand seismic loads and meet GDC 2. Include

in the response an updated version of Appendix 3H where structural analysis and design information for all seismic category I structures can be found.

9. While reviewing this response, and other responses referenced in this response, the staff noted that the applicant has used different values of coefficient of friction for sliding stability evaluation; e.g., the value 0.3 was used for the RSW Pump House, 0.4 was used for UHS basin, 0.58 was used DGFOSV, and for the Reactor Building (RB) and the Control Building (CB), it was stated to be more than 0.47. It is not clear if these values are the required coefficient of friction, or the minimum coefficient of friction available. The applicant is requested to clearly specify the minimum coefficient of friction at various locations of the site, if they are different, and explain how these values were determined. Please also clarify this information in the FSAR.

10. The staff noted references to Diesel Generator Fuel Oil Tunnel (DGFOT) in several RAI responses. Please confirm that DGFOT is not a seismic category I structure, and if it is seismic category I, include the analysis and design information to show how the design of the DGFOT meets the acceptance criteria 1 through 7 in the SRP 3.8.4 and 3.8.5 in the FSAR.

SUPPLEMENTAL RESPONSE:

The Supplement 6 response to this RAI was submitted with Nuclear Innovation North America (NINA) letter U7-C-NINA-NRC-110116, dated September 12, 2011. This supplement provides the response to the following action items discussed in the NRC audit performed during the week of September 27, 2011.

Punch List Item 131

In RAI 03.08.04-30 S5, clarify why the wave propagation for DGFOT is based on site-specific SSE.

Action: Design parameters table (i.e. Table 3H.9-1) will be updated per Action Item 3.7-58.

Punch List Item 134

In COLA Rev. 6, Figures 3H.7-31 and 3H.7-32 are not legible and the table number in the table heading for Table 3H.9-1 is noted as Table 3H.8-1.

Action: COLA Rev 6 Figures 3H.7-31 and 32 will be replaced and design parameters table (i.e. Table 3H.9-1) will be updated per Action Item 3.7-58.

Action Item 3.7-58

Add a note to the design parameters table (i.e. Table 3H.9-1) to specify that the wave propagation parameters are site-specific and correct the table number in the table heading (Punch List Items 131 and 134) in RAI 03.08.04-30 S7.

Axial tensile strains, forces and moments at tunnel bends due to seismic wave propagation are layout dependent. Since the layout of Diesel Generator Fuel Oil Tunnels (DGFOT) is site-specific, the seismic wave propagation for DGFOT is based on the site-specific Safe Shutdown Earthquake.

COLA Figures 3H.7-31 and 3H.7-32 have been revised. The revised figures are provided in the RAI 03.07.01-29 Supplement 1 response which is being submitted concurrently with this response.

COLA Table 3H.9-1 has been revised per Action Item 3.7-58 (see Enclosure).

As a result of this response COLA Part 2, Tier 2, Appendix 3H will be revised as shown in the Enclosure.

Enclosure

Mark-ups to COLA Revision 6

~~Table 3H.8-1~~ Extreme Environmental Design Parameters for Seismic Analysis, Design, Stability Evaluation and Seismic Category II/I Design

Structure	Seismic Analysis					Design									Design for II/I			
	SSI			SSSI		Structure				Stability								
	Input Motion	Soil Type	Structural Damping for Generation of ISRS	Input Motion	Soil Type	Seismic	Tornado	Tornado Missiles	Flood	Seismic	Tornado	Tornado Missiles	Flotation	Coeff. Of Friction for Waterproofing Membrane	Seismic	Tornado	Tornado Missiles	Flood
Diesel Generator Fuel Oil Tunnels (DGFOT)	Envelope of Amplified[1] Site-Specific SSE & 0.3g RG 1.60	DCD & Site-Specific	4% for all SSI analysis cases	Site-Specific SSE	Site-Specific	Envelope of Amplified[1] Site-Specific SSE & 0.3g RG 1.60 (See Note 4)	DCD Tornado Wind Parameters (As described in Table 5.0 of DCD/Tier 1)	DCD Missile Spectrum 1 as defined in Table 5.0 of DCD/Tier 1	Flood El. 40' MSL, Water Density 63.85 lb/ft3 (above grade) + Drag Effect 44 psf (above grade) + Impact of Floating Debris per COLA Section 3.4.2 + Wind Generated Wave Action per COLA Figure 3.4-1 (only hydrodynamic portion)	Amplified[1] Site-Specific SSE	Site-Specific Tornado Wind Parameters (Region II, RG 1.76 Rev. 1)	Site-Specific Tornado Missile Spectrum for Region II as shown in Table 2 of RG 1.76 Rev. 1 (Note 2)	Flood El. 40' MSL, Water Density 63.85 lb/ft^3 (above grade)	Site-Specific	NA	NA	NA	NA
UHS/RSW Pump House	Site-Specific SSE	Site-Specific	4% for all SSI analysis cases	Site-Specific SSE	Site-Specific	Site-Specific SSE	Site-Specific Tornado Wind Parameters (Region II, RG 1.76 Rev. 1)	Site-Specific Tornado Missile Spectrum for Region II as shown in Table 2 of RG 1.76 Rev. 1	Flood El. 40' MSL, Water Density 63.85 lb/ft^3 (above grade) + Drag Effect 44 psf (above grade) + Impact of Floating Debris per COLA Section 3.4.2 + Wind Generated Wave Action per COLA Figure 3.4-1 (only hydrodynamic portion)	Site-Specific SSE	Site-Specific Tornado Wind Parameters (Region II, RG 1.76 Rev. 1)	Site-Specific Tornado Missile Spectrum for Region II as shown in Table 2 of RG 1.76 Rev. 1	Flood El. 40' MSL, Water Density 63.85 lb/ft^3 (above grade)	Site-Specific	NA	NA	NA	NA
RSW Piping Tunnels	Amplified[1] Site-Specific SSE	Site-Specific	4% for all SSI analysis cases Except 7% for Cracked Case	Site-Specific SSE	Site-Specific	Amplified[1] Site-Specific SSE	Site-Specific Tornado Wind Parameters (Region II, RG 1.76 Rev. 1)	Site-Specific Tornado Missile Spectrum for Region II as shown in Table 2 of RG 1.76 Rev. 1	Flood El. 40' MSL, Water Density 63.85 lb/ft^3 (above grade) + Drag Effect 44 psf (above grade) + Impact of Floating Debris per COLA Section 3.4.2 + Wind Generated Wave Action per COLA Figure 3.4-1 (only hydrodynamic portion)	Amplified[1] Site-Specific SSE	Site-Specific Tornado Wind Parameters (Region II, RG 1.76 Rev. 1)	Site-Specific Tornado Missile Spectrum for Region II as shown in Table 2 of RG 1.76 Rev. 1	Flood El. 40' MSL, Water Density 63.85 lb/ft^3 (above grade)	Site-Specific	NA	NA	NA	NA
Diesel Generator Fuel Oil Storage Vault (DGFOSV)	Envelope of Amplified[1] Site-Specific SSE & 0.3g RG 1.60	Site-Specific	4% for all SSI analysis cases	Site-Specific SSE	Site-Specific	Envelope of Amplified[1] Site-Specific SSE & 0.3g RG 1.60	Site-Specific Tornado Wind Parameters (Region II, RG 1.76 Rev. 1)	Site-Specific Tornado Missile Spectrum for Region II as shown in Table 2 of RG 1.76 Rev. 1	Flood El. 40' MSL, Water Density 63.85 lb/ft^3 (above grade) + Drag Effect 44 psf (above grade) + Impact of Floating Debris per COLA Section 3.4.2 + Wind Generated Wave Action per COLA Figure 3.4-1 (only hydrodynamic portion)	Amplified[1] Site-Specific SSE	Site-Specific Tornado Wind Parameters (Region II, RG 1.76 Rev. 1)	Site-Specific Tornado Missile Spectrum for Region II as shown in Table 2 of RG 1.76 Rev. 1	Flood El. 40' MSL, Water Density 63.85 lb/ft^3 (above grade)	Site-Specific	NA	NA	NA	NA
Radwaste Building (RWB)	NA	NA	NA	Site-Specific SSE	Site-Specific	1/2 of 0.3g RG 1.60 SSE for RW-IIa Classification, 4% Damping	Per Table 2 of RG 1.143 Rev. 2 for RW-IIa Classification	Per Table 2 of RG 1.143 Rev. 2 for RW-IIa Classification	Flood El. 33' MSL RW-IIb Classification	Amplified[1] Site-Specific SSE, 7% Damping	Site-Specific Tornado Wind Parameters (Region II, RG 1.76 Rev. 1)	Site-Specific Tornado Missile Spectrum for Region II as shown in Table 2 of RG 1.76 Rev. 1	Flood El. 40' MSL, Water Density 63.85 lb/ft^3 (above grade)	Site-Specific	Envelope of Amplified[1] Site-Specific SSE & 0.3g RG 1.60, 7% Damping	DCD Tornado Wind Parameters (As described in Table 5.0 of DCD/Tier 1)	DCD Missile Spectrum 1 as defined in Table 5.0 of DCD/Tier 1	Flood El. 40' MSL, Water Density 63.85 lb/ft^3 (above grade) + Drag Effect 44 psf (above grade) + Impact of Floating Debris per COLA Section 3.4.2 + Wind Generated Wave Action per COLA Figure 3.4-1 (only hydrodynamic portion)
Control Bldg. Annex (CBA)	NA	NA	NA	NA	NA	IBC 2006	NA	NA	NA	Amplified[1] Site-Specific SSE	Site-Specific Tornado Wind Parameters (Region II, RG 1.76 Rev. 1)	Site-Specific Tornado Missile Spectrum for Region II as shown in Table 2 of RG 1.76 Rev. 1	Flood El. 40' MSL, Water Density 63.85 lb/ft^3 (above grade)	Site-Specific	Envelope of Amplified[1] Site-Specific SSE & 0.3g RG 1.60	DCD Tornado Wind Parameters (As described in Table 5.0 of DCD/Tier 1)	DCD Missile Spectrum 1 as defined in Table 5.0 of DCD/Tier 1	Flood El. 40' MSL, Water Density 63.85 lb/ft^3 (above grade) + Drag Effect 44 psf (above grade) + Impact of Floating Debris per COLA Section 3.4.2 + Wind Generated Wave Action per COLA Figure 3.4-1 (only hydrodynamic portion)
Turbine Building (TB)	NA	NA	NA	NA	NA	IBC 2006	NA	NA	NA	Site-Specific SSE	Site-Specific Tornado Wind Parameters (Region II, RG 1.76 Rev. 1)	Site-Specific Tornado Missile Spectrum for Region II as shown in Table 2 of RG 1.76 Rev. 1	Flood El. 40' MSL, Water Density 63.85 lb/ft^3 (above grade)	Site-Specific	0.3g RG 1.60 SSE	DCD Tornado Wind Parameters (As described in Table 5.0 of DCD/Tier 1)	DCD Missile Spectrum 1 as defined in Table 5.0 of DCD/Tier 1	Flood El. 40' MSL, Water Density 63.85 lb/ft^3 (above grade) + Drag Effect 44 psf (above grade) + Impact of Floating Debris per COLA Section 3.4.2 + Wind Generated Wave Action per COLA Figure 3.4-1 (only hydrodynamic portion)
Service Building (SB)	NA	NA	NA	NA	NA	IBC 2006	NA	NA	NA	Amplified[1] Site-Specific SSE	Site-Specific Tornado Wind Parameters (Region II, RG 1.76 Rev. 1)	Site-Specific Tornado Missile Spectrum for Region II as shown in Table 2 of RG 1.76 Rev. 1	Flood El. 40' MSL, Water Density 63.85 lb/ft^3 (above grade)	Site-Specific	Envelope of Amplified[1] Site-Specific SSE & 0.3g RG 1.60	DCD Tornado Wind Parameters (As described in Table 5.0 of DCD/Tier 1)	DCD Missile Spectrum 1 as defined in Table 5.0 of DCD/Tier 1	Flood El. 40' MSL, Water Density 63.85 lb/ft^3 (above grade) + Drag Effect 44 psf (above grade) + Impact of Floating Debris per COLA Section 3.4.2 + Wind Generated Wave Action per COLA Figure 3.4-1 (only hydrodynamic portion)

~~General~~ Notes:

1) Amplified Site-Specific SSE accounts for the influence of nearby heavy Reactor Building, Control Building, and/or UHS/RSW Pump House.

2) For stability under tornado loading with tornado missile, restraints are required at top of DGFOT access regions.

3) NA: Not Applicable

4) Seismic wave propagation for DGFOT is based on site-specific SSE because its layout is site-specific.

Table 3H.9-1 Extreme Environmental Design Parameters for Seismic Analysis, Design, Stability Evaluation and Seismic Category II/I Design

RAI 03.08.04-34, Supplement 2

QUESTION:

10 CFR 50, Appendix A, GDC 2, requires that structures important to safety shall be designed to withstand the effects of natural phenomena with appropriate combination of the effects of normal and accident conditions. To meet this requirement, all seismic category I structures must be designed for required strength at all locations in the structure. During the October 2010 Audit the applicant presented the procedures to verify the concrete sections of the UHS/PH structural members resulting from the code-required load combinations. The internal forces (i.e. shear, moment, axial force, torsion, etc.) used to determine the required strength of the structural members (i.e. walls, slabs, beam, columns, etc.) of the UHS/PH building are generated by the applicant with the help of SAP2000 models simulating the building's static and dynamic behavior. These element forces are subsequently processed by the applicant with a number of in-house developed programs for design of concrete sections. It was noted that concrete slabs and walls were designed for out-of-plane shear by averaging the element shear forces across cut lines that extended along the entire width of the walls and slabs. The staff considers that averaging of out of plane shear along the entire cut line of a slab or wall could lead to unconservative estimate of shear stress in slabs. The subject was discussed with the applicant during the audit. Although the applicant explained the procedure by referencing to ACI 349-97, Section 11.12, "Special provisions for slabs and footings," it did not provide the staff with a sufficient interpretation of the provision of the ACI code, which appears to be intended for shear strength of slabs and footings in the vicinity of columns, concentrated loads, or reactions, to close this issue. ACI 349- 97, Section 13.3.1, states that a slab system may be designed by any procedure satisfying conditions of equilibrium and geometric compatibility, if shown that the design strength at every section is at least equal to the required strength. Averaging of out-of-plane shear across the entire width of a slab may not show that the design strength at every section is at least equal to the required strength. Therefore, in order for the staff to conclude that the site-specific structures are adequately designed for out-of plane shear, the staff requests STP to demonstrate that use of average shear force across the entire width of slab, instead of the shear force demand at every section obtained from analysis may be considered acceptable by any or more of the following:

- Obtain clarification from the ACI regarding validity of use of Section 11.12 of ACI 349-87 for the situations where the provisions of the code were used,
- Provide examples of any precedence where similar methodology was accepted by the staff,
- Provide detailed justification using industry accepted standards, technical references, experimental results, etc., to justify redistribution of the shear forces obtained from finite element analysis.

The applicant is also requested to update the FSAR as necessary.

SUPPLEMENTAL RESPONSE:

The original response to this RAI was submitted with Nuclear Innovation North America (NINA) letter U7-C-NINA-NRC-110050, dated April 5, 2011. This supplement provides the response to the following action item discussed in the NRC audits performed during the weeks of May 23, 2011 and July 25, 2011.

Beam shear discussion (Punch List Item 119):

Calculations will be revised and FSAR tables will be updated as a Confirmatory Action (Follow-up to Punch List Item 56, Audit Action Item 3.8-21)

Finite element analysis was used for design of the following structures:

- Ultimate Heat Sink (UHS)/Reactor Service Water (RSW) Pump House
- Diesel Generator Fuel Oil Tunnels (DGFOT)
- Diesel Generator Fuel Oil Storage Vaults (DGFOSV)
- Radwaste Building (RWB)

As noted in the original response, unless noted otherwise, design of these structures for out-of-plane shear have been conservatively revised based on finite element analysis results for each element without averaging the shear over several elements. The Supplement 1 response to this RAI submitted with NINA letter U7-C-NINA-NRC-110116, dated September 12, 2011 provided the summary of results for UHS/RSW Pump House and DGFOT. This supplemental response provides the summary of results for RWB and DGFOSV.

RWB:

No averaging has been used for out-of-plane shear design. Tables 3H.3-3 and 3H.3-4 and Figures 3H.3-8 through 3H.3-49 (see Enclosure) have been revised to reflect the results of this analysis and replace the existing tables and figures in the COLA.

DGFOSV:

No averaging has been used for out-of-plane shear design. Table 3H.6-11 and Figures 3H.6-142 through 3H.6-208 (see Enclosure) have been revised to reflect the results of this analysis and replace the existing tables and figures in the COLA.

As a result of this response COLA Part 2, Tier 2, Appendix 3H will be revised as shown in the Enclosure.

Enclosure

Mark-ups to COLA Revision 6

3H.6.7.2.1 Wall and Slab Design

For each reinforcement zone, the ~~following~~ in-plane ~~and transverse~~ shears with the corresponding load combination are reported in Table 3H.6-11~~:~~. The in-plane shear is the maximum average in-plane shear along a plane that crosses the longitudinal reinforcement zone.

The shell forces from every element for every load combination in the finite element model were evaluated to determine the required transverse reinforcement. The transverse shear and axial force reported in Tables 3H.6-11 correspond to the maximum required transverse reinforcement for an element within that transverse reinforcement zone.

- ~~The in-plane shear is the maximum average in-plane shear along a plane that crosses the longitudinal reinforcement zone.~~
- ~~The transverse shear is the maximum average transverse shear along a plane in that transverse reinforcement zone.~~

3H.6.7.3.1 Uplift Analysis

The SAP2000 finite element models were checked for uplift effects by reviewing the joint reaction at the basemat. It was determined that under seismic loading the DGFOSV experiences uplift. Using the 100%, 40%, 40% rule for combination of three seismic excitations, non-linear analysis was run on each model with uniform Winkler soil springs and pseudo-coupled soil springs to determine an enveloping adjustment factor for forces and moments from the linear analysis for the foundation mat and the connecting walls. The non-linear analysis iterates multiple times removing soil springs that go into tension during each iteration until no soil springs are in tension. For the directional earthquake loading required for the nonlinear analysis, the DGFOSV critical loading, a safe shutdown earthquake (SSE) from the southwest in combination with static active and passive loads for SSE, is considered.

Comparing resultant foundation mat and wall reactions from the linear analysis with mat and wall reactions from the nonlinear analysis, there is a maximum reaction increase of approximately 22167% for the foundation mat out-of-plane shear forces, 0.1% increase for the foundation mat in-plane shear and axial forces, 21217% increase for the foundation mat bending moments, 4% increase for the connecting walls shear forces and axial forces, and 106% increase for the connecting walls ~~shear forces, axial forces, and~~ bending moments (enveloping cases with Winkler and pseudo-coupled soil springs) in the nonlinear analysis. To account for this, the resulting forces and moments from the linear analyses were adjusted by applying an increase factor of 3.211.67 to out-of-plane shear~~all~~ forces in the foundation mat, an increase factor of 1.1 to in-plane shear and axial forces in the foundation mat, an increase factor of 3.121.17 to all moments in the foundation mat, an increase factor 1.07 to all forces in the connecting walls, and an increase factor 1.11.06 to all ~~forces and~~ moments in the connecting walls for the DGFOSV design.

Table 3H.3-3: Results of Radwaste Building Concrete Wall Design (Continued)

Location	Face	Direction	Reinforcement Layout Drawing Number (1)	Thickness (ft)	Reinforcement Zone Number (2)	Maximum Forces (3)	Element	Longitudinal Reinforcement Design Loads					Longitudinal Reinforcement Provided (in²/ft)	Transverse Shear Design Loads (6)					Transverse Shear (7) Reinforcement Provided (in²/ft²)	Remarks
								Axial and Flexure Loads			In-Plane Shear Loads				Horizontal Section		Vertical Section			
								Load Combination	Axial (4) (kips / ft)	Flexure (4) (ft-kips / ft)	Load Combination	In-plane (5) Shear (kips / ft)		Load Combination	Transverse Shear Force (kip / ft)	Corresponding Axial Force (kip / ft)	Transverse Shear Force (kip / ft)	Corresponding Axial Force (kip / ft)		
North Wall	-	Transverse (Horizontal and Vertical)	3H.3-12	5.5	8-T	-	-	-	-	-	-	-	-	D + L + H' + E'	-121	45	3	-44	0.20 (#4@12)	-
					9-T	-	-	-	-	-	-	-	-	D + L + H' + E'	15	-131	166	-129	0.31 (#5@12)	-
					10-T	-	-	-	-	-	-	-	-	D + L + H' + E'	0	-44	194	-95	0.44 (#6@12)	-
					11-T	-	-	-	-	-	-	-	-	D + L + H' + E'	154	-18	226	-316	0.79 (#8@12)	-
South Wall	Near Side	Horizontal	3H.3-13	3	1-H-L	MTCM	34675	1.4D + 1.7L + 1.7H' + 1.7Eo	52	-8	1.4D + 1.7L + 1.7H' + 1.7Eo	67	1.56	-	-	-	-	-	-	-
						MCCM	34147	1.4D + 1.7L + 1.7H' + 1.7Eo	-109	-48										
						MMAT	23252	1.4D + 1.7L + 1.7H' + 1.7Eo	10	-113										
						MMAC	25252	1.4D + 1.7L + 1.7H' + 1.7Eo	-11	-113										
					2-H-L	MTCM	31843	1.4D + 1.7L + 1.7H' + 1.7Eo	103	-83	1.4D + 1.7L + 1.7H' + 1.7Eo	124	3.12	-	-	-	-	-	-	-
						MCCM	25431	1.4D + 1.7L + 1.7H' + 1.7Eo	-198	-52										
						MMAT	31092	1.4D + 1.7L + 1.7H' + 1.7Eo	11	-243										
						MMAC	31092	1.4D + 1.7L + 1.7H' + 1.7Eo	-9	-243										
					3-H-L	MTCM	34138	1.4D + 1.7L + 1.7H' + 1.7Eo	122	-66	1.4D + 1.7L + 1.7H' + 1.7Eo	124	4.68	-	-	-	-	-	-	-
						MCCM	34156	1.4D + 1.7L + 1.7H' + 1.7Eo	-259	-68										
						MMAT	25248	1.4D + 1.7L + 1.7H' + 1.7Eo	11	-318										
						MMAC	25248	1.4D + 1.7L + 1.7H' + 1.7Eo	-104	-322										
					4-H-L	MTCM	25237	1.4D + 1.7L + 1.7H' + 1.7Eo	111	-210	1.4D + 1.7L + 1.7H' + 1.7Eo	112	6.24	-	-	-	-	-	-	-
						MCCM	25237	1.4D + 1.7L + 1.7H' + 1.7Eo	-270	-300										
						MMAT	25238	1.4D + 1.7L + 1.7H' + 1.7Eo	30	-295										
						MMAC	25234	1.4D + 1.7L + 1.7H' + 1.7Eo	-229	-332										
				4	5-H-L	MTCM	23291	1.4D + 1.7L + 1.7H' + 1.7Eo	70	-118	1.4D + 1.7L + 1.7H' + 1.7Eo	135	3.12	-	-	-	-	-	-	-
						MCCM	14538	1.4D + 1.7L + 1.7H' + 1.7Eo	-194	-252										
						MMAT	23316	1.4D + 1.7L + 1.7H' + 1.7Eo	33	-196										
						MMAC	19367	D + L + H' + E'	-97	-362										
					6-H-L	MTCM	11561	1.4D + 1.7L + 1.7H' + 1.7Eo	39	-49	1.4D + 1.7L + 1.7H' + 1.7Eo	135	4.68	-	-	-	-	-	-	-
						MCCM	14323	1.4D + 1.7L + 1.7H' + 1.7Eo	-186	-282										
						MMAT	11561	D + L + H' + E'	7	-302										
						MMAC	11570	D + L + H' + E'	-82	-579										
					7-H-L	MTCM	23297	1.4D + 1.7L + 1.7H' + 1.7Eo	113	-344	1.4D + 1.7L + 1.7H' + 1.7Eo	115	6.24	-	-	-	-	-	-	-
						MCCM	23257	1.4D + 1.7L + 1.7H' + 1.7Eo	-298	-431										
						MMAT	23305	1.4D + 1.7L + 1.7H' + 1.7Eo	2	-630										
						MMAC	23305	1.4D + 1.7L + 1.7H' + 1.7Eo	-67	-677										
				5.5	8-H-L	MTCM	4125	1.4D + 1.7L + 1.7H' + 1.7Eo	27	-58	1.4D + 1.7L + 1.7H' + 1.7Eo	135	3.12	-	-	-	-	-	-	-
						MCCM	8521	1.4D + 1.7L + 1.7H' + 1.7Eo	-224	-215										
						MMAT	7745	1.4D + 1.7L + 1.7H + 1.7W	1	-148										
						MMAC	6003	D + L + H' + E'	-73	-425										
					9-H-L	MTCM	2345	1.4D + 1.7L + 1.7H' + 1.7Eo	47	-87	1.4D + 1.7L + 1.7H' + 1.7Eo	160	4.68	-	-	-	-	-	-	-
						MCCM	3142	1.4D + 1.7L + 1.7H' + 1.7Eo	-168	-241										
						MMAT	2288	1.4D + 1.7L + 1.7H' + 1.7Eo	4	-198										
						MMAC	3385	D + L + H' + E'	-109	-303										
					10-H-L	MTCM	2345	1.4D + 1.7L + 1.7H' + 1.7Eo	62	-82	1.4D + 1.7L + 1.7H' + 1.7Eo	160	6.24	-	-	-	-	-	-	-
						MCCM	6531	D + L + H' + E'	-355	-1157										
						MMAT	2287	D + L + H' + E'	8	-403										
						MMAC	6531	D + L + H' + E'	-355	-1165										

Table 3H.3-3: Results of Radwaste Building Concrete Wall Design (Continued)

Location	Face	Direction	Reinforcement Layout Drawing Number (1)	Thickness (ft)	Reinforcement Zone Number (2)	Maximum Forces (3)	Element	Longitudinal Reinforcement Design Loads: Axial and Flexure Loads: Load Combination	Axial (4) (kips / ft)	Flexure (4) (ft-kips / ft)	In-Plane Shear Loads: Load Combination	In-plane Shear (5) (kips / ft)	Longitudinal Reinforcement Provided (in²/ft)	Transverse Shear Design Loads (6): Load Combination	Horizontal Section: Transverse Shear Force (kip / ft)	Horizontal Section: Corresponding Axial Force (kip / ft)	Vertical Section: Transverse Shear Force (kip / ft)	Vertical Section: Corresponding Axial Force (kip / ft)	Transverse Shear (7) Reinforcement Provided (in²/ft²)	Remarks
South Wall	Near Side	Vertical	3H.3-14	3	1-V-L	MTCM	26214	1.4D + 1.7L + 1.7H' + 1.7Eo	33	-51	1.4D + 1.7L + 1.7H' + 1.7Eo	130	3.12	-	-	-	-	-	-	(3)
						MCCM	26584	1.4D + 1.7L + 1.7H' + 1.7Eo	-269	-29										
						MMAT	31135	1.4D + 1.7L + 1.7H' + 1.7Eo	7	-231										
						MMAC	31135	1.4D + 1.7L + 1.7H' + 1.7Eo	-43	-231										
					2-V-L	MTCM	34164	1.4D + 1.7L + 1.7H' + 1.7Eo	79	-203	1.4D + 1.7L + 1.7H' + 1.7Eo	97	4.68	-	-	-	-	-	-	-
						MCCM	34156	1.4D + 1.7L + 1.7H' + 1.7Eo	-187	-190										
						MMAT	32162	1.4D + 1.7L + 1.7H' + 1.7Eo	51	-287										
						MMAC	32162	1.4D + 1.7L + 1.7H' + 1.7Eo	-41	-287										
					3-V-L	MTCM	26220	1.4D + 1.7L + 1.7H' + 1.7Eo	42	-216	1.4D + 1.7L + 1.7H' + 1.7Eo	89	6.24	-	-	-	-	-	-	-
						MCCM	27076	1.4D + 1.7L + 1.7H	-197	-91										
						MMAT	26238 / 26239	1.4D + 1.7L + 1.7H' + 1.7Eo	19	-466										
						MMAC	26238 / 26239	1.4D + 1.7L + 1.7H' + 1.7Eo	-156	-493										
					4-V-L	MTCM	26229	D + L + H' + E'	24	-423	1.4D + 1.7L + 1.7H' + 1.7Eo	87	7.8	-	-	-	-	-	-	-
						MCCM	27377	1.4D + 1.7L + 1.7H	-190	-74										
						MMAT	26229	1.4D + 1.7L + 1.7H' + 1.7Eo	4	-509										
						MMAC	26229	1.4D + 1.7L + 1.7H' + 1.7Eo	-120	-511										
					5-V-L	MTCM	26237	1.4D + 1.7L + 1.7H' + 1.7Eo	112	-852	1.4D + 1.7L + 1.7H' + 1.7Eo	69	12.48	-	-	-	-	-	-	(3),(7)
						MCCM	26237	1.4D + 1.7L + 1.7H' + 1.7Eo	-351	-904										
						MMAT	26237	1.4D + 1.7L + 1.7H' + 1.7Eo	31	-899										
						MMAC	26237	1.4D + 1.7L + 1.7H' + 1.7Eo	-351	-904										
					6-V-L	MTCM	26237 / 26238	D + L + H' + E'	70	-680	1.4D + 1.7L + 1.7H' + 1.7Eo	73	12.48	-	-	-	-	-	-	(3),(7)
						MCCM	26548 / 26549	1.4D + 1.7L + 1.7H	-262	-631										
						MMAT	26237 / 26238	1.4D + 1.7L + 1.7H' + 1.7Eo	17	-820										
						MMAC	26237 / 26238	1.4D + 1.7L + 1.7H' + 1.7Eo	-251	-825										
					7-V-L	MTCM	26542	D + L + H' + E'	112	-485	1.4D + 1.7L + 1.7H' + 1.7Eo	62	7.8	-	-	-	-	-	-	(3),(7)
						MCCM	29431	1.4D + 1.7L + 1.7H' + 1.7Eo	-303	-204										
						MMAT	26556 / 26557	1.4D + 1.7L + 1.7H' + 1.7Eo	5	-567										
						MMAC	26556 / 26557	1.4D + 1.7L + 1.7H' + 1.7Eo	-14	-568										
				[illegible]	8-V-L	MTCM	11512	1.4D + 1.7L + 1.7H' + 1.7Eo	102	-62	1.4D + 1.7L + 1.7H' + 1.7Eo	183	3.12	-	-	-	-	-	-	(3)
						MCCM	11513	1.4D + 1.7L + 1.7H' + 1.7Eo	-389	-65										
						MMAT	11518	D + L + H' + E'	19	-218										
						MMAC	18496	D + L + H' + E'	-152	-280										
					9-V-L	MTCM	23273	1.4D + 1.7L + 1.7H' + 1.7Eo	109	-72	1.4D + 1.7L + 1.7H' + 1.7Eo	223	4.68	-	-	-	-	-	-	-
						MCCM	16528	1.4D + 1.7L + 1.7H' + 1.7Eo	-357	-66										
						MMAT	22077	1.4D + 1.7L + 1.7H' + 1.7Eo	8	-411										
						MMAC	22078	1.4D + 1.7L + 1.7H' + 1.7Eo	-149	-471										
					10-V-L	MTCM	11569	1.4D + 1.7L + 1.7H' + 1.7Eo	115	-97	1.4D + 1.7L + 1.7H' + 1.7Eo	277	6.24	-	-	-	-	-	-	-
						MCCM	11570	1.4D + 1.7L + 1.7H' + 1.7Eo	-425	-209										
						MMAT	23304	1.4D + 1.7L + 1.7H' + 1.7Eo	7	-632										
						MMAC	23304	1.4D + 1.7L + 1.7H' + 1.7Eo	-151	-699										
					11-V-L	MTCM	22631	1.4D + 1.7L + 1.7H' + 1.7Eo	91	-365	1.4D + 1.7L + 1.7H' + 1.7Eo	157	7.8	-	-	-	-	-	-	-
						MCCM	22631	1.4D + 1.7L + 1.7H' + 1.7Eo	-308	-633										
						MMAT	23297	D + L + H' + E'	6	-732										
						MMAC	23297	1.4D + 1.7L + 1.7H' + 1.7Eo	-236	-823										

Table 3H.3-3: Results of Radwaste Building Concrete Wall Design (Continued)

Location	Face	Direction	Reinforcement Layout Drawing Number (1)	Thickness (ft)	Reinforcement Zone Number (2)	Maximum Forces (3)	Element	Longitudinal Reinforcement Design Loads: Axial and Flexure Loads: Load Combination	Axial (4) (kips / ft)	Flexure (4) (ft-kips / ft)	In-Plane Shear Loads: Load Combination	In-plane Shear (5) (kips / ft)	Longitudinal Reinforcement Provided (in²/ft)	Transverse Shear Design Loads (6): Load Combination	Horizontal Section: Transverse Shear Force (kip / ft)	Horizontal Section: Corresponding Axial Force (kip / ft)	Vertical Section: Transverse Shear Force (kip / ft)	Vertical Section: Corresponding Axial Force (kip / ft)	Transverse Shear (7) Reinforcement Provided (in²/ft²)	Remarks
South Wall	Near Side	Vertical	3H.3-14	5.5	12-V-L	MTCM	4873	1.4D + 1.7L + 1.7H' + 1.7Eo	100	-129	1.4D + 1.7L + 1.7H' + 1.7Eo	164	3.12	-	-	-	-	-	-	-
						MCCM	3100	1.4D + 1.7L + 1.7H' + 1.7Eo	-347	-111										
						MMAT	3123	D + L + H' + E'	6	-275										
						MMAC	3102	D + L + H' + E'	-237	-281										
					13-V-L	MTCM	4069	1.4D + 1.7L + 1.7H' + 1.7Eo	218	-68	1.4D + 1.7L + 1.7H' + 1.7Eo	235	4.68	-	-	-	-	-	-	-
						MCCM	4069	1.4D + 1.7L + 1.7H' + 1.7Eo	-650	-121										
						MMAT	3124	D + L + H' + E'	15	-292										
						MMAC	3124	D + L + H' + E'	-213	-292										
					14-V-L	MTCM	2287	1.4D + 1.7L + 1.7H' + 1.7Eo	301	-291	1.4D + 1.7L + 1.7H' + 1.7Eo	285	6.24	-	-	-	-	-	-	-
						MCCM	2287	1.4D + 1.7L + 1.7H' + 1.7Eo	-747	-323										
						MMAT	2292	D + L + H' + E'	18	-874										
						MMAC	2292	D + L + H' + E'	-258	-874										
					15-V-L	MTCM	2330	1.4D + 1.7L + 1.7H' + 1.7Eo	114	-249	1.4D + 1.7L + 1.7H' + 1.7Eo	224	7.8	-	-	-	-	-	-	-
						MCCM	2330	1.4D + 1.7L + 1.7H' + 1.7Eo	-346	-254										
						MMAT	2328	D + L + H' + E'	33	-551										
						MMAC	2328	D + L + H' + E'	-217	-551										
					16-V-L	MTCM	2345	1.4D + 1.7L + 1.7H' + 1.7Eo	296	-224	1.4D + 1.7L + 1.7H' + 1.7Eo	285	9.35	-	-	-	-	-	-	-
						MCCM	2345	1.4D + 1.7L + 1.7H' + 1.7Eo	-697	-600										
						MMAT	2343	D + L + H' + E'	20	-816										
						MMAC	2343	D + L + H' + E'	-277	-816										
	Far Side	Horizontal	3H.3-15	3	1-H-L	MTCM	34675	1.4D + 1.7L + 1.7H' + 1.7Eo	52	18	1.4D + 1.7L + 1.7H' + 1.7Eo	67	1.56	-	-	-	-	-	-	-
						MCCM	34147	1.4D + 1.7L + 1.7H' + 1.7Eo	-109	56										
						MMAT	29252	1.4D + 1.7L + 1.7H' + 1.7Eo	11	104										
						MMAC	29252	1.4D + 1.7L + 1.7H' + 1.7Eo	-11	104										
					2-H-L	MTCM	31123	1.4D + 1.7L + 1.7H' + 1.7Eo	98	100	1.4D + 1.7L + 1.7H' + 1.7Eo	124	3.12	-	-	-	-	-	-	-
						MCCM	29431	1.4D + 1.7L + 1.7H' + 1.7Eo	-198	53										
						MMAT	29564	1.4D + 1.7L + 1.7H' + 1.7Eo	31	207										
						MMAC	29564	1.4D + 1.7L + 1.7H' + 1.7Eo	-38	207										
					3-H-L	MTCM	25237	1.4D + 1.7L + 1.7H' + 1.7Eo	111	172	1.4D + 1.7L + 1.7H' + 1.7Eo	124	4.65	-	-	-	-	-	-	-
						MCCM	25237	1.4D + 1.7L + 1.7H' + 1.7Eo	-270	161										
						MMAT	30673	1.4D + 1.7L + 1.7H' + 1.7Eo	25	250										
						MMAC	30673	1.4D + 1.7L + 1.7H' + 1.7Eo	-141	251										
					4-H-L	MTCM	32170	1.4D + 1.7L + 1.7H' + 1.7Eo	120	77	1.4D + 1.7L + 1.7H' + 1.7Eo	45	6.24	-	-	-	-	-	-	-
						MCCM	31909	1.4D + 1.7L + 1.7H' + 1.7Eo	-200	321										
						MMAT	31900	1.4D + 1.7L + 1.7H' + 1.7Eo	58	361										
						MMAC	31900	1.4D + 1.7L + 1.7H' + 1.7Eo	-187	361										
					5-H-L	MTCM	34156	1.4D + 1.7L + 1.7H' + 1.7Eo	122	63	1.4D + 1.7L + 1.7H' + 1.7Eo	67	7.8	-	-	-	-	-	-	-
						MCCM	34156	1.4D + 1.7L + 1.7H' + 1.7Eo	-259	64										
						MMAT	34162	1.4D + 1.7L + 1.7H' + 1.7Eo	54	196										
						MMAC	34162	1.4D + 1.7L + 1.7H' + 1.7Eo	-71	196										
				4	6-H-L	MTCM	23291	1.4D + 1.7L + 1.7H' + 1.7Eo	70	109	1.4D + 1.7L + 1.7H' + 1.7Eo	135	3.12	-	-	-	-	-	-	-
						MCCM	11557	1.4D + 1.7L + 1.7H' + 1.7Eo	-199	114										
						MMAT	23278	D + L + H' + E'	0	186										
						MMAC	11518	D + L + H' + E'	-162	292										
					7-H-L	MTCM	23297	1.4D + 1.7L + 1.7H' + 1.7Eo	113	306	1.4D + 1.7L + 1.7H' + 1.7Eo	115	6.24	-	-	-	-	-	-	-
						MCCM	23297	1.4D + 1.7L + 1.7H' + 1.7Eo	-296	190										
						MMAT	23305	1.4D + 1.7L + 1.7H' + 1.7Eo	34	485										
						MMAC	23305	1.4D + 1.7L + 1.7H' + 1.7Eo	-35	485										

Table 3H.3-3: Results of Radwaste Building Concrete Wall Design (Continued)

Location	Face	Direction	Reinforcement Layout Drawing Number (1)	Thickness (ft)	Reinforcement Zone Number (2)	Maximum Forces (3)	Element	Longitudinal Reinforcement Design Loads: Axial and Flexure Loads: Load Combination	Axial (4) (kips / ft)	Flexure (4) (ft-kips / ft)	In-Plane Shear Loads: Load Combination	In-plane Shear (5) (kips / ft)	Longitudinal Reinforcement Provided (in²/ ft)	Transverse Shear Design Loads (6): Load Combination	Horizontal Section: Transverse Shear Force (kip / ft)	Horizontal Section: Corresponding Axial Force (kip / ft)	Vertical Section: Transverse Shear Force (kip / ft)	Vertical Section: Corresponding Axial Force (kip / ft)	Transverse Shear (7) Reinforcement Provided (in²/ft²)	Remarks
South Wall	Far Side	Horizontal	3H.3-15	5.5	8-H-L	MTCM	8514	1.4D + 1.7L + 1.7H' + 1.7Eo	32	23	1.4D + 1.7L + 1.7H' + 1.7Eo	135	3.12	-	-	-	-	-	-	-
						MCCM	8521	1.4D + 1.7L + 1.7H' + 1.7Eo	-224	126										
						MMAT	8519	1.4D + 1.7L + 1.7H + 1.7W	8	190										
						MMAC	8529	D + L + H' + E'	-125	545										
					9-H-L	MTCM	2345	1.4D + 1.7L + 1.7H' + 1.7Eo	47	65	1.4D + 1.7L + 1.7H' + 1.7Eo	160	4.68	-	-	-	-	-	-	-
						MCCM	3141	1.4D + 1.7L + 1.7H' + 1.7Eo	-153	250										
						MMAT	6475	1.4D + 1.7L + 1.7H' + 1.7Eo	7	184										
						MMAC	6477	D + L + H' + E'	-55	627										
		Vertical	3H.3-16	3	1-V-L	MTCM	26214	1.4D + 1.7L + 1.7H' + 1.7Eo	93	63	1.4D + 1.7L + 1.7H' + 1.7Eo	130	3.12	-	-	-	-	-	-	-
						MCCM	26584	1.4D + 1.7L + 1.7H' + 1.7Eo	-269	58										
						MMAT	29788	1.4D + 1.7L + 1.7H' + 1.7Eo	0	233										
						MMAC	29788	1.4D + 1.7L + 1.7H' + 1.7Eo	-88	252										
					2-V-L	MTCM	34164	1.4D + 1.7L + 1.7H' + 1.7Eo	79	224	1.4D + 1.7L + 1.7H' + 1.7Eo	97	4.68	-	-	-	-	-	-	-
						MCCM	27076	1.4D + 1.7L + 1.7H	-200	65										
						MMAT	29803	1.4D + 1.7L + 1.7H' + 1.7Eo	6	359										
						MMAC	31628	1.4D + 1.7L + 1.7H' + 1.7Eo	-46	379										
					3-V-L	MTCM	32181	1.4D + 1.7L + 1.7H' + 1.7Eo	42	483	1.4D + 1.7L + 1.7H' + 1.7Eo	97	6.24	-	-	-	-	-	-	-
						MCCM	25239	1.4D + 1.7L + 1.7H	-192	104										
						MMAT	31634	1.4D + 1.7L + 1.7H' + 1.7Eo	1	485										
						MMAC	31634	1.4D + 1.7L + 1.7H' + 1.7Eo	-90	485										
					4-V-L	MTCM	32162	1.4D + 1.7L + 1.7H' + 1.7Eo	58	560	1.4D + 1.7L + 1.7H' + 1.7Eo	97	7.8	-	-	-	-	-	-	-
						MCCM	26244	1.4D + 1.7L + 1.7H	-181	86										
						MMAT	32162	1.4D + 1.7L + 1.7H' + 1.7Eo	58	560										
						MMAC	32162	1.4D + 1.7L + 1.7H' + 1.7Eo	-38	560										
					5-V-L	MTCM	26542	D + L + H' + E'	112	375	1.4D + 1.7L + 1.7H' + 1.7Eo	62	12.48	-	-	-	-	-	-	(3),(9)
						MCCM	29431	1.4D + 1.7L + 1.7H' + 1.7Eo	-303	237										
						MMAT	26542	1.4D + 1.7L + 1.7H' + 1.7Eo	10	437										
						MMAC	26542	1.4D + 1.7L + 1.7H' + 1.7Eo	-195	437										
					6-V-L	MTCM	26237 / 26238	1.4D + 1.7L + 1.7H' + 1.7Eo	73	583	1.4D + 1.7L + 1.7H' + 1.7Eo	63	12.48	-	-	-	-	-	-	(3),(9)
						MCCM	26548 / 26549	1.4D + 1.7L + 1.7H' + 1.7Eo	-262	494										
						MMAT	26237 / 26238	1.4D + 1.7L + 1.7H' + 1.7Eo	63	644										
						MMAC	26237 / 26238	1.4D + 1.7L + 1.7H' + 1.7Eo	-181	644										
				4	7-V-L	MTCM	11512	1.4D + 1.7L + 1.7H' + 1.7Eo	111	63	1.4D + 1.7L + 1.7H' + 1.7Eo	213	3.12	-	-	-	-	-	-	-
						MCCM	11513	1.4D + 1.7L + 1.7H' + 1.7Eo	-389	80										
						MMAT	22079	1.4D + 1.7L + 1.7H' + 1.7Eo	11	247										
						MMAC	22079	1.4D + 1.7L + 1.7H' + 1.7Eo	-114	247										
					8-V-L	MTCM	16528	1.4D + 1.7L + 1.7H' + 1.7Eo	90	7	1.4D + 1.7L + 1.7H' + 1.7Eo	277	4.68	-	-	-	-	-	-	-
						MCCM	16528	D + L + H' + E'	-315	25										
						MMAT	23304	1.4D + 1.7L + 1.7H' + 1.7Eo	3	509										
						MMAC	23304	1.4D + 1.7L + 1.7H' + 1.7Eo	-110	509										
					9-V-L	MTCM	11569	1.4D + 1.7L + 1.7H' + 1.7Eo	115	67	1.4D + 1.7L + 1.7H' + 1.7Eo	213	6.24	-	-	-	-	-	-	-
						MCCM	11569	1.4D + 1.7L + 1.7H' + 1.7Eo	-425	42										
						MMAT	23297	1.4D + 1.7L + 1.7H' + 1.7Eo	43	520										
						MMAC	23297	1.4D + 1.7L + 1.7H' + 1.7Eo	-154	520										

Table 3H.3-3: Results of Radwaste Building Concrete Wall Design (Continued)

Location	Face	Direction	Reinforcement Layout Drawing Number (1)	Thickness (ft)	Reinforcement Zone Number (2)	Maximum Forces (3)	Element	Longitudinal Reinforcement Design Loads: Axial and Flexure Loads: Load Combination	Axial (4) (kips / ft)	Flexure (4) (ft-kips / ft)	In-Plane Shear Loads: Load Combination	In-plane Shear (5) (kips / ft)	Longitudinal Reinforcement Provided (in²/ ft)	Transverse Shear Design Loads (6): Load Combination	Horizontal Section: Transverse Shear Force (kip / ft)	Horizontal Section: Corresponding Axial Force (kip / ft)	Vertical Section: Transverse Shear Force (kip / ft)	Vertical Section: Corresponding Axial Force (kip / ft)	Transverse Shear (7) Reinforcement Provided (in²/ft²)	Remarks
South Wall	Far Side	Vertical	3H.3-16	5.5	10-V-L	MTCM	3085	1.4D + 1.7L + 1.7H' + 1.7Eo	196	60	1.4D + 1.7L + 1.7H' + 1.7Eo	224	4.68	-	-	-	-	-	-	-
						MCCM	2239	1.4D + 1.7L + 1.7H' + 1.7Eo	-594	172										
						MMAT	6782	D + L + H' + E'	16	682										
						MMAC	6019	D + L + H' + E'	-233	718										
					11-V-L	MTCM	2297	1.4D + 1.7L + 1.7H' + 1.7Eo	301	67	1.4D + 1.7L + 1.7H' + 1.7Eo	203	6.24	-	-	-	-	-	-	-
						MCCM	2297	1.4D + 1.7L + 1.7H' + 1.7Eo	-747	221										
						MMAT	6781	D + L + H' + E'	19	711										
						MMAC	6781	D + L + H' + E'	-263	739										
					12-V-L	MTCM	2345	1.4D + 1.7L + 1.7H' + 1.7Eo	296	161	1.4D + 1.7L + 1.7H' + 1.7Eo	285	7.8	-	-	-	-	-	-	-
						MCCM	3143	1.4D + 1.7L + 1.7H' + 1.7Eo	-663	103										
						MMAT	7762	D + L + H' + E'	20	671										
						MMAC	7762	D + L + H' + E'	-257	671										
	-	Transverse (Horizontal and Vertical)	3H.3-17	3	1-T	-	-	-	-	-	-	-	-	1.4D + 1.7L + 1.7H' + 1.7Eo	-54	48	-29	18	0.20 (#4@12)	-
					2-T	-	-	-	-	-	-	-	-	D + L + H' + E'	-59	57	-20	-16	0.31 (#5@12)	-
					3-T	-	-	-	-	-	-	-	-	1.4D + 1.7L + 1.7H' + 1.7Eo	-48	208	-13	135	0.44 (#6@12)	-
					4-T	-	-	-	-	-	-	-	-	1.4D + 1.7L + 1.7H' + 1.7Eo	-149	3	-101	-64	1.76 (#6@6)	-
					5-T	-	-	-	-	-	-	-	-	1.4D + 1.7L + 1.7H' + 1.7Eo	-178	14	-125	-63	2.40 (#7@6)	-
				4	6-T	-	-	-	-	-	-	-	-	1.4D + 1.7L + 1.7H' + 1.7Eo	91	-60	5	-61	0.20 (#4@12)	-
					7-T	-	-	-	-	-	-	-	-	D + L + H' + E'	103	52	-4	-40	0.31 (#5@12)	-
					8-T	-	-	-	-	-	-	-	-	1.4D + 1.7L + 1.7H' + 1.7Eo	136	-58	8	-49	0.44 (#6@12)	-
					9-T	-	-	-	-	-	-	-	-	D + L + H' + E'	116	-7	94	-17	0.60 (#7@12)	-
					10-T	-	-	-	-	-	-	-	-	1.4D + 1.7L + 1.7H' + 1.7Eo	236	-43	90	-84	1.24 (#5@5)	-
					11-T	-	-	-	-	-	-	-	-	1.4D + 1.7L + 1.7H' + 1.7Eo	196	-59	168	-86	1.76 (#6@5)	-
				5.5	12-T	-	-	-	-	-	-	-	-	D + L + H' + E'	-132	-16	0	-17	0.20 (#4@12)	-
					13-T	-	-	-	-	-	-	-	-	D + L + H' + E'	145	-40	13	-29	0.31 (#5@12)	-
					14-T	-	-	-	-	-	-	-	-	D + L + H' + E'	-191	-22	0	-13	0.44 (#6@12)	-
					15-T	-	-	-	-	-	-	-	-	D + L + H' + E'	180	-30	132	-71	0.60 (#7@12)	-
East Wall	Near Side	Horizontal	3H.3-18	3	1-H-L	MTCM	32259	1.4D + 1.7L + 1.7H' + 1.7Eo	81	-12	1.4D + 1.7L + 1.7H' + 1.7Eo	67	1.55	-	-	-	-	-	-	-
						MCCM	25086	1.4D + 1.7L + 1.7H' + 1.7Eo	-73	-13										
						MMAT	25333	1.4D + 1.7L + 1.7H' + 1.7Eo	11	-114										
						MMAC	27131	D + L + H' + E'	-24	-134										
					2-H-L	MTCM	31453	1.4D + 1.7L + 1.7H' + 1.7Eo	124	-22	1.4D + 1.7L + 1.7H' + 1.7Eo	121	3.12	-	-	-	-	-	-	-
						MCCM	25384	D + L + H' + E'	-92	-17										
						MMAT	34107	1.4D + 1.7L + 1.7H' + 1.7Eo	23	-210										
						MMAC	34107	1.4D + 1.7L + 1.7H' + 1.7Eo	-13	-210										
					3-H-L	MTCM	31192	1.4D + 1.7L + 1.7H' + 1.7Eo	168	-37	1.4D + 1.7L + 1.7H' + 1.7Eo	121	4.63	-	-	-	-	-	-	-
						MCCM	31192	1.4D + 1.7L + 1.7H' + 1.7Eo	-126	-63										
						MMAT	32251	1.4D + 1.7L + 1.7H' + 1.7Eo	21	-263										
						MMAC	25404	D + L + H' + E'	-81	-306										
				4	4-H-L	MTCM	23407	1.4D + 1.7L + 1.7H' + 1.7Eo	33	-80	1.4D + 1.7L + 1.7H' + 1.7Eo	160	3.12	-	-	-	-	-	-	-
						MCCM	11576	D + L + H' + E'	-181	-287										
						MMAT	23407	1.4D + 1.7L + 1.7H' + 1.7Eo	28	-95										
						MMAC	11576	D + L + H' + E'	-175	-295										
					5-H-L	MTCM	23408	1.4D + 1.7L + 1.7H' + 1.7Eo	47	-87	1.4D + 1.7L + 1.7H' + 1.7Eo	178	4.68	-	-	-	-	-	-	-
						MCCM	11643	D + L + H' + E'	-199	-289										
						MMAT	23411	1.4D + 1.7L + 1.7H' + 1.7Eo	3	-177										
						MMAC	11643	D + L + H' + E'	-199	-289										

Table 3H.3-3: Results of Radwaste Building Concrete Wall Design (Continued)

Location	Face	Direction	Reinforcement Layout Drawing Number (1)	Thickness (ft)	Reinforcement Zone Number (2)	Maximum Forces (3)	Element	Longitudinal Reinforcement Design Loads: Axial and Flexure Loads: Load Combination	Axial (4) (kips / ft)	Flexure (4) (ft-kips / ft)	In-Plane Shear Loads: Load Combination	In-plane Shear (5) (kips / ft)	Longitudinal Reinforcement Provided (in²/ ft)	Transverse Shear Design Loads (6): Load Combination	Horizontal Section: Transverse Shear Force (kip / ft)	Horizontal Section: Corresponding Axial Force (kip / ft)	Vertical Section: Transverse Shear Force (kip / ft)	Vertical Section: Corresponding Axial Force (kip / ft)	Transverse Shear (7) Reinforcement Provided (in²/ft²)	Remarks
East Wall	Near Side	Horizontal	3H.3-18	4	6-H-L	MTCM	22106	1.4D + 1.7L + 1.7H' + 1.7Eo	22	-40	1.4D + 1.7L + 1.7H' + 1.7Eo	178	6.24	-	-	-	-	-	-	-
						MCCM	13553	D + L + H' + E'	-111	-391										
						MMAT	22108	1.4D + 1.7L + 1.7H' + 1.7Eo	3	-188										
						MMAC	14587	D + L + H' + E'	-104	-418										
					7-H-L	MTCM	22750	1.4D + 1.7L + 1.7H' + 1.7Eo	21	-209	1.4D + 1.7L + 1.7H' + 1.7Eo	178	7.8	-	-	-	-	-	-	-
						MCCM	11651	D + L + H' + E'	-225	-209										
						MMAT	23415	D + L + H' + E'	9	-588										
						MMAC	15659	D + L + H' + E'	-148	-722										
				5	8-H-L	MTCM	5470	1.4D + 1.7L + 1.7H' + 1.7Eo	12	-57	1.4D + 1.7L + 1.7H' + 1.7Eo	148	3.12	-	-	-	-	-	-	-
						MCCM	8125	D + L + H' + E'	-240	-464										
						MMAT	5473	1.4D + 1.7L + 1.7H' + 1.7Eo	10	-83										
						MMAC	8125	D + L + H' + E'	-235	-473										
					9-H-L	MTCM	2352	1.4D + 1.7L + 1.7H' + 1.7Eo	48	-34	1.4D + 1.7L + 1.7H' + 1.7Eo	181	4.68	-	-	-	-	-	-	-
						MCCM	8890	D + L + H' + E'	-248	-509										
						MMAT	2352	1.4D + 1.7L + 1.7H + 1.7W	5	-98										
						MMAC	8890	D + L + H' + E'	-243	-510										
					10-H-L	MTCM	2349	1.4D + 1.7L + 1.7H' + 1.7Eo	55	-67	1.4D + 1.7L + 1.7H' + 1.7Eo	181	6.24	-	-	-	-	-	-	-
						MCCM	7763	D + L + H' + E'	-254	-1035										
						MMAT	2349	D + L + H' + E'	0	-393										
						MMAC	6815	D + L + H' + E'	-242	-1009										
					11-H-L	MTCM	2715	1.4D + 1.7L + 1.7H' + 1.7Eo	55	-82	1.4D + 1.7L + 1.7H' + 1.7Eo	181	9.36	-	-	-	-	-	-	-
						MCCM	8895	D + L + H' + E'	-286	-816										
						MMAT	2715	1.4D + 1.7L + 1.7H' + 1.7Eo	2	-377										
						MMAC	8135	D + L + H' + E'	-270	-1221										
		Vertical	3H.3-19	3	1-V-L	MTCM	25538	1.4D + 1.7L + 1.7H' + 1.7Eo	75	-27	1.4D + 1.7L + 1.7H' + 1.7Eo	74	1.56	-	-	-	-	-	-	-
						MCCM	25586	1.4D + 1.7L + 1.7H' + 1.7Eo	-268	-19										
						MMAT	25234	1.4D + 1.7L + 1.7H' + 1.7Eo	6	-104										
						MMAC	25234	1.4D + 1.7L + 1.7H' + 1.7Eo	-150	-161										
					2-V-L	MTCM	25344	D + L + H' + E'	85	-29	1.4D + 1.7L + 1.7H' + 1.7Eo	95	3.12	-	-	-	-	-	-	-
						MCCM	25353	1.4D + 1.7L + 1.7H' + 1.7Eo	-338	-34										
						MMAT	25306	D + L + H' + E'	10	-216										
						MMAC	25306	1.4D + 1.7L + 1.7H' + 1.7Eo	-227	-291										
					3-V-L	MTCM	32279	1.4D + 1.7L + 1.7H' + 1.7Eo	190	-53	1.4D + 1.7L + 1.7H' + 1.7Eo	85	4.65	-	-	-	-	-	-	-
						MCCM	26310	1.4D + 1.7L + 1.7H' + 1.7Eo	-225	-303										
						MMAT	33710	D + L + H' + E'	5	-270										
						MMAC	33710	1.4D + 1.7L + 1.7H' + 1.7Eo	-115	-351										
				4	4-V-L	MTCM	11578	1.4D + 1.7L + 1.7H' + 1.7Eo	129	-26	1.4D + 1.7L + 1.7H' + 1.7Eo	189	3.12	-	-	-	-	-	-	-
						MCCM	11576	1.4D + 1.7L + 1.7H' + 1.7Eo	-484	-128										
						MMAT	18173	D + L + H' + E'	23	-195										
						MMAC	22706	1.4D + 1.7L + 1.7H' + 1.7Eo	-241	-282										
					5-V-L	MTCM	11651	1.4D + 1.7L + 1.7H' + 1.7Eo	145	-29	1.4D + 1.7L + 1.7H' + 1.7Eo	189	4.68	-	-	-	-	-	-	-
						MCCM	11651	1.4D + 1.7L + 1.7H' + 1.7Eo	-474	-151										
						MMAT	14356	D + L + H' + E'	31	-394										
						MMAC	14384	1.4D + 1.7L + 1.7H' + 1.7Eo	-320	-436										

Table 3H.3-3: Results of Radwaste Building Concrete Wall Design (Continued)

Location	Face	Direction	Reinforcement Layout Drawing Number (1)	Thickness (ft)	Reinforcement Zone Number(2)	Maximum Forces(3)	Element	Longitudinal Reinforcement Design Loads – Axial and Flexure Loads – Load Combination	Axial(4) (kips / ft)	Flexure(4) (ft-kips / ft)	In-Plane Shear Loads – Load Combination	In-plane(5) Shear (kips / ft)	Longitudinal Reinforcement Provided (in²/ ft)	Transverse Shear Design Loads(6) – Load Combination	Horizontal Section – Transverse Shear Force (kip / ft)	Horizontal Section – Corresponding Axial Force (kip / ft)	Vertical Section – Transverse Shear Force (kip / ft)	Vertical Section – Corresponding Axial Force (kip / ft)	Transverse Shear(7) Reinforcement Provided (in²/ft²)	Remarks
East Wall	Near Side	Vertical	3H.3-19	5	6-V-L	MTCM	8632	1.4D + 1.7L + 1.7H' + 1.7Eo	33	-9	1.4D + 1.7L + 1.7H' + 1.7Eo	187	3.12	-	-	-	-	-	-	-
						MCCM	4259	1.4D + 1.7L + 1.7H' + 1.7Eo	-386	-51										
						MMAT	4259	1.4D + 1.7L + 1.7H' + 1.7Eo	21	-118										
						MMAC	4255	1.4D + 1.7L + 1.7H' + 1.7Eo	-176	-118										
					7-V-L	MTCM	4474	1.4D + 1.7L + 1.7H' + 1.7Eo	111	-85	1.4D + 1.7L + 1.7H' + 1.7Eo	235	4.68	-	-	-	-	-	-	-
						MCCM	4474	1.4D + 1.7L + 1.7H' + 1.7Eo	-400	-116										
						MMAT	4451	D + L + H' + E'	16	-199										
						MMAC	4451	D + L + H' + E'	-228	-199										
					8-V-L	MTCM	4497	1.4D + 1.7L + 1.7H' + 1.7Eo	223	-27	1.4D + 1.7L + 1.7H' + 1.7Eo	225	6.24	-	-	-	-	-	-	-
						MCCM	4130	1.4D + 1.7L + 1.7H' + 1.7Eo	-419	-68										
						MMAT	4139	D + L + H' + E'	24	-194										
						MMAC	8895	D + L + H' + E'	-363	-325										
					9-V-L	MTCM	2715	1.4D + 1.7L + 1.7H' + 1.7Eo	321	-95	1.4D + 1.7L + 1.7H' + 1.7Eo	187	7.8	-	-	-	-	-	-	-
						MCCM	2715	1.4D + 1.7L + 1.7H' + 1.7Eo	-491	-185										
						MMAT	2531	D + L + H' + E'	1	-1107										
						MMAC	2531	D + L + H' + E'	-196	-1108										
					10-V-L	MTCM	2349	1.4D + 1.7L + 1.7H' + 1.7Eo	291	-143	1.4D + 1.7L + 1.7H' + 1.7Eo	235	9.36	-	-	-	-	-	-	-
						MCCM	2349	1.4D + 1.7L + 1.7H' + 1.7Eo	-671	-344										
						MMAT	2533	D + L + H' + E'	10	-1063										
						MMAC	2533	D + L + H' + E'	-199	-1072										
	Far Side	Horizontal	3H.3-20	3	1-H-L	MTCM	32260	1.4D + 1.7L + 1.7H' + 1.7Eo	74	13	1.4D + 1.7L + 1.7H' + 1.7Eo	67	1.56	-	-	-	-	-	-	-
						MCCM	33752	1.4D + 1.7L + 1.7H' + 1.7Eo	-65	19										
						MMAT	25549	1.4D + 1.7L + 1.7H' + 1.7Eo	0	121										
						MMAC	25549	1.4D + 1.7L + 1.7H' + 1.7Eo	-23	121										
					2-H-L	MTCM	31453	1.4D + 1.7L + 1.7H' + 1.7Eo	124	40	1.4D + 1.7L + 1.7H' + 1.7Eo	121	3.12	-	-	-	-	-	-	-
						MCCM	25384	D + L + H' + E'	-92	39										
						MMAT	34108	1.4D + 1.7L + 1.7H' + 1.7Eo	8	237										
						MMAC	34108	1.4D + 1.7L + 1.7H' + 1.7Eo	-19	237										
					3-H-L	MTCM	31192	1.4D + 1.7L + 1.7H' + 1.7Eo	168	61	1.4D + 1.7L + 1.7H' + 1.7Eo	63	4.68	-	-	-	-	-	-	-
						MCCM	31152	1.4D + 1.7L + 1.7H' + 1.7Eo	-126	62										
						MMAT	34107	1.4D + 1.7L + 1.7H' + 1.7Eo	14	272										
						MMAC	34107	1.4D + 1.7L + 1.7H' + 1.7Eo	-22	272										
				4	4-H-L	MTCM	23408	1.4D + 1.7L + 1.7H' + 1.7Eo	47	62	1.4D + 1.7L + 1.7H' + 1.7Eo	160	3.12	-	-	-	-	-	-	-
						MCCM	11576	D + L + H' + E'	-175	200										
						MMAT	23408	1.4D + 1.7L + 1.7H' + 1.7Eo	1	109										
						MMAC	13561	D + L + H' + E'	-102	314										
					5-H-L	MTCM	14415	1.4D + 1.7L + 1.7H + 1.7W	10	17	1.4D + 1.7L + 1.7H' + 1.7Eo	178	4.68	-	-	-	-	-	-	-
						MCCM	14407	D + L + H' + E'	-152	22										
						MMAT	14380	1.4D + 1.7L + 1.7H' + 1.7Eo	1	23										
						MMAC	14345	D + L + H' + E'	-91	162										
					6-H-L	MTCM	14334	1.4D + 1.7L + 1.7H + 1.7W	17	23	1.4D + 1.7L + 1.7H' + 1.7Eo	178	6.24	-	-	-	-	-	-	-
						MCCM	14333	D + L + H' + E'	-102	175										
						MMAT	14601	1.4D + 1.7L + 1.7H' + 1.7Eo	4	71										
						MMAC	14605	D + L + H' + E'	-85	382										

Table 3H.3-3: Results of Radwaste Building Concrete Wall Design (Continued)

Location	Face	Direction	Reinforcement Layout Drawing Number (1)	Thickness (ft)	Reinforcement Zone Number (2)	Maximum Forces (3)	Element	Longitudinal Reinforcement Design Loads: Axial and Flexure Loads: Load Combination	Axial (4) (kips / ft)	Flexure (4) (ft-kips / ft)	In-Plane Shear Loads: Load Combination	In-plane Shear (5) (kips / ft)	Longitudinal Reinforcement Provided (in²/ ft)	Transverse Shear Design Loads (6): Load Combination	Horizontal Section: Transverse Shear Force (kip / ft)	Horizontal Section: Corresponding Axial Force (kip / ft)	Vertical Section: Transverse Shear Force (kip / ft)	Vertical Section: Corresponding Axial Force (kip / ft)	Transverse Shear (7) Reinforcement Provided (in²/ft²)	Remarks
East Wall	Far Side	Horizontal	3H.3-20	5	7-H-L	MTCM	5190	1.4D + 1.7L + 1.7H' + 1.7Eo	14	39	1.4D + 1.7L + 1.7H' + 1.7Eo	149	3.12	-	-	-	-	-	-	-
						MCCM	6823	D + L + H' + E'	-198	214										
						MMAT	5445	1.4D + 1.7L + 1.7H' + 1.7Eo	8	69										
						MMAC	5163	D + L + H' + E'	-168	387										
					8-H-L	MTCM	2715	1.4D + 1.7L + 1.7H' + 1.7Eo	55	25	1.4D + 1.7L + 1.7H' + 1.7Eo	141	4.68	-	-	-	-	-	-	-
						MCCM	8537	D + L + H' + E'	-230	163										
						MMAT	3149	1.4D + 1.7L + 1.7H' + 1.7Eo	1	70										
						MMAC	8591	D + L + H' + E'	-160	409										
		Vertical	3H.3-21	3	1-V-L	MTCM	25849	1.4D + 1.7L + 1.7H' + 1.7Eo	69	26	1.4D + 1.7L + 1.7H' + 1.7Eo	74	1.56	-	-	-	-	-	-	-
						MCCM	25849	1.4D + 1.7L + 1.7H' + 1.7Eo	-241	34										
						MMAT	30916	1.4D + 1.7L + 1.7H' + 1.7Eo	3	110										
						MMAC	25895	1.4D + 1.7L + 1.7H' + 1.7Eo	-151	163										
					2-V-L	MTCM	25384	D + L + H' + E'	95	73	1.4D + 1.7L + 1.7H' + 1.7Eo	85	3.12	-	-	-	-	-	-	-
						MCCM	25393	1.4D + 1.7L + 1.7H' + 1.7Eo	-340	40										
						MMAT	30920	1.4D + 1.7L + 1.7H' + 1.7Eo	9	206										
						MMAC	25626	1.4D + 1.7L + 1.7H' + 1.7Eo	-151	240										
					3-V-L	MTCM	32279	1.4D + 1.7L + 1.7H' + 1.7Eo	190	64	1.4D + 1.7L + 1.7H' + 1.7Eo	79	4.68	-	-	-	-	-	-	-
						MCCM	32279	1.4D + 1.7L + 1.7H' + 1.7Eo	-191	60										
						MMAT	29615	1.4D + 1.7L + 1.7H' + 1.7Eo	56	198										
						MMAC	29615	1.4D + 1.7L + 1.7H' + 1.7Eo	-138	198										
				4	4-V-L	MTCM	11651	1.4D + 1.7L + 1.7H' + 1.7Eo	129	21	1.4D + 1.7L + 1.7H' + 1.7Eo	188	3.12	-	-	-	-	-	-	(8)
						MCCM	13564	1.4D + 1.7L + 1.7H' + 1.7Eo	-390	114										
						MMAT	13564	D + L + H' + E'	14	199										
						MMAC	14637	1.4D + 1.7L + 1.7H' + 1.7Eo	-271	235										
					5-V-L	MTCM	11578	1.4D + 1.7L + 1.7H' + 1.7Eo	129	34	1.4D + 1.7L + 1.7H' + 1.7Eo	188	4.68	-	-	-	-	-	-	-
						MCCM	11578	1.4D + 1.7L + 1.7H' + 1.7Eo	-478	44										
						MMAT	11614	D + L + H' + E'	28	428										
						MMAC	11614	D + L + H' + E'	-193	426										
				5	6-V-L	MTCM	4481	1.4D + 1.7L + 1.7H' + 1.7Eo	137	44	1.4D + 1.7L + 1.7H' + 1.7Eo	190	4.65	-	-	-	-	-	-	-
						MCCM	4481	1.4D + 1.7L + 1.7H' + 1.7Eo	-461	201										
						MMAT	3495	D + L + H' + E'	24	263										
						MMAC	2939	1.4D + 1.7L + 1.7H' + 1.7Eo	-453	298										
					7-V-L	MTCM	4437	1.4D + 1.7L + 1.7H' + 1.7Eo	223	12	1.4D + 1.7L + 1.7H' + 1.7Eo	235	6.24	-	-	-	-	-	-	-
						MCCM	4133	1.4D + 1.7L + 1.7H' + 1.7Eo	-614	86										
						MMAT	6939	D + L + H' + E'	22	731										
						MMAC	6933	D + L + H' + E'	-268	739										
					8-V-L	MTCM	2715	1.4D + 1.7L + 1.7H' + 1.7Eo	321	99	1.4D + 1.7L + 1.7H' + 1.7Eo	225	7.8	-	-	-	-	-	-	-
						MCCM	2715	1.4D + 1.7L + 1.7H' + 1.7Eo	-691	23										
						MMAT	6909	D + L + H' + E'	30	718										
						MMAC	6909	D + L + H' + E'	-271	725										
	-	Transverse (Horizontal and Vertical)	3H.3-22	3	1-T	-	-	-	-	-	-	-	-	1.4D + 1.7L + 1.7H' + 1.7Eo	9	82	13	230	0.20 (#4@12)	-
					2-T	-	-	-	-	-	-	-	-	1.4D + 1.7L + 1.7H' + 1.7Eo	50	31	42	103	0.31 (#5@12)	-
					3-T	-	-	-	-	-	-	-	-	1.4D + 1.7L + 1.7H' + 1.7Eo	87	-63	0	-18	0.44 (#6@12)	-
				4	4-T	-	-	-	-	-	-	-	-	D + L + H' + E'	-2	-25	91	-105	0.20 (#4@12)	-
					5-T	-	-	-	-	-	-	-	-	D + L + H' + E'	103	28	-1	-57	0.31 (#5@12)	-
					6-T	-	-	-	-	-	-	-	-	D + L + H' + E'	125	30	-1	-61	0.44 (#6@12)	-
					7-T	-	-	-	-	-	-	-	-	D + L + H' + E'	-120	-34	-102	-120	0.60 (#7@12)	-
					8-T	-	-	-	-	-	-	-	-	D + L + H' + E'	-191	-74	-160	-185	1.24 (#5@6)	-

Table 3H.3-3: Results of Radwaste Building Concrete Wall Design (Continued)

Location	Face	Direction	Reinforcement Layout Drawing Number (1)	Thickness (ft)	Reinforcement Zone Number (2)	Maximum Forces (3)	Element	Longitudinal Reinforcement Design Loads: Axial and Flexure Loads: Load Combination	Axial (4) (kips / ft)	Flexure (4) (ft-kips / ft)	In-Plane Shear Loads: Load Combination	In-plane Shear (5) (kips / ft)	Longitudinal Reinforcement Provided (in²/ ft)	Transverse Shear Design Loads (6): Load Combination	Horizontal Section: Transverse Shear Force (kip / ft)	Horizontal Section: Corresponding Axial Force (kip / ft)	Vertical Section: Transverse Shear Force (kip / ft)	Vertical Section: Corresponding Axial Force (kip / ft)	Transverse Shear (7) Reinforcement Provided (in²/ft²)	Remarks
East Wall	-	Transverse (Horizontal and Vertical)	3H.3-22	5	9-T	-	-	-	-	-	-	-	-	D + L + H' + E'	-7	-36	123	-124	0.20 (#4@12)	-
					10-T	-	-	-	-	-	-	-	-	D + L + H' + E'	14	-63	151	-202	0.31 (#5@12)	-
					11-T	-	-	-	-	-	-	-	-	D + L + H' + E'	-188	12	0	-22	0.44 (#6@12)	-
					12-T	-	-	-	-	-	-	-	-	D + L + H' + E'	-205	10	0	-21	0.50 (#7@12)	-
					13-T	-	-	-	-	-	-	-	-	D + L + H' + E'	107	-24	-212	-184	0.79 (#8@12)	-
West Wall	Major Side	Horizontal	3H.3-23	3	1-H-L	MTCM	31715	1.4D + 1.7L + 1.7H' + 1.7Eo	46	-41	1.4D + 1.7L + 1.7H' + 1.7Eo	75	1.56	-	-	-	-	-	-	-
						MCCM	31715	1.4D + 1.7L + 1.7H' + 1.7Eo	-65	-48										
						MMAT	31428	1.4D + 1.7L + 1.7H' + 1.7Eo	21	-91										
						MMAC	31428	1.4D + 1.7L + 1.7H' + 1.7Eo	-29	-91										
					2-H-L	MTCM	32204	1.4D + 1.7L + 1.7H' + 1.7Eo	61	-173	1.4D + 1.7L + 1.7H' + 1.7Eo	108	3.12	-	-	-	-	-	-	-
						MCCM	32243	1.4D + 1.7L + 1.7H' + 1.7Eo	-87	-153										
						MMAT	31152	1.4D + 1.7L + 1.7H' + 1.7Eo	25	-210										
						MMAC	31152	1.4D + 1.7L + 1.7H' + 1.7Eo	-42	-210										
				4	3-H-L	MTCM	22696	1.4D + 1.7L + 1.7H' + 1.7Eo	25	-45	1.4D + 1.7L + 1.7H' + 1.7Eo	143	3.12	-	-	-	-	-	-	-
						MCCM	11573	D + L + H' + E'	-278	-461										
						MMAT	11573	1.4D + 1.7L + 1.7H' + 1.7Eo	3	-142										
						MMAC	11573	D + L + H' + E'	-274	-484										
					4-H-L	MTCM	23343	1.4D + 1.7L + 1.7H' + 1.7Eo	67	-24	1.4D + 1.7L + 1.7H' + 1.7Eo	143	4.68	-	-	-	-	-	-	-
						MCCM	11633	D + L + H' + E'	-198	-112										
						MMAT	23333	1.4D + 1.7L + 1.7H' + 1.7Eo	8	-136										
						MMAC	13167	D + L + H' + E'	-116	-557										
				5	5-H-L	MTCM	4184	1.4D + 1.7L + 1.7H' + 1.7Eo	29	-79	1.4D + 1.7L + 1.7H' + 1.7Eo	135	3.12	-	-	-	-	-	-	-
						MCCM	8891	D + L + H' + E'	-340	-415										
						MMAT	8711	1.4D + 1.7L + 1.7H' + 1.7Eo	6	-111										
						MMAC	8537	D + L + H' + E'	-181	-527										
					6-H-L	MTCM	2353	1.4D + 1.7L + 1.7H' + 1.7Eo	45	-35	1.4D + 1.7L + 1.7H' + 1.7Eo	164	4.68	-	-	-	-	-	-	-
						MCCM	3199	1.4D + 1.7L + 1.7H' + 1.7Eo	-176	-324										
						MMAT	6629	1.4D + 1.7L + 1.7H + 1.7W	6	-270										
						MMAC	8704	D + L + H' + E'	-116	-678										
					7-H-L	MTCM	2711	1.4D + 1.7L + 1.7H' + 1.7Eo	53	-75	1.4D + 1.7L + 1.7H' + 1.7Eo	164	6.24	-	-	-	-	-	-	-
						MCCM	8534	D + L + H' + E'	-241	-658										
						MMAT	8532	D + L + H' + E'	3	-807										
						MMAC	8663	D + L + H' + E'	-73	-896										
		Vertical	3H.3-24	3	1-V-L	MTCM	25402	1.4D + 1.7L + 1.7H' + 1.7Eo	111	-39	1.4D + 1.7L + 1.7H' + 1.7Eo	90	3.12	-	-	-	-	-	-	-
						MCCM	25402	1.4D + 1.7L + 1.7H' + 1.7Eo	-303	-29										
						MMAT	25341	1.4D + 1.7L + 1.7H' + 1.7Eo	0	-217										
						MMAC	32226	1.4D + 1.7L + 1.7H' + 1.7Eo	-23	-243										
					2-V-L	MTCM	32241	D + L + H' + E'	6	-101	1.4D + 1.7L + 1.7H' + 1.7Eo	90	4.68	-	-	-	-	-	-	-
						MCCM	32243	1.4D + 1.7L + 1.7H' + 1.7Eo	-32	-341										
						MMAT	32243	D + L + H' + E'	4	-273										
						MMAC	32243	1.4D + 1.7L + 1.7H' + 1.7Eo	-32	-341										
				4	3-V-L	MTCM	11647	1.4D + 1.7L + 1.7H' + 1.7Eo	112	-9	1.4D + 1.7L + 1.7H' + 1.7Eo	177	3.12	-	-	-	-	-	-	-
						MCCM	13129	1.4D + 1.7L + 1.7H' + 1.7Eo	-411	-37										
						MMAT	21538	D + L + H' + E'	1	-176										
						MMAC	21538	D + L + H' + E'	-120	-196										

Table 3H.3-3: Results of Radwaste Building Concrete Wall Design (Continued)

Location	Face	Direction	Reinforcement Layout Drawing Number (1)	Thickness (ft)	Reinforcement Zone Number (2)	Maximum Forces (3)	Element	Longitudinal Reinforcement Design Loads – Axial and Flexure Loads – Load Combination	Axial (4) (kips / ft)	Flexure (4) (ft-kips / ft)	In-Plane Shear Loads – Load Combination	In-plane Shear (5) (kips / ft)	Longitudinal Reinforcement Provided (in²/ ft)	Transverse Shear Design Loads (6) – Load Combination	Horizontal Section – Transverse Shear Force (kip / ft)	Horizontal Section – Corresponding Axial Force (kip / ft)	Vertical Section – Transverse Shear Force (kip / ft)	Vertical Section – Corresponding Axial Force (kip / ft)	Transverse Shear (7) Reinforcement Provided (in²/ft²)	Remarks
West Wall	Near Side	Vertical	3H.3-24	4	4-V-L	MTCM	11573	1.4D + 1.7L + 1.7H' + 1.7Eo	178	-63	1.4D + 1.7L + 1.7H' + 1.7Eo	212	4.68	.	-	-	-	.	-	-
						MCCM	11573	1.4D + 1.7L + 1.7H' + 1.7Eo	-589	-314										
						MMAT	23345	D + L + H' + E'	3	-376										
						MMAC	23345	D + L + H' + E'	-128	-411										
					5-V-L	MTCM	22696	D + L + H' + E'	46	-55	1.4D + 1.7L + 1.7H' + 1.7Eo	212	6.24	-	-	-	-	-	-	-
						MCCM	22131	1.4D + 1.7L + 1.7H' + 1.7Eo	-204	-129										
						MMAT	23361	D + L + H' + E'	0	-349										
						MMAC	23367	1.4D + 1.7L + 1.7H' + 1.7Eo	-165	-377										
				5	6-V-L	MTCM	5196	1.4D + 1.7L + 1.7H' + 1.7Eo	71	-29	1.4D + 1.7L + 1.7H' + 1.7Eo	152	3.12	-	-	-	-	-	-	-
						MCCM	4195	1.4D + 1.7L + 1.7H' + 1.7Eo	-309	-25										
						MMAT	4195	D + L + H' + E'	12	-139										
						MMAC	4312	D + L + H' + E'	-168	-158										
					7-V-L	MTCM	4132	1.4D + 1.7L + 1.7H' + 1.7Eo	183	-35	1.4D + 1.7L + 1.7H' + 1.7Eo	205	4.68	-	-	-	-	-	-	-
						MCCM	4132	1.4D + 1.7L + 1.7H' + 1.7Eo	-659	-36										
						MMAT	8535	1.4D + 1.7L + 1.7H' + 1.7Eo	18	-215										
						MMAC	8535	1.4D + 1.7L + 1.7H' + 1.7Eo	-418	-270										
					8-V-L	MTCM	4129	1.4D + 1.7L + 1.7H' + 1.7Eo	208	-19	1.4D + 1.7L + 1.7H' + 1.7Eo	149	6.24	.	-	-	-	-	-	-
						MCCM	4129	1.4D + 1.7L + 1.7H' + 1.7Eo	-623	-103										
						MMAT	8534	1.4D + 1.7L + 1.7H' + 1.7Eo	5	-211										
						MMAC	8534	D + L + H' + E'	-332	-351										
					9-V-L	MTCM	2347	1.4D + 1.7L + 1.7H' + 1.7Eo	312	-63	1.4D + 1.7L + 1.7H' + 1.7Eo	205	7.8	-	-	-	-	-	-	-
						MCCM	2347	1.4D + 1.7L + 1.7H' + 1.7Eo	-741	-178										
						MMAT	2443	D + L + H' + E'	55	-750										
						MMAC	2582	D + L + H' + E'	-184	-775										
	Far Side	Horizontal	3H.3-25	3	1-H-L	MTCM	31715	1.4D + 1.7L + 1.7H' + 1.7Eo	46	22	1.4D + 1.7L + 1.7H' + 1.7Eo	75	1.56	-	-	-	-	-	-	-
						MCCM	31715	1.4D + 1.7L + 1.7H' + 1.7Eo	-65	16										
						MMAT	31159	1.4D + 1.7L + 1.7H' + 1.7Eo	25	94										
						MMAC	31159	1.4D + 1.7L + 1.7H' + 1.7Eo	-32	94										
					2-H-L	MTCM	25237	1.4D + 1.7L + 1.7H' + 1.7Eo	63	53	1.4D + 1.7L + 1.7H' + 1.7Eo	108	3.12	-	-	-	-	-	-	-
						MCCM	32243	1.4D + 1.7L + 1.7H' + 1.7Eo	-67	49										
						MMAT	31152	1.4D + 1.7L + 1.7H' + 1.7Eo	29	171										
						MMAC	31152	1.4D + 1.7L + 1.7H' + 1.7Eo	-38	171										
				4	3-H-L	MTCM	22696	1.4D + 1.7L + 1.7H' + 1.7Eo	25	14	1.4D + 1.7L + 1.7H' + 1.7Eo	143	3.12	-	-	-	-	-	-	-
						MCCM	11650	D + L + H' + E'	-225	178										
						MMAT	11625	1.4D + 1.7L + 1.7H + 1.7W	2	142										
						MMAC	11625	D + L + H' + E'	-70	303										
					4-H-L	MTCM	23343	1.4D + 1.7L + 1.7H' + 1.7Eo	87	146	1.4D + 1.7L + 1.7H' + 1.7Eo	143	6.24	-	-	-	-	-	-	-
						MCCM	23343	D + L + H' + E'	-86	126										
						MMAT	23343	1.4D + 1.7L + 1.7H' + 1.7Eo	39	221										
						MMAC	23343	1.4D + 1.7L + 1.7H' + 1.7Eo	-68	221										
				5	5-H-L	MTCM	4193	1.4D + 1.7L + 1.7H' + 1.7Eo	28	34	1.4D + 1.7L + 1.7H' + 1.7Eo	135	3.12	-	-	-	-	-	-	(5)
						MCCM	8891	D + L + H' + E'	-239	176										
						MMAT	8730	1.4D + 1.7L + 1.7H' + 1.7Eo	9	99										
						MMAC	8804	D + L + H' + E'	-174	500										
					6-H-L	MTCM	2711	1.4D + 1.7L + 1.7H' + 1.7Eo	53	14	1.4D + 1.7L + 1.7H' + 1.7Eo	184	4.55	-	-	-	-	-	-	-
						MCCM	3199	1.4D + 1.7L + 1.7H' + 1.7Eo	-169	143										
						MMAT	3205	D + L + H' + E'	7	64										
						MMAC	3205	D + L + H' + E'	-139	258										

Table 3H.3-3: Results of Radwaste Building Concrete Wall Design (Continued)

Location	Face	Direction	Reinforcement Layout Drawing Number (1)	Thickness (ft)	Reinforcement Zone Number (2)	Maximum Forces (3)	Element	Longitudinal Reinforcement Design Loads: Axial and Flexure Loads: Load Combination	Axial (4) (kips / ft)	Flexure (4) (ft-kips / ft)	In-Plane Shear Loads: Load Combination	In-plane Shear (5) (kips / ft)	Longitudinal Reinforcement Provided (in²/ ft)	Transverse Shear Design Loads (6): Load Combination	Horizontal Section: Transverse Shear Force (kip / ft)	Horizontal Section: Corresponding Axial Force (kip / ft)	Vertical Section: Transverse Shear Force (kip / ft)	Vertical Section: Corresponding Axial Force (kip / ft)	Transverse Shear (7) Reinforcement Provided (in²/ft²)	Remarks
West Wall	Far Side	Vertical	3H.3-26	3	1-V-L	MTCM	29048	1.4D + 1.7L + 1.7H' + 1.7Eo	62	46	1.4D + 1.7L + 1.7H' + 1.7Eo	77	1.56	-	-	-	-	-	-	-
						MCCM	29050	1.4D + 1.7L + 1.7H' + 1.7Eo	-121	33										
						MMAT	32206	1.4D + 1.7L + 1.7H' + 1.7Eo	3	101										
						MMAC	32206	1.4D + 1.7L + 1.7H' + 1.7Eo	-11	101										
					2-V-L	MTCM	26402	1.4D + 1.7L + 1.7H' + 1.7Eo	111	30	1.4D + 1.7L + 1.7H' + 1.7Eo	90	3.12	-	-	-	-	-	-	-
						MCCM	26402	1.4D + 1.7L + 1.7H' + 1.7Eo	-303	33										
						MMAT	25690	D + L + H' + E'	4	198										
						MMAC	25690	1.4D + 1.7L + 1.7H' + 1.7Eo	-55	220										
					3-V-L	MTCM	26300	1.4D + 1.7L + 1.7H' + 1.7Eo	43	122	1.4D + 1.7L + 1.7H' + 1.7Eo	90	4.68	-	-	-	-	-	-	-
						MCCM	26377	1.4D + 1.7L + 1.7H' + 1.7Eo	-143	164										
						MMAT	26344	1.4D + 1.7L + 1.7H' + 1.7Eo	9	282										
						MMAC	25344	1.4D + 1.7L + 1.7H' + 1.7Eo	-57	309										
				4	4-V-L	MTCM	13204	1.4D + 1.7L + 1.7H' + 1.7Eo	128	39	1.4D + 1.7L + 1.7H' + 1.7Eo	177	3.12	-	-	-	-	-	-	-
						MCCM	13204	1.4D + 1.7L + 1.7H' + 1.7Eo	-487	64										
						MMAT	14385	D + L + H' + E'	8	253										
						MMAC	14385	D + L + H' + E'	-180	254										
					5-V-L	MTCM	11573	1.4D + 1.7L + 1.7H' + 1.7Eo	178	97	1.4D + 1.7L + 1.7H' + 1.7Eo	212	4.68	-	-	-	-	-	-	-
						MCCM	11573	1.4D + 1.7L + 1.7H' + 1.7Eo	-629	67										
						MMAT	11623	D + L + H' + E'	2	238										
						MMAC	11597	D + L + H' + E'	-232	334										
				5	6-V-L	MTCM	2350	1.4D + 1.7L + 1.7H' + 1.7Eo	214	74	1.4D + 1.7L + 1.7H' + 1.7Eo	205	4.68	-	-	-	-	-	-	-
						MCCM	2350	1.4D + 1.7L + 1.7H' + 1.7Eo	-687	50										
						MMAT	5186	D + L + H' + E'	8	340										
						MMAC	6247	D + L + H' + E'	-188	369										
					7-V-L	MTCM	2402	1.4D + 1.7L + 1.7H' + 1.7Eo	112	27	1.4D + 1.7L + 1.7H' + 1.7Eo	179	6.24	-	-	-	-	-	-	-
						MCCM	3189	1.4D + 1.7L + 1.7H' + 1.7Eo	-425	190										
						MMAT	5191	D + L + H' + E'	10	337										
						MMAC	4190	D + L + H' + E'	-291	309										
					8-V-L	MTCM	2347	1.4D + 1.7L + 1.7H' + 1.7Eo	312	95	1.4D + 1.7L + 1.7H' + 1.7Eo	149	7.8	-	-	-	-	-	-	-
						MCCM	2347	1.4D + 1.7L + 1.7H' + 1.7Eo	-735	58										
						MMAT	8534	1.4D + 1.7L + 1.7H' + 1.7Eo	5	219										
						MMAC	8534	1.4D + 1.7L + 1.7H' + 1.7Eo	-251	219										
	-	Transverse (Horizontal and Vertical)	3H.3-27	3	1-T	-	-	-	-	-	-	-	-	1.4D + 1.7L + 1.7H' + 1.7Eo	18	20	21	115	0.20 (#4@12)	-
					2-T	-	-	-	-	-	-	-	-	1.4D + 1.7L + 1.7H' + 1.7Eo	47	10	44	28	0.31 (#5@12)	-
				4	3-T	-	-	-	-	-	-	-	-	D + L + H' + E'	6	-43	-91	-89	0.20 (#4@12)	-
					4-T	-	-	-	-	-	-	-	-	D + L + H' + E'	-1	-68	-115	-110	0.31 (#5@12)	-
					5-T	-	-	-	-	-	-	-	-	D + L + H' + E'	-1	-66	120	-99	0.44 (#6@12)	-
					6-T	-	-	-	-	-	-	-	-	D + L + H' + E'	-135	-35	126	-366	0.79 (#8@12)	-
					7-T	-	-	-	-	-	-	-	-	D + L + H' + E'	-188	-66	-171	-259	1.76 (#6@6)	-
				5	8-T	-	-	-	-	-	-	-	-	D + L + H' + E'	18	-40	84	-110	0.20 (#4@12)	-
					9-T	-	-	-	-	-	-	-	-	D + L + H' + E'	-135	31	-12	-15	0.31 (#5@12)	-
					10-T	-	-	-	-	-	-	-	-	D + L + H' + E'	-165	-6	-2	-17	0.44 (#6@12)	-
					11-T	-	-	-	-	-	-	-	-	D + L + H' + E'	-82	-56	-122	185	0.60 (#7@12)	-
					12-T	-	-	-	-	-	-	-	-	D + L + H' + E'	147	-22	-229	-251	1.24 (#5@5)	-

Table 3H.3-3: Results of Radwaste Building Concrete Wall Design (Continued)

Notes:

(1) The reinforcement layout drawings show the various zones used to define the minimum reinforcement that will be provided based on finite element analysis results. Actual provided reinforcement based on final rebar layout and including development length may exceed the reported provided reinforcement and the zones with higher reinforcement may be extended beyond their reported boundaries. The dimensions in the reinforcement drawings are based on the dimensions of the SAP2000 shell elements, which are modeled at the centerline of the walls and slabs. Therefore, the reinforcement drawing dimensions do not match actual building dimensions.

(2) Each reinforcement layout drawing is divided into reinforcement zones. The reinforcement zone naming convention is as follows: "H" = horizontal, "V" = vertical, "L" = longitudinal reinforcement, "T" = transverse reinforcement. For slabs, vertical corresponds to North-South direction and horizontal corresponds to East-West direction

(3) The maximum tension (MTCM) and compression (MCCM) axial forces are provided with the corresponding moment from the same load combination. The maximum moment that has a corresponding tension (MMAT) in the same load combination and the maximum moment that has a corresponding compression (MMAC) in the same load combination are also provided. For the roof, the maximum tension and maximum moment (MTMM) are reported.

(4) Negative axial load is compression and positive axial load is tension. Negative moment applies tension to the top face of the shell element and positive moment applies tension to the bottom face of the shell element. For walls or slabs where the same reinforcement is provided on both faces, the moment is shown as absolute value. The axial and flexural loads reported in the table are the average of the 2 node pairs that form the 4 edges of the critical rectangular shell element. If the 2 node pairs on the shell element edges parallel to the reinforcement direction do not satisfy P&M interaction criteria, then only the 2 node pairs on the shell element edges perpendicular to the reinforcement direction are used for design (effective width considered). The element mesh is sufficiently refined for this design approach.

(5) The reported in-plane shear is the maximum average in-plane shear along a plane that crosses the longitudinal reinforcement zone.

(6) The transverse shear reinforcement loads are reported for the critical element requiring the largest area of steel for transverse reinforcement within the zone. The shear force and the corresponding axial force in the same load combination for each direction is reported for the critical element.

(7) The reported transverse shear reinforcement is the summation of the required shear reinforcement in the horizontal direction and the required shear reinforcement in the vertical direction.

(8) For certain areas of the structure, the standard element post-processing methods were too conservative. For such cases, detailed manual design was performed and the design forces determined by the detailed manual design are provided in the table.

(9) The longitudinal reinforcement shown is required to be tied

(10) The reported forces are from the FEM analysis. The provided longitudinal reinforcement includes additional reinforcement required due to manual one-way design calculations

(11) The reported axial and in-plane forces are from the FEM analysis. The reported flexural forces are from manual one-way design calculations.

Table 3H.3-4: Results of Radwaste Building Concrete Slab Design

Location	Face	Direction	Reinforcement Layout Drawing Number (1)	Thickness (ft)	Reinforcement Zone Number (2)	Maximum Forces (3)	Element	Longitudinal Reinforcement Design Loads: Axial and Flexure Loads: Load Combination	Axial (4) (kips / ft)	Flexure (4) (ft-kips / ft)	In-Plane Shear Loads: Load Combination	In-plane Shear (5) (kips / ft)	Longitudinal Reinforcement Provided (in²/ ft)	Transverse Shear Design Loads (6): Load Combination	Horizontal Section: Transverse Shear Force (kip / ft)	Horizontal Section: Corresponding Axial Force (kip / ft)	Vertical Section: Transverse Shear Force (kip / ft)	Vertical Section: Corresponding Axial Force (kip / ft)	Transverse Shear (7) Reinforcement Provided (in²/ft²)	Remarks
Foundation Mat	Near Side	Horizontal	3H.3-28	12	1-H-L	MTCM	1269	D + L + H' + E'	79	-218	1.4D + 1.7L + 1.7H' + 1.7Eo	66	6.24	-	-	-	-	-	-	-
						MCCM	1073	1.4D + 1.7L + 1.7H' + 1.7Eo	-126	-54										
						MMAT	277	1.4D + 1.7L + 1.7H' + 1.7Eo	1	-1162										
						MMAC	514	1.4D + 1.7L + 1.7H' + 1.7Eo	-25	-1480										
					2-H-L	MTCM	29155	1.4D + 1.7L + 1.7H' + 1.7Eo	86	-403	1.4D + 1.7L + 1.7H' + 1.7Eo	75	7.8	-	-	-	-	-	-	-
						MCCM	29135	1.4D + 1.7L + 1.7H' + 1.7Eo	-102	-273										
						MMAT	29850	1.4D + 1.7L + 1.7H' + 1.7Eo	21	-1377										
						MMAC	29850	1.4D + 1.7L + 1.7H' + 1.7Eo	-28	-1377										
		Vertical	3H.3-29	12	1-V-L	MTCM	944	1.4D + 1.7L + 1.7H' + 1.7Eo	42	-179	1.4D + 1.7L + 1.7H' + 1.7Eo	66	6.24	-	-	-	-	-	-	-
						MCCM	830	D + L + H' + E'	-189	-126										
						MMAT	830	1.4D + 1.7L + 1.7H' + 1.7Eo	67	-1136										
						MMAC	25810	1.4D + 1.7L + 1.7H' + 1.7Eo	-28	-1059										
					2-V-L	MTCM	27825	1.4D + 1.7L + 1.7H' + 1.7Eo	125	-1615	1.4D + 1.7L + 1.7H' + 1.7Eo	62	7.8	-	-	-	-	-	-	-
						MCCM	27825	1.4D + 1.7L + 1.7H' + 1.7Eo	-108	-643										
						MMAT	27825	1.4D + 1.7L + 1.7H' + 1.7Eo	125	-1615										
						MMAC	27825	1.4D + 1.7L + 1.7H' + 1.7Eo	-63	-1615										
	Far Side	Horizontal	3H.3-30	12	1-H-L	MTCM	29595	1.4D + 1.7L + 1.7H' + 1.7Eo	83	1105	1.4D + 1.7L + 1.7H' + 1.7Eo	68	6.24	-	-	-	-	-	-	-
						MCCM	933	1.4D + 1.7L + 1.7H' + 1.7Eo	-72	1593										
						MMAT	615	1.4D + 1.7L + 1.7H' + 1.7Eo	26	1579										
						MMAC	933	1.4D + 1.7L + 1.7H' + 1.7Eo	-67	1823										
					2-H-L	MTCM	633	1.4D + 1.7L + 1.7H' + 1.7Eo	63	1642	1.4D + 1.7L + 1.7H' + 1.7Eo	75	7.8	-	-	-	-	-	-	-
						MCCM	645	D + L + H' + E'	-18	480										
						MMAT	483	1.4D + 1.7L + 1.7H' + 1.7Eo	1	2329										
						MMAC	634	1.4D + 1.7L + 1.7H' + 1.7Eo	-87	2510										
					3-H-L	MTCM	27354	D + L + H' + E'	114	1049	1.4D + 1.7L + 1.7H' + 1.7Eo	68	9.36	-	-	-	-	-	-	-
						MCCM	27345	1.4D + 1.7L + 1.7H' + 1.7Eo	-227	2252										
						MMAT	29849	1.4D + 1.7L + 1.7H' + 1.7Eo	34	2642										
						MMAC	27347	1.4D + 1.7L + 1.7H' + 1.7Eo	-207	3199										
					4-H-L	MTCM	29135	1.4D + 1.7L + 1.7H' + 1.7Eo	91	634	1.4D + 1.7L + 1.7H' + 1.7Eo	75	10.92	-	-	-	-	-	-	-
						MCCM	29159	1.4D + 1.7L + 1.7H' + 1.7Eo	-163	1429										
						MMAT	29135	1.4D + 1.7L + 1.7H' + 1.7Eo	15	3252										
						MMAC	29135	1.4D + 1.7L + 1.7H' + 1.7Eo	-134	3259										
		Vertical	3H.3-31	12	1-V-L	MTCM	893	1.4D + 1.7L + 1.7H' + 1.7Eo	67	1062	1.4D + 1.7L + 1.7H' + 1.7Eo	66	6.24	-	-	-	-	-	-	-
						MCCM	890	1.4D + 1.7L + 1.7H' + 1.7Eo	-190	2096										
						MMAT	893	1.4D + 1.7L + 1.7H' + 1.7Eo	35	1666										
						MMAC	893	1.4D + 1.7L + 1.7H' + 1.7Eo	-190	2096										
					2-V-L	MTCM	1251	D + L + H' + E'	93	1051	1.4D + 1.7L + 1.7H' + 1.7Eo	36	7.8	-	-	-	-	-	-	-
						MCCM	32353	1.4D + 1.7L + 1.7H' + 1.7Eo	-171	1458										
						MMAT	32352	1.4D + 1.7L + 1.7H' + 1.7Eo	7	2039										
						MMAC	32353	1.4D + 1.7L + 1.7H' + 1.7Eo	-163	2104										
					3-V-L	MTCM	29433	D + L + H' + E'	92	437	1.4D + 1.7L + 1.7H' + 1.7Eo	66	9.36	-	-	-	-	-	-	-
						MCCM	72	D + L + H' + E'	-228	2034										
						MMAT	32371	1.4D + 1.7L + 1.7H' + 1.7Eo	29	3045										
						MMAC	20	1.4D + 1.7L + 1.7H' + 1.7Eo	-144	2912										
					4-V-L	MTCM	27825	1.4D + 1.7L + 1.7H' + 1.7Eo	125	1572	1.4D + 1.7L + 1.7H' + 1.7Eo	62	10.92	-	-	-	-	-	-	-
						MCCM	27825	1.4D + 1.7L + 1.7H' + 1.7Eo	-224	3713										
						MMAT	27825	1.4D + 1.7L + 1.7H' + 1.7Eo	6	3675										
						MMAC	27825	1.4D + 1.7L + 1.7H' + 1.7Eo	-224	3713										
	-	Transverse (Horizontal and Vertical)	3H.3-32	12	1-T	-	-	-	-	-	-	-	-	1.4D + 1.7L + 1.7H' + 1.7Eo	21	32	288	0	0.20 (#4@12)	-
					2-T	-	-	-	-	-	-	-	-	1.4D + 1.7L + 1.7H' + 1.7Eo	178	41	288	-31	0.31 (#5@12)	-

Table 3H.3-4: Results of Radwaste Building Concrete Slab Design (Continued)

Location	Face	Direction	Reinforcement Layout Drawing Number (1)	Thickness (ft)	Reinforcement Zone Number (2)	Maximum Forces (3)	Element	Longitudinal Reinforcement Design Loads: Axial and Flexure Loads: Load Combination	Axial (4) (kips / ft)	Flexure (4) (ft-kips / ft)	In-Plane Shear Loads: Load Combination	In-plane (5) Shear (kips / ft)	Longitudinal Reinforcement Provided (in²/ ft)	Transverse Shear Design Loads (6): Load Combination	Horizontal Section: Transverse Shear Force (kip / ft)	Horizontal Section: Corresponding Axial Force (kip / ft)	Vertical Section: Transverse Shear Force (kip / ft)	Vertical Section: Corresponding Axial Force (kip / ft)	Transverse Shear (7) Reinforcement Provided (in²/ft²)	Remarks
EL 35'-0"	Near Side	Horizontal	3H.3-33	5	1-H-L	MTCM	37891	1.4D + 1.7L + 1.7H' + 1.7Eo	99	-45	1.4D + 1.7L + 1.7H' + 1.7Eo	122	3.12	-	-	-	-	-	-	-
						MCCM	37891	1.4D + 1.7L + 1.7H' + 1.7Eo	-291	-110										
						MMAT	36339	1.4D + 1.7L + 1.7H' + 1.7Eo	1	-266										
						MMAC	38166	1.4D + 1.7L + 1.7H' + 1.7Eo	-190	-354										
					2-H-L	MTCM	35329	1.4D + 1.7L + 1.7H' + 1.7Eo	64	-298	1.4D + 1.7L + 1.7H' + 1.7Eo	107	4.68	-	-	-	-	-	-	-
						MCCM	36144	1.4D + 1.7L + 1.7H' + 1.7Eo	-224	-390										
						MMAT	35343	1.4D + 1.7L + 1.7H' + 1.7Eo	19	-405										
						MMAC	38231	1.4D + 1.7L + 1.7H' + 1.7Eo	-78	-386										
					3-H-L	MTCM	37838	1.4D + 1.7L + 1.7H' + 1.7Eo	67	-144	1.4D + 1.7L + 1.7H' + 1.7Eo	73	6.24	-	-	-	-	-	-	-
						MCCM	37838	1.4D + 1.7L + 1.7H' + 1.7Eo	-302	-627										
						MMAT	37835	D + L + H' + E'	13	-429										
						MMAC	37833	1.4D + 1.7L + 1.7H' + 1.7Eo	-273	-634										
				4	4-H-L	MTCM	38193	1.4D + 1.7L + 1.7H' + 1.7Eo	61	-8	1.4D + 1.7L + 1.7H' + 1.7Eo	97	3.12	-	-	-	-	-	-	-
						MCCM	37895	1.4D + 1.7L + 1.7H' + 1.7Eo	-203	-188										
						MMAT	37773	1.4D + 1.7L + 1.7H' + 1.7Eo	3	-308										
						MMAC	37785	1.4D + 1.7L + 1.7H' + 1.7Eo	-80	-347										
				2	5-H-L	MTCM	25335	1.4D + 1.7L + 1.7H' + 1.7Eo	73	-19	1.4D + 1.7L + 1.7H' + 1.7Eo	102	3.12	-	-	-	-	-	-	(2),(10)
						MCCM	25335	1.4D + 1.7L + 1.7H' + 1.7Eo	-195	-30										
						MMAT	39029	1.4D + 1.7L + 1.7H' + 1.7Eo	6	-115										
						MMAC	39029	1.4D + 1.7L + 1.7H' + 1.7Eo	-44	-115										
		Vertical	3H.3-34	5	1-V-L	MTCM	35934	1.4D + 1.7L + 1.7H' + 1.7Eo	50	-68	1.4D + 1.7L + 1.7H' + 1.7Eo	72	3.12	-	-	-	-	-	-	-
						MCCM	35394	D + L + H' + E'	-143	-143										
						MMAT	35395	1.4D + 1.7L + 1.7H' + 1.7Eo	27	-160										
						MMAC	35395	1.4D + 1.7L + 1.7H' + 1.7Eo	-114	-223										
					2-V-L	MTCM	36082	1.4D + 1.7L + 1.7H' + 1.7Eo	145	-180	1.4D + 1.7L + 1.7H' + 1.7Eo	52	4.68	-	-	-	-	-	-	-
						MCCM	37024	D + L + H' + E'	-184	-184										
						MMAT	34304	1.4D + 1.7L + 1.7H' + 1.7Eo	2	-371										
						MMAC	37023	1.4D + 1.7L + 1.7H' + 1.7Eo	-177	-531										
					3-V-L	MTCM	35810	1.4D + 1.7L + 1.7H' + 1.7Eo	180	-135	1.4D + 1.7L + 1.7H' + 1.7Eo	72	6.24	-	-	-	-	-	-	-
						MCCM	35810	1.4D + 1.7L + 1.7H' + 1.7Eo	-319	-37										
						MMAT	35273	1.4D + 1.7L + 1.7H' + 1.7Eo	34	-590										
						MMAC	37824	1.4D + 1.7L + 1.7H' + 1.7Eo	-187	-764										
				4	4-V-L	MTCM	38157	1.4D + 1.7L + 1.7H' + 1.7Eo	62	-79	D + L + H' + E'	66	3.12	-	-	-	-	-	-	-
						MCCM	38161	1.4D + 1.7L + 1.7H' + 1.7Eo	-185	-256										
						MMAT	38302	1.4D + 1.7L + 1.7H' + 1.7Eo	7	-275										
						MMAC	38258	1.4D + 1.7L + 1.7H' + 1.7Eo	-38	-344										
					5-V-L	MTCM	38143	1.4D + 1.7L + 1.7H' + 1.7Eo	44	-240	D + L + H' + E'	68	4.68	-	-	-	-	-	-	-
						MCCM	38143	1.4D + 1.7L + 1.7H' + 1.7Eo	-189	-412										
						MMAT	38143	D + L + H' + E'	9	-473										
						MMAC	38143	1.4D + 1.7L + 1.7H' + 1.7Eo	-97	-693										
					6-V-L	MTCM	38155	1.4D + 1.7L + 1.7H' + 1.7Eo	66	-211	1.4D + 1.7L + 1.7H' + 1.7Eo	52	6.24	-	-	-	-	-	-	-
						MCCM	38165	1.4D + 1.7L + 1.7H' + 1.7Eo	-236	-747										
						MMAT	38165	1.4D + 1.7L + 1.7H' + 1.7Eo	1	-701										
						MMAC	38165	1.4D + 1.7L + 1.7H' + 1.7Eo	-211	-786										
				2	7-V-L	MTCM	25310	1.4D + 1.7L + 1.7H' + 1.7Eo	33	-19	1.4D + 1.7L + 1.7H' + 1.7Eo	41	1.56	-	-	-	-	-	-	(10)
						MCCM	25333	D + L + H' + E'	-64	-27										
						MMAT	39027	1.4D + 1.7L + 1.7H' + 1.7Eo	1	-50										
						MMAC	39027	1.4D + 1.7L + 1.7H' + 1.7Eo	-21	-50										
					8-V-L	MTCM	34573	1.4D + 1.7L + 1.7H' + 1.7Eo	41	-25	1.4D + 1.7L + 1.7H' + 1.7Eo	50	3.12	-	-	-	-	-	-	(10)
						MCCM	34574	D + L + H' + E'	-60	-15										
						MMAT	34573	1.4D + 1.7L + 1.7H' + 1.7Eo	20	-52										
						MMAC	34573	1.4D + 1.7L + 1.7H' + 1.7Eo	-69	-62										

Table 3H.3-4: Results of Radwaste Building Concrete Slab Design (Continued)

Location	Face	Direction	Reinforcement Layout Drawing Number (1)	Thickness (ft)	Reinforcement Zone Number (2)	Maximum Forces (3)	Element	Longitudinal Reinforcement Design Loads – Axial and Flexure Loads – Load Combination	Axial (4) (kips / ft)	Flexure (4) (ft-kips / ft)	In-Plane Shear Loads – Load Combination	In-plane Shear (5) (kips / ft)	Longitudinal Reinforcement Provided (in²/ ft)	Transverse Shear Design Loads (6) – Load Combination	Horizontal Section – Transverse Shear Force (kip / ft)	Horizontal Section – Corresponding Axial Force (kip / ft)	Vertical Section – Transverse Shear Force (kip / ft)	Vertical Section – Corresponding Axial Force (kip / ft)	Transverse Shear (7) Reinforcement Provided (in²/ft²)	Remarks
El. 38'-0"	Far Side	Horizontal	3H.3-35	5	1-H-L	MTCM	38359	1.4D + 1.7L + 1.7H' + 1.7Eo	44	50	1.4D + 1.7L + 1.7H' + 1.7Eo	122	3.12	-	-	-	-	-	-	-
						MCCM	38398	1.4D + 1.7L + 1.7H' + 1.7Eo	-194	78										
						MMAT	36138	1.4D + 1.7L + 1.7H' + 1.7Eo	5	252										
						MMAC	38353	1.4D + 1.7L + 1.7H' + 1.7Eo	-23	165										
					2-H-L	MTCM	38230	1.4D + 1.7L + 1.7H' + 1.7Eo	98	68	1.4D + 1.7L + 1.7H' + 1.7Eo	107	4.68	-	-	-	-	-	-	-
						MCCM	37817	1.4D + 1.7L + 1.7H' + 1.7Eo	-195	48										
						MMAT	38224	1.4D + 1.7L + 1.7H' + 1.7Eo	6	374										
						MMAC	38224	1.4D + 1.7L + 1.7H' + 1.7Eo	-99	416										
				4	3-H-L	MTCM	38193	1.4D + 1.7L + 1.7H' + 1.7Eo	81	58	1.4D + 1.7L + 1.7H' + 1.7Eo	97	3.12	-	-	-	-	-	-	-
						MCCM	38193	1.4D + 1.7L + 1.7H' + 1.7Eo	-239	173										
						MMAT	38195	1.4D + 1.7L + 1.7H' + 1.7Eo	1	227										
						MMAC	38509	1.4D + 1.7L + 1.7H' + 1.7Eo	-139	237										
				2	4-H-L	MTCM	25335	1.4D + 1.7L + 1.7H' + 1.7Eo	98	15	1.4D + 1.7L + 1.7H' + 1.7Eo	102	3.12	-	-	-	-	-	-	(10)
						MCCM	25335	1.4D + 1.7L + 1.7H' + 1.7Eo	-247	11										
						MMAT	39021	1.4D + 1.7L + 1.7H' + 1.7Eo	24	61										
						MMAC	39021	1.4D + 1.7L + 1.7H' + 1.7Eo	-11	61										
		Vertical	3H.3-38	5	1-V-L	MTCM	38119	1.4D + 1.7L + 1.7H' + 1.7Eo	54	73	1.4D + 1.7L + 1.7H' + 1.7Eo	72	3.12	-	-	-	-	-	-	-
						MCCM	37849	D + L + H' + E'	-230	129										
						MMAT	38053	1.4D + 1.7L + 1.7H' + 1.7Eo	34	208										
						MMAC	37845	1.4D + 1.7L + 1.7H' + 1.7Eo	-139	303										
					2-V-L	MTCM	37131	1.4D + 1.7L + 1.7H' + 1.7Eo	17	82	1.4D + 1.7L + 1.7H' + 1.7Eo	72	4.68	-	-	-	-	-	-	-
						MCCM	37074	D + L + H' + E'	-444	231										
						MMAT	37559	1.4D + 1.7L + 1.7H' + 1.7Eo	11	104										
						MMAC	37809	1.4D + 1.7L + 1.7H' + 1.7Eo	-149	557										
					3-V-L	MTCM	35810	1.4D + 1.7L + 1.7H' + 1.7Eo	160	173	1.4D + 1.7L + 1.7H' + 1.7Eo	43	6.24	-	-	-	-	-	-	-
						MCCM	35810	1.4D + 1.7L + 1.7H' + 1.7Eo	-319	240										
						MMAT	35282	1.4D + 1.7L + 1.7H' + 1.7Eo	78	538										
						MMAC	35282	1.4D + 1.7L + 1.7H' + 1.7Eo	-103	536										
				4	4-V-L	MTCM	38165	1.4D + 1.7L + 1.7H' + 1.7Eo	66	89	D + L + H' + E'	66	3.12	-	-	-	-	-	-	-
						MCCM	38165	D + L + H' + E'	-191	40										
						MMAT	37764	1.4D + 1.7L + 1.7H' + 1.7Eo	21	201										
						MMAC	38553	1.4D + 1.7L + 1.7H' + 1.7Eo	-135	403										
					5-V-L	MTCM	38157	1.4D + 1.7L + 1.7H' + 1.7Eo	20	85	1.4D + 1.7L + 1.7H' + 1.7Eo	52	4.68	-	-	-	-	-	-	-
						MCCM	38157	1.4D + 1.7L + 1.7H' + 1.7Eo	-159	335										
						MMAT	38155	1.4D + 1.7L + 1.7H' + 1.7Eo	7	121										
						MMAC	38153	1.4D + 1.7L + 1.7H' + 1.7Eo	-147	441										
				2	6-V-L	MTCM	25310	1.4D + 1.7L + 1.7H' + 1.7Eo	33	6	1.4D + 1.7L + 1.7H' + 1.7Eo	41	1.56	-	-	-	-	-	-	(10)
						MCCM	25314	D + L + H' + E'	-64	6										
						MMAT	39021	1.4D + 1.7L + 1.7H' + 1.7Eo	3	31										
						MMAC	39021	1.4D + 1.7L + 1.7H' + 1.7Eo	-3	31										
					7-V-L	MTCM	34573	1.4D + 1.7L + 1.7H' + 1.7Eo	41	21	1.4D + 1.7L + 1.7H' + 1.7Eo	50	3.12	-	-	-	-	-	-	(10)
						MCCM	34821	1.4D + 1.7L + 1.7H' + 1.7Eo	-79	10										
						MMAT	34525	1.4D + 1.7L + 1.7H' + 1.7Eo	5	45										
						MMAC	34578	1.4D + 1.7L + 1.7H' + 1.7Eo	-47	57										
	-	Transverse (Horizontal and Vertical)	3H.3-37a	5	1-T	-	-	-	-	-	-	-	-	1.4D + 1.7L + 1.7H' + 1.7Eo	94	-35	-3	-1	0.20 (#4@12)	-
					2-T	-	-	-	-	-	-	-	-	1.4D + 1.7L + 1.7H' + 1.7Eo	53	123	54	120	0.31 (#5@12)	-
					3-T	-	-	-	-	-	-	-	-	1.4D + 1.7L + 1.7H' + 1.7Eo	117	169	68	115	0.80 (#4@6)	-
				2	4-T	-	-	-	-	-	-	-	-	1.4D + 1.7L + 1.7H' + 1.7Eo	28	28	62	48	0.80 (#4@6)	-
Roof	Near Side	Horizontal	3H.3-38	1	1-H-L	MTMM	-	1.4D + 1.7L + 1.7H' + 1.7Eo	27	-	1.4D + 1.7L + 1.7H' + 1.7Eo	-	0.79	-	-	-	-	-	-	(11)
		Vertical	3H.3-39	1	1-V-L	MTMM	-	1.4D + 1.7L + 1.7H' + 1.7Eo	22	16	1.4D + 1.7L + 1.7H' + 1.7Eo	61	1.20	-	-	-	-	-	-	
	Far Side	Horizontal	3H.3-40	1	1-H-L	MTMM	-	1.4D + 1.7L + 1.7H' + 1.7Eo	27	-	1.4D + 1.7L + 1.7H' + 1.7Eo	-	0.79	-	-	-	-	-	-	
		Vertical	3H.3-41	1	1-V-L	MTMM	-	1.4D + 1.7L + 1.7H' + 1.7Eo	22	16	1.4D + 1.7L + 1.7H' + 1.7Eo	61	1.20	-	-	-	-	-	-	

Table 3H.3-4: Results of Radwaste Building Concrete Slab Design (Continued)

Notes:

(1) The reinforcement layout drawings show the various zones used to define the minimum reinforcement that will be provided based on finite element analysis results. Actual provided reinforcement based on final rebar layout and including development length may exceed the reported provided reinforcement and the zones with higher reinforcement may be extended beyond their reported boundaries. The dimensions in the reinforcement drawings are based on the dimensions of the SAP2000 shell elements, which are modeled at the centerline of the walls and slabs. Therefore, the reinforcement drawing dimensions do not match actual building dimensions.

(2) Each reinforcement layout drawing is divided into reinforcement zones. The reinforcement zone naming convention is as follows: "H" = horizontal, "V" = vertical, "L" = longitudinal reinforcement, "T" = transverse reinforcement. For slabs, vertical corresponds to North-South direction and horizontal corresponds to East-West direction.

(3) The maximum tension (MTCM) and compression (MCCM) axial forces are provided with the corresponding moment from the same load combination. The maximum moment that has a corresponding tension (MMAT) in the same load combination and the maximum moment that has a corresponding compression (MMAC) in the same load combination are also provided. For the roof, the maximum tension and maximum moment (MTMM) are reported.

(4) Negative axial load is compression and positive axial load is tension. Negative moment applies tension to the top face of the shell element and positive moment applies tension to the bottom face of the shell element. For walls or slabs where the same reinforcement is provided on both faces, the moment is shown as absolute value. The axial and flexural loads reported in the table are the average of the 2 node pairs that form the 4 edges of the critical rectangular shell element. If the 2 node pairs on the shell element edges parallel to the reinforcement direction do not satisfy P&M interaction criteria, then only the 2 node pairs on the shell element edges perpendicular to the reinforcement direction are used for design (effective width considered). The element mesh is sufficiently refined for this design approach.

(5) The reported in-plane shear is the maximum average in-plane shear along a plane that crosses the longitudinal reinforcement zone.

(6) The transverse shear reinforcement loads are reported for the critical element requiring the largest area of steel for transverse reinforcement within the zone. The shear force and the corresponding axial force in the same load combination for each direction is reported for the critical element.

(7) The reported transverse shear reinforcement is the summation of the requried shear reinforcement in the horizontal direction and the required shear reinforcement in the vertical direction.

(8) For certain areas of the structure, the standard element post-processing methods were too conservative. For such cases, detailed manual design was performed and the design forces determined by the detailed manual design are provided in the table.

(9) The longitudinal reinforcement shown is required to be tied

(10) The reported forces are from the FEM analysis. The provided longitudinal reinforcement includes additional reinforcement required due to manual one-way design calculations

(11) The reported axial and in-plane forces are from the FEM analysis. The reported flexural forces are from manual one-way design calculations

Table 3H.3-5 Summary of Structural Steel Design

Elevation 35'-0" Floor Steel Beams

Location[6]	Figure Number	Size[2,3,4]	Safety Margin = Capacity/Demand	Max. Moment (kip-ft)	Governing Load Combination[5]
Elevation 35'-0" Formwork Steel Beams	3H.3-39 3H.3-40 3H.3-41 3H.3-42	W10X54	2.0	81.7	D+L
		W14X193	1.5	565.8	D+L
		W14X283	1.8	700.4	D+L
Elevation 35'-0" Composite Steel Beams		W14x82	1.5	629.5	D+L+E'
		W36x210	1.3	577.4	Construction
		W36x231	1.2	4540.4	D+L+E'
		W36x262	1.1	5511.0	D+L+E'

Roof Truss Members

Location	Figure Number	Size[2,3,4]	Safety Margin = Capacity/Demand	Max. Axial Load[1] (kip)	Governing Load Combination[5]
North-South Spanning Truss Top Chord Member	3H.3-43 3H.3-44	W14X120	1.6 1.6	705.0 -962.0	D+L+E' D+L+E'
North-South Spanning Truss Bottom Chord Member		W14X311	1.4 4.3	2161.0 -908.0	D+L+E' D+E'
North-South Spanning Truss Outer Diagonal Members		W12X136	1.4 4.5	910.0 -329.0	D+L+E' D+E'
North-South Spanning Truss Outer Vertical Members		2L8X8X1	2.6 1.3	241.0 -667.0	D+E' D+L+E'
North-South Spanning Truss Inner Diagonal Members		2L8X6X3/4LLBB	1.4 3.7	284.0 -139.0	D+L+E' D+E'
North-South Spanning Truss Inner Vertical Members		2L5X5X1/2	2.0 1.3	91.0 -185.0	D+E' D+L+E'
North-South Spanning Truss Lateral Bracing Members		2L8X4X1LLBB	1.1 1.1	386.0 -316.0	D+L+E' D+L+E'
East-West Spanning Truss Top Chord Member	3H.3-43 3H.3-45	2L5X5X1/2	3.8 1.9	47.0 -152.0	0.9D+E' D+L+E'
East-West Spanning Truss Bottom Chord Member		2L8X4X1LLBB	1.4 7.1	316.0 -94.0	D+L+E' 0.9D+E'
East-West Spanning Truss Outer Diagonal Members		L8X8X7/8	1.3 8.3	208.0 -51.0	D+L+E' 0.9D+E'
East-West Spanning Truss Outer Vertical Members		L6X6X1/2	3.3 1.3	35.0 -143.0	D+L+E' D+L+E'
East-West Spanning Truss Inner Diagonal Members		L4X4X3/8	4.3 11.1	14.0 -7.0	D+L+E' 0.9D+E'
East-West Spanning Truss Inner Vertical Members		L6X6X1/2	5.0 2.9	23.0 -63.0	0.9D+E' D+L+E'
East-West Spanning Truss Lateral Bracing Members		L5X5X3/8	3.8 2.6	18.0 -21.0	D+L+E' D+L+E'

Roof Purlins

Location	Figure Number	Size[2,3,4]	Safety Margin = Capacity/Demand	Max. Axial Load[1] (kip)	Max. Moment[7] (kip-ft)	Governing Load Combination[5]
North-South Spanning Roof Purlins	3H.3-43	W12X210	1.3	-1299.3	-13.2	D+L+E'
East-West Spanning Roof Purlins		W8X67	1.8	-269.6	-2.5.	D+L+E'

Notes:

1. Positive axial load is tension and negative axial load is compression.
2. W-shapes : ASTM A572 Gr. 50 (Fy = 50ksi)
3. Angles and Double Angles : ASTM A36 Gr. 36 (Fy = 36ksi)
4. Member sizes reported are based on analysis results.
   Actual member sizes used will have the same or greater capacity, but size and shape may vary based on connection design requirements.
5. E_o is the design basis earthquake load (1/2 SSE). E' is the II/I earthquake load (SSE).
6. The steel beams located between column lines W1-W7 and WA-WE are required for concrete formwork only. Once the concrete cures, the concrete alone is designed for all design basis loading. The formwork steel will remain in-place unless commodity routing required the formwork steel to be removed.
7. Maximum moment for governing load combination is based on bending about the minor-axis.

Table 3H.6-11: Results of DGFOS Vault Concrete Design

Location	Thickness (ft)	Face	Direction	Reinforcement Layout Drawing Number (1)	Reinforcement Zone Number (2)	Maximum Forces (3)	Element	Longitudinal Reinforcement Design Loads: Axial and Flexure Loads: Load Combination	Axial (4) (kips / ft)	Flexure (4) (ft-kips / ft)	In-Plane Shear Loads: Load Combination	In-plane Shear (5) (kips / ft)	Longitudinal Reinforcement Provided (in²/ ft)	Transverse Shear Design Loads (6): Load Combination	Horizontal Section: Transverse Shear Force (kip / ft)	Horizontal Section: Corresponding Axial Force (kip / ft)	Vertical Section: Transverse Shear Force (kip / ft)	Vertical Section: Corresponding Axial Force (kip / ft)	Transverse Shear (7) Reinforcement Provided (in²/ft²)	Remarks
Slab 1	6	Near Side	Horizontal	3H6-142	1-H-L	MTCM	244	D+F+L+H'+E'	34	-71	D+F+L+H'+E'	24	3.12	-	-	-	-	-	-	
						MCCM	2275	D+F+L+H'+E'	-73	-184										
						MMAT	233	D+F+L+H'+E'	1	-374										
						MMAC	243	D+F+L+H'+E'	-15	-412										
					2-H-L	MTCM	2280	D+F+L+H'+E'	55	-220	D+F+L+H'+E'	24	4.68	-	-	-	-	-	-	
						MCCM	34	D+F+L+H'+E'	-52	-39										
						MMAT	99	D+F+L+H'+E'	5	-748										
						MMAC	99	D+F+L+H'+E'	-1	-748										
					3-H-L	MTCM	344	D+F+L+H'+E'	38	-341	D+F+L+H'+E'	24	9.36	-	-	-	-	-	-	
						MCCM	384	D+F+L+H'+E'	-86	-810										
						MMAT	383	D+F+L+H'+E'	8	-1693										
						MMAC	323	D+F+L+H'+E'	-11	-1693										
			Vertical	3H6-143	1-V-L	MTCM	2524	D+F+L+H'+E'	35	-65	D+F+L+H'+E'	27	3.12	-	-	-	-	-	-	
						MCCM	174	D+F+L+H'+E'	-174	-61										
						MMAT	2525	D+F+L+H'+E'	20	-322										
						MMAC	115	D+F+L+H'+E'	-63	-518										
					2-V-L	MTCM	377	D+F+L+H'+E'	39	-52	D+F+L+H'+E'	27	4.68	-	-	-	-	-	-	
						MCCM	231	D+F+L+H'+E'	-147	-9										
						MMAT	35	D+F+L+H'+E'	24	-418										
						MMAC	225	1.4D+1.4F+1.7L+1.7H+1.7W	-82	-683										
					3-V-L	MTCM	18	D+F+L+H'+E'	41	-123	D+F+L+H'+E'	27	6.24	-	-	-	-	-	-	
						MCCM	117	1.4D+1.4F+1.7L+1.7H+1.7W	-123	-432										
						MMAT	344	D+F+L+H'+E'	38	-988										
						MMAC	99	D+F+L+H'+E'	-36	-1131										
		Far side	Horizontal	3H6-144	1-H-L	MTCM	253	D+F+L+H'+E'	23	195	D+F+L+H'+E'	24	3.12	-	-	-	-	-	-	
						MCCM	2269	D+F+L+H'+E'	-82	136										
						MMAT	129	D+F+L+H'+E'	13	385										
						MMAC	128	D+F+L+H'+E'	-22	445										
					2-H-L	MTCM	2299	D+F+L+H'+E'	52	512	D+F+L+H'+E'	24	4.68	-	-	-	-	-	-	
						MCCM	354	D+F+L+H'+E'	-83	853										
						MMAT	118	D+F+L+H'+E'	11	748										
						MMAC	355	D+F+L+H'+E'	-74	940										
					3-H-L	MTCM	40	D+F+L+H'+E'	64	638	D+F+L+H'+E'	24	6.24	-	-	-	-	-	-	
						MCCM	377	D+F+L+H'+E'	-88	321										
						MMAT	40	D+F+L+H'+E'	46	918										
						MMAC	378	D+F+L+H'+E'	-34	1215										
					4-H-L	MTCM	346	D+F+L+H'+E'	73	935	D+F+L+H'+E'	24	7.8	-	-	-	-	-	-	(5)
						MCCM	384	D+F+L+H'+E'	-86	498										
						MMAT	99	D+F+L+H'+E'	9	1437										
						MMAC	99	D+F+L+H'+E'	-5	1437										
			Vertical	3H6-145	1-V-L	MTCM	340	D+F+L+H'+E'	51	660	D+F+L+H'+E'	27	6.24	-	-	-	-	-	-	
						MCCM	194	D+F+L+H'+E'	-191	675										
						MMAT	61	D+F+L+H'+E'	13	1001										
						MMAC	296	D+F+L+H'+E'	-15	1102										

Table 3H.6-11: Results of DGFOS Vault Concrete Design (Continued)

Location	Thickness (ft)	Face	Direction	Reinforcement Layout Drawing Number (1)	Reinforcement Zone Number (2)	Maximum Forces (3)	Element	Longitudinal Reinforcement Design Loads: Axial and Flexure Loads: Load Combination	Axial (4) (kips / ft)	Flexure (4) (ft-kips / ft)	In-Plane Shear Loads: Load Combination	In-plane Shear (5) (kips / ft)	Longitudinal Reinforcement Provided (in²/ ft)	Transverse Shear Design Loads (6): Load Combination	Horizontal Section: Transverse Shear Force (kip / ft)	Horizontal Section: Corresponding Axial Force (kip / ft)	Vertical Section: Transverse Shear Force (kip / ft)	Vertical Section: Corresponding Axial Force (kip / ft)	Transverse Shear (7) Reinforcement Provided (in²/ft²)	Remarks
Slab 1	6	Far side	Vertical	3H6-145	2-V-L	MTCM	2521	D+F+L+H'+E'	50	575	D+F+L+H'+E'	19	9.36	-	-	-	-	-	-	
						MCCM	225	D+F+L+H'+E'	-300	1143										
						MMAT	333	D+F+L+H'+E'	67	973										
						MMAC	243	D+F+L+H'+E'	-135	1306										
					3-V-L	MTCM	359	D+F+L+H'+E'	119	1130	D+F+L+H'+E'	27	10.92	-	-	-	-	-	-	
						MCCM	117	D+F+L+H'+E'	-295	1289										
						MMAT	71	D+F+L+H'+E'	21	1312										
						MMAC	221	D+F+L+H'+E'	-345	2135										
					4-V-L	MTCM	257	D+F+L+H'+E'	4	177	D+F+L+H'+E'	17	14.04	-	-	-	-	-	-	
						MCCM	221	D+F+L+H'+E'	-303	1378										
						MMAT	-	-	-	-										
						MMAC	125	D+F+L+H'+E'	-349	2465										
					5-V-L	MTCM	-	-	-	-	D+F+L+H'+E'	11	15.6	-	-	-	-	-	-	(5)
						MCCM	215	D+F+L+H'+E'	-269	2309										
						MMAT	-	-	-	-										
						MMAC	197	D+F+L+H'+E'	-348	2453										
		-	Transverse (North-South & East-West)	3H6-146	1-T	-	-	-	-	-	-	-	-	D+F+L+H'+E'	172	-123	27	-21	0.31 (5@12")	
					2-T	-	-	-	-	-	-	-	-	D+F+L+H'+E'	195	13	119	5	0.80 (4@6")	
Roof 2	2	Near Side	Horizontal	3H6-147	1-H-L	MTCM	553	D+F+L+H'+E'	70	-40	D+F+L+H'+E'	40	3.12	-	-	-	-	-	-	(9)
						MCCM	553	D+F+L+H'+E'	-172	-14										
						MMAT	553	D+F+L+H'+E'	21	-53										
						MMAC	539	D+F+L+H'+E'	-92	-70										
			Vertical	3H6-148	1-V-L	MTCM	401	D+F+L+H'+E'	41	-15	D+F+L+H'+E'	60	1.58	-	-	-	-	-	-	
						MCCM	565	D+F+L+H'+E'	-141	-32										
						MMAT	401	D+F+L+H'+E'	24	-31										
						MMAC	511	D+F+L+H'+E'	-105	-118										
					2-V-L	MTCM	554	D+F+L+H'+E'	80	0	D+F+L+H'+E'	60	3.12	-	-	-	-	-	-	
						MCCM	554	D+F+L+H'+E'	-185	-68										
						MMAT	539	D+F+L+H'+E'	2	-98										
						MMAC	539	D+F+L+H'+E'	-85	-178										
					3-V-L	MTCM	566	D+F+L+H'+E'	6	-12	D+F+L+H'+E'	22	6.24	-	-	-	-	-	-	(5)
						MCCM	566	D+F+L+H'+E'	-152	-152										
						MMAT	566	D+F+L+H'+E'	3	-14										
						MMAC	566	D+F+L+H'+E'	-104	-221										
		Far side	Horizontal	3H6-149	1-H-L	MTCM	399	D+F+L+H'+E'	13	4	D+F+L+H'+E'	40	3.12	-	-	-	-	-	-	(9)
						MCCM	523	D+F+L+H'+E'	-172	26										
						MMAT	556	D+F+L+H'+E'	3	67										
						MMAC	565	D+F+L+H'+E'	-21	81										
			Vertical	3H6-150	1-V-L	MTCM	554	D+F+L+H'+E'	51	24	D+F+L+H'+E'	60	1.58	-	-	-	-	-	-	
						MCCM	565	D+F+L+H'+E'	-114	11										
						MMAT	565	D+F+L+H'+E'	71	24										
						MMAC	566	D+F+L+H'+E'	-35	24										
Slab 3	2	Near Side	Horizontal	3H6-151	1-H-L	MTCM	650	D+F+L+H'+E'	29	-13	D+F+L+H+Wt	24	1.58	-	-	-	-	-	-	
						MCCM	638	D+F+L+H+Wt	-55	-21										
						MMAT	643	D+F+L+H+Wt	2	-39										
						MMAC	638	D+F+L+H+Wt	-54	-57										

Table 3H.6-11: Results of DGFOS Vault Concrete Design (Continued)

Location	Thickness (ft)	Face	Direction	Reinforcement Layout Drawing Number (1)	Reinforcement Zone Number (2)	Maximum Forces (3)	Element	Longitudinal Reinforcement Design Loads – Axial and Flexure Loads – Load Combination	Axial (4) (kips / ft)	Flexure (4) (ft-kips / ft)	In-Plane Shear Loads – Load Combination	In-plane Shear (5) (kips / ft)	Longitudinal Reinforcement Provided (in²/ ft)	Transverse Shear Design Loads (6) – Load Combination	Horizontal Section – Transverse Shear Force (kip / ft)	Horizontal Section – Corresponding Axial Force (kip / ft)	Vertical Section – Transverse Shear Force (kip / ft)	Vertical Section – Corresponding Axial Force (kip / ft)	Transverse Shear (7) Reinforcement Provided (in²/ft²)	Remarks
Slab 3	2	Near Side	Horizontal	3H6-151	2-H-L	MTCM	574	D+F+L+H'+E'	7	-19	D+F+L+H+Wt	24	3.12	-	-	-	-	-	-	
						MCCM	574	D+F+L+H'+E'	-8	-6										
						MMAT	574	D+F+L+H'+E'	7	-19										
						MMAC	574	D+F+L+H'+E'	-3	-13										
			Vertical	3H6-152	1-V-L	MTCM	575	D+F+L+H+Wt	25	-5	D+F+L+H+Wt	18	1.58	-	-	-	-	-	-	
						MCCM	575	D+F+L+H'+E'	-73	-5										
						MMAT	583	D+F+L+H'+E'	16	-25										
						MMAC	583	D+F+L+H'+E'	-5	-25										
					2-V-L	MTCM	574	D+F+L+H'+E'	36	-36	D+F+L+H+Wt	15	3.12	-	-	-	-	-	-	
						MCCM	574	D+F+L+H'+E'	-84	-11										
						MMAT	574	D+F+L+H'+E'	34	-36										
						MMAC	574	D+F+L+H'+E'	-3	-36										
		Far Side	Horizontal	3H6-153	1-H-L	MTCM	633	D+F+L+H+Wt	30	5	D+F+L+H+Wt	24	1.58	-	-	-	-	-	-	
						MCCM	651	D+F+L+H'+E'	-60	1										
						MMAT	643	D+F+L+H'+E'	3	26										
						MMAC	572	D+F+L+H+Wt	-5	31										
					2-H-L	MTCM	574	D+F+L+H'+E'	5	6	D+F+L+H+Wt	24	3.12	-	-	-	-	-	-	
						MCCM	574	D+F+L+H+Wt	-15	14										
						MMAT	574	D+F+L+H'+E'	2	13										
						MMAC	573	D+F+L+H+Wt	-6	35										
			Vertical	3H6-154A	1-V-L	MTCM	575	D+F+L+H+Wt	30	6	D+F+L+H+Wt	18	1.58	-	-	-	-	-	-	
						MCCM	575	D+F+L+H'+E'	-73	8										
						MMAT	575	D+F+L+H'+E'	66	21										
						MMAC	583	D+F+L+H+Wt	-65	24										
					2-V-L	MTCM	574	D+F+L+H'+E'	38	21	D+F+L+H+Wt	15	3.12	-	-	-	-	-	-	
						MCCM	574	D+F+L+H+Wt	-114	41										
						MMAT	574	D+F+L+H+Wt	1	26										
						MMAC	574	D+F+L+H+Wt	-114	41										
		-	Transverse (North-South & East-West)	3H6-154B	1-T	-	-	-	-	-	-	-	-	D+F+L+H'+E'	-16	51	-26	9	0.44 (3@6")	
Roof 5	2	Near Side	Horizontal	3H6-155	1-H-L	MTCM	690	D+F+L+H+Wt	44	-12	D+F+L+H+Wt	37	1.52	-	-	-	-	-	-	
						MCCM	695	D+F+L+H+Wt	-47	-8										
						MMAT	771	D+F+L+H'+E'	0	-29										
						MMAC	763	D+F+L+H'+E'	-6	-41										
			Vertical	3H6-156	1-V-L	MTCM	769	D+F+L+H+Wt	63	-5	D+F+L+H'+E'	18	1.58	-	-	-	-	-	-	
						MCCM	663	D+F+L+H+Wt	-63	-2										
						MMAT	731	D+F+L+H'+E'	0	-19										
						MMAC	763	D+F+L+H+Wt	-31	-19										
		Far Side	Horizontal	3H6-157	1-H-L	MTCM	704	D+F+L+H+Wt	32	5	D+F+L+H+Wt	37	1.58	-	-	-	-	-	-	
						MCCM	767	D+F+L+H+Wt	-145	16										
						MMAT	698	D+F+L+H+Wt	1	19										
						MMAC	732	D+F+L+H+Wt	-22	49										
			Vertical	3H6-158	1-V-L	MTCM	711	D+F+L+H+Wt	27	0	D+F+L+H'+E'	18	1.58	-	-	-	-	-	-	
						MCCM	732	D+F+L+H+Wt	-170	15										
						MMAT	732	D+F+L+H'+E'	5	17										
						MMAC	697	D+F+L+H+Wt	-43	43										

Table 3H.6-11: Results of DGFOS Vault Concrete Design (Continued)

Location	Thickness (ft)	Face	Direction	Reinforcement Layout Drawing Number (1)	Reinforcement Zone Number (2)	Maximum Forces (3)	Element	Longitudinal Reinforcement Design Loads: Axial and Flexure Loads: Load Combination	Axial (4) (kips / ft)	Flexure (4) (ft-kips / ft)	In-Plane Shear Loads: Load Combination	In-plane Shear (5) (kips / ft)	Longitudinal Reinforcement Provided (in²/ ft)	Transverse Shear Design Loads (2): Load Combination	Horizontal Section: Transverse Shear Force (kip / ft)	Horizontal Section: Corresponding Axial Force (kip / ft)	Vertical Section: Transverse Shear Force (kip / ft)	Vertical Section: Corresponding Axial Force (kip / ft)	Transverse Shear (7) Reinforcement Provided (in²/ft²)	Remarks
Roof 6	2	Near Side	Horizontal	3H6-159	1-H-L	MTCM	634	D+F+L+H+Wt	43	-7	D+F+L+H+Wt	52	1.58	-	-	-	-	-	-	
						MCCM	639	D+F+L+H+Wt	-107	-29										
						MMAT	637	D+F+L+H+Wt	2	-45										
						MMAC	639	D+F+L+H+Wt	-30	-74										
			Vertical	3H6-160	1-V-L	MTCM	639	D+F+L+H+Wt	29	-5	D+F+L+H+Wt	87	1.58	-	-	-	-	-	-	
						MCCM	639	D+F+L+H+Wt	-85	-2										
						MMAT	668	D+F+L+H+Wt	5	-24										
						MMAC	658	D+F+L+H+Wt	-33	-25										
		Far Side	Horizontal	3H6-161	1-H-L	MTCM	673	D+F+L+H+Wt	45	9	D+F+L+H+Wt	52	1.58	-	-	-	-	-	-	
						MCCM	657	D+F+L+H+Wt	-230	25										
						MMAT	657	D+F+L+H+Wt	2	53										
						MMAC	658	D+F+L+H+Wt	-21	62										
			Vertical	3H6-162	1-V-L	MTCM	663	D+F+L+H+Wt	15	6	D+F+L+H+Wt	87	1.58	-	-	-	-	-	-	
						MCCM	658	D+F+L+H+Wt	-287	30										
						MMAT	660	D+F+L+H+Wt	3	17										
						MMAC	658	D+F+L+H+Wt	-37	73										
Wall 7	4	Near Side	Horizontal	3H6-163	1-H-L	MTCM	575	D+F+L+H'+E'	115	-33	D+F+L+H'+E'	61	3.12	-	-	-	-	-	-	
						MCCM	1044	D+F+L+H'+E'	-157	-40										
						MMAT	511	D+F+L+H'+E'	5	-223										
						MMAC	1069	D+F+L+H'+E'	-163	-368										
					2-H-L	MTCM	1046	D+F+L+H'+E'	21	-60	D+F+L+H'+E'	61	4.68	-	-	-	-	-	-	
						MCCM	1052	D+F+L+H'+E'	-184	-554										
						MMAT	1015	D+F+L+H'+E'	2	-118										
						MMAC	1070	D+F+L+H'+E'	-165	-594										
					3-H-L	MTCM	591	D+F+L+H'+E'	150	-234	D+F+L+H'+E'	61	6.24	-	-	-	-	-	-	
						MCCM	1042	D+F+L+H'+E'	-223	-205										
						MMAT	1042	D+F+L+H'+E'	98	-298										
						MMAC	1041	D+F+L+H'+E'	-179	-765										
					4-H-L	MTCM	-	-	-	-	D+F+L+H'+E'	44	7.8	-	-	-	-	-	-	
						MCCM	1053	D+F+L+H'+E'	-192	-888										
						MMAT	-	-	-	-										
						MMAC	1065	D+F+L+H'+E'	-195	-930										
			Vertical	3H6-164	1-V-L	MTCM	798	D+F+L+H'+E'	78	-70	D+F+L+H'+E'	92	3.12	-	-	-	-	-	-	
						MCCM	1041	D+F+L+H'+E'	-138	-61										
						MMAT	1059	D+F+L+H'+E'	1	-219										
						MMAC	1059	D+F+L+H'+E'	-64	-219										
					2-V-L	MTCM	798	D+F+L+H'+E'	157	-175	D+F+L+H'+E'	92	4.68	-	-	-	-	-	-	
						MCCM	1029	D+F+L+H'+E'	-213	-61										
						MMAT	591	D+F+L+H'+E'	1	-378										
						MMAC	604	D+F+L+H'+E'	-88	-457										
					3-V-L	MTCM	812	D+F+L+H'+E'	51	-434	D+F+L+H'+E'	74	9.36	-	-	-	-	-	-	
						MCCM	1014	D+F+L+H'+E'	-131	-63										
						MMAT	820	D+F+L+H'+E'	1	-968										
						MMAC	820	D+F+L+H'+E'	-49	-988										

Table 3H.6-11: Results of DGFOS Vault Concrete Design (Continued)

Location	Thickness (ft)	Face	Direction	Reinforcement Layout Drawing Number (1)	Reinforcement Zone Number (2)	Maximum Forces (3)	Element	Longitudinal Reinforcement Design Loads: Axial and Flexure Loads: Load Combination	Axial (4) (kips / ft)	Flexure (4) (ft-kips / ft)	In-Plane Shear Loads: Load Combination	In-plane Shear (5) (kips / ft)	Longitudinal Reinforcement Provided (in²/ ft)	Transverse Shear Design Loads (6): Load Combination	Horizontal Section: Transverse Shear Force (kip / ft)	Horizontal Section: Corresponding Axial Force (kip / ft)	Vertical Section: Transverse Shear Force (kip / ft)	Vertical Section: Corresponding Axial Force (kip / ft)	Transverse Shear (7) Reinforcement Provided (in²/ft²)	Remarks
Wall 7	4	Near Side	Vertical	3H6-164	4-V-L	MTCM	529	D+F+L+H'+E'	33	-629	D+F+L+H'+E'	63	10.92	-	-	-	-	-	-	
						MCCM	529	D+F+L+H'+E'	-119	-40										
						MMAT	538	D+F+L+H'+E'	1	-1217										
						MMAC	538	D+F+L+H'+E'	-54	-1224										
					5-V-L	MTCM	544	D+F+L+H'+E'	23	-717	D+F+L+H'+E'	58	12.45	-	-	-	-	-	-	(5),(12)
						MCCM	544	D+F+L+H'+E'	-112	-38										
						MMAT	568	D+F+L+H'+E'	1	-1227										
						MMAC	552	D+F+L+H'+E'	-64	-1291										
		Far Side	Horizontal	3H6-165	1-H-L	MTCM	559	D+F+L+H'+E'	108	19	D+F+L+H'+E'	61	3.12	-	-	-	-	-	-	
						MCCM	561	D+F+L+H'+E'	-304	264										
						MMAT	1047	D+F+L+H'+E'	9	194										
						MMAC	515	D+F+L+H'+E'	-123	380										
					2-H-L	MTCM	-	-	-	-	D+F+L+H'+E'	50	4.58	-	-	-	-	-	-	
						MCCM	1049	D+F+L+H'+E'	-155	145										
						MMAT	-	-	-	-										
						MMAC	514	D+F+L+H'+E'	-111	413										
			Vertical	3H6-166	1-V-L	MTCM	1023	D+F+L+H'+E'	75	94	D+F+L+H'+E'	92	3.12	-	-	-	-	-	-	
						MCCM	1039	D+F+L+H'+E'	-203	19										
						MMAT	1058	D+F+L+H'+E'	5	169										
						MMAC	1014	D+F+L+H'+E'	-87	273										
					2-V-L	MTCM	798	D+F+L+H'+E'	138	58	D+F+L+H'+E'	92	4.58	-	-	-	-	-	-	
						MCCM	1017	D+F+L+H'+E'	-258	190										
						MMAT	510	D+F+L+H'+E'	1	300										
						MMAC	1025	D+F+L+H'+E'	-90	458										
					3-V-L	MTCM	1042	D+F+L+H+W	74	68	D+F+L+H'+E'	70	6.24	-	-	-	-	-	-	
						MCCM	1042	D+F+L+H'+E'	-211	39										
						MMAT	530	D+F+L+H'+E'	7	663										
						MMAC	530	D+F+L+H'+E'	-51	689										
					4-V-L	MTCM	539	D+F+L+H'+E'	19	255	D+F+L+H'+E'	58	7.8	-	-	-	-	-	-	
						MCCM	571	D+F+L+H'+E'	-75	334										
						MMAT	558	D+F+L+H'+E'	7	755										
						MMAC	558	D+F+L+H'+E'	-27	755										
					5-V-L	MTCM	-	-	-	-	D+F+L+H'+E'	58	12.48	-	-	-	-	-	-	(5),(12)
						MCCM	544	D+F+L+H'+E'	-112	44										
						MMAT	-	-	-	-										
						MMAC	583	D+F+L+H'+E'	-72	116										
		-	Transverse (Horizontal & Vertical)	3H6-167	1-T	-	-	-	-	-	-	-	-	D+F+L+H'+E'	8	-1	95	-159	0.20 (4@12")	
					2-T	-	-	-	-	-	-	-	-	D+F+L+H'+E'	5	1	-103	-183	0.31 (5@12")	
					3-T	-	-	-	-	-	-	-	-	D+F+L+H'+E'	60	83	-129	144	0.60 (4@6")	
					4-T	-	-	-	-	-	-	-	-	D+F+L+H'+E'	-209	-7	1	-13	1.24 (5@6")	
Wall 8	4	Near Side	Horizontal	3H6-168	1-H-L	MTCM	1124	D+F+L+H'+E'	115	-35	D+F+L+H'+E'	60	3.12	-	-	-	-	-	-	
						MCCM	1307	D+F+L+H'+E'	-173	-239										
						MMAT	1189	D+F+L+H'+E'	5	-198										
						MMAC	1301	D+F+L+H'+E'	-163	-398										

Table 3H.6-11: Results of DGFOS Vault Concrete Design (Continued)

Location	Thickness (ft)	Face	Direction	Reinforcement Layout Drawing Number (1)	Reinforcement Zone Number (2)	Maximum Forces (3)	Element	Longitudinal Reinforcement Design Loads: Axial and Flexure Loads: Load Combination	Axial (4) (kips / ft)	Flexure (4) (ft-kips / ft)	In-Plane Shear Loads: Load Combination	In-plane Shear (5) (kips / ft)	Longitudinal Reinforcement Provided (in²/ ft)	Transverse Shear Design Loads (6): Load Combination	Horizontal Section: Transverse Shear Force (kip / ft)	Horizontal Section: Corresponding Axial Force (kip / ft)	Vertical Section: Transverse Shear Force (kip / ft)	Vertical Section: Corresponding Axial Force (kip / ft)	Transverse Shear (7) Reinforcement Provided (in²/ft²)	Remarks
Wall 8	4	Near Side	Horizontal	3H6-168	2-H-L	MTCM	1278	D + F + L + H' + E'	30	-114	D + F + L + H' + E'	60	4.68	-	-	-	-	-	-	
						MCCM	1305	D + F + L + H' + E'	-193	-524										
						MMAT	1283	D + F + L + H' + E'	3	-423										
						MMAC	1300	D + F + L + H' + E'	-184	-621										
					3-H-L	MTCM	1109	D + F + L + H' + E'	145	-274	D + F + L + H' + E'	60	6.24	-	-	-	-	-	-	
						MCCM	1290	D + F + L + H' + E'	-217	-242										
						MMAT	1290	D + F + L + H' + E'	80	-339										
						MMAC	1297	D + F + L + H' + E'	-137	-703										
					4-H-L	MTCM	-	-	-	-	D + F + L + H' + E'	44	7.8	-	-	-	-	-	-	
						MCCM	1305	D + F + L + H' + E'	-192	-923										
						MMAT	-	-	-	-										
						MMAC	1311	D + F + L + H' + E'	-194	-946										
			Vertical	3H6-169	1-V-L	MTCM	1191	D + F + L + H' + E'	73	-53	D + F + L + H' + E'	93	3.12	-	-	-	-	-	-	
						MCCM	1293	D + F + L + H' + E'	-194	-63										
						MMAT	1288	D + F + L + H' + E'	2	-695										
						MMAC	1297	D + F + L + H' + E'	-63	-245										
					2-V-L	MTCM	1189	D + F + L + H' + E'	153	-430	D + F + L + H' + E'	93	4.68	-	-	-	-	-	-	
						MCCM	1281	D + F + L + H' + E'	-210	-43										
						MMAT	1108	D + F + L + H' + E'	3	-415										
						MMAC	1181	D + F + L + H' + E'	-86	-465										
					3-V-L	MTCM	1173	D + F + L + H' + E'	53	-433	D + F + L + H' + E'	72	9.36	-	-	-	-	-	-	
						MCCM	1272	D + F + L + H' + E'	-129	-55										
						MMAT	1165	D + F + L + H' + E'	2	-983										
						MMAC	1165	D + F + L + H' + E'	-47	-983										
					4-V-L	MTCM	1157	D + F + L + H' + E'	39	-632	D + F + L + H' + E'	61	10.92	-	-	-	-	-	-	
						MCCM	1157	D + F + L + H' + E'	-118	-44										
						MMAT	1149	D + F + L + H' + E'	6	-1222										
						MMAC	1149	D + F + L + H' + E'	-55	-1229										
					5-V-L	MTCM	1141	D + F + L + H' + E'	21	-720	D + F + L + H' + E'	54	12.45	-	-	-	-	-	-	(5)(12)
						MCCM	1141	D + F + L + H' + E'	-110	-36										
						MMAT	1117	D + F + L + H' + E'	0	-1229										
						MMAC	1133	D + F + L + H' + E'	-66	-1254										
		Far Side	Horizontal	3H6-170	1-H-L	MTCM	1140	D + F + L + H' + E'	106	12	D + F + L + H' + E'	60	3.12	-	-	-	-	-	-	
						MCCM	1109	D + F + L + H' + E'	-291	295										
						MMAT	1275	D + F + L + H' + E'	9	225										
						MMAC	1104	D + F + L + H' + E'	-134	373										
					2-H-L	MTCM	-	-	-	-	D + F + L + H' + E'	50	4.58	-	-	-	-	-	-	
						MCCM	1184	D + F + L + H' + E'	-167	280										
						MMAT	-	-	-	-										
						MMAC	1175	D + F + L + H' + E'	-111	429										
			Vertical	3H6-171	1-V-L	MTCM	1282	D + F + L + H' + E'	78	74	D + F + L + H' + E'	93	3.12	-	-	-	-	-	-	
						MCCM	1281	D + F + L + H' + E'	-201	19										
						MMAT	1283	D + F + L + H' + E'	5	201										
						MMAC	1272	D + F + L + H' + E'	-81	257										

Table 3H.6-11: Results of DGFOS Vault Concrete Design (Continued)

Location	Thickness (ft)	Face	Direction	Reinforcement Layout Drawing Number (1)	Reinforcement Zone Number (2)	Maximum Forces (3)	Element	Longitudinal Reinforcement Design Loads: Axial and Flexure Loads: Load Combination	Axial (4) (kips / ft)	Flexure (4) (ft-kips / ft)	In-Plane Shear Loads: Load Combination	In-plane Shear (5) (kips / ft)	Longitudinal Reinforcement Provided (in²/ ft)	Transverse Shear Design Loads (6): Load Combination	Horizontal Section: Transverse Shear Force (kip / ft)	Horizontal Section: Corresponding Axial Force (kip / ft)	Vertical Section: Transverse Shear Force (kip / ft)	Vertical Section: Corresponding Axial Force (kip / ft)	Transverse Shear (7) Reinforcement Provided (in²/ft²)	Remarks
Wall 8	4	Far side	Vertical	3H6-171	2-V-L	MTCM	1189	D+F+L+H'+E'	140	59	D+F+L+H'+E'	93	4.68	-	-	-	-	-	-	
						MCCM	1269	D+F+L+H'+E'	-250	179										
						MMAT	1297	D+F+L+H'+E'	2	477										
						MMAC	1297	D+F+L+H'+E'	-67	489										
					3-V-L	MTCM	1280	D+F+L+H'+E'	72	148	D+F+L+H'+E'	65	6.24	-	-	-	-	-	-	
						MCCM	1280	D+F+L+H'+E'	-139	79										
						MMAT	1181	D+F+L+H'+E'	5	667										
						MMAC	1181	D+F+L+H'+E'	-34	667										
					4-V-L	MTCM	1152	D+F+L+H'+E'	89	286	D+F+L+H'+E'	54	7.8	-	-	-	-	-	-	
						MCCM	1120	D+F+L+H'+E'	-72	351										
						MMAT	1145	D+F+L+H'+E'	7	754										
						MMAC	1145	D+F+L+H'+E'	-25	754										
					5-V-L	MTCM	-	-	-	-	D+F+L+H'+E'	54	12.45	-	-	-	-	-	-	(9),(13)
						MCCM	1141	D+F+L+H'+E'	-110	50										
						MMAT	-	-	-	-										
						MMAC	1117	D+F+L+H'+E'	-67	114										
		-	Transverse (Horizontal & Vertical)	3H6-172	1-T	-	-	-	-	-	-	-	-	D+F+L+H'+E'	6	0	-94	-159	0.20 (4@12")	
					2-T	-	-	-	-	-	-	-	-	D+F+L+H'+E'	-104	20	22	-75	0.31 (5@12")	
					3-T	-	-	-	-	-	-	-	-	D+F+L+H'+E'	-171	20	-8	-25	0.80 (4@6")	
					4-T	-	-	-	-	-	-	-	-	D+F+L+H'+E'	-209	-10	-1	-12	1.24 (5@6")	
Wall 9	2	Near Side	Horizontal	3H6-173	1-H-L	MTCM	959	D+F+L+H+Wt	43	-4	D+F+L+H+Wt	58	1.56	-	-	-	-	-	-	
						MCCM	987	D+F+L+H+Wt	-95	-4										
						MMAT	998	D+F+L+H'+E'	1	-35										
						MMAC	992	D+F+L+H'+E'	-12	-82										
					2-H-L	MTCM	1019	D+F+L+H+Wt	46	-5	D+F+L+H+Wt	58	3.12	-	-	-	-	-	-	
						MCCM	1019	D+F+L+H+Wt	-73	-7										
						MMAT	1016	D+F+L+H'+E'	20	-79										
						MMAC	1035	D+F+L+H'+E'	-38	-101										
					3-H-L	MTCM	1030	D+F+L+H+Wt	53	-15	D+F+L+H+Wt	58	4.68	-	-	-	-	-	-	
						MCCM	1030	D+F+L+H'+E'	-186	-8										
						MMAT	1030	D+F+L+H'+E'	52	-95										
						MMAC	1030	D+F+L+H'+E'	-15	-95										
			Vertical	3H6-174	1-V-L	MTCM	993	D+F+L+H+Wt	45	-5	D+F+L+H+Wt	47	1.56	-	-	-	-	-	-	
						MCCM	974	D+F+L+H+Wt	-81	-1										
						MMAT	1033	D+F+L+H'+E'	11	-61										
						MMAC	1033	D+F+L+H'+E'	-23	-61										
					2-V-L	MTCM	1035	D+F+L+H'+E'	57	-9	D+F+L+H+Wt	47	3.12	-	-	-	-	-	-	
						MCCM	1019	D+F+L+H'+E'	-118	-14										
						MMAT	1031	D+F+L+H'+E'	9	-97										
						MMAC	1031	D+F+L+H'+E'	-80	-97										
					3-V-L	MTCM	1030	D+F+L+H'+E'	154	-102	D+F+L+H+Wt	45	6.24	-	-	-	-	-	-	
						MCCM	1030	D+F+L+H'+E'	-255	-53										
						MMAT	1030	D+F+L+H'+E'	50	-179										
						MMAC	1030	D+F+L+H'+E'	-101	-179										

Table 3H.6-11: Results of DGFOS Vault Concrete Design (Continued)

Location	Thickness (ft)	Face	Direction	Reinforcement Layout Drawing Number (1)	Reinforcement Zone Number(2)	Maximum Forces(3)	Element	Longitudinal Reinforcement Design Loads: Axial and Flexure Loads: Load Combination	Axial (4) (kips / ft)	Flexure (4) (ft-kips / ft)	In-Plane Shear Loads: Load Combination	In-plane (5) Shear (kips / ft)	Longitudinal Reinforcement Provided (in²/ ft)	Transverse Shear Design Loads(6): Load Combination	Horizontal Section: Transverse Shear Force (kip / ft)	Horizontal Section: Corresponding Axial Force (kip / ft)	Vertical Section: Transverse Shear Force (kip / ft)	Vertical Section: Corresponding Axial Force (kip / ft)	Transverse Shear(7) Reinforcement Provided (in²/ft²)	Remarks
Wall 9	2	Far side	Horizontal	3H6-175	1-H-L	MTCM	1032	D+F+L+H'+E'	31	17	D+F+L+H+W	58	1.56	-	-	-	-	-	-	
						MCCM	995	D+F+L+H+Wt	-131	16										
						MMAT	955	D+F+L+H+Wt	8	49										
						MMAC	933	D+F+L+H+Wt	-41	63										
					2-H-L	MTCM	1030	D+F+L+H+Wt	58	9	D+F+L+H+W	58	3.12	-	-	-	-	-	-	
						MCCM	1030	D+F+L+H'+E'	-188	29										
						MMAT	1011	D+F+L+H'+E'	2	37										
						MMAC	1000	D+F+L+H'+E'	-42	45										
			Vertical	3H6-176A	1-V-L	MTCM	992	D+F+L+H'+E'	43	4	D+F+L+H+W	47	1.56	-	-	-	-	-	-	
						MCCM	993	D+F+L+H+Wt	-120	7										
						MMAT	1009	D+F+L+H'+E'	1	13										
						MMAC	995	D+F+L+H+Wt	-39	69										
					2-V-L	MTCM	1035	D+F+L+H'+E'	65	4	D+F+L+H+W	45	3.12	-	-	-	-	-	-	
						MCCM	1030	D+F+L+H'+E'	-238	2										
						MMAT	1023	D+F+L+H'+E'	62	5										
						MMAC	1006	D+F+L+H'+E'	-187	27										
		-	Transverse (Horizontal & Vertical)	3H6-176B	1-T	-	-	-	-	-	-	-	-	D+F+L+H'+E'	-31	123	-14	4	0.44 (3@6")	
					2-T	-	-	-	-	-	-	-	-	D+F+L+H'+E'	-43	114	-55	-2	1.24 ([illegible]@6")	
Wall 10	2	Near Side	Horizontal	3H6-177	1-H-L	MTCM	1233	D+F+L+H'+E'	35	-31	D+F+L+H+W	59	1.56	-	-	-	-	-	-	
						MCCM	1215	D+F+L+H+Wt	-96	-4										
						MMAT	1201	D+F+L+H'+E'	4	-43										
						MMAC	1201	D+F+L+H'+E'	-15	-79										
					2-H-L	MTCM	1245	D+F+L+H'+E'	40	-43	D+F+L+H+W	59	3.12	-	-	-	-	-	-	
						MCCM	1245	D+F+L+H+Wt	-86	-8										
						MMAT	1253	D+F+L+H'+E'	18	-75										
						MMAC	1197	D+F+L+H'+E'	-36	-95										
					3-H-L	MTCM	1257	D+F+L+H'+E'	74	-69	D+F+L+H+W	59	4.68	-	-	-	-	-	-	
						MCCM	1257	D+F+L+H'+E'	-155	-10										
						MMAT	1257	D+F+L+H'+E'	54	-96										
						MMAC	1257	D+F+L+H'+E'	-11	-98										
			Vertical	3H6-178	1-V-L	MTCM	1262	D+F+L+H'+E'	53	-6	D+F+L+H+W	38	1.56	-	-	-	-	-	-	
						MCCM	1243	D+F+L+H+Wt	-82	-1										
						MMAT	1234	D+F+L+H'+E'	13	-61										
						MMAC	1234	D+F+L+H'+E'	-35	-61										
					2-V-L	MTCM	1259	D+F+L+H'+E'	133	-55	D+F+L+H+W	38	3.12	-	-	-	-	-	-	
						MCCM	1259	D+F+L+H'+E'	-145	-6										
						MMAT	1245	D+F+L+H'+E'	11	-103										
						MMAC	1245	D+F+L+H'+E'	-45	-103										
					3-V-L	MTCM	1257	D+F+L+H'+E'	144	-108	D+F+L+H+W	36	6.24	-	-	-	-	-	-	
						MCCM	1257	D+F+L+H'+E'	-217	-53										
						MMAT	1257	D+F+L+H'+E'	51	-138										
						MMAC	1257	D+F+L+H'+E'	-75	-138										
		Far side	Horizontal	3H6-179	1-H-L	MTCM	1233	D+F+L+H'+E'	31	21	D+F+L+H+W	59	1.56	-	-	-	-	-	-	
						MCCM	1265	D+F+L+H+Wt	-179	19										
						MMAT	1264	D+F+L+H+Wt	0	49										
						MMAC	1232	D+F+L+H+Wt	-41	66										

Table 3H.6-11: Results of DGFOS Vault Concrete Design (Continued)

Location	Thickness (ft)	Face	Direction	Reinforcement Layout Drawing Number (1)	Reinforcement Zone Number (2)	Maximum Forces (3)	Element	Longitudinal Reinforcement Design Loads: Axial and Flexure Loads: Load Combination	Axial (4) (kips / ft)	Flexure (4) (ft-kips / ft)	In-Plane Shear Loads: Load Combination	In-plane Shear (5) (kips / ft)	Longitudinal Reinforcement Provided (in²/ ft)	Transverse Shear Design Loads (6): Load Combination	Horizontal Section: Transverse Shear Force (kip / ft)	Horizontal Section: Corresponding Axial Force (kip / ft)	Vertical Section: Transverse Shear Force (kip / ft)	Vertical Section: Corresponding Axial Force (kip / ft)	Transverse Shear (7) Reinforcement Provided (in²/ft²)	Remarks
Wall 10	2	Far Side	Horizontal	3H6-179	2-H-L	MTCM	1257	D+F+L+H+Wt	51	7	D+F+L+H+Wt	59	3.12	-	-	-	-	-	-	
						MCCM	1257	D+F+L+H'+E'	-155	25										
						MMAT	1199	D+F+L+H'+E'	0	40										
						MMAC	1198	D+F+L+H'+E'	-6	46										
			Vertical	3H6-180A	1-V-L	MTCM	1261	D+F+L+H'+E'	62	4	D+F+L+H+Wt	38	1.56	-	-	-	-	-	-	
						MCCM	1244	D+F+L+H+Wt	-120	5										
						MMAT	1235	D+F+L+H'+E'	1	20										
						MMAC	1265	D+F+L+H+Wt	-47	69										
					2-V-L	MTCM	1195	D+F+L+H'+E'	60	3	D+F+L+H+Wt	38	3.12	-	-	-	-	-	-	
						MCCM	1257	D+F+L+H'+E'	-191	4										
						MMAT	1199	D+F+L+H'+E'	53	7										
						MMAC	1259	D+F+L+H'+E'	-140	27										
		-	Transverse (Horizontal &Vertical)	3H6-180B	1-T	-	-	-	-	-	-	-	-	D+F+L+H'+E'	-31	120	10	3	0.44 (3@6")	
					2-T	-	-	-	-	-	-	-	-	D+F+L+H'+E'	-32	102	57	-12	0.80 (4@6")	
Wall 11	2	Near Side	Horizontal	3H6-181	1-H-L	MTCM	951	D+F+L+H+Wt	43	-7	D+F+L+H+Wt	55	1.58	-	-	-	-	-	-	
						MCCM	939	D+F+L+H+Wt	-83	-1										
						MMAT	951	D+F+L+H+Wt	34	-44										
						MMAC	947	D+F+L+H+Wt	-2	-35										
			Vertical	3H6-182	1-V-L	MTCM	944	D+F+L+H+Wt	37	-4	D+F+L+H+Wt	43	1.58	-	-	-	-	-	-	
						MCCM	909	D+F+L+H+Wt	-84	-25										
						MMAT	935	D+F+L+H+Wt	9	-35										
						MMAC	907	D+F+L+H+Wt	-80	-33										
		Far Side	Horizontal	3H6-183	1-H-L	MTCM	934	D+F+L+H+Wt	31	5	D+F+L+H+Wt	65	1.58	-	-	-	-	-	-	
						MCCM	907	D+F+L+H+Wt	-210	25										
						MMAT	947	D+F+L+H+Wt	5	45										
						MMAC	935	D+F+L+H+Wt	-30	89										
			Vertical	3H6-184	1-V-L	MTCM	944	D+F+L+H+Wt	34	4	D+F+L+H+Wt	43	1.58	-	-	-	-	-	-	
						MCCM	927	D+F+L+H+Wt	-134	23										
						MMAT	935	D+F+L+H+Wt	0	69										
						MMAC	907	D+F+L+H+Wt	-79	99										
Wall 12	4	Near Side	Horizontal	3H6-185	1-H-L	MTCM	1437	D+F+L+H'+E'	24	-169	D+F+L+H'+E'	103	3.12	-	-	-	-	-	-	
						MCCM	1345	D+F+L+H'+E'	-199	-379										
						MMAT	1349	D+F+L+H'+E'	14	-218										
						MMAC	1432	D+F+L+H'+E'	-159	-474										
					3-H-L	MTCM	-	-	-	-	D+F+L+H'+E'	65	4.59	-	-	-	-	-	-	
						MCCM	1433	D+F+L+H'+E'	-199	-533										
						MMAT	-	-	-	-										
						MMAC	1434	D+F+L+H'+E'	-139	-543										
					3-H-L	MTCM	1341	D+F+L+H'+E'	24	-175	D+F+L+H'+E'	102	7.9	-	-	-	-	-	-	
						MCCM	1337	D+F+L+H'+E'	-201	-631										
						MMAT	1445	D+F+L+H'+E'	16	-228										
						MMAC	1337	D+F+L+H'+E'	-201	-631										
			Vertical	3H6-186	1-V-L	MTCM	1432	D+F+L+H'+E'	51	-41	D+F+L+H'+E'	100	3.12	-	-	-	-	-	-	
						MCCM	1440	D+F+L+H'+E'	-150	-75										
						MMAT	1365	D+F+L+H'+E'	4	-222										
						MMAC	1373	D+F+L+H'+E'	-23	-230										

Table 3H.6-11: Results of DGFOS Vault Concrete Design (Continued)

Location	Thickness (ft)	Face	Direction	Reinforcement Layout Drawing Number (1)	Reinforcement Zone Number (2)	Maximum Forces (3)	Element	Longitudinal Reinforcement Design Loads					Longitudinal Reinforcement Provided (in^2/ft)	Transverse Shear Design Loads (6)					Transverse Shear (7) Reinforcement Provided (in^2/ft^2)	Remarks
								Axial and Flexure Loads			In-Plane Shear Loads				Horizontal Section		Vertical Section			
								Load Combination	Axial (4) (kips / ft)	Flexure (4) (ft-kips / ft)	Load Combination	In-plane (5) Shear (kips / ft)		Load Combination	Transverse Shear Force (kip / ft)	Corresponding Axial Force (kip / ft)	Transverse Shear Force (kip / ft)	Corresponding Axial Force (kip / ft)		
Wall 12	4	Near Side	Vertical	3H6-188	2-V-L	MTCM	1439	D+F+L+H'+E'	125	-47	D+F+L+H'+E'	100	4.68	-	-	-	-	-	-	
						MCCM	1439	D+F+L+H'+E'	-210	-27										
						MMAT	1415	D+F+L+H'+E'	10	-200										
						MMAC	1415	D+F+L+H'+E'	-49	-200										
					3-V-L	MTCM	1438	D+F+L+H'+E'	194	-118	D+F+L+H'+E'	100	6.24	-	-	-	-	-	-	
						MCCM	1435	D+F+L+H'+E'	-270	-22										
						MMAT	1408	D+F+L+H'+E'	41	-502										
						MMAC	1408	D+F+L+H'+E'	-12	-502										
					4-V-L	MTCM	1382	D+F+L+H'+E'	92	-692	D+F+L+H'+E'	90	7.8	-	-	-	-	-	-	
						MCCM	1398	D+F+L+H'+E'	-88	-47										
						MMAT	1374	D+F+L+H'+E'	85	-714										
						MMAC	1398	D+F+L+H'+E'	-1	-577										
		Far Side	Horizontal	3H6-187	1-H-L	MTCM	1341	D+F+L+H'+E'	20	13	D+F+L+H'+E'	105	3.12	-	-	-	-	-	-	
						MCCM	1409	D+F+L+H'+E'	-194	54										
						MMAT	1349	D+F+L+H'+E'	1	80										
						MMAC	1393	D+F+L+H'+E'	-170	339										
			Vertical	3H6-188	1-V-L	MTCM	1343	D+F+L+H'+E'	98	57	D+F+L+H'+E'	100	3.12	-	-	-	-	-	-	
						MCCM	1335	D+F+L+H'+E'	-201	11										
						MMAT	1423	D+F+L+H'+E'	8	194										
						MMAC	1423	D+F+L+H'+E'	-109	212										
					2-V-L	MTCM	1430	D+F+L+H'+E'	134	43	D+F+L+H'+E'	100	4.68	-	-	-	-	-	-	
						MCCM	1439	D+F+L+H'+E'	-270	43										
						MMAT	1335	D+F+L+H'+E'	50	339										
						MMAC	1400	D+F+L+H'+E'	-10	334										
					3-V-L	MTCM	1383	D+F+L+H'+E'	73	275	D+F+L+H'+E'	90	6.24	-	-	-	-	-	-	
						MCCM	1391	D+F+L+H'+E'	-62	70										
						MMAT	1384	D+F+L+H'+E'	68	356										
						MMAC	1368	1.4D + 1.4F + 1.7L + 1.7H + 1.7W	-1	235										
		-	Transverse (Horizontal &Vertical)	3H6-189	1-T	-	-	-	-	-	-	-	-	D+F+L+H'+E'	13	23	-67	-136	0.20 (4@12")	
					2-T	-	-	-	-	-	-	-	-	D+F+L+H'+E'	7	1	-100	-162	0.31 (5@12")	
					3-T	-	-	-	-	-	-	-	-	D+F+L+H'+E'	8	-57	174	-139	0.60 (4@6")	
Wall 13	4	Near Side	Horizontal	3H6-190	1-H-L	MTCM	1874	D+F+L+H+Wt	2	-17	D+F+L+H'+E'	105	3.12	-	-	-	-	-	-	
						MCCM	1953	D+F+L+H'+E'	-200	-462										
						MMAT	1873	D+F+L+H'+E'	0	-62										
						MMAC	1953	D+F+L+H'+E'	-200	-462										
					2-H-L	MTCM	1872	D+F+L+H'+E'	25	-15	D+F+L+H'+E'	105	4.68	-	-	-	-	-	-	
						MCCM	1942	D+F+L+H'+E'	-200	-597										
						MMAT	1872	D+F+L+H'+E'	5	-199										
						MMAC	1956	D+F+L+H'+E'	-189	-613										
					3-H-L	MTCM	1871	D+F+L+H'+E'	33	-48	D+F+L+H'+E'	105	6.24	-	-	-	-	-	-	
						MCCM	1926	D+F+L+H'+E'	-192	-737										
						MMAT	1884	D+F+L+H'+E'	11	-354										
						MMAC	1912	D+F+L+H'+E'	-120	-765										
					4-H-L	MTCM	-	-	-	-	D+F+L+H'+E'	80	7.8	-	-	-	-	-	-	
						MCCM	1954	D+F+L+H'+E'	-202	-831										
						MMAT	-	-	-	-										
						MMAC	1969	D+F+L+H'+E'	-190	-925										

Table 3H.6-11: Results of DGFOS Vault Concrete Design (Continued)

Location	Thickness (ft)	Face	Direction	Reinforcement Layout Drawing Number (1)	Reinforcement Zone Number (2)	Maximum Forces (3)	Element	Longitudinal Reinforcement Design Loads: Axial and Flexure Loads: Load Combination	Axial (4) (kips / ft)	Flexure (4) (ft-kips / ft)	In-Plane Shear Loads: Load Combination	In-plane Shear (5) (kips / ft)	Longitudinal Reinforcement Provided (in²/ft)	Transverse Shear Design Loads (6): Load Combination	Horizontal Section: Transverse Shear Force (kip / ft)	Horizontal Section: Corresponding Axial Force (kip / ft)	Vertical Section: Transverse Shear Force (kip / ft)	Vertical Section: Corresponding Axial Force (kip / ft)	Transverse Shear (7) Reinforcement Provided (in²/ft²)	Remarks
Wall 13	4	Near Side	Vertical	3H6-191	1-V-L	MTCM	1871	D+F+L+H+Wt	75	-27	D+F+L+H'+E'	101	3.12	-	-	-	-	-	-	
						MCCM	1913	D+F+L+H'+E'	-155	-110										
						MMAT	1899	D+F+L+H'+E'	3	-174										
						MMAC	1899	D+F+L+H'+E'	-63	-174										
					2-V-L	MTCM	1957	D+F+L+H'+E'	155	-74	D+F+L+H'+E'	101	4.68	-	-	-	-	-	-	
						MCCM	1957	D+F+L+H'+E'	-280	-31										
						MMAT	1980	D+F+L+H'+E'	24	-422										
						MMAC	1980	D+F+L+H'+E'	-45	-422										
					3-V-L	MTCM	1964	D+F+L+H'+E'	89	-724	D+F+L+H'+E'	77	9.36	-	-	-	-	-	-	
						MCCM	1969	D+F+L+H'+E'	-119	-30										
						MMAT	1965	D+F+L+H'+E'	52	-750										
						MMAC	1967	D+F+L+H'+E'	-2	-625										
		Far Side	Horizontal	3H6-192	1-H-L	MTCM	1871	D+F+L+H'+E'	37	152	D+F+L+H'+E'	105	3.12	-	-	-	-	-	-	
						MCCM	1945	D+F+L+H'+E'	-198	95										
						MMAT	1933	D+F+L+H'+E'	4	205										
						MMAC	1964	D+F+L+H'+E'	-180	414										
					2-H-L	MTCM	1932	D+F+L+H'+E'	13	105	D+F+L+H'+E'	53	4.68	-	-	-	-	-	-	
						MCCM	1904	D+F+L+H'+E'	-112	170										
						MMAT	1932	D+F+L+H'+E'	8	115										
						MMAC	1906	D+F+L+H'+E'	-109	334										
			Vertical	3H6-193	1-V-L	MTCM	1887	D+F+L+H'+E'	52	83	D+F+L+H'+E'	101	3.12	-	-	-	-	-	-	
						MCCM	1935	D+F+L+H'+E'	-201	3										
						MMAT	1937	D+F+L+H'+E'	5	179										
						MMAC	1897	D+F+L+H'+E'	-118	209										
					2-V-L	MTCM	1957	D+F+L+H'+E'	141	17	D+F+L+H'+E'	101	4.68	-	-	-	-	-	-	
						MCCM	1957	D+F+L+H'+E'	-280	41										
						MMAT	1932	D+F+L+H'+E'	60	336										
						MMAC	1919	D+F+L+H'+E'	-7	327										
		-	Transverse (Horizontal & Vertical)	3H6-194	1-T	-	-	-	-	-	-	-	-	D+F+L+H'+E'	-73	81	-9	-101	0.20 (4@12")	
					2-T	-	-	-	-	-	-	-	-	D+F+L+H'+E'	5	2	107	-127	0.31 (5@12")	
					3-T	-	-	-	-	-	-	-	-	D+F+L+H'+E'	1	-46	-178	-138	0.40 (4@6")	
Wall 14	2	Near Side	Horizontal	3H6-195	1-H-L	MTCM	1579	D+F+L+H+Wt	55	-13	D+F+L+H+Wt	28	1.56	-	-	-	-	-	-	
						MCCM	1509	D+F+L+H'+E'	-118	-24										
						MMAT	1501	D+F+L+H'+E'	4	-36										
						MMAC	1509	D+F+L+H'+E'	-84	-37										
					2-H-L	MTCM	1653	D+F+L+H'+E'	36	-44	D+F+L+H+Wt	28	3.12	-	-	-	-	-	-	
						MCCM	1496	D+F+L+H'+E'	-154	-34										
						MMAT	1653	D+F+L+H'+E'	7	-66										
						MMAC	1652	D+F+L+H'+E'	-127	-61										
			Vertical	3H6-196	1-V-L	MTCM	1501	D+F+L+H+Wt	42	-8	D+F+L+H+Wt	39	1.56	-	-	-	-	-	-	
						MCCM	1657	D+F+L+H+Wt	-71	-1										
						MMAT	1589	D+F+L+H+Wt	15	-42										
						MMAC	1617	D+F+L+H+Wt	-1	-32										
					2-V-L	MTCM	1496	D+F+L+H'+E'	90	-23	D+F+L+H+Wt	39	3.12	-	-	-	-	-	-	
						MCCM	1498	D+F+L+H'+E'	-114	-11										
						MMAT	1544	D+F+L+H'+E'	22	-60										
						MMAC	1496	D+F+L+H'+E'	-38	-56										

Table 3H.6-11: Results of DGFOS Vault Concrete Design (Continued)

Location	Thickness (ft)	Face	Direction	Reinforcement Layout Drawing Number (1)	Reinforcement Zone Number (2)	Maximum Forces (3)	Element	Longitudinal Reinforcement Design Loads – Axial and Flexure Loads – Load Combination	Axial (4) (kips / ft)	Flexure (4) (ft-kips / ft)	In-Plane Shear Loads – Load Combination	In-plane Shear (5) (kips / ft)	Longitudinal Reinforcement Provided (in²/ ft)	Transverse Shear Design Loads (6) – Load Combination	Horizontal Section – Transverse Shear Force (kip / ft)	Horizontal Section – Corresponding Axial Force (kip / ft)	Vertical Section – Transverse Shear Force (kip / ft)	Vertical Section – Corresponding Axial Force (kip / ft)	Transverse Shear (7) Reinforcement Provided (in²/ft²)	Remarks
Wall 14	2	Near Side	Vertical	3H6-196	3-V-L	MTCM	1652	D+F+L+H'+E'	113	-34	D+F+L+H'+E'	35	4.68	-	-	-	-	-	-	
						MCCM	1654	D+F+L+H'+E'	-157	-10										
						MMAT	1652	D+F+L+H'+E'	87	-74										
						MMAC	1652	D+F+L+H'+E'	-49	-74										
		Far Side	Horizontal	3H6-197	1-H-L	MTCM	1829	D+F+L+H'+E'	50	20	D+F+L+H+Wt	28	1.56	-	-	-	-	-	-	
						MCCM	1503	D+F+L+H+Wt	-174	29										
						MMAT	1829	D+F+L+H'+E'	45	35										
						MMAC	1543	D+F+L+H+Wt	-75	66										
					2-H-L	MTCM	1496	D+F+L+H'+E'	53	40	D+F+L+H+Wt	28	3.12	-	-	-	-	-	-	
						MCCM	1496	D+F+L+H'+E'	-150	15										
						MMAT	1652	D+F+L+H'+E'	50	56										
						MMAC	1652	D+F+L+H'+E'	-10	56										
			Vertical	3H6-198	1-V-L	MTCM	1657	D+F+L+H+Wt	31	3	D+F+L+H+Wt	39	1.56	-	-	-	-	-	-	
						MCCM	1567	D+F+L+H+Wt	-105	8										
						MMAT	1509	D+F+L+H'+E'	0	62										
						MMAC	1829	D+F+L+H'+E'	-61	70										
					2-V-L	MTCM	1653	D+F+L+H'+E'	93	9	D+F+L+H+Wt	39	3.12	-	-	-	-	-	-	
						MCCM	1652	D+F+L+H'+E'	-221	99										
						MMAT	1652	D+F+L+H'+E'	1	66										
						MMAC	1652	D+F+L+H'+E'	-221	99										
		-	Transverse (Horizontal & Vertical)	3H6-199	1-T	-	-	-	-	-	-	-	-	D+F+L+H'+E'	-22	90	13	16	0.44 (2@6")	
					2-T	-	-	-	-	-	-	-	-	D+F+L+H'+E'	-40	202	16	-422	0.30 (4@6")	
Wall 15	2	Near Side	Horizontal	3H6-200	1-H-L	MTCM	1808	D+F+L+H+Wt	65	-9	D+F+L+H'+E'	28	1.56	-	-	-	-	-	-	
						MCCM	1340	D+F+L+H+Wt	-90	-2										
						MMAT	1833	D+F+L+H'+E'	0	-50										
						MMAC	1693	D+F+L+H'+E'	-14	-63										
					2-H-L	MTCM	1689	D+F+L+H'+E'	21	-6	D+F+L+H'+E'	28	3.12	-	-	-	-	-	-	
						MCCM	1689	D+F+L+H'+E'	-33	-43										
						MMAT	1345	D+F+L+H'+E'	16	-66										
						MMAC	1345	D+F+L+H'+E'	-27	-102										
			Vertical	3H6-201	1-V-L	MTCM	1703	D+F+L+H'+E'	53	-15	D+F+L+H+Wt	34	1.56	-	-	-	-	-	-	
						MCCM	1796	D+F+L+H+Wt	-107	-10										
						MMAT	1770	D+F+L+H'+E'	0	-32										
						MMAC	1796	D+F+L+H'+E'	-11	-44										
					2-V-L	MTCM	1689	D+F+L+H+Wt	75	-26	D+F+L+H+Wt	34	3.12	-	-	-	-	-	-	
						MCCM	1689	D+F+L+H'+E'	-65	-6										
						MMAT	1689	D+F+L+H'+E'	49	-39										
						MMAC	1689	D+F+L+H'+E'	-1	-39										
		Far Side	Horizontal	3H6-202	1-H-L	MTCM	1843	D+F+L+H+Wt	24	1	D+F+L+H'+E'	28	1.56	-	-	-	-	-	-	
						MCCM	1696	D+F+L+H+Wt	-134	20										
						MMAT	1741	D+F+L+H'+E'	3	43										
						MMAC	1784	D+F+L+H+Wt	-86	57										
					2-H-L	MTCM	1689	D+F+L+H'+E'	22	28	D+F+L+H'+E'	28	3.12	-	-	-	-	-	-	
						MCCM	1713	D+F+L+H'+E'	-29	3										
						MMAT	1845	D+F+L+H'+E'	13	33										
						MMAC	1714	D+F+L+H'+E'	-4	34										

Table 3H.6-11: Results of DGFOS Vault Concrete Design (Continued)

Location	Thickness (ft)	Face	Direction	Reinforcement Layout Drawing Number (1)	Reinforcement Zone Number (2)	Maximum Forces (3)	Element	Longitudinal Reinforcement Design Loads: Axial and Flexure Loads: Load Combination	Axial (4) (kips / ft)	Flexure (4) (ft-kips / ft)	In-Plane Shear Loads: Load Combination	In-plane Shear (5) (kips / ft)	Longitudinal Reinforcement Provided (in²/ ft)	Transverse Shear Design Loads (6): Load Combination	Horizontal Section: Transverse Shear Force (kip / ft)	Horizontal Section: Corresponding Axial Force (kip / ft)	Vertical Section: Transverse Shear Force (kip / ft)	Vertical Section: Corresponding Axial Force (kip / ft)	Transverse Shear (7) Reinforcement Provided (in²/ft²)	Remarks
Wall 15	2	Far side	Vertical	3H6-203A	1-V-L	MTCM	1893	D+F+L+H'+E'	54	10	D+F+L+H+Wt	34	1.56	-	-	-	-	-	-	
						MCCM	1796	D+F+L+H+Wt	-106	6										
						MMAT	1773	D+F+L+H'+E'	1	55										
						MMAC	1896	D+F+L+H+Wt	-29	79										
					2-V-L	MTCM	1702	D+F+L+H'+E'	58	6	D+F+L+H+Wt	34	3.12	-	-	-	-	-	-	
						MCCM	1689	D+F+L+H+Wt	-80	13										
						MMAT	1714	D+F+L+H'+E'	1	13										
						MMAC	1945	D+F+L+H'+E'	-70	22										
		-	Transverse (Horizontal & Vertical)	3H6-203B	1-T	-	-	-	-	-	-	-	-	D+F+L+H'+E'	-22	36	-36	-20	0.44 (3@6")	
Wall 16	2	Near Side	Horizontal	3H6-204	1-H-L	MTCM	1434	D+F+L+H+Wt	7	-5	D+F+L+H+Wt	41	1.56	-	-	-	-	-	-	
						MCCM	1455	D+F+L+H+Wt	-12	-4										
						MMAT	1492	D+F+L+H+Wt	5	-15										
						MMAC	1492	D+F+L+H+Wt	-5	-13										
					2-H-L	MTCM	1455	D+F+L+H'+E'	13	-2	D+F+L+H+Wt	51	3.12	-	-	-	-	-	-	
						MCCM	1447	D+F+L+H+Wt	-43	-8										
						MMAT	1494	D+F+L+H+Wt	0	-12										
						MMAC	1470	D+F+L+H+Wt	-41	-25										
			Vertical	3H6-205	1-V-L	MTCM	1450	D+F+L+H+Wt	81	-6	D+F+L+H+Wt	35	1.56	-	-	-	-	-	-	
						MCCM	1491	D+F+L+H+Wt	-61	-25										
						MMAT	1449	D+F+L+H'+E'	5	-12										
						MMAC	1491	D+F+L+H+Wt	-61	-25										
					2-V-L	MTCM	1446	D+F+L+H+Wt	37	-15	D+F+L+H+Wt	35	3.12	-	-	-	-	-	-	
						MCCM	1447	D+F+L+H+Wt	-40	-26										
						MMAT	1455	D+F+L+H+Wt	6	-25										
						MMAC	1447	D+F+L+H+Wt	-31	-43										
		Far side	Horizontal	3H6-206	1-H-L	MTCM	1469	D+F+L+H+Wt	13	8	D+F+L+H+Wt	41	1.56	-	-	-	-	-	-	
						MCCM	1490	D+F+L+H+Wt	-195	45										
						MMAT	1489	D+F+L+H+Wt	2	31										
						MMAC	1490	D+F+L+H+Wt	-194	45										
					2-H-L	MTCM	1447	D+F+L+H'+E'	21	3	D+F+L+H+Wt	51	3.12	-	-	-	-	-	-	
						MCCM	1478	D+F+L+H+Wt	-54	10										
						MMAT	1494	D+F+L+H+Wt	3	11										
						MMAC	1470	D+F+L+H+Wt	-40	77										
			Vertical	3H6-207	1-V-L	MTCM	1451	D+F+L+H+Wt	92	11	D+F+L+H+Wt	35	1.56	-	-	-	-	-	-	
						MCCM	1491	D+F+L+H+Wt	-110	14										
						MMAT	1452	D+F+L+H+Wt	9	16										
						MMAC	1491	D+F+L+H+Wt	-60	79										
					2-V-L	MTCM	1453	D+F+L+H+Wt	47	15	D+F+L+H+Wt	35	3.12	-	-	-	-	-	-	
						MCCM	1475	D+F+L+H+Wt	-138	36										
						MMAT	1462	D+F+L+H+Wt	0	33										
						MMAC	1475	D+F+L+H+Wt	-6	41										

Table 3H.6-11: Results of DGFOS Vault Concrete Design (Continued)

Location	Thickness (ft)	Face	Direction	Reinforcement Layout Drawing Number (1)	Reinforcement Zone Number (2)	Maximum Forces (3)	Element	Longitudinal Reinforcement Design Loads					Longitudinal Reinforcement Provided (in²/ft)	Transverse Shear Design Loads (6)					Transverse Shear (7) Reinforcement Provided (in²/ft²)	Remarks
								Axial and Flexure Loads			In-Plane Shear Loads			Load Combination	Horizontal Section		Vertical Section			
								Load Combination	Axial (4) (kips / ft)	Flexure (4) (ft-kips / ft)	Load Combination	In-plane (5) Shear (kips / ft)			Transverse Shear Force (kip / ft)	Corresponding Axial Force (kip / ft)	Transverse Shear Force (kip / ft)	Corresponding Axial Force (kip / ft)		
Wall 16	2	-	Transverse (Horizontal & Vertical)	3H6-205	1-T	-	-	-	-	-	-	-	-	-	-	-	-	-	1.24 (5@8")	Transverse shear reinforcement provided due to tornado missile impact evaluation.

Notes:

(1) The reinforcement layout drawings show the various zones used to define the minimum reinforcement that will be provided based on finite element analysis results. Actual provided reinforcement based on final rebar layout and including development length may exceed the reported provided reinforcement and the zones with higher reinforcement may be extended beyond their reported boundaries. The dimensions in the reinforcement drawings are based on the dimensions of the SAP2000 shell elements, which are modeled at the centerline of the walls and slabs. Therefore, the reinforcement drawing dimensions do not match actual building dimensions.

(2) Each reinforcement layout drawing is divided into reinforcement zones. The reinforcement zone naming convention is as follows: "H" = horizontal, "V" = vertical, "L" = longitudinal reinforcement, "T" = transverse reinforcement. For slabs, vertical corresponds to Y-axis and horizontal corresponds to X-axis as shown on Figure 3H.6-140.

(3) The maximum tension (MTCM) and compression (MCCM) axial forces are provided with the corresponding moment from the same load combination. The maximum moment that has a corresponding tension (MMAT) in the same load combination and the maximum moment that has a corresponding compression (MMAC) in the same load combination are also provided.

(4) Negative axial load is compression and positive axial load is tension. Negative moment applies tension to the top face of the shell element and positive moment applies tension to the bottom face of the shell element. For walls or slabs where the same reinforcement is provided on both faces, the moment is shown as absolute value. The axial and flexural loads reported in the table are the average of the 2 node pairs that form the 4 edges of the critical rectangular shell element. If the 2 node pairs on the shell element edges parallel to the reinforcement direction do not satisfy P&M interaction criteria, then only the 2 node pairs on the shell element edges perpendicular to the reinforcement direction are used for design (effective width considered).

(5) The reported in-plane shear is the maximum average in-plane shear along a plane that crosses the longitudinal reinforcement zone.

(6) The transverse shear reinforcement loads are reported for the critical element requiring the largest area of steel for transverse reinforcement within the zone. The shear force and the corresponding axial force in the same load combination for each direction is reported for the critical element.

(7) The reported transverse shear reinforcement is the summation of the requried shear reinforcement in the horizontal direction and the required shear reinforcement in the vertical direction.

(8) For certain areas of the structure, the standard element post-processing methods were too conservative. For such cases, detailed manual design was performed and the design forces determined by the detailed manual design are provided in the table.

(9) The reported forces are from the FEM analysis. The provided longitudinal reinforcement includes additional reinforcement required due to manual one-way design calculations.

(10) The longitudinal reinforcement shown is required to be tied.

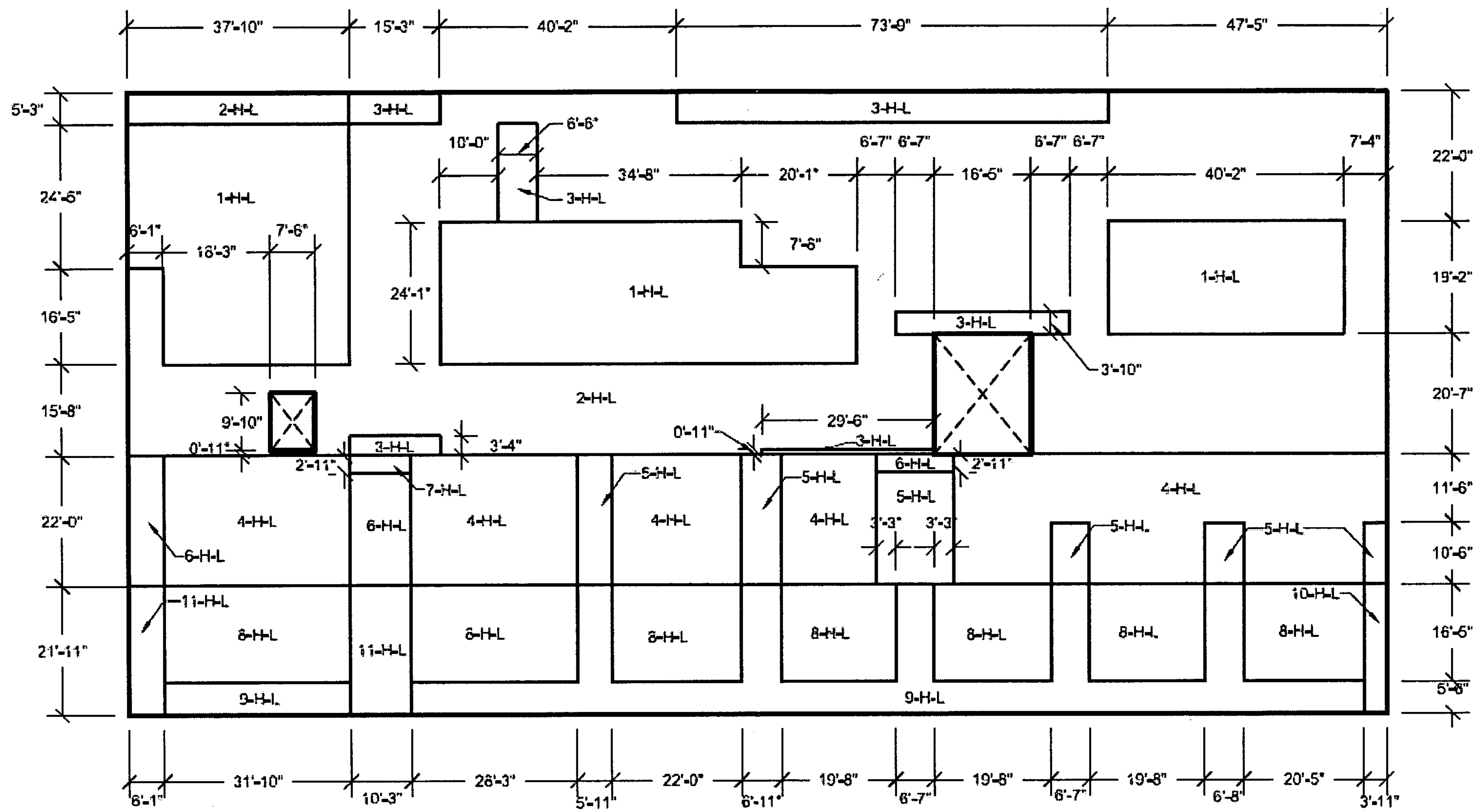


FIGURE 3H.3-8: NORTH WALL LOOKING SOUTH
HORIZONTAL REINFORCEMENT ZONES
NEAR SIDE FACE

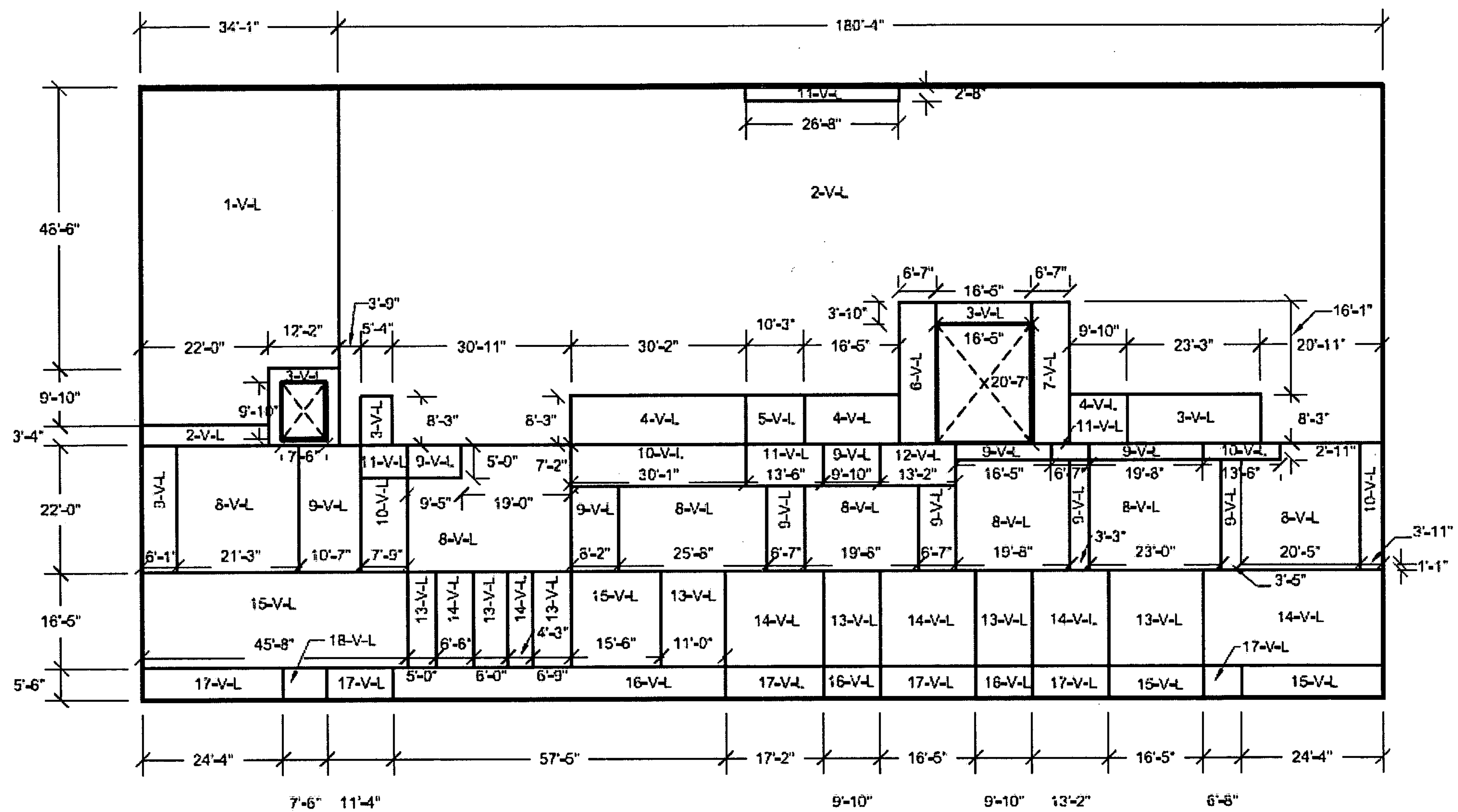


FIGURE 3H.3-9: NORTH WALL LOOKING SOUTH
VERTICAL REINFORCEMENT ZONES
NEAR SIDE FACE

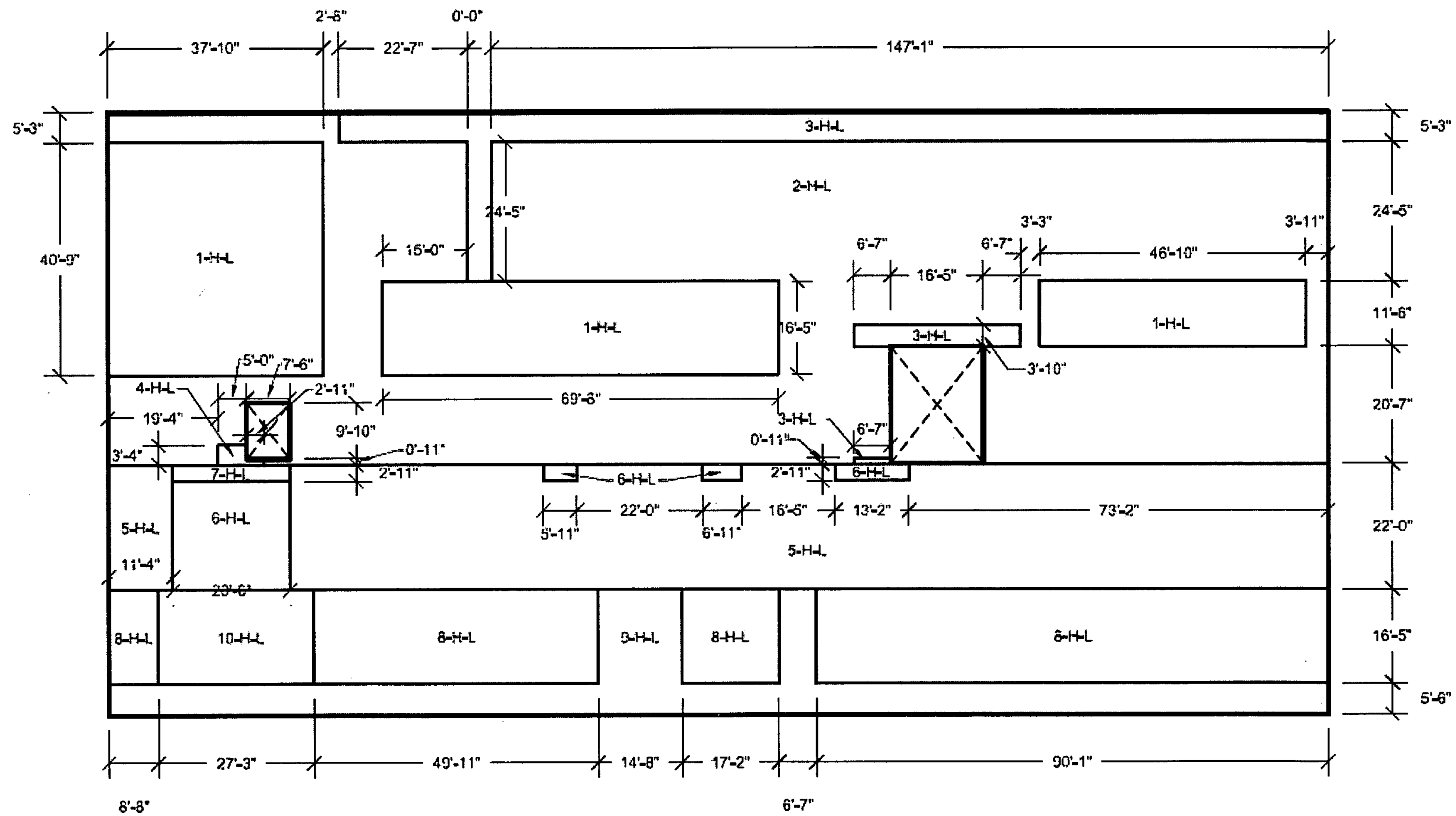


FIGURE 3H.3-10; NORTH WALL LOOKING SOUTH
HORIZONTAL REINFORCEMENT ZONES
FAR SIDE FACE

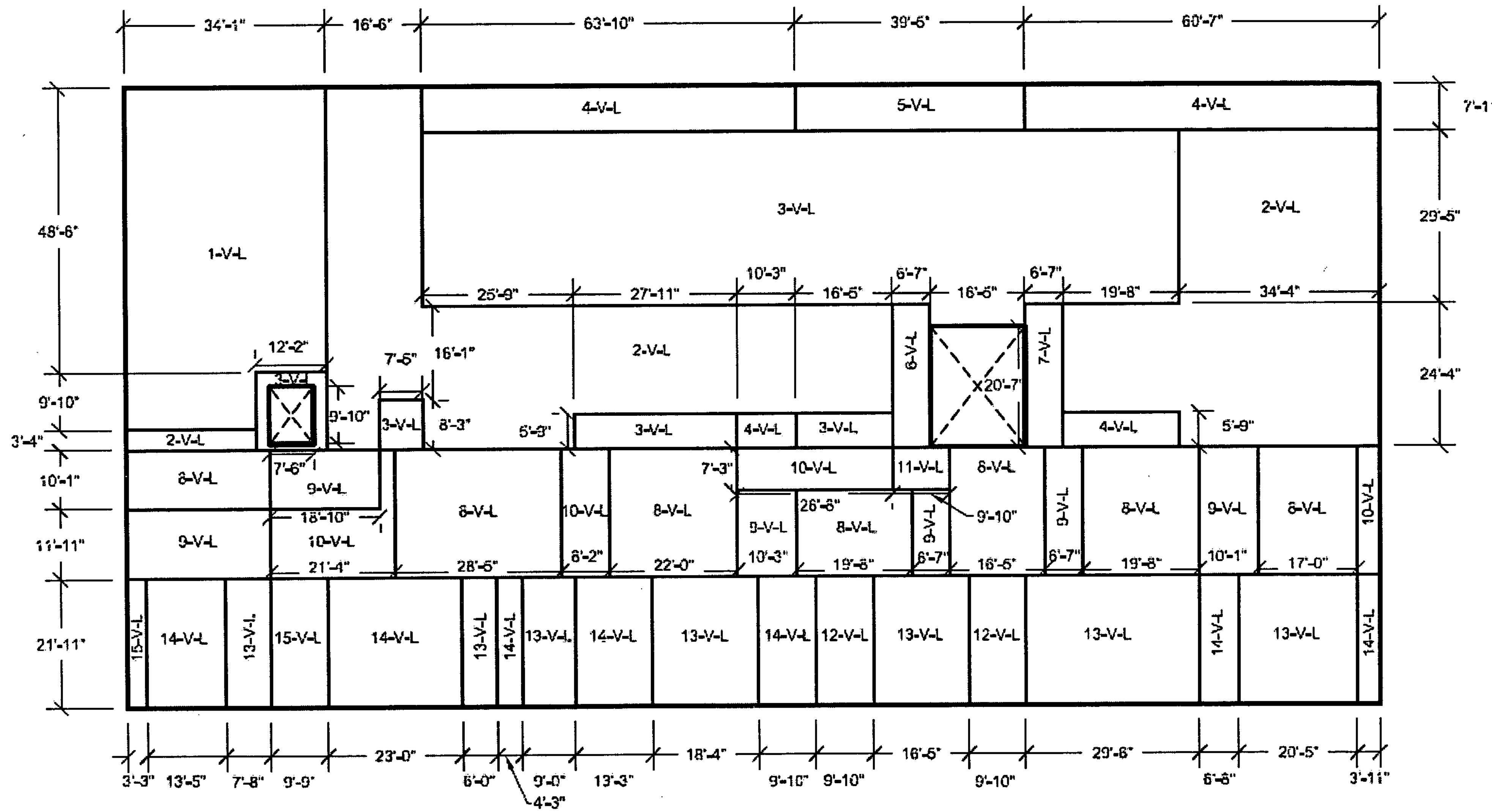


FIGURE 3H.3-11: NORTH WALL LOOKING SOUTH
VERTICAL REINFORCEMENT ZONES
FAR SIDE FACE

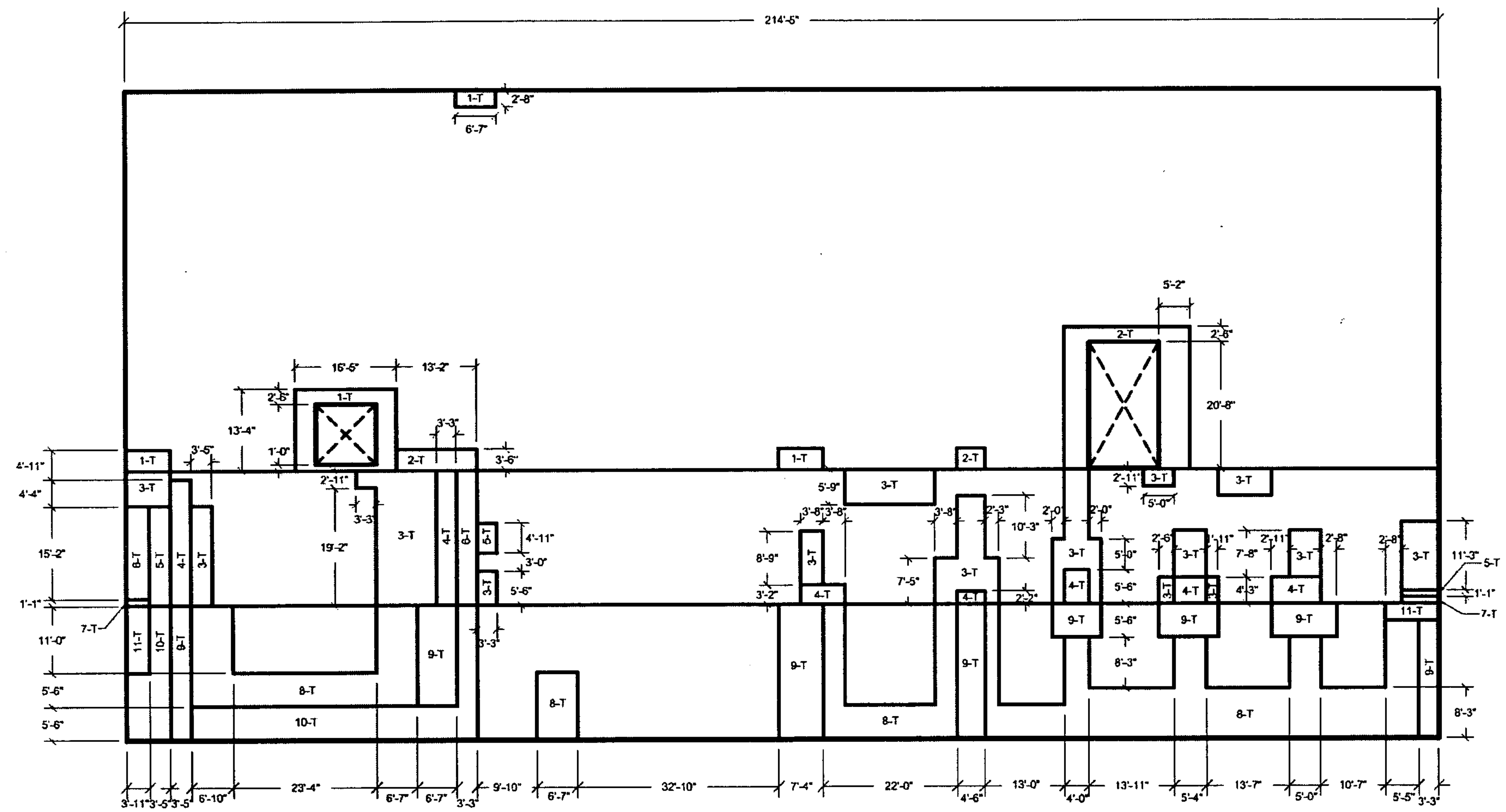


FIGURE 3H.3-12: NORTH WALL LOOKING SOUTH
TRANSVERSE REINFORCEMENT ZONES

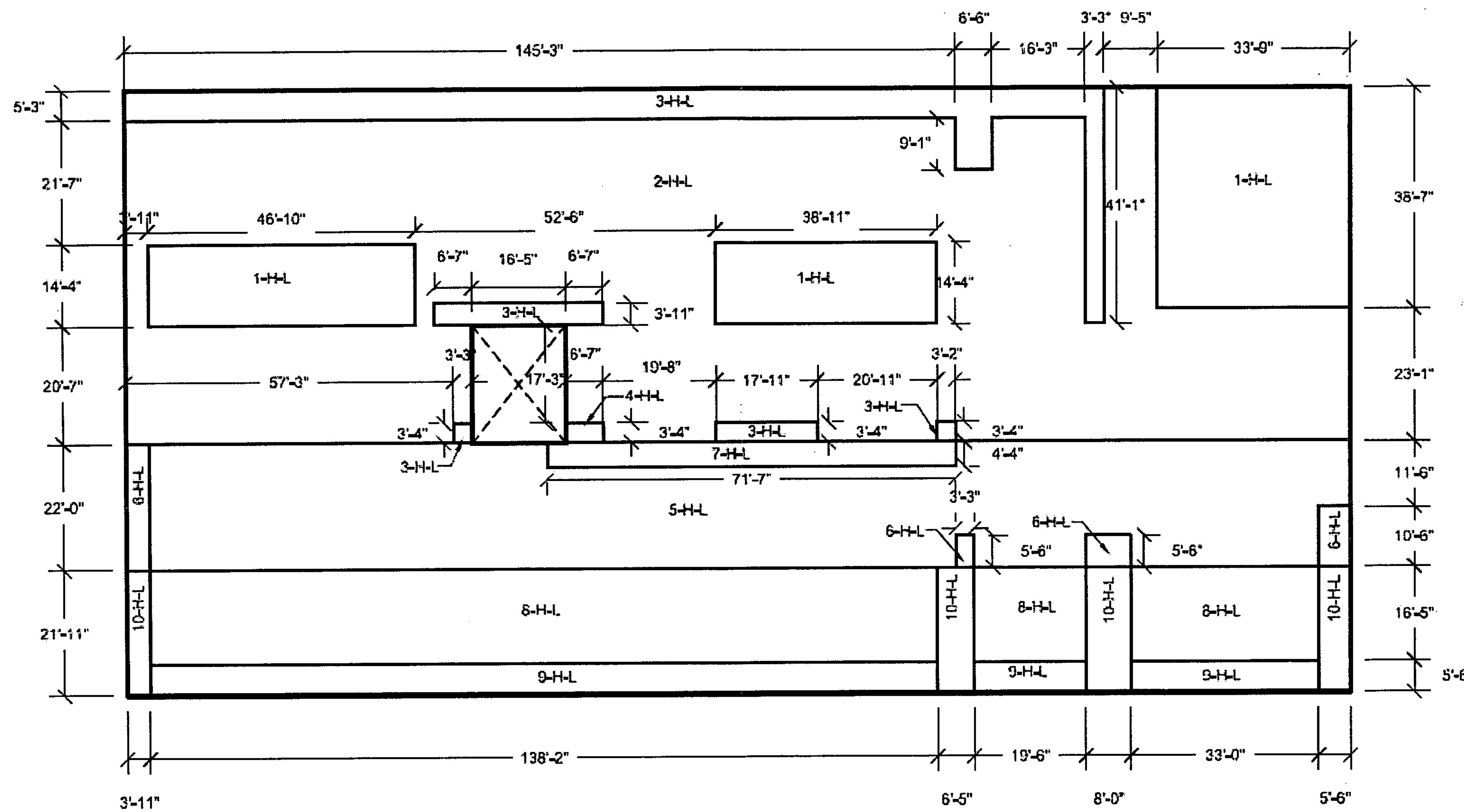


FIGURE 3H.3-13: SOUTH WALL LOOKING NORTH
HORIZONTAL REINFORCEMENT ZONES
NEAR SIDE FACE

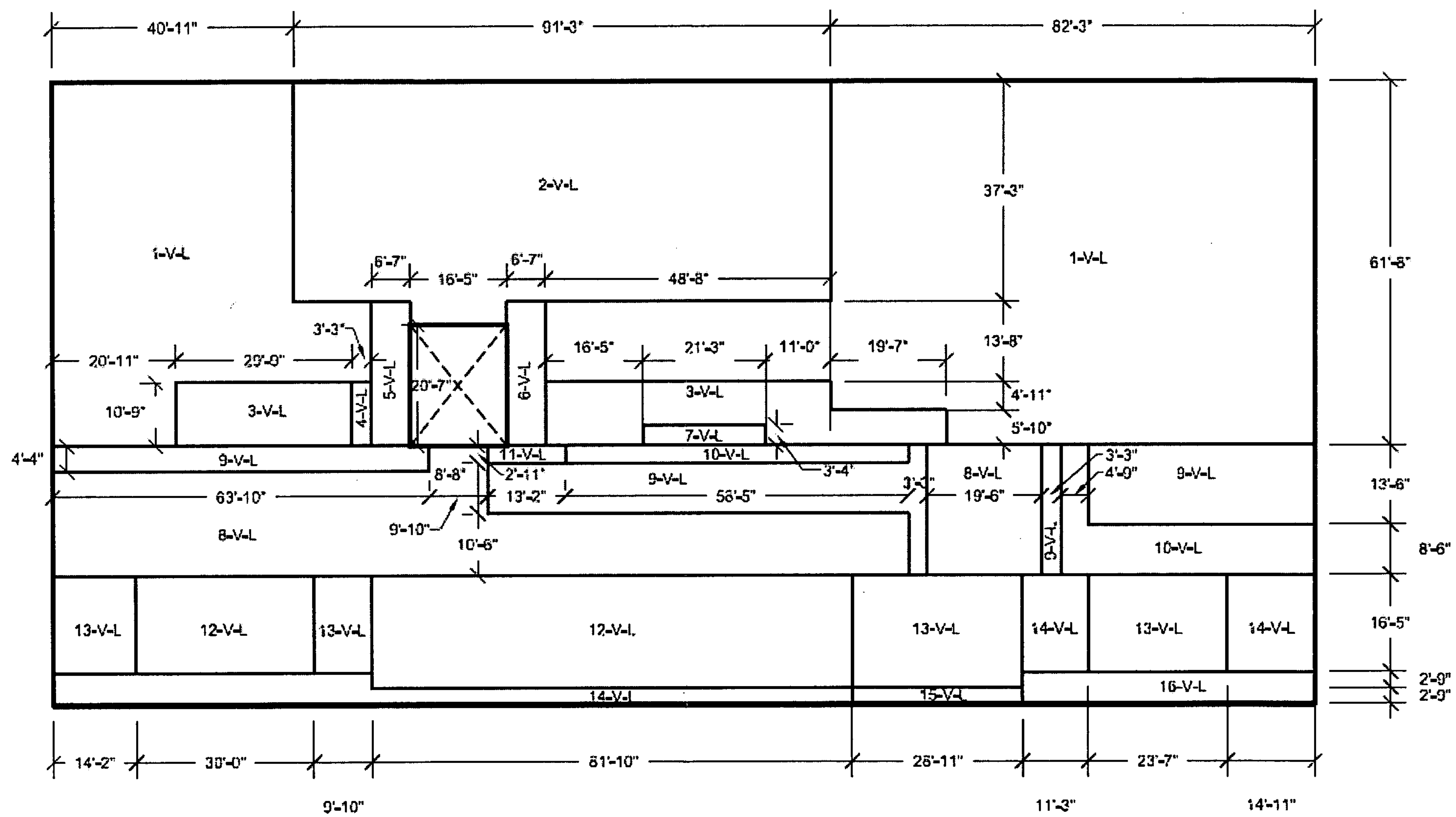


FIGURE 3H.3-14; SOUTH WALL LOOKING NORTH
VERTICAL REINFORCEMENT ZONES
NEAR SIDE FACE

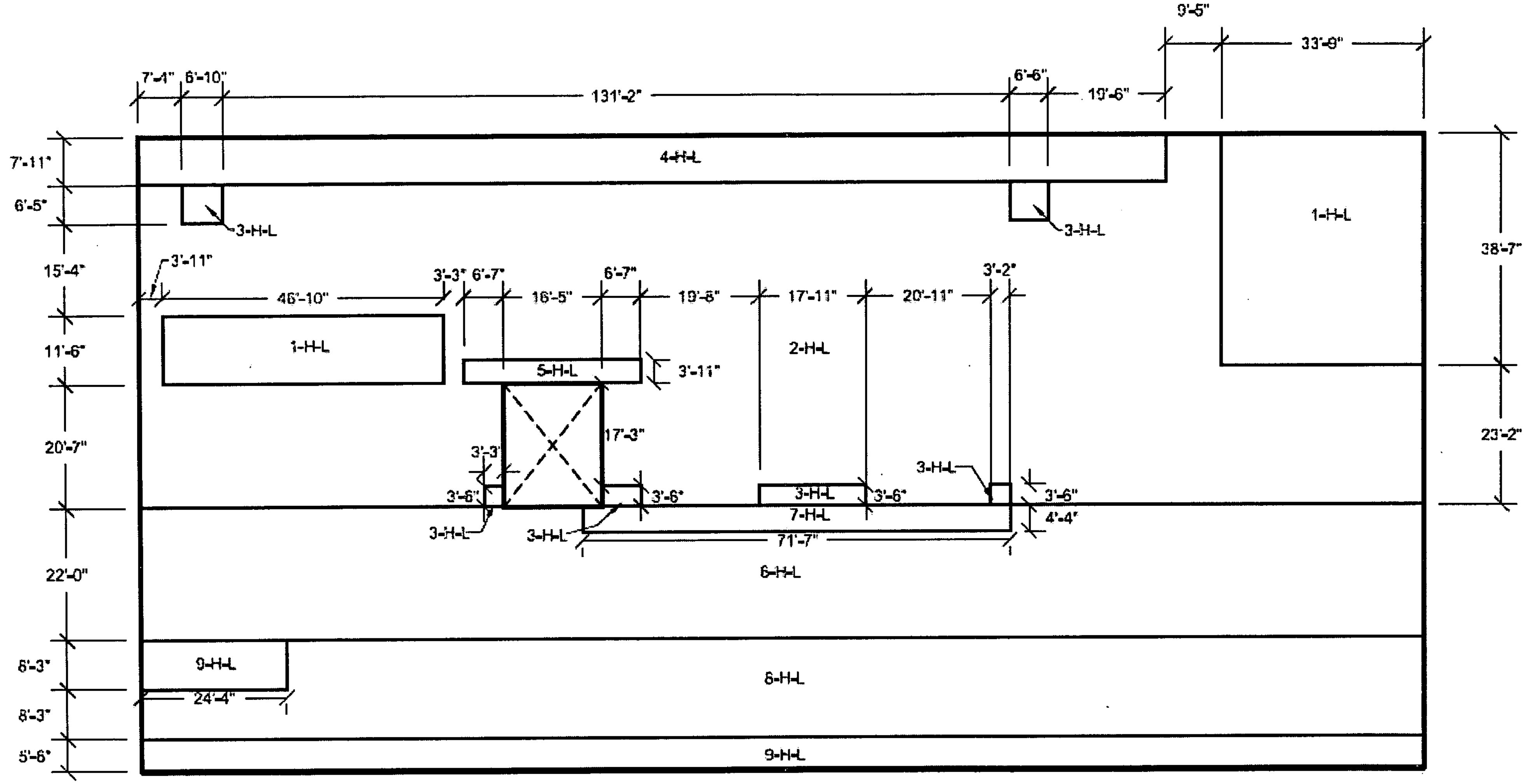


FIGURE 3H.3-15: SOUTH WALL LOOKING NORTH
HORIZONTAL REINFORCEMENT ZONES
FAR SIDE FACE

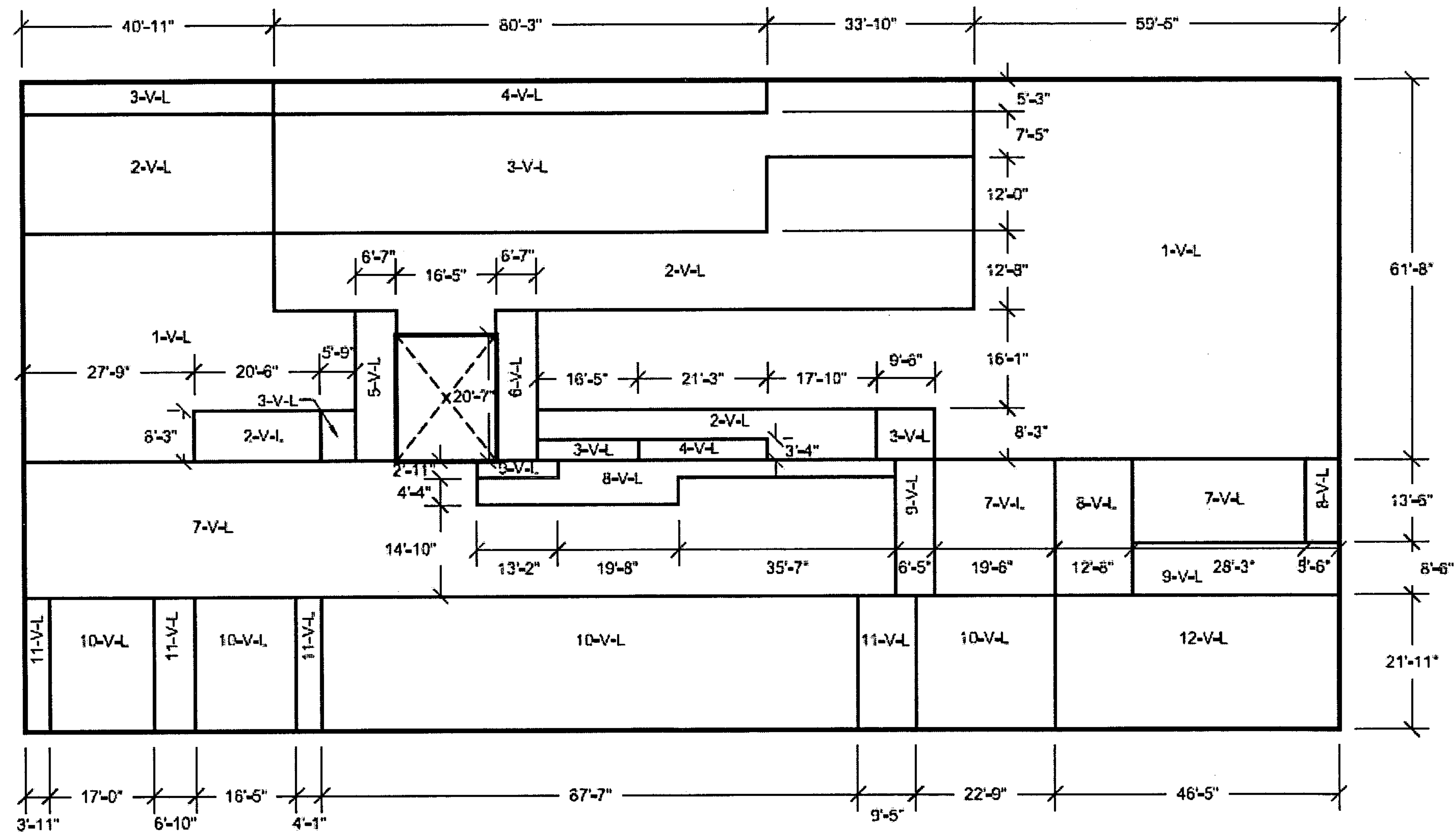


FIGURE 3H.3-16; SOUTH WALL LOOKING NORTH
VERTICAL REINFORCEMENT ZONES
FAR SIDE FACE

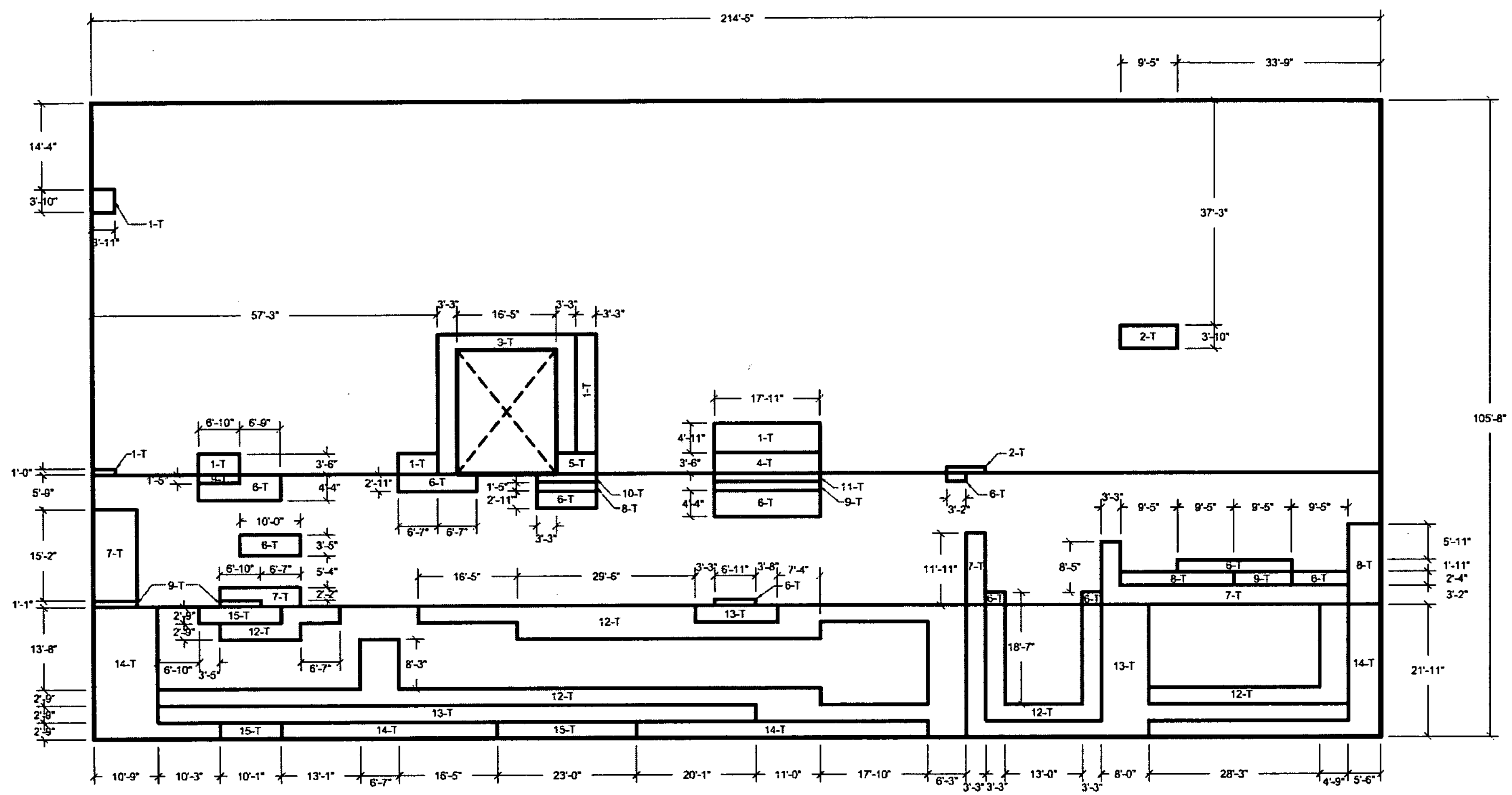


FIGURE 3H.3-17: SOUTH WALL LOOKING NORTH
TRANSVERSE REINFORCEMENT ZONES

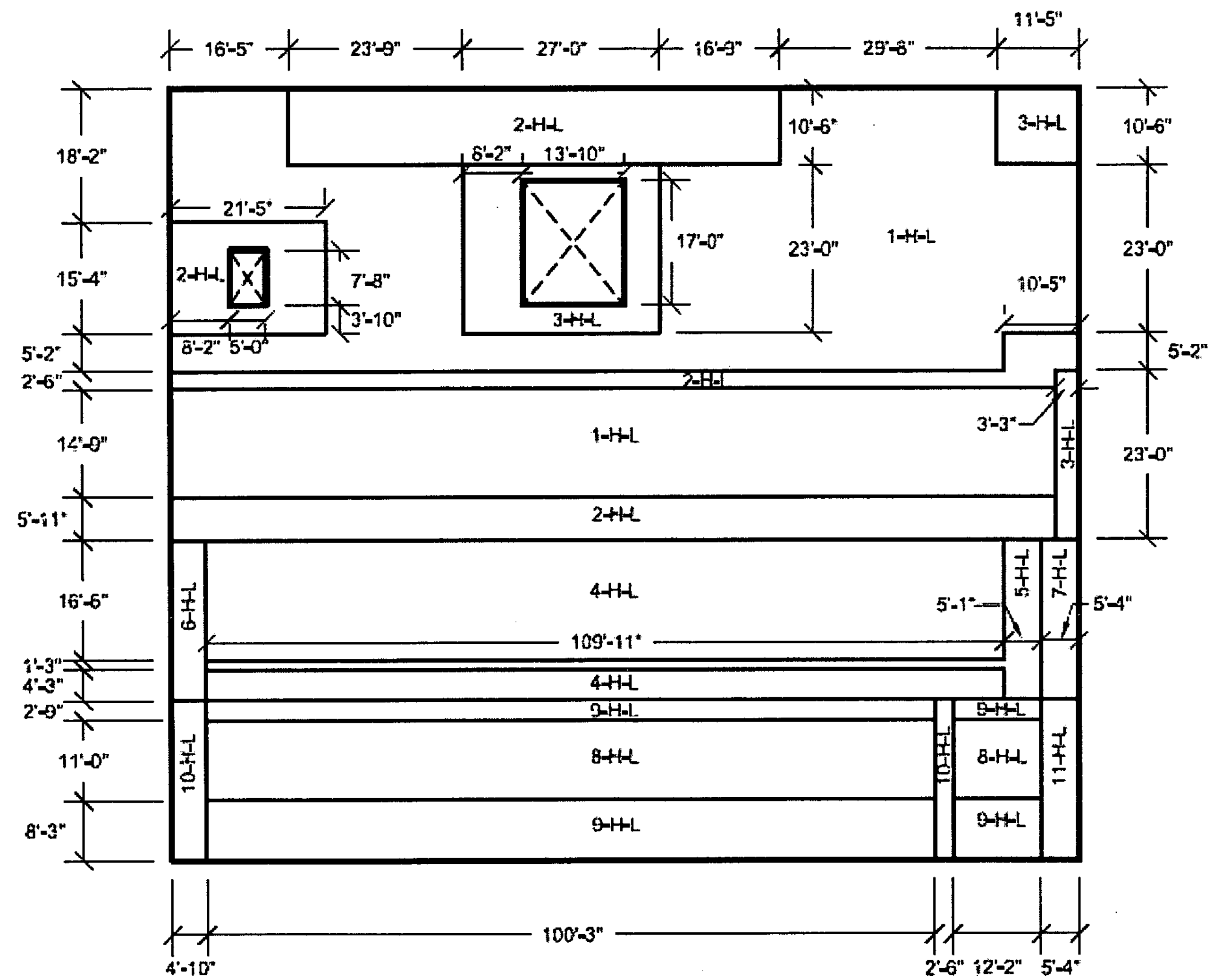


FIGURE 3H.3-18: EAST WALL LOOKING WEST
HORIZONTAL REINFORCEMENT ZONES
NEAR SIDE FACE

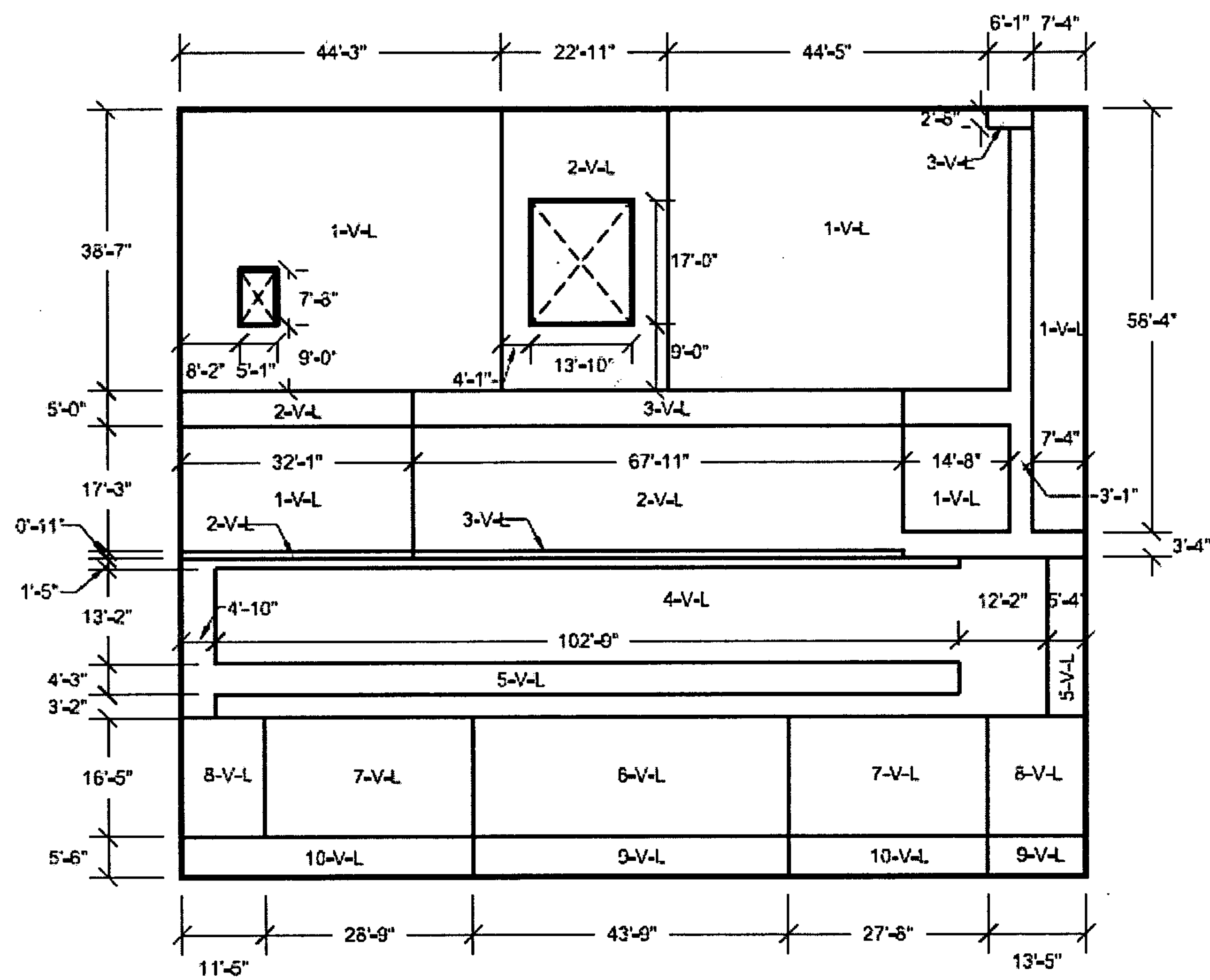


FIGURE 3H.3-19: EAST WALL LOOKING WEST
VERTICAL REINFORCEMENT ZONES
NEAR SIDE FACE

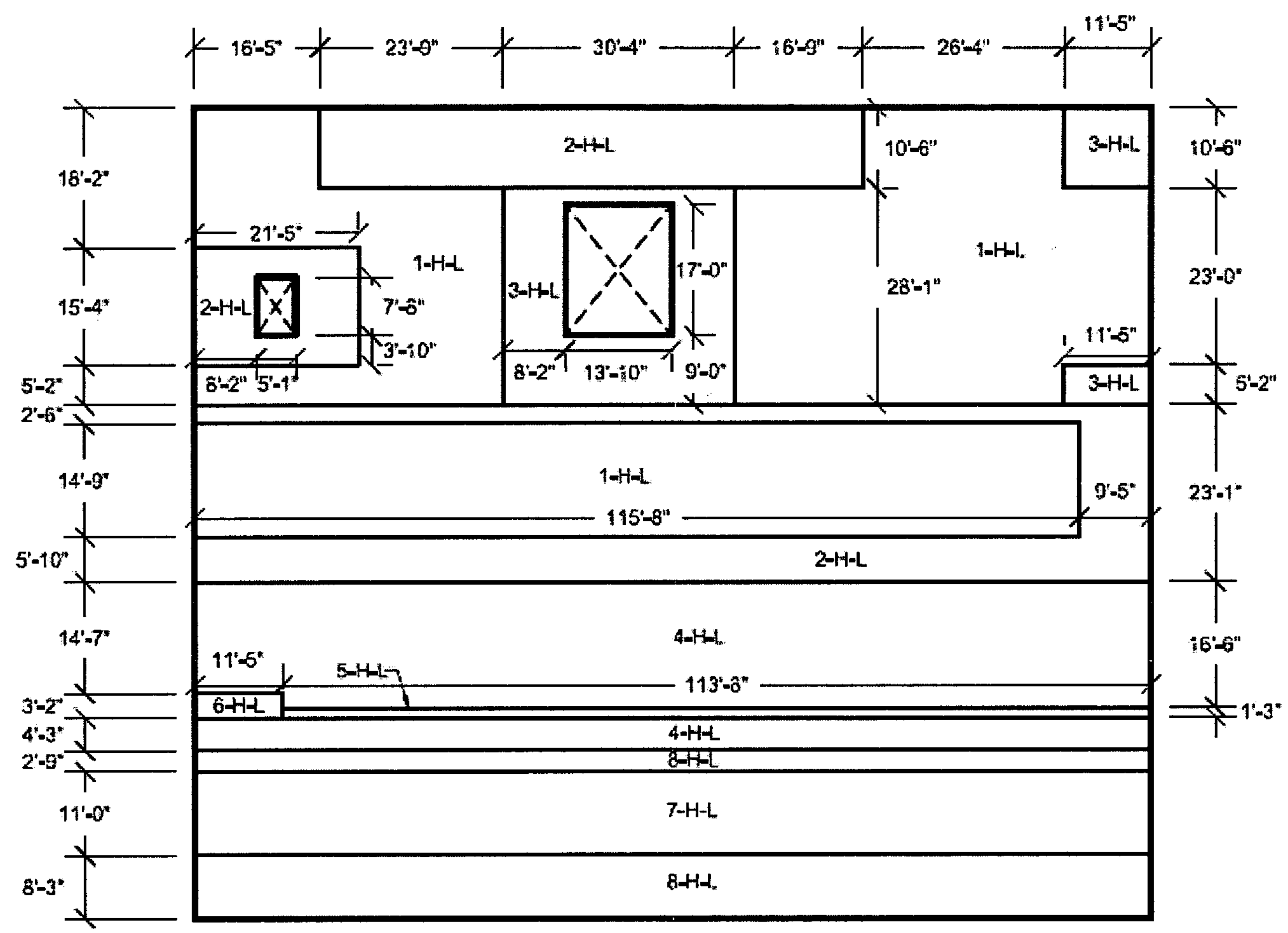


FIGURE 3H.3-20: EAST WALL LOOKING WEST
HORIZONTAL REINFORCEMENT ZONES
FAR SIDE FACE

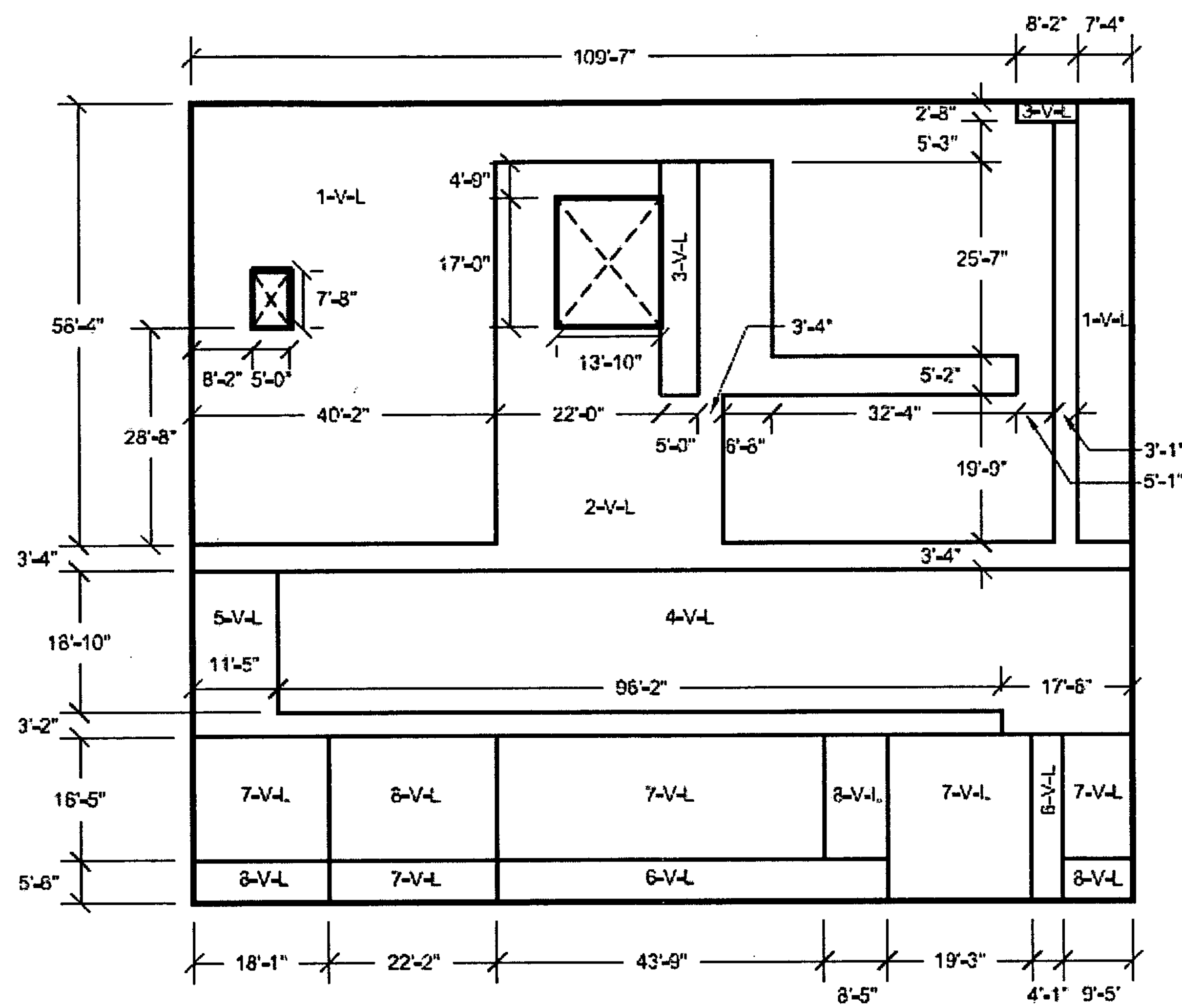


FIGURE 3H.3-21: EAST WALL LOOKING WEST
VERTICAL REINFORCEMENT ZONES
FAR SIDE FACE

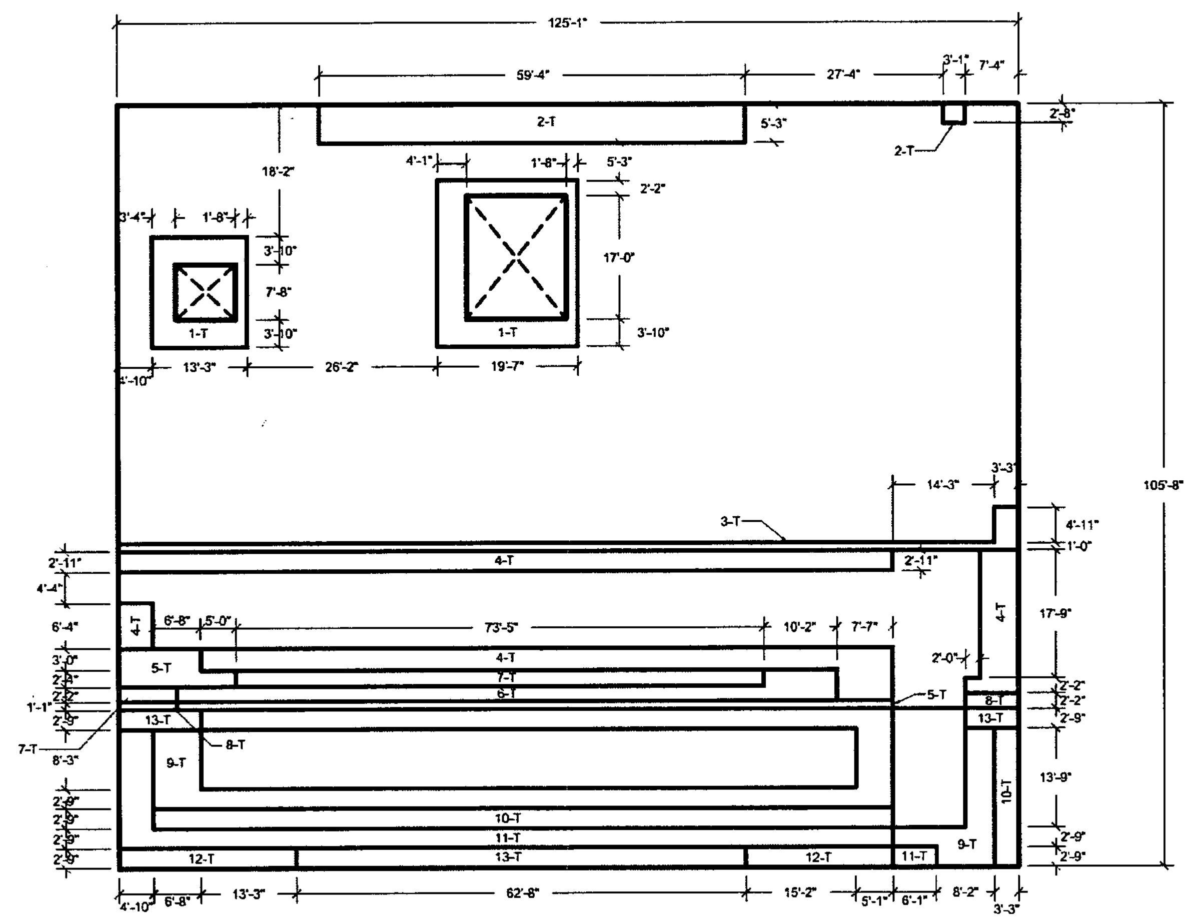


FIGURE 3H.3-22: EAST WALL LOOKING WEST
TRANSVERSE REINFORCEMENT ZONES

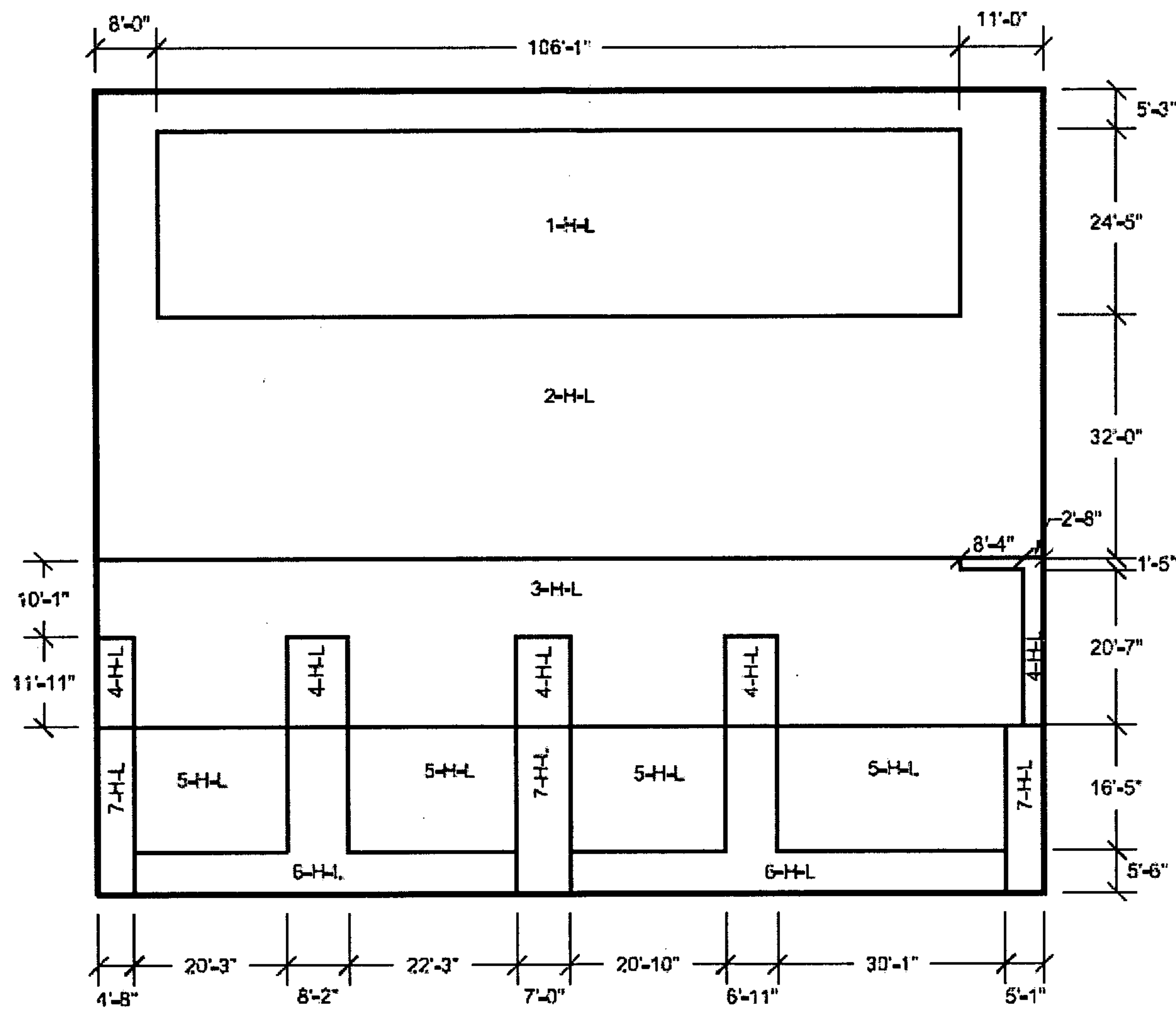


FIGURE 3H.3-23: WEST WALL LOOKING EAST
HORIZONTAL REINFORCEMENT ZONES,
NEAR SIDE FACE

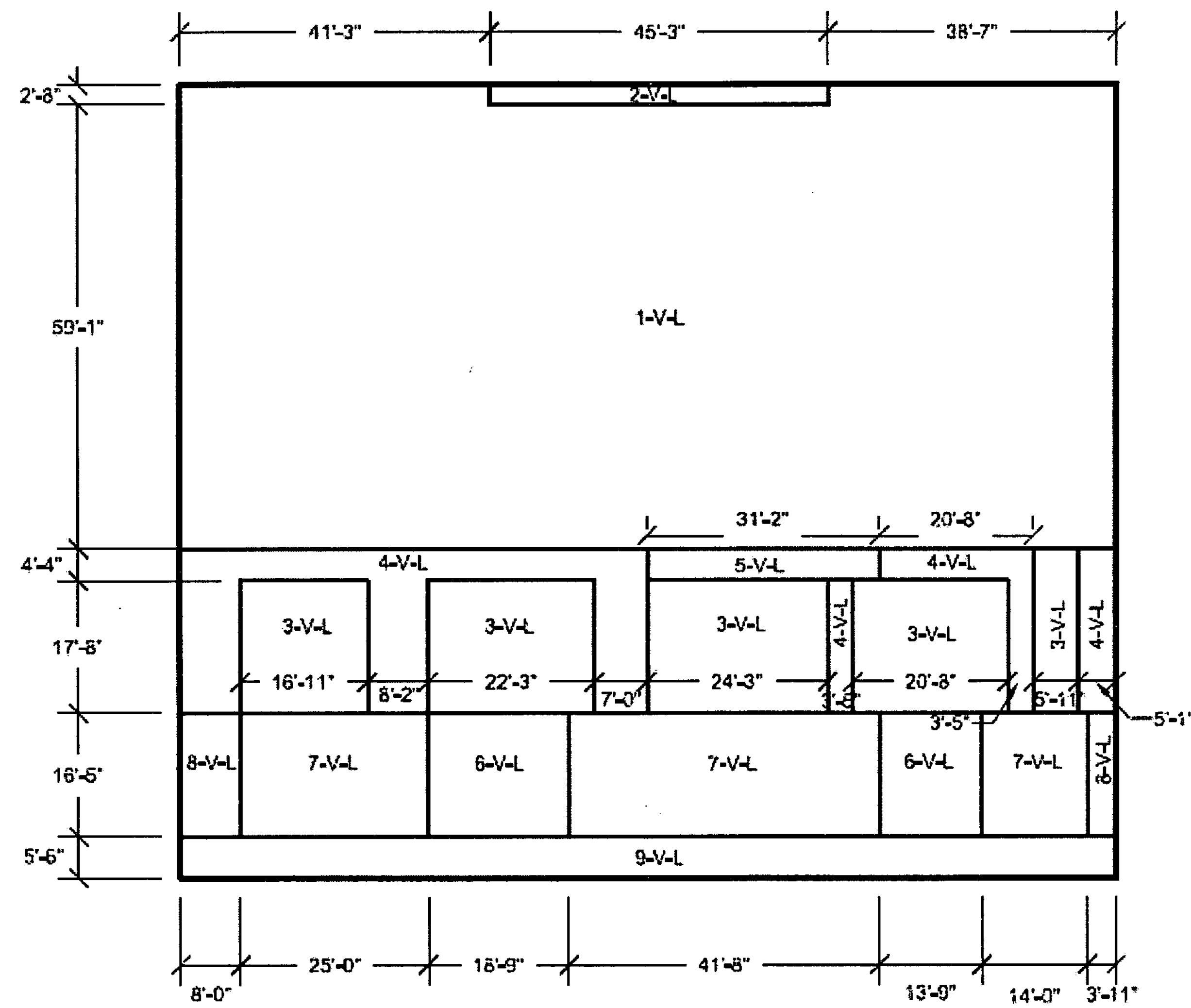


FIGURE 3H.3-24; WEST WALL LOOKING EAST
VERTICAL REINFORCEMENT ZONES
NEAR SIDE FACE

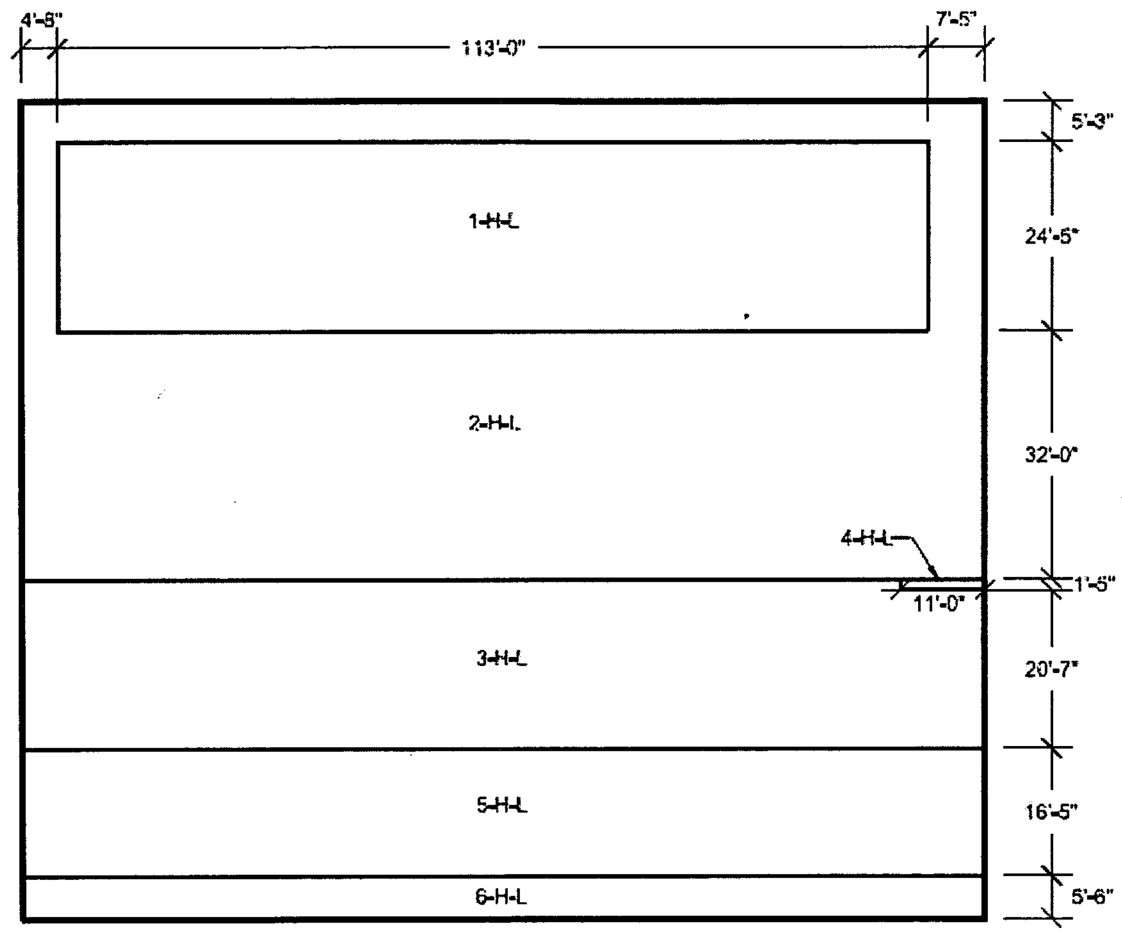


FIGURE 3H.3-25: WEST WALL LOOKING EAST
HORIZONTAL REINFORCEMENT ZONES
FAR SIDE FACE

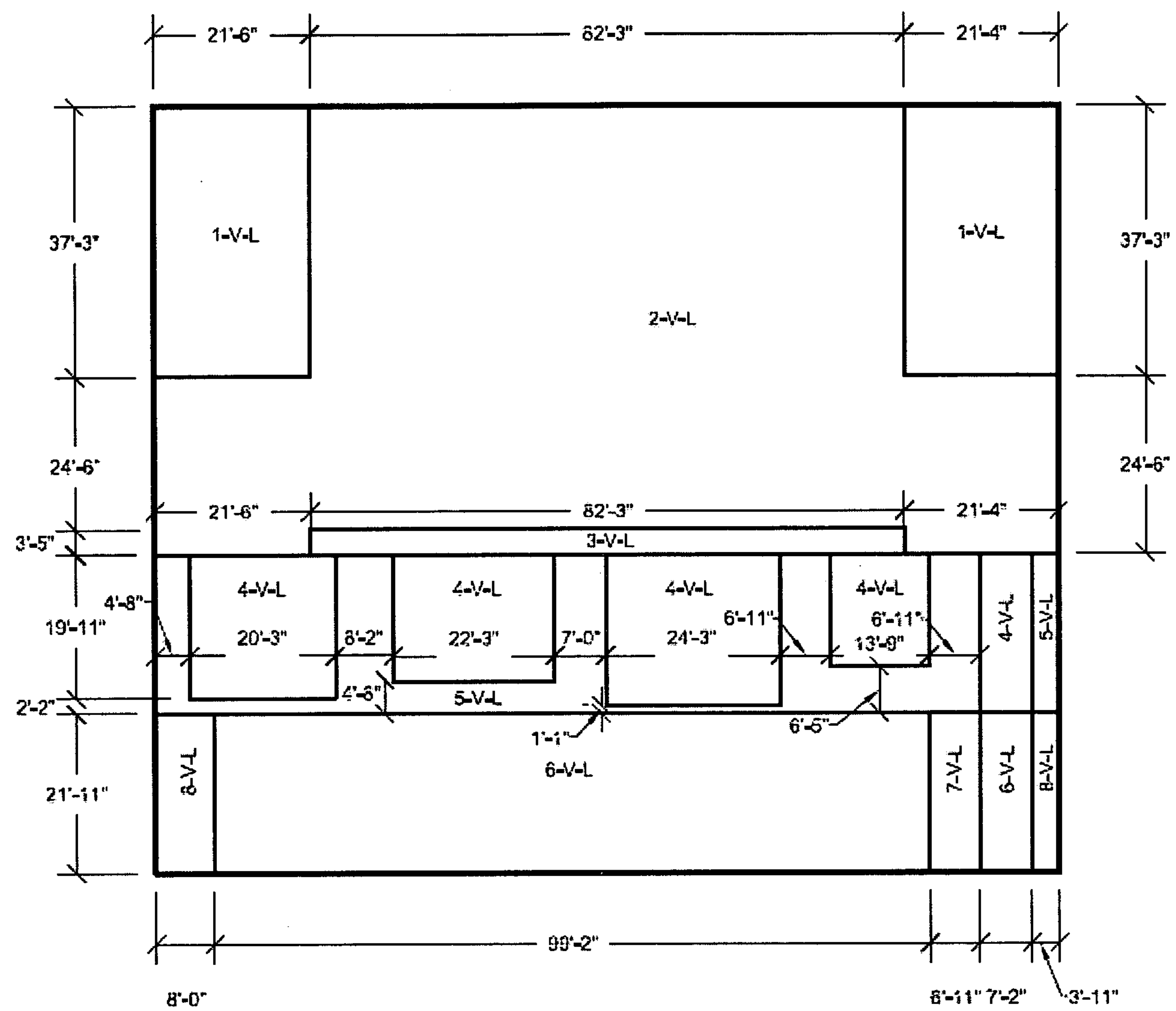


FIGURE 3H.3-26: WEST WALL LOOKING EAST
VERTICAL REINFORCEMENT ZONES
FAR SIDE FACE

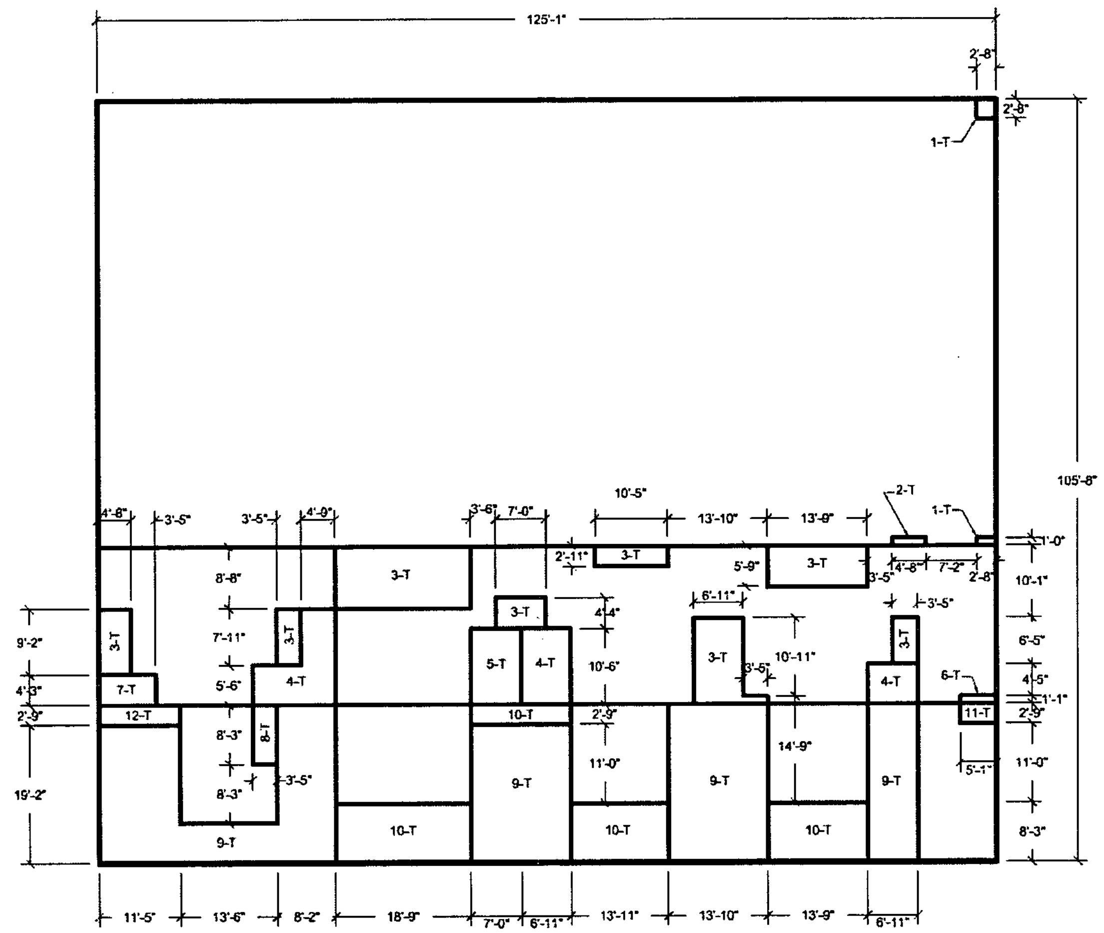


FIGURE 3H.3-27: WEST WALL LOOKING EAST
TRANSVERSE REINFORCEMENT ZONES

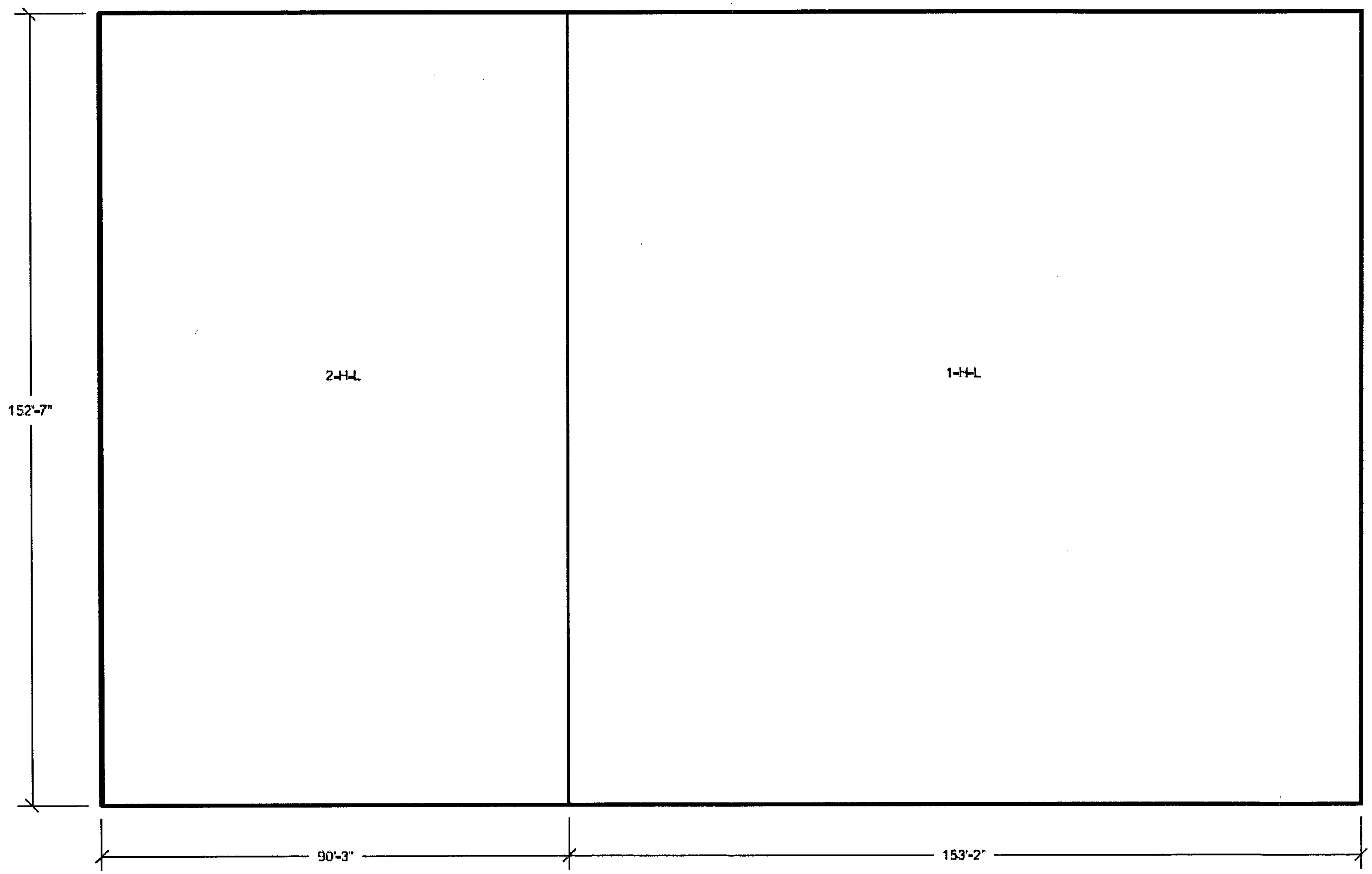


FIGURE 3H.3-28: BASEMAT LOOKING DOWN
EAST-WEST REINFORCEMENT ZONES
NEAR SIDE FACE

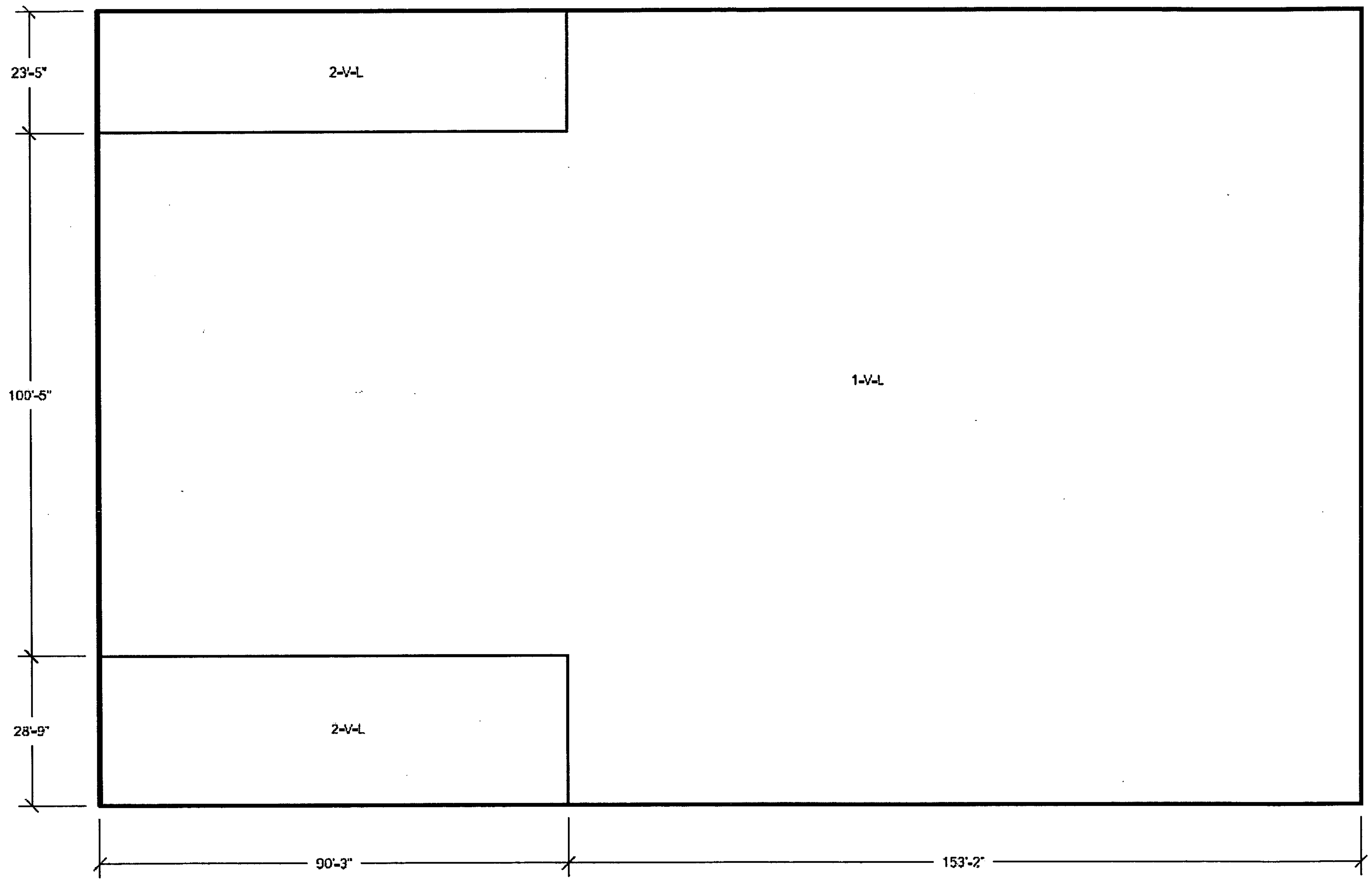


FIGURE 3H.3-29: BASEMAT LOOKING DOWN
NORTH-SOUTH REINFORCEMENT ZONES
NEAR SIDE FACE

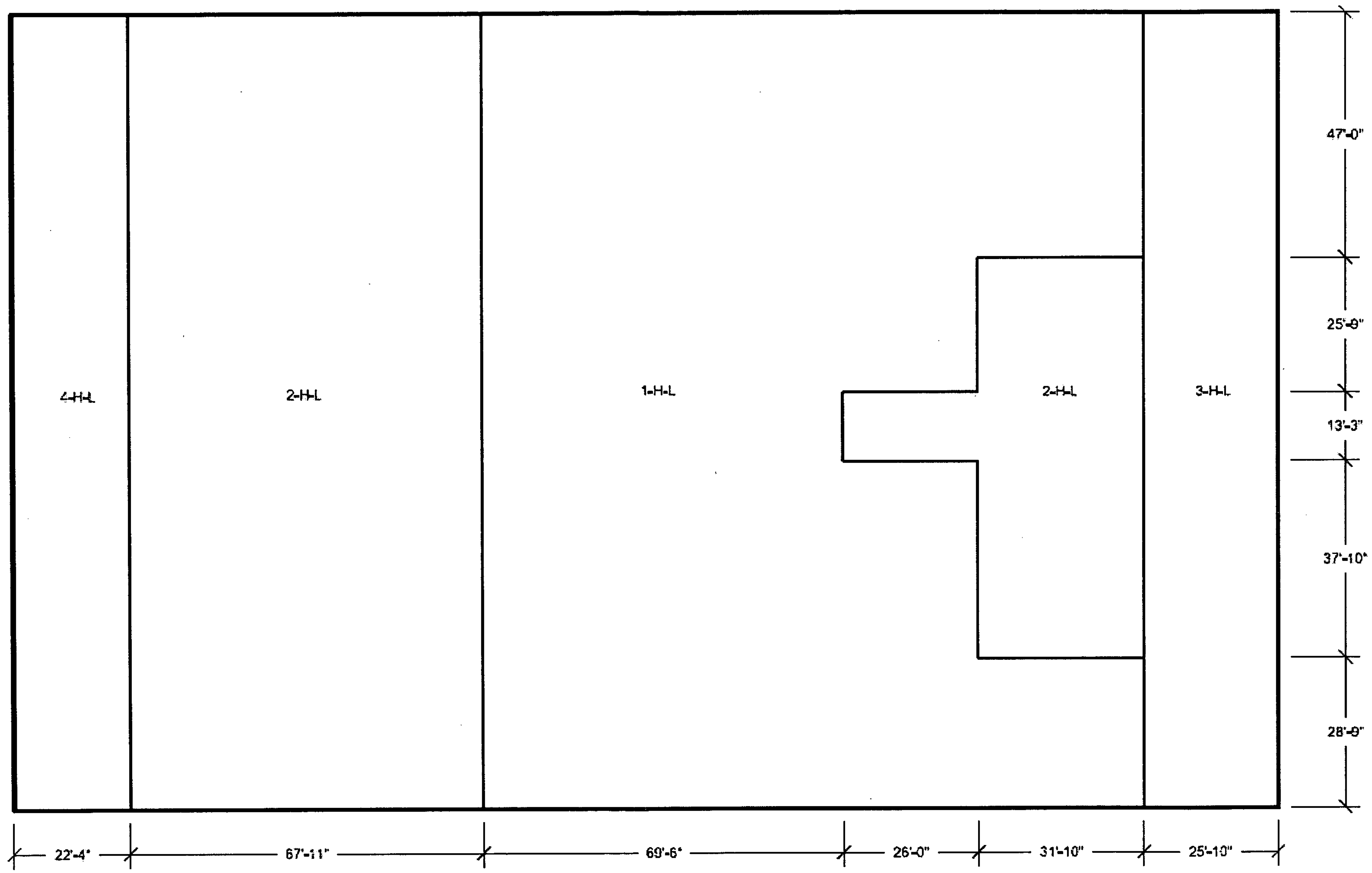


FIGURE 3H.3-30: BASEMAT LOOKING DOWN
EAST-WEST REINFORCEMENT ZONES
FAR SIDE FACE

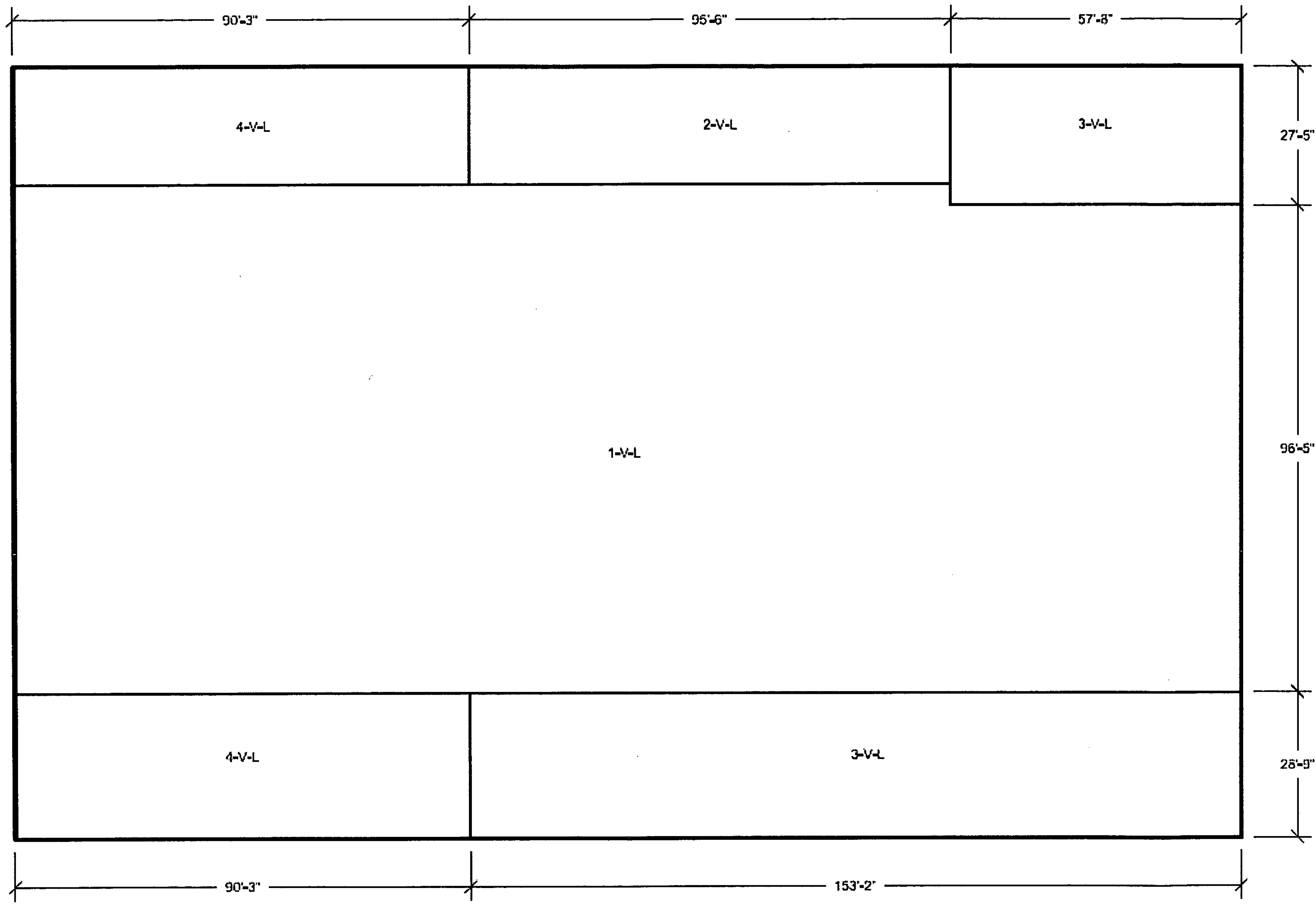


FIGURE 3H.3-31: BASEMAT LOOKING DOWN
NORTH-SOUTH REINFORCEMENT ZONES
FAR SIDE FACE

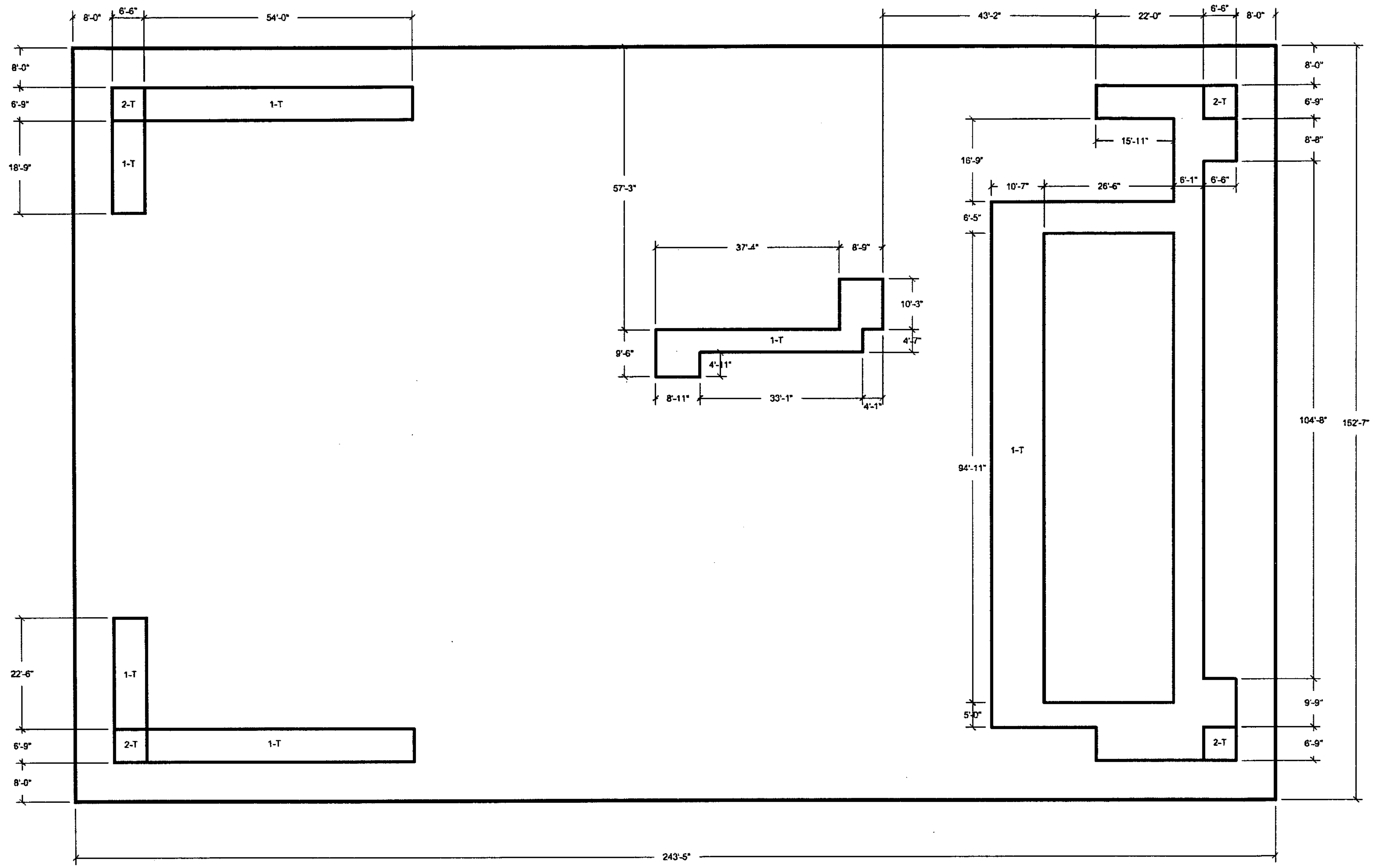


FIGURE 3H.3-32: BASEMAT LOOKING DOWN
TRANSVERSE REINFORCEMENT ZONES

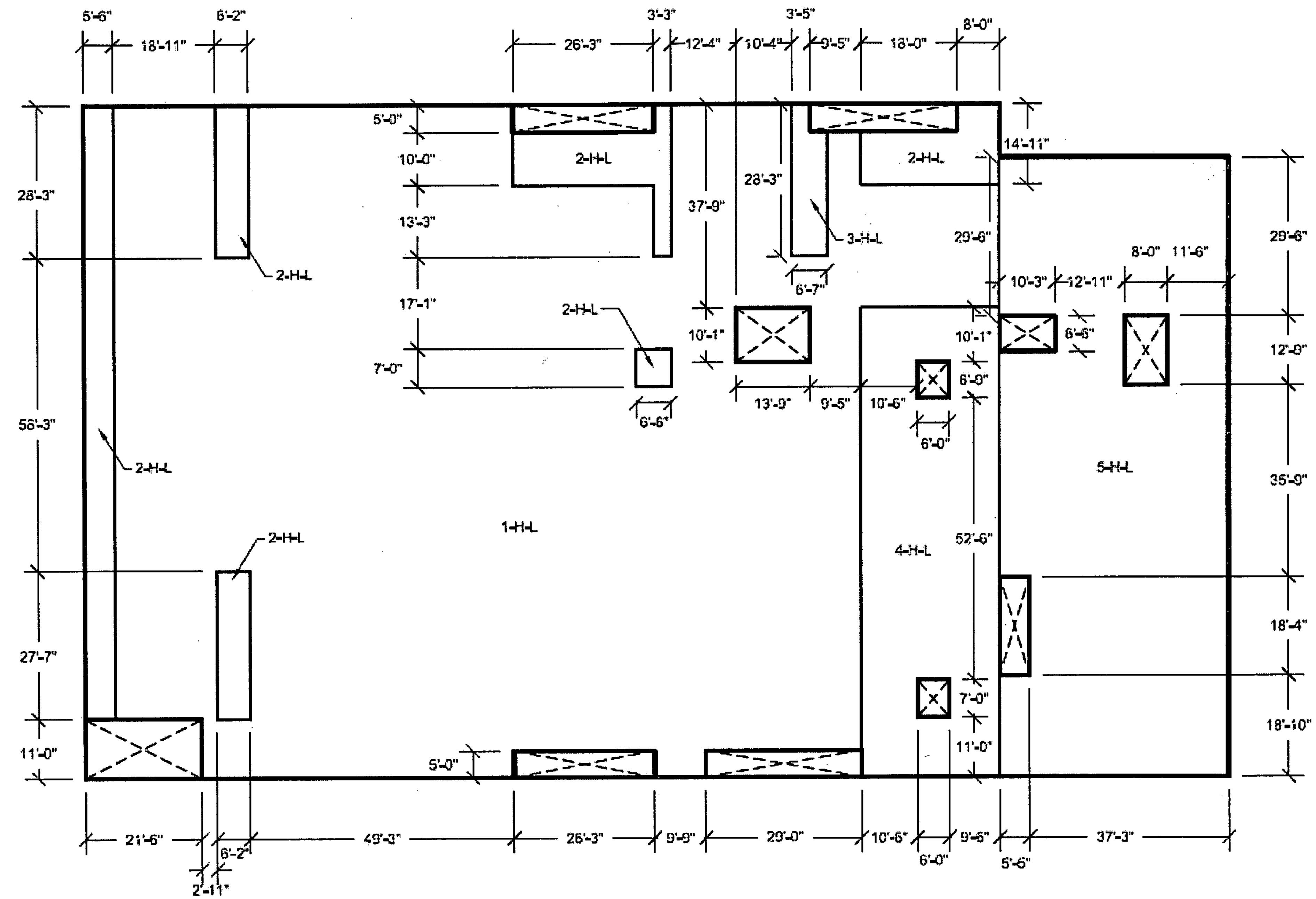


FIGURE 3H.3-33: ELEVATION 35 LOOKING DOWN
EAST-WEST REINFORCEMENT ZONES
NEAR SIDE FACE

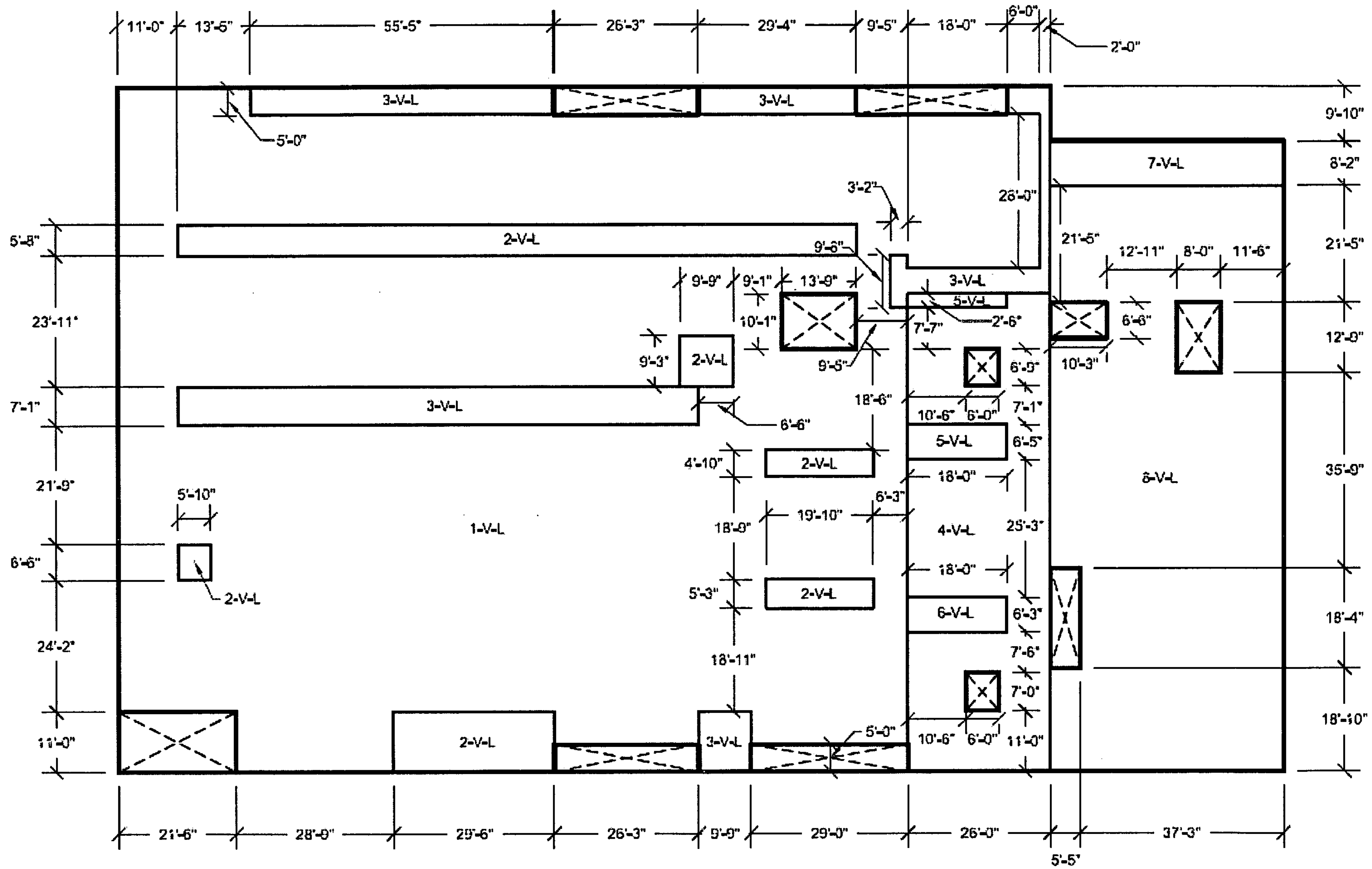


FIGURE 3H.3-34: ELEVATION 35 LOOKING DOWN
NORTH-SOUTH REINFORCEMENT ZONES
NEAR SIDE FACE

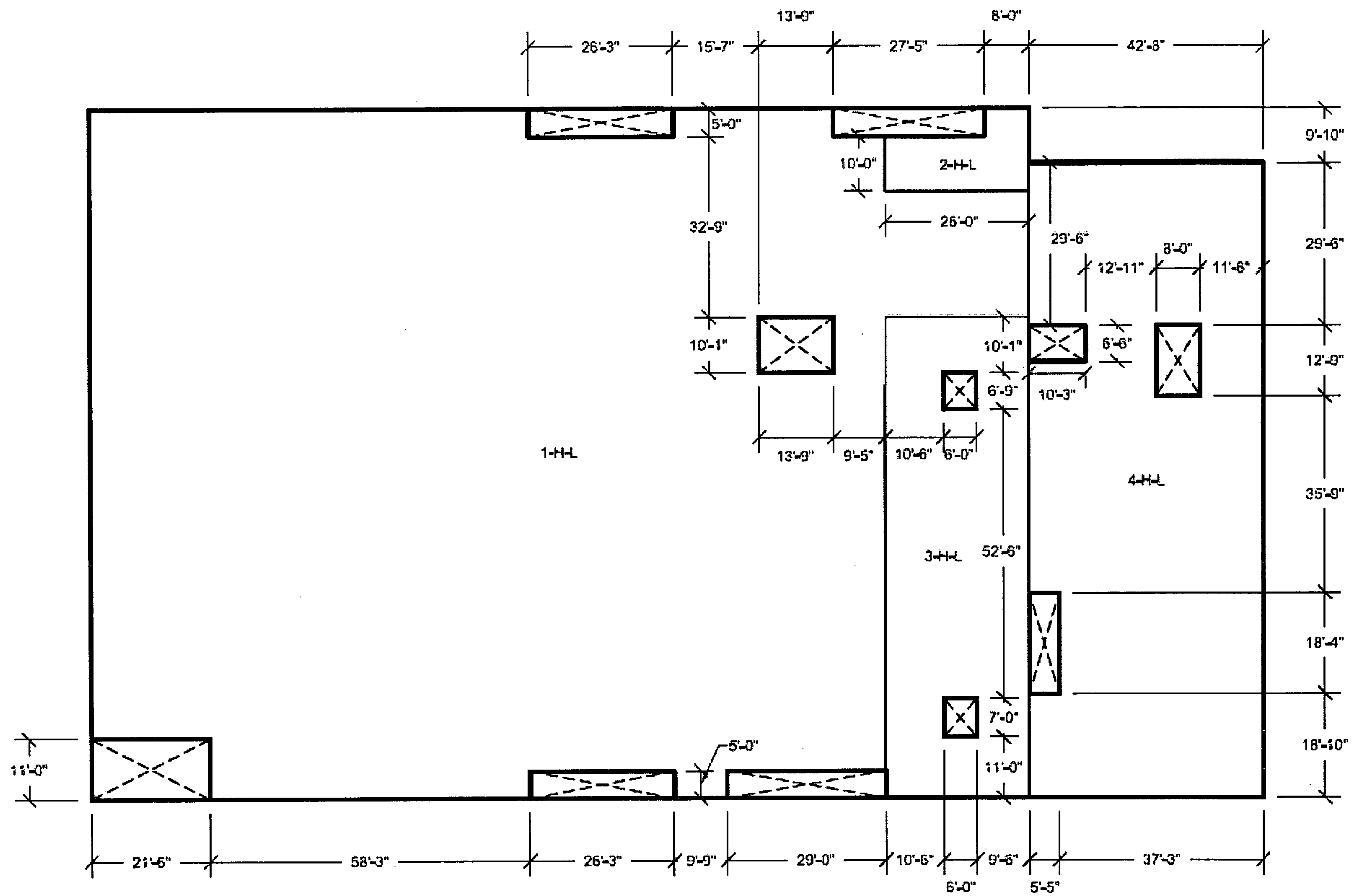


FIGURE 3H.3-35: ELEVATION 35 LOOKING DOWN
EAST-WEST REINFORCEMENT ZONES
FAR SIDE FACE

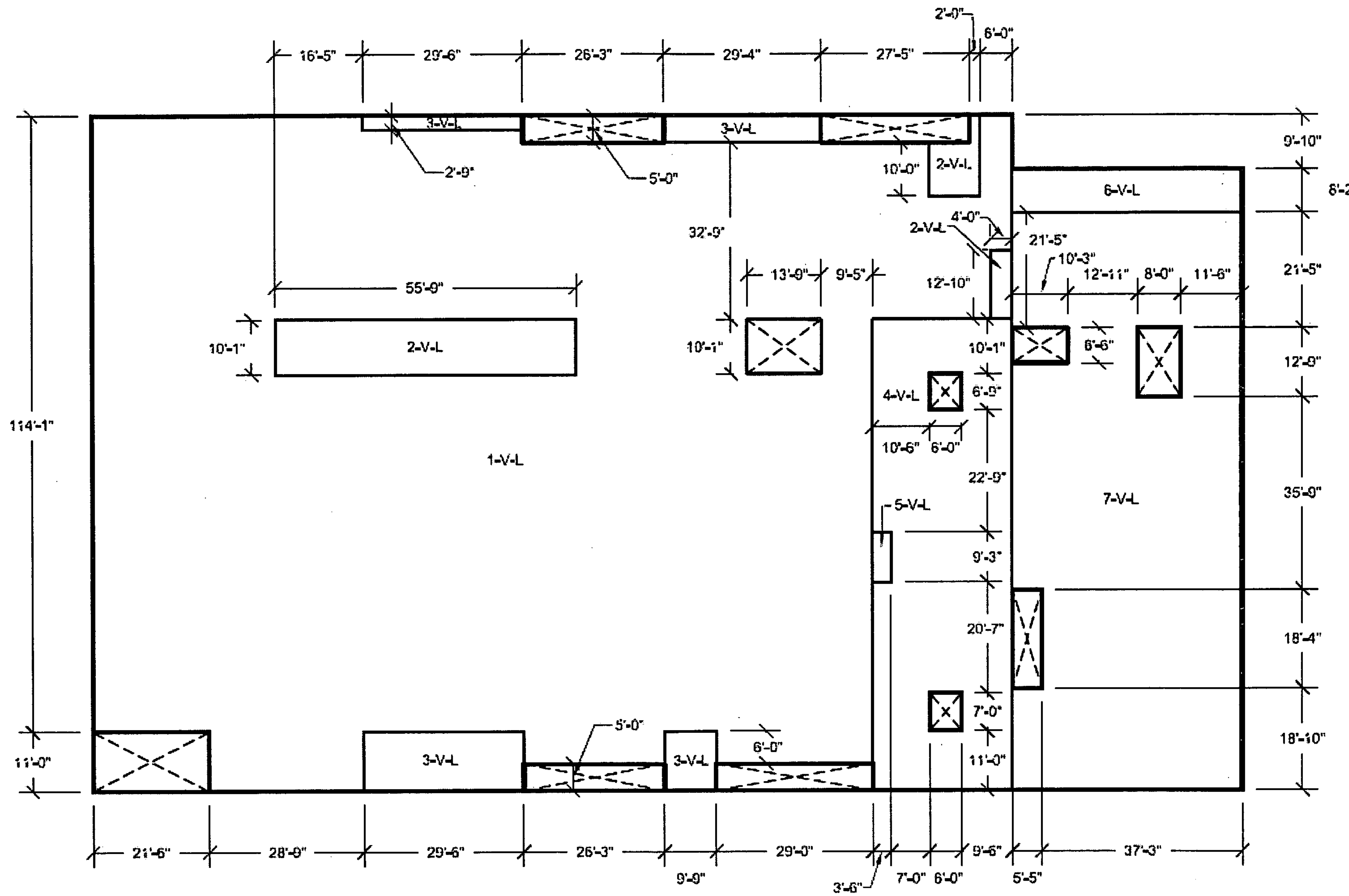


FIGURE 3H.3-36; ELEVATION 35 LOOKING DOWN
NORTH-SOUTH REINFORCEMENT ZONES
FAR SIDE FACE

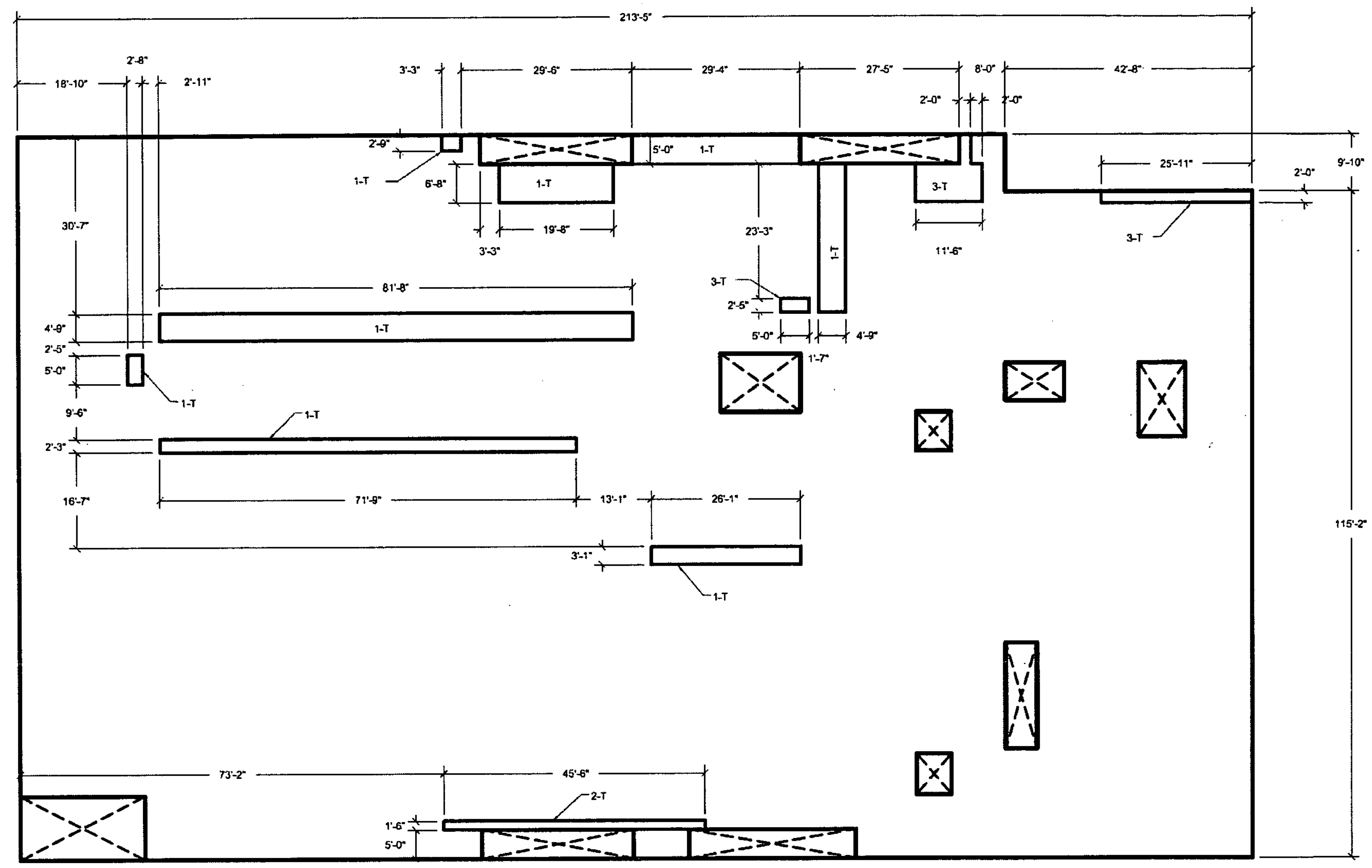


FIGURE 3H.3-37a: ELEVATION 35 LOOKING DOWN
TRANSVERSE REINFORCEMENT ZONES

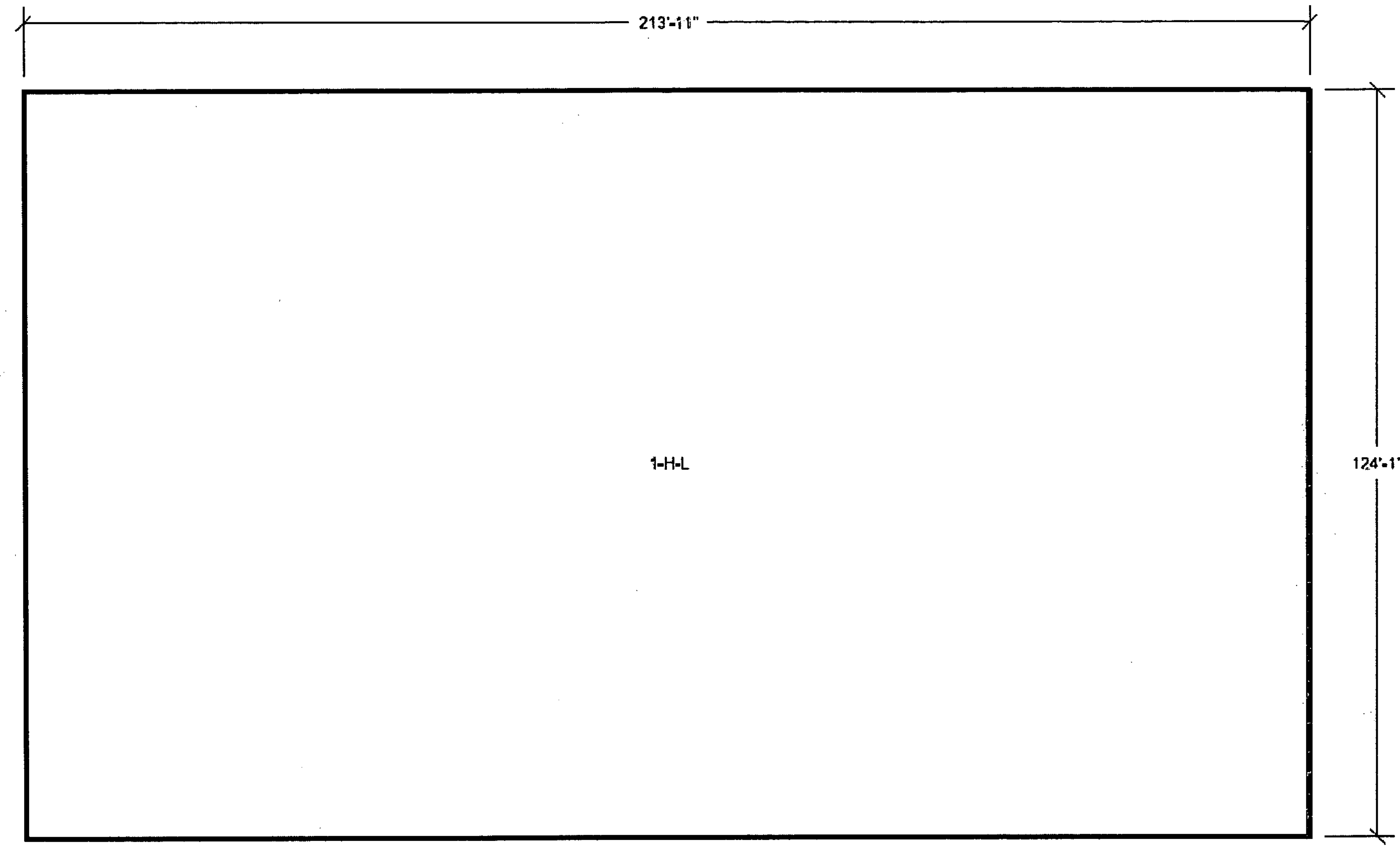


FIGURE 3H.3-38: ELEVATION 95 LOOKING DOWN
EAST-WEST REINFORCEMENT ZONES
NEAR SIDE FACE

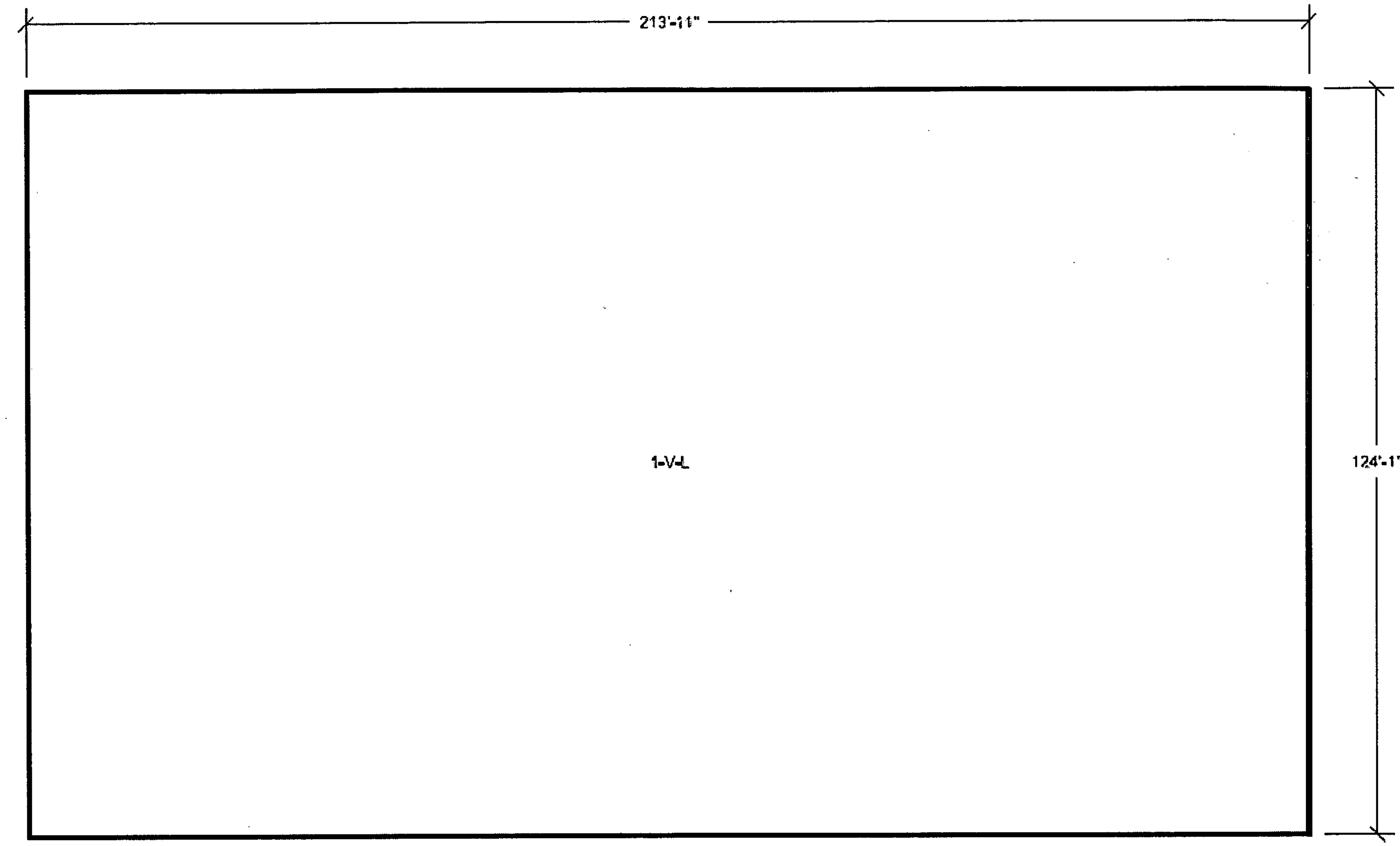


FIGURE 3H.3-39: ELEVATION 95 LOOKING DOWN
NORTH-SOUTH REINFORCEMENT ZONES
NEAR SIDE FACE

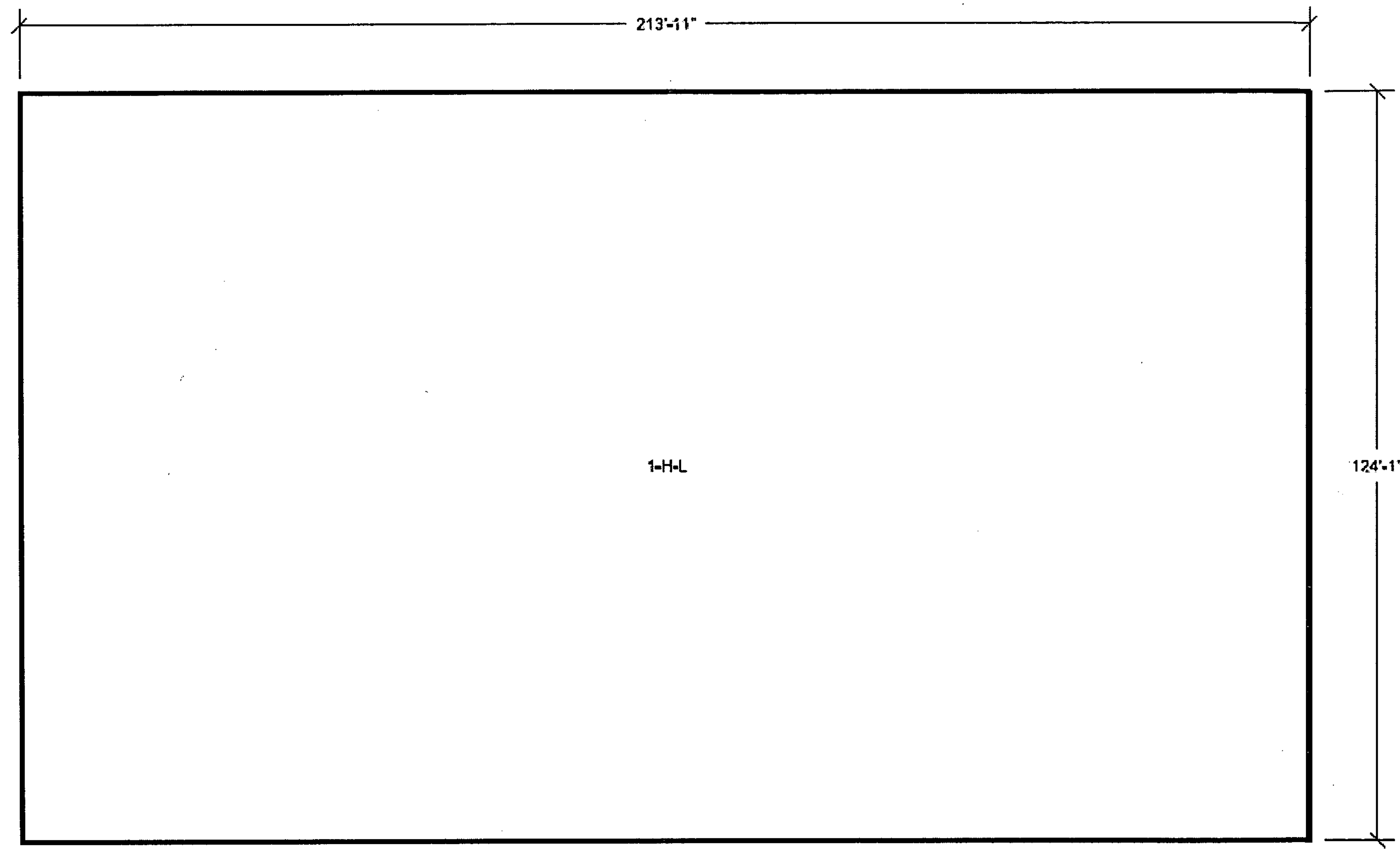


FIGURE 3H.3-40: ELEVATION 95 LOOKING DOWN
EAST-WEST REINFORCEMENT ZONES
FAR SIDE FACE

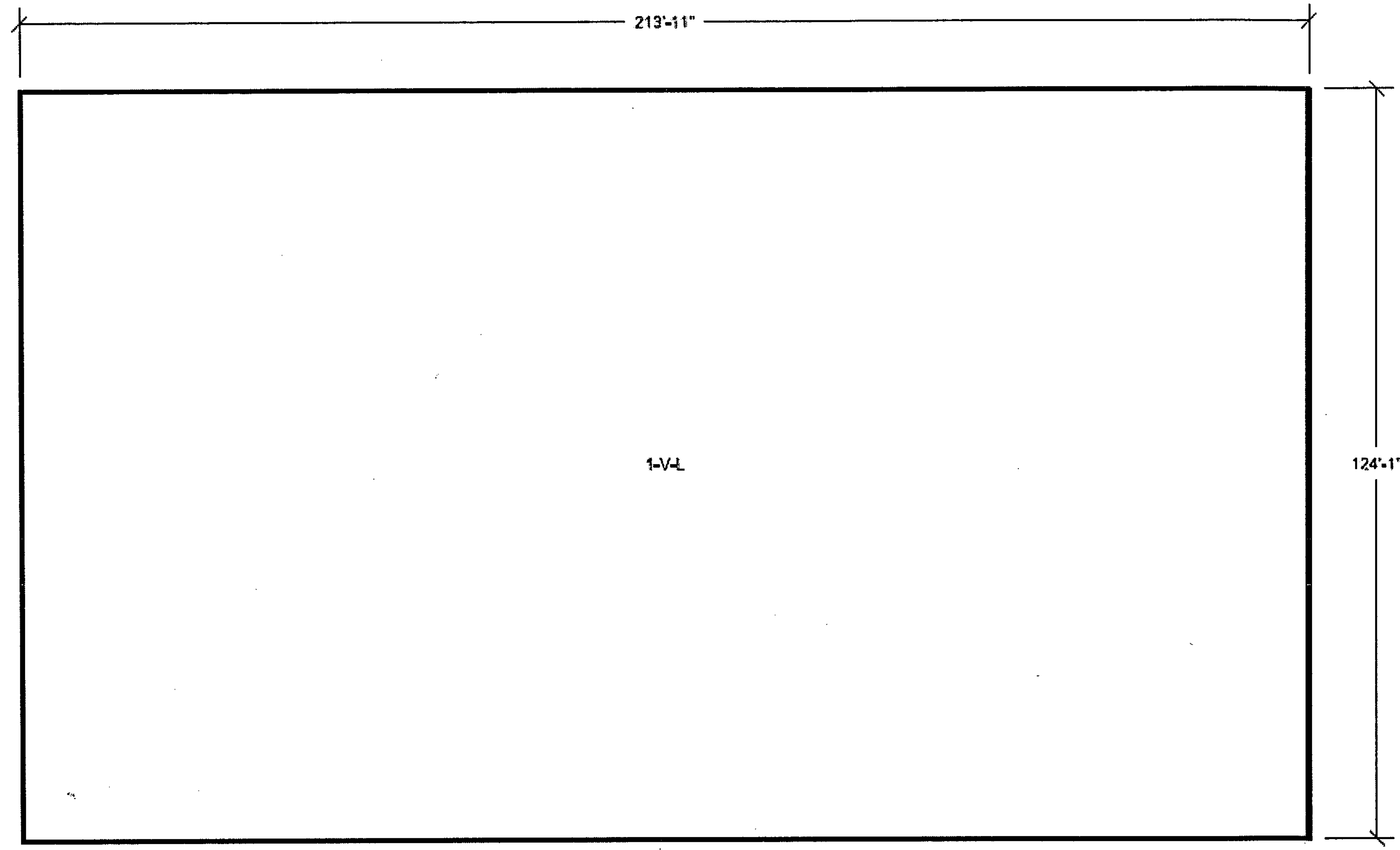


FIGURE 3H.3-41: ELEVATION 95 LOOKING DOWN
NORTH-SOUTH REINFORCEMENT ZONES
FAR SIDE FACE

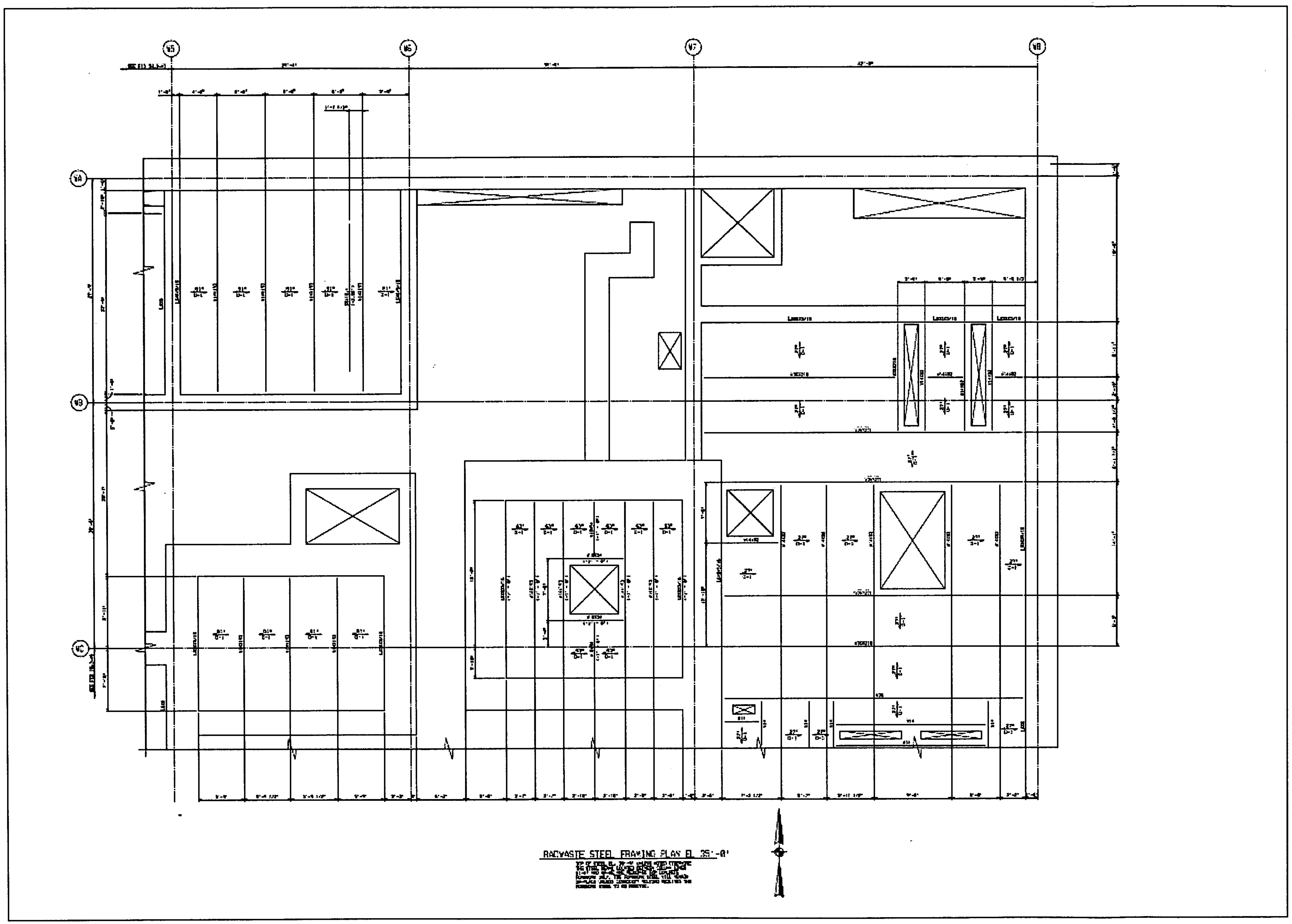


FIGURE 3H.3-44 EL 35'-0" STEEL LAYOUT BETWEEN COLUMN LINES W5-W8 AND WA-WC

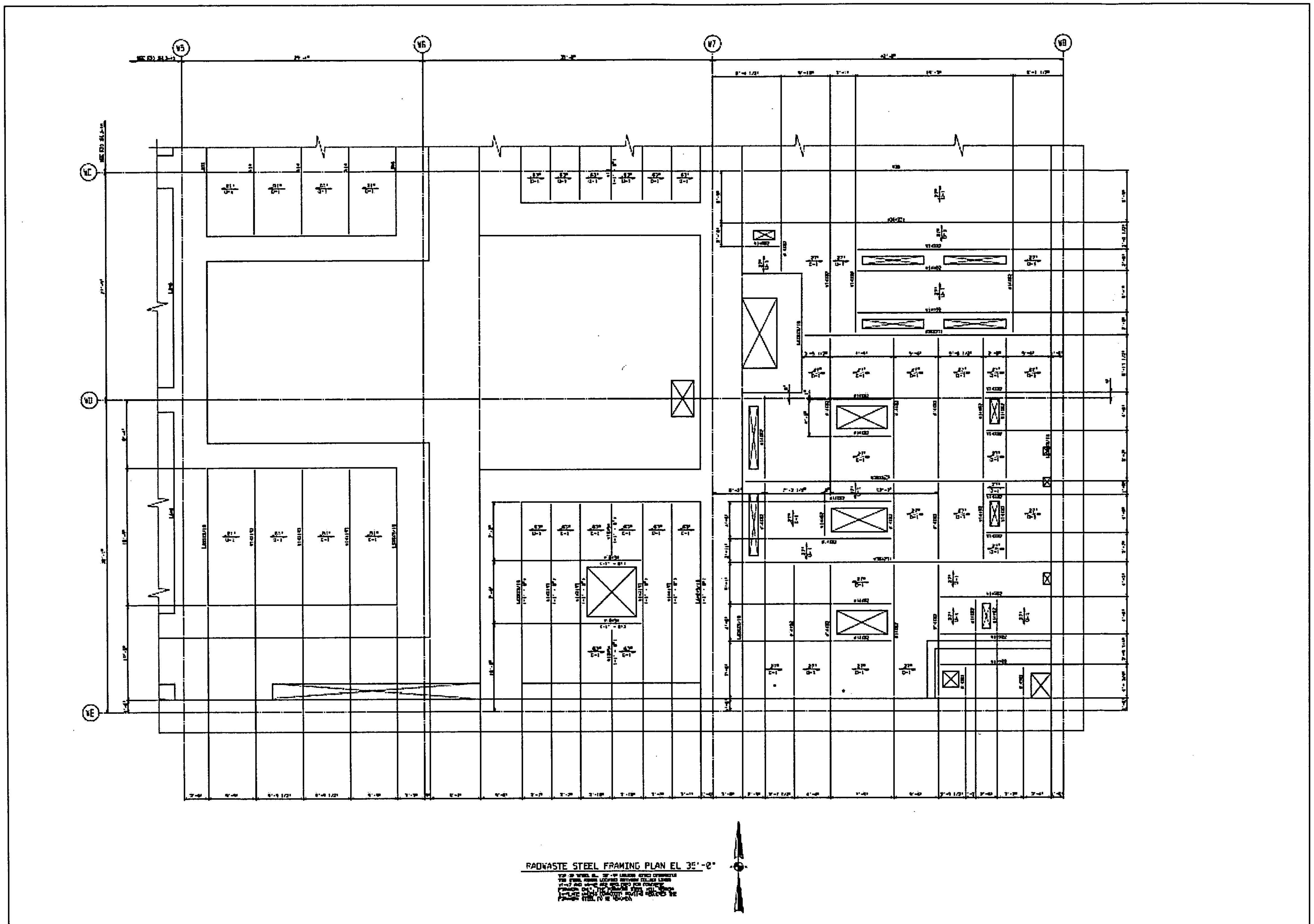
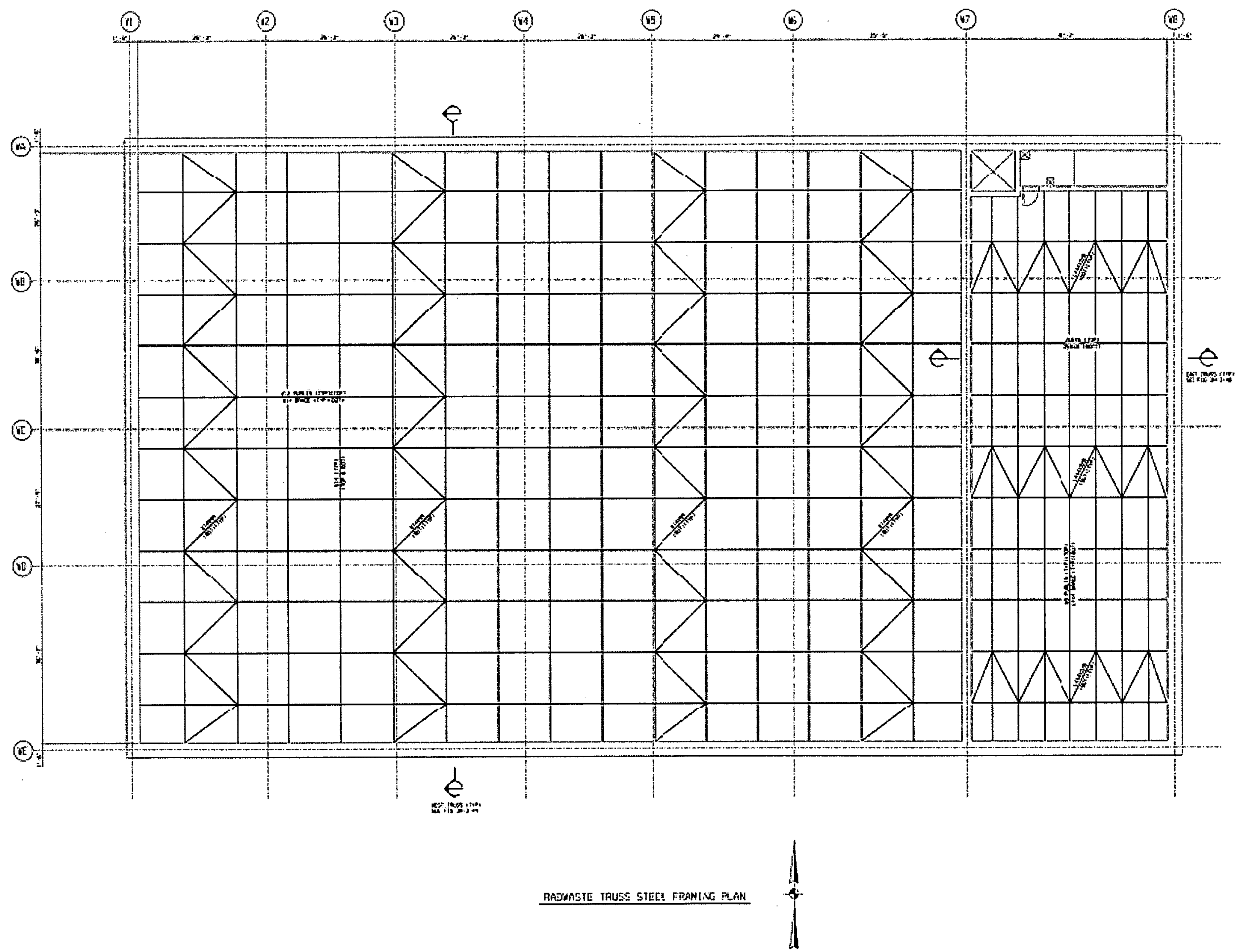
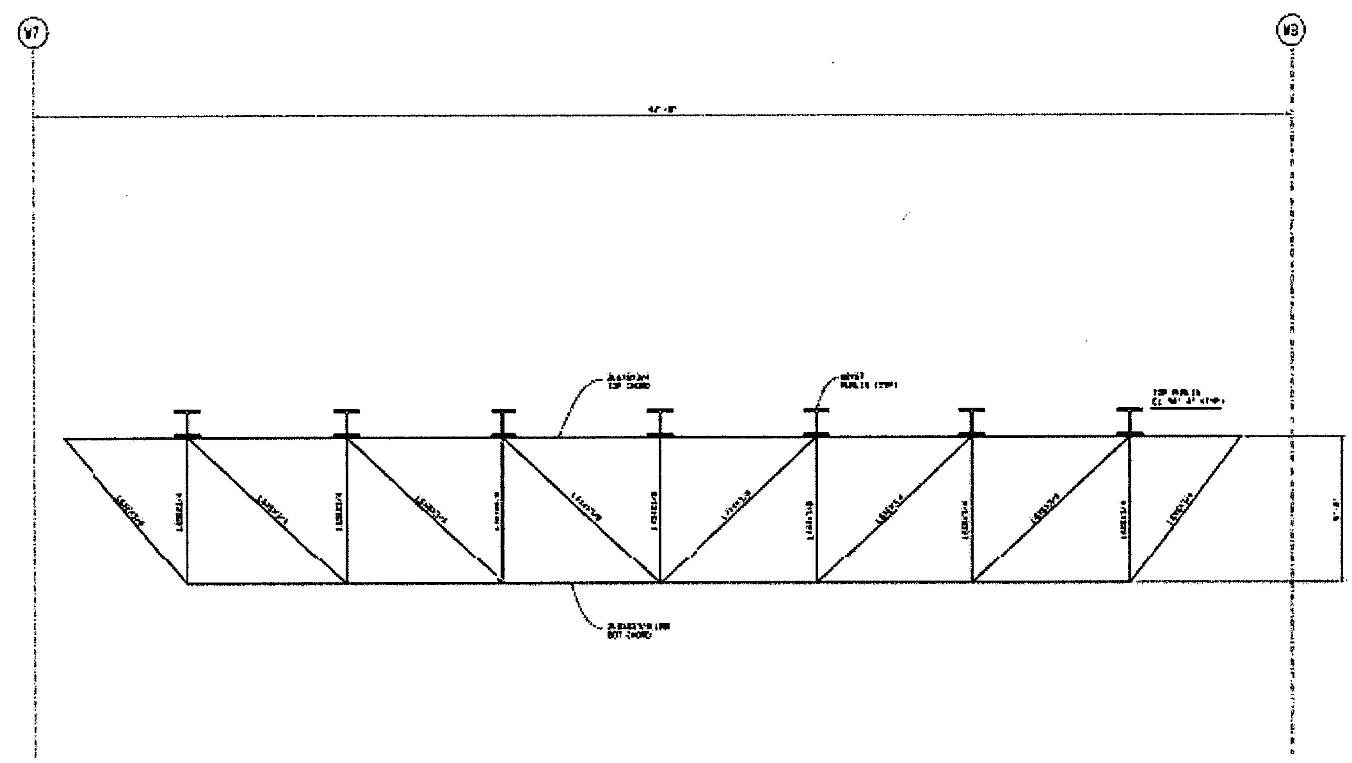


FIGURE 3H.3-46 EL 35'-0" STEEL LAYOUT BETWEEN COLUMN LINES W5-W8 AND WC-WE



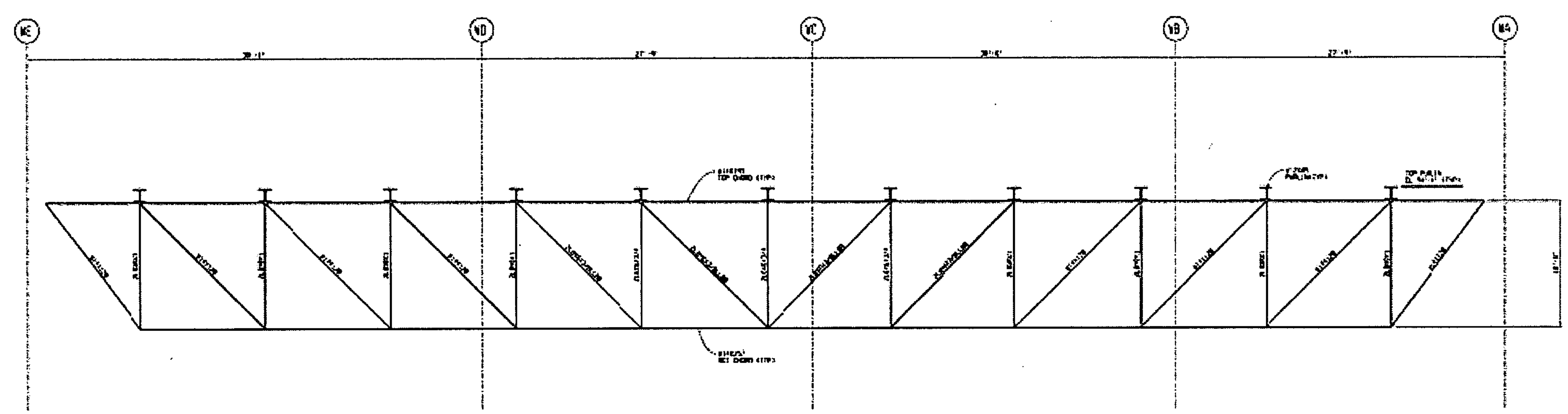
RADWASTE TRUSS STEEL FRAMING PLAN

FIGURE 3H.3-47 ROOF TRUSS, PURLIN AND HORIZONTAL BRACING LAYOUT (PLAN VIEW)



TYPICAL EAST-WEST SPANNING ROOF TRUSS

FIGURE 3H.1-40 TYPICAL EAST-WEST SPANNING ROOF TRUSS BETWEEN COLUMN LINES W7-W8 (ELEVATION VIEW)



TYPICAL NORTH-SOUTH SPANNING ROOF TRUSS

FIGURE 3H.3-49 TYPICAL NORTH-SOUTH SPANNING TRUSS BETWEEN COLUMN LINES WA-WE (ELEVATION VIEW)

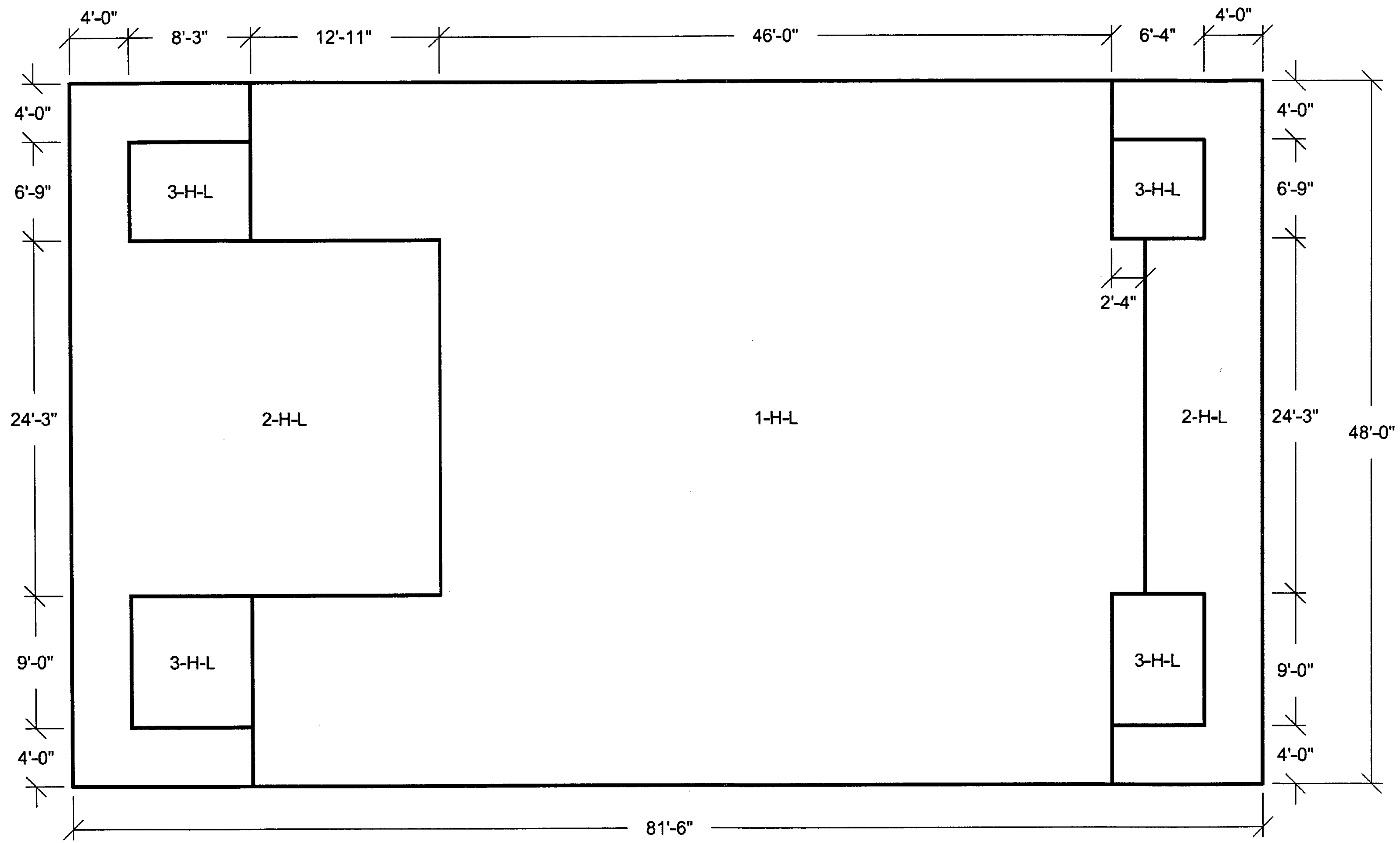


Figure 3H.6-142: Slab 1 Looking Down
Horizontal Reinforcement Zones
Near Side Face

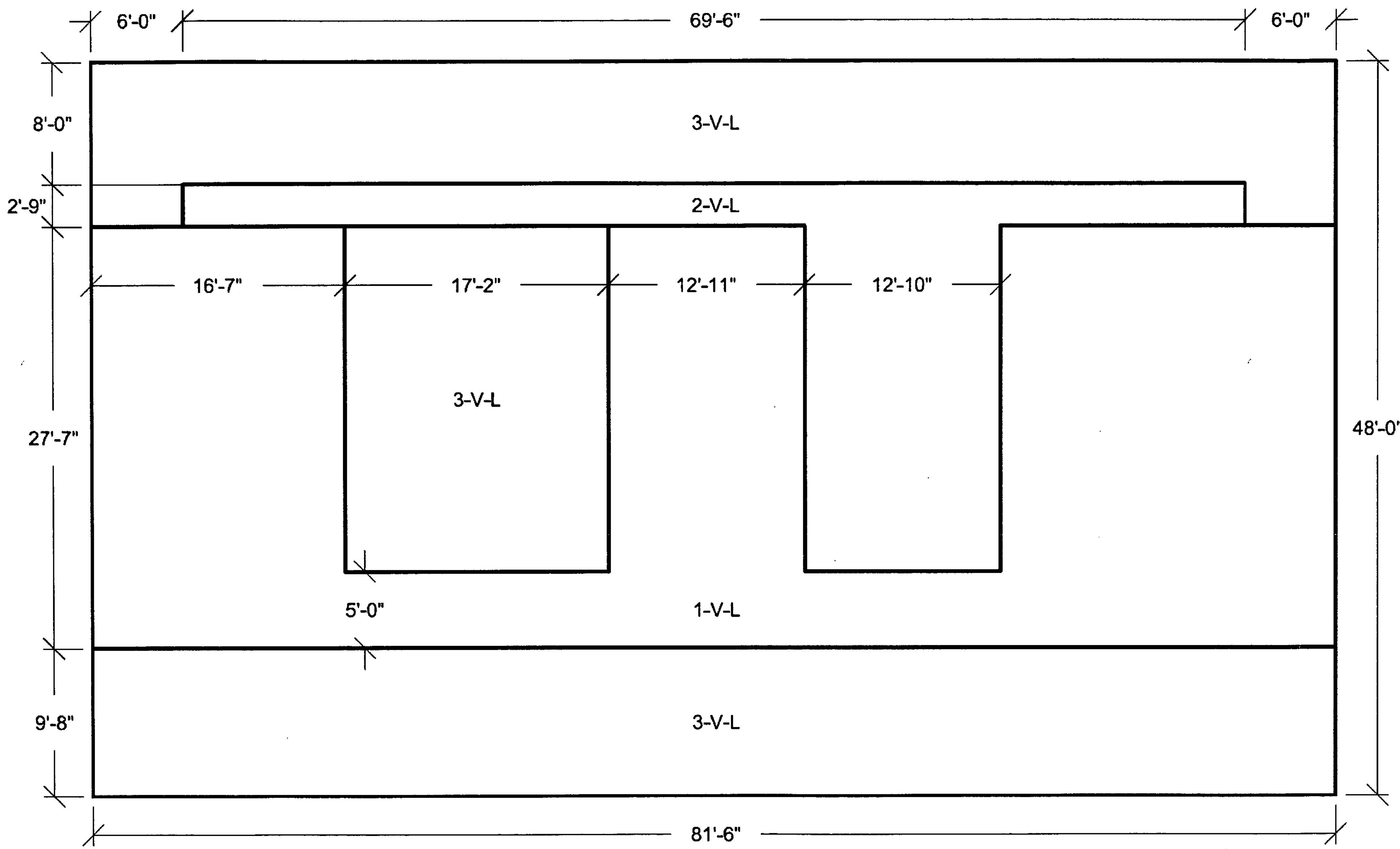


Figure 3H.6-143: Slab 1 Looking Down
Vertical Reinforcement Zones
Near Side Face

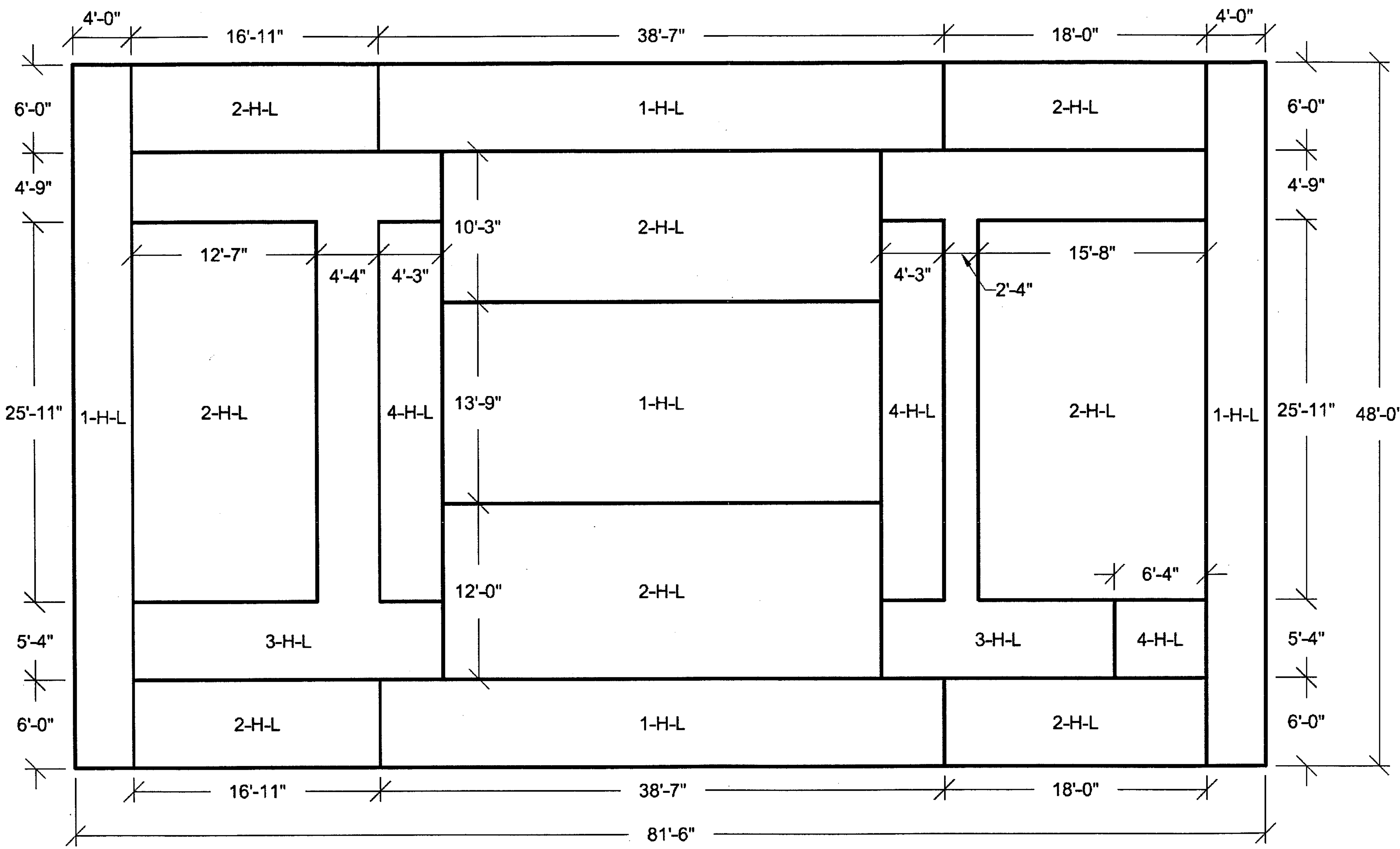


Figure 3H.6-144: Slab 1 Looking Down
Horizontal Reinforcement Zones
Far Side Face

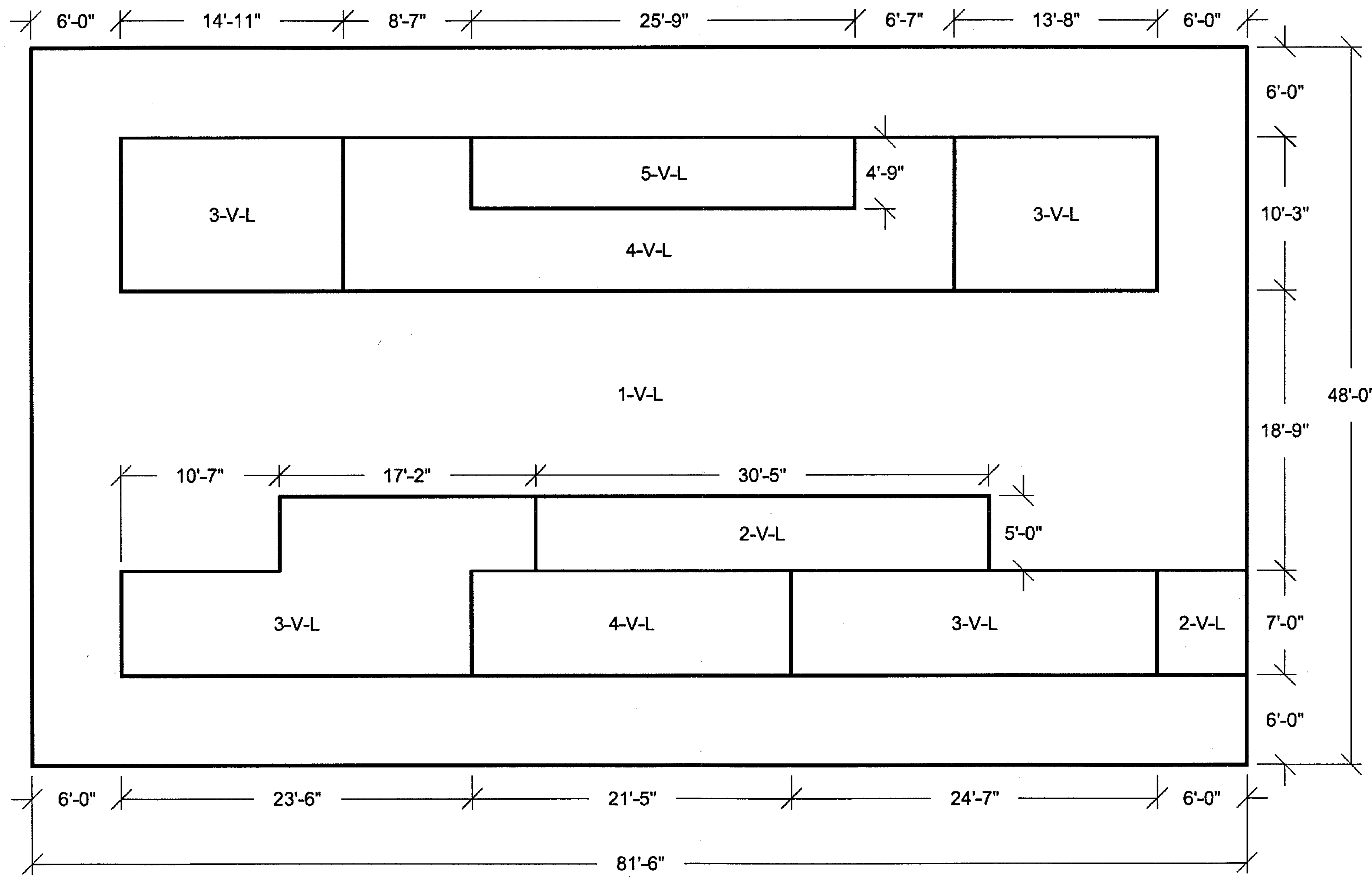


Figure 3H.6-145: Slab 1 Looking Down
Vertical Reinforcement Zones
Far Side Face

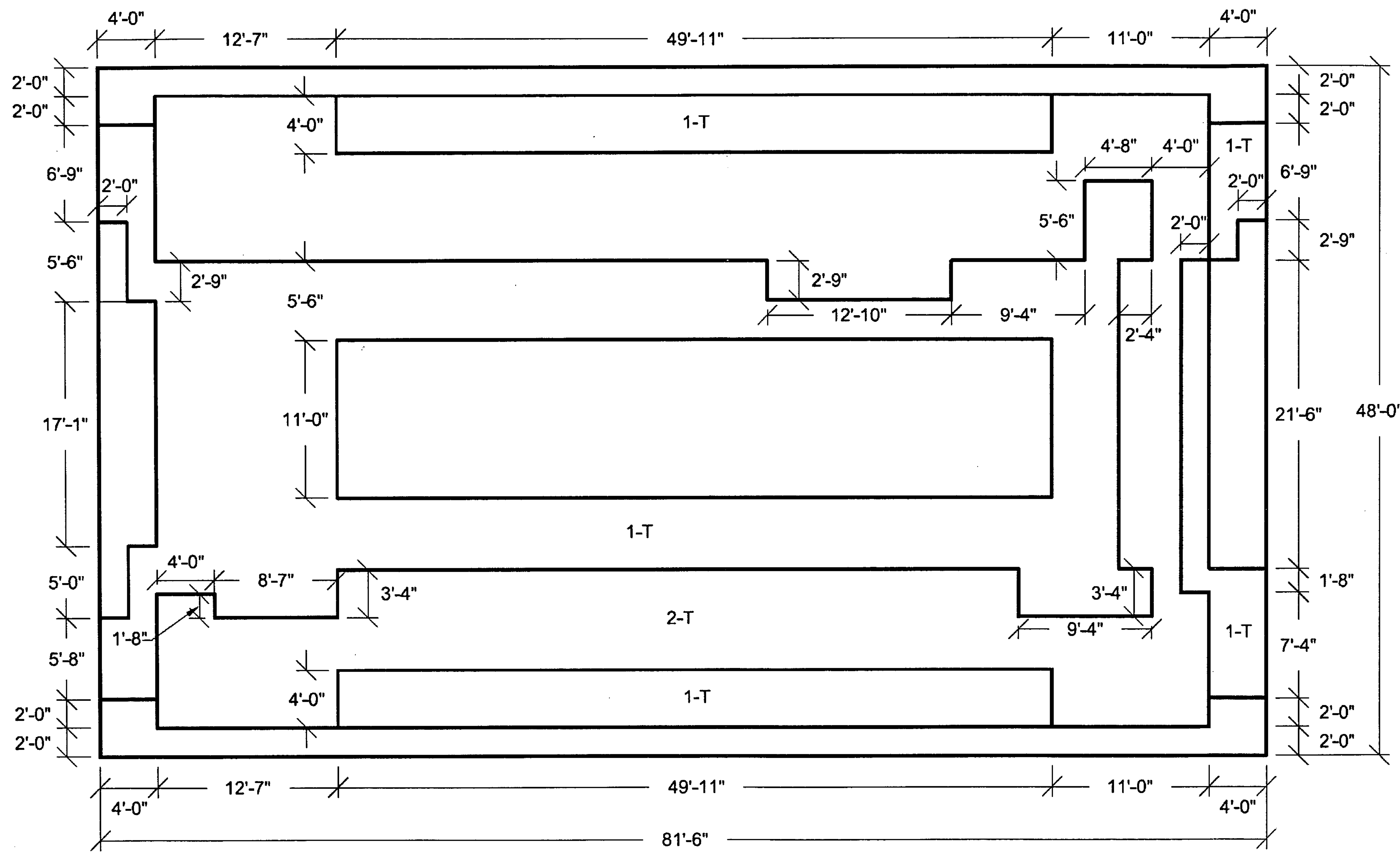


Figure 3H.6-146: Slab 1 Looking Down
Transverse Reinforcement Zones

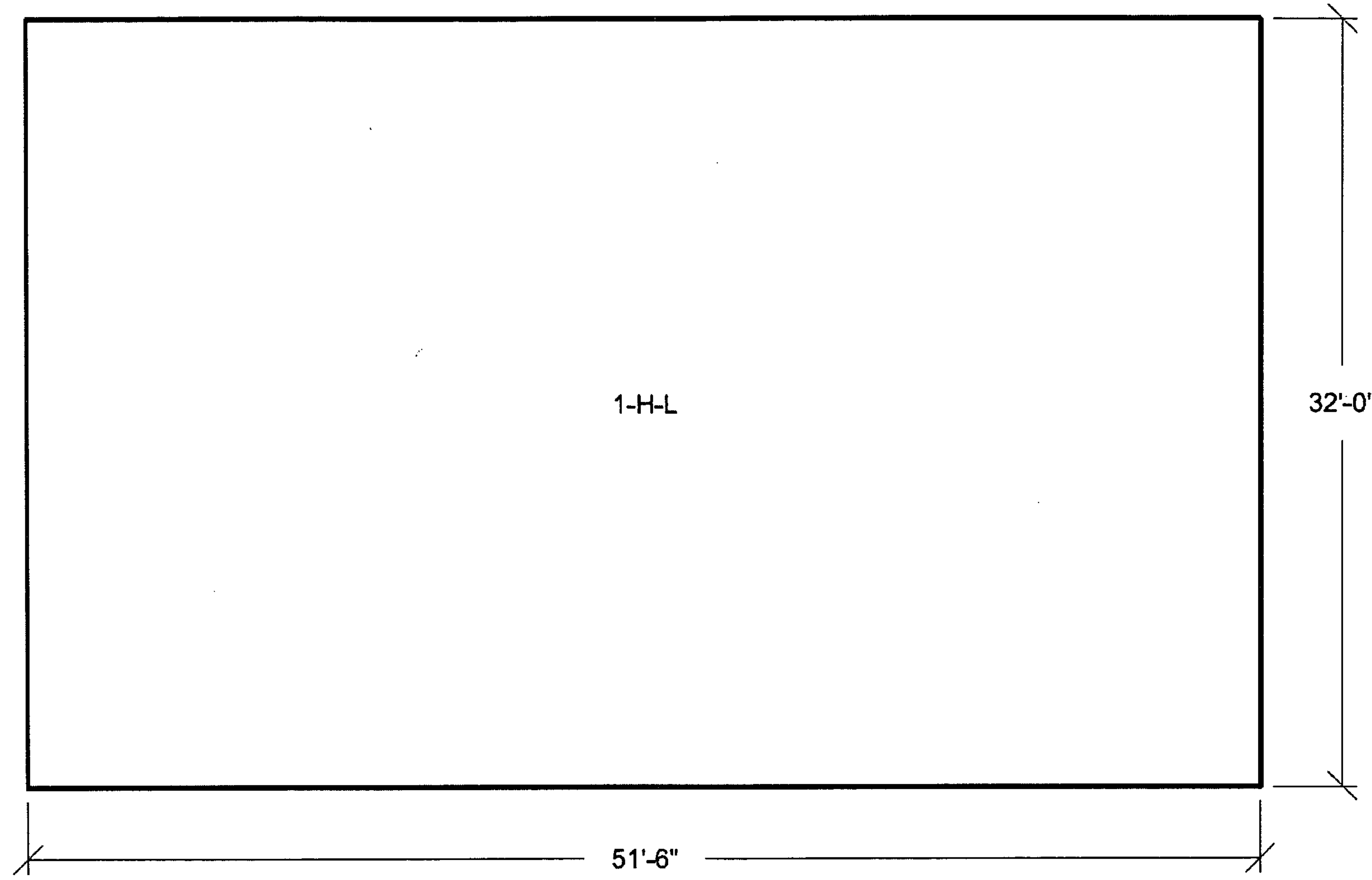


Figure 3H.6-147: Roof 2 Looking Down
Horizontal Reinforcement Zones
Near Side Face

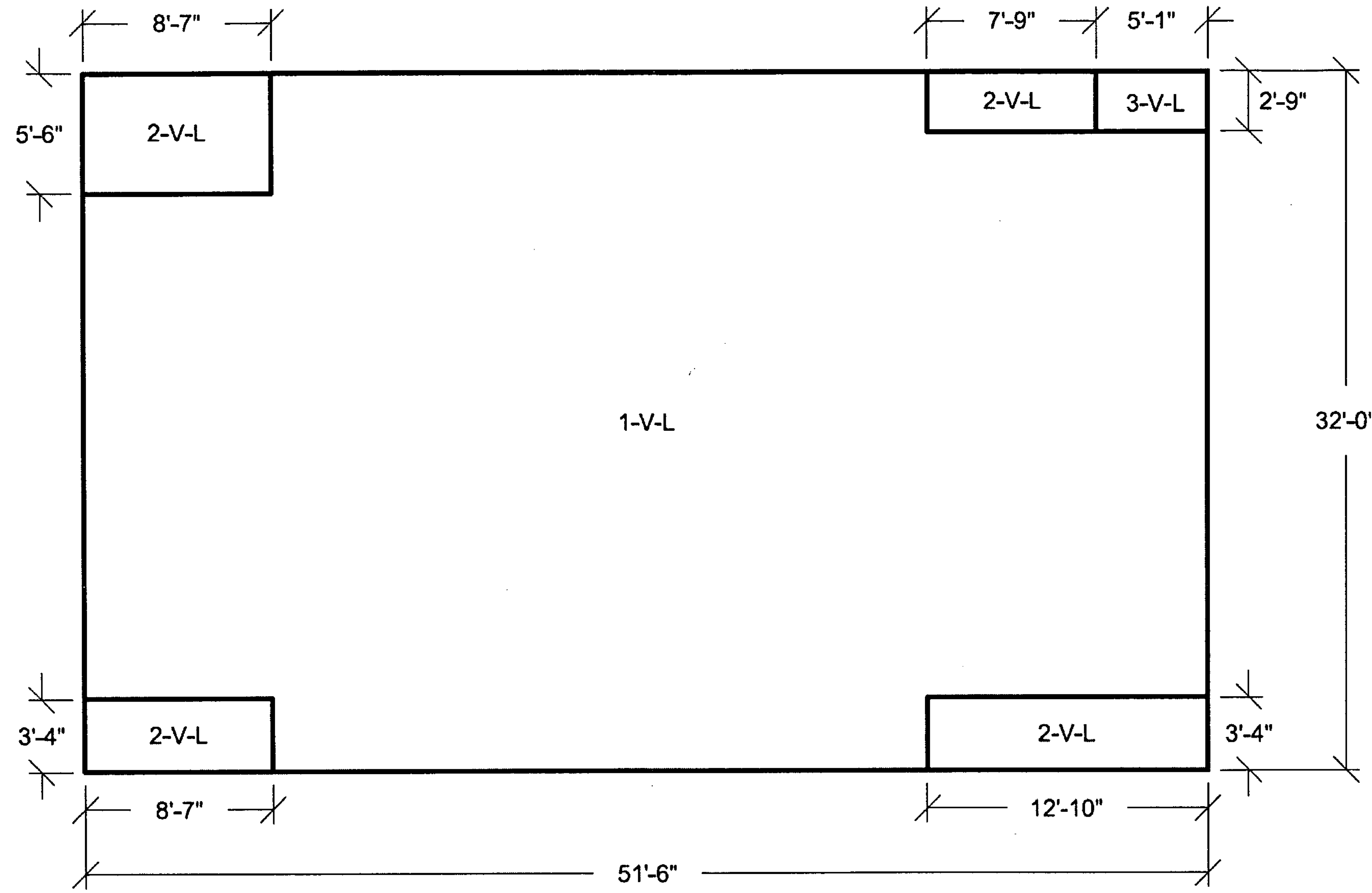


Figure 3H.6-148: Roof 2 Looking Down
Vertical Reinforcement Zones
Near Side Face

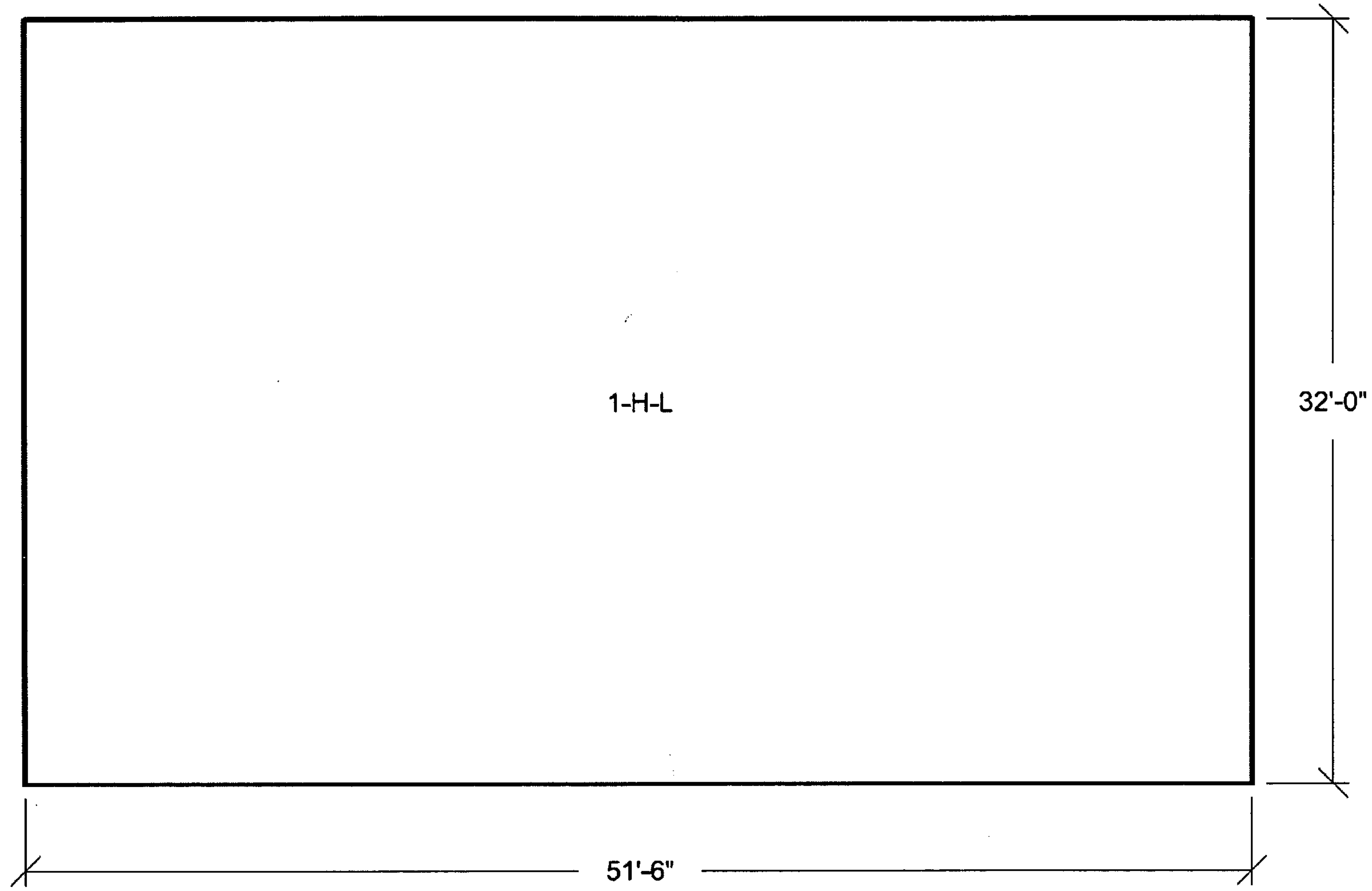


Figure 3H.6-149: Roof 2 Looking Down
Horizontal Reinforcement Zones
Far Side Face

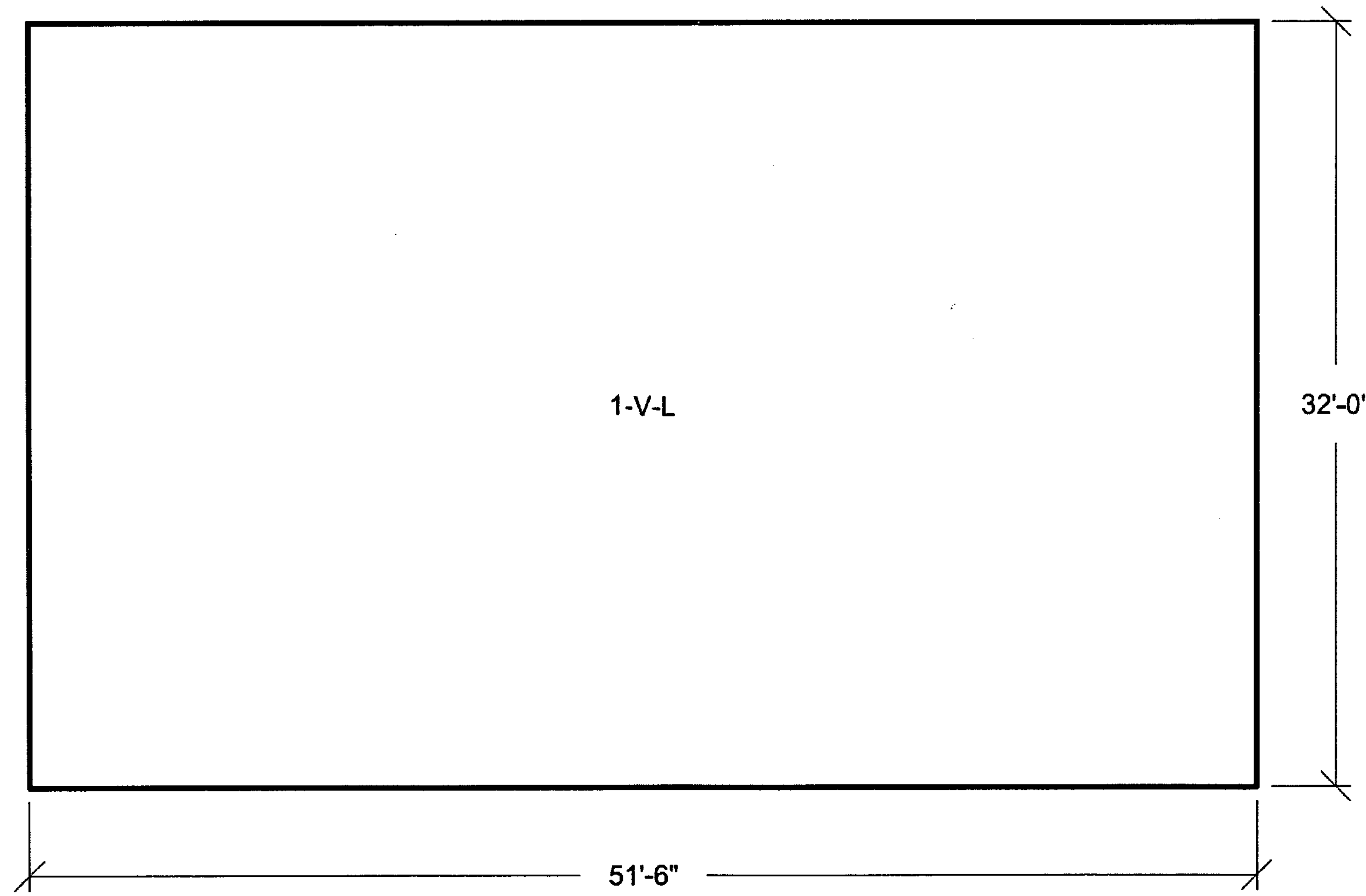


Figure 3H.6-150: Roof 2 Looking Down
Vertical Reinforcement Zones
Far Side Face

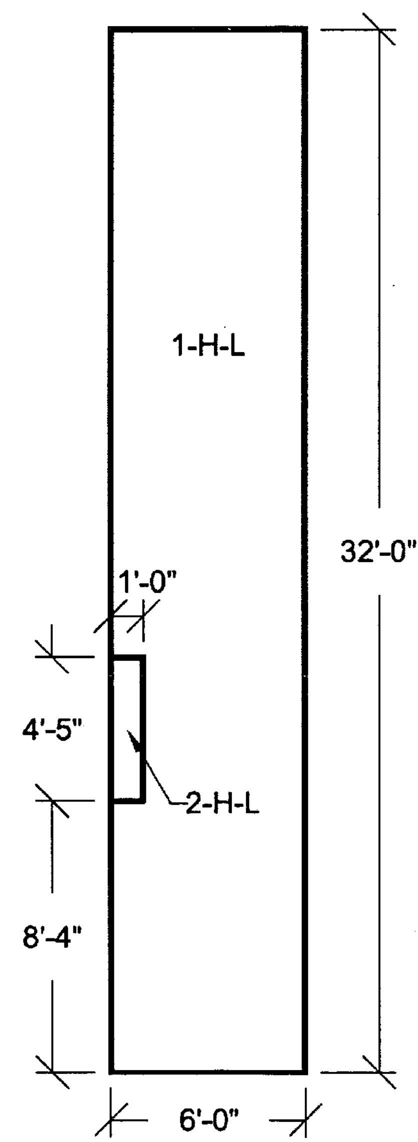


Figure 3H.6-151: Slab 3 Looking Down
Horizontal Reinforcement Zones
Near Side Face

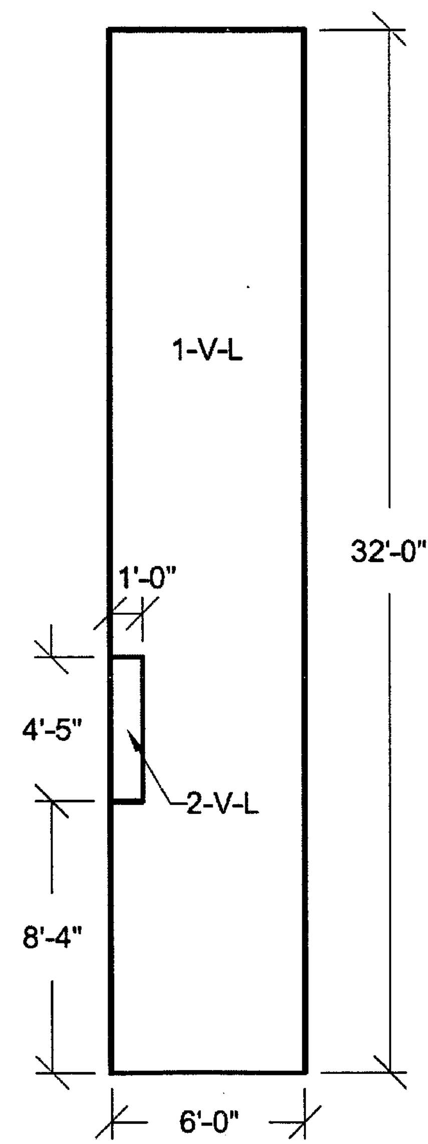


Figure 3H.6-152: Slab 3 Looking Down
Vertical Reinforcement Zones
Near Side Face

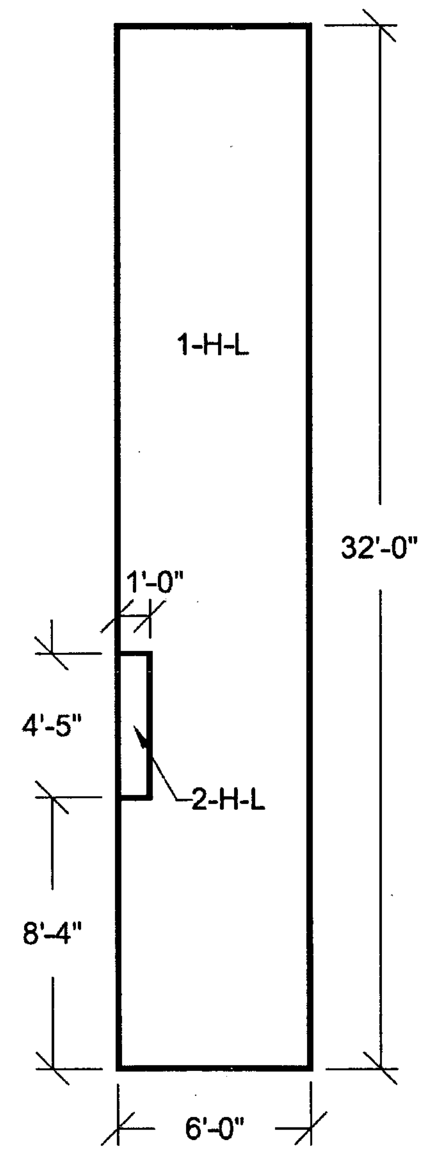


Figure 3H.6-153: Slab 3 Looking Down
Horizontal Reinforcement Zones
Far Side Face

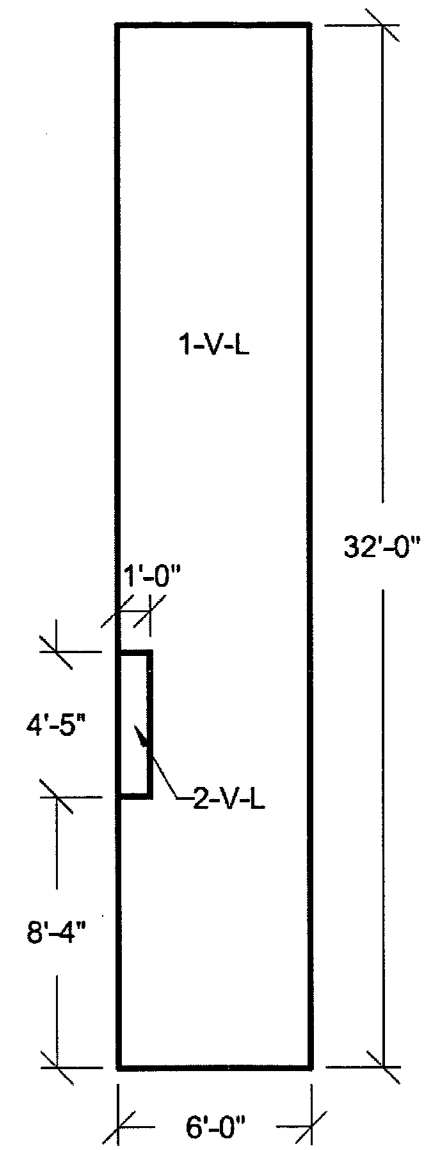


Figure 3H.6-154A: Slab 3 Looking Down
Vertical Reinforcement Zones
Far Side Face

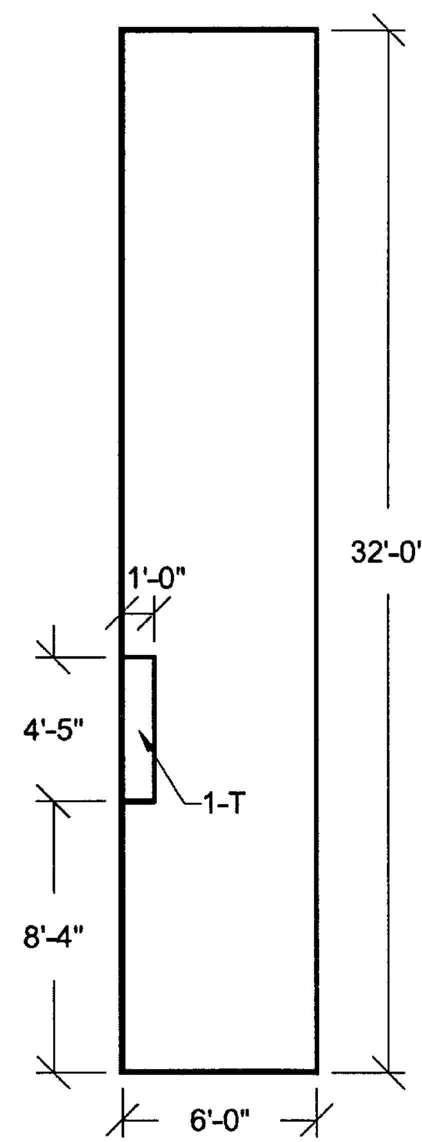


Figure 3H.6-154B: Slab 3 Looking Down
Transverse Reinforcement Zones

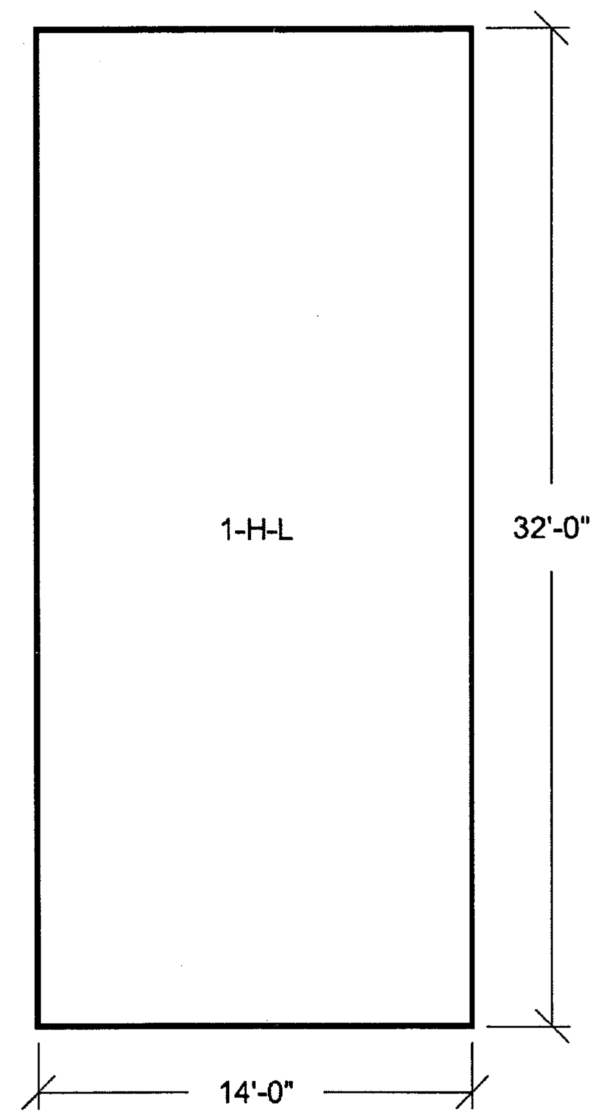


Figure 3H.6-155: Roof 5 Looking Down
Horizontal Reinforcement Zones
Near Side Face

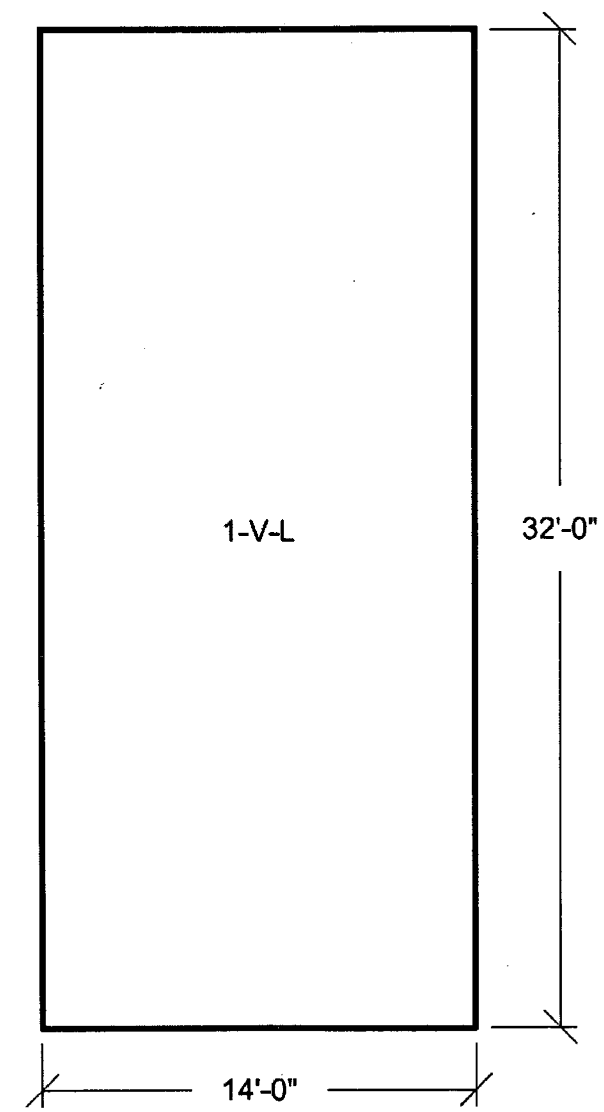


Figure 3H.6-156: Roof 5 Looking Down
Vertical Reinforcement Zones
Near Side Face

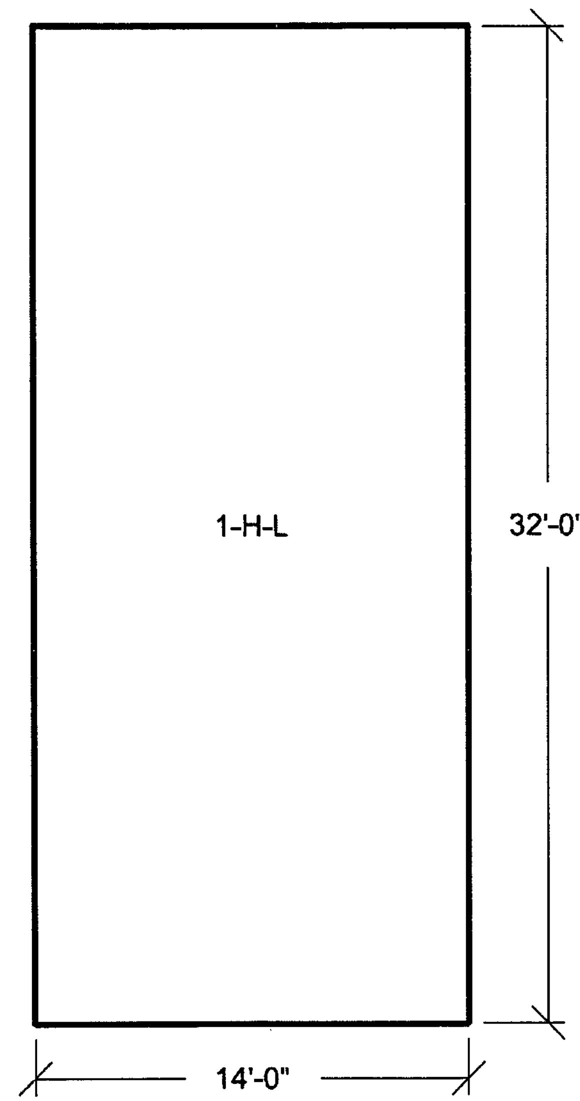


Figure 3H.6-157: Roof 5 Looking Down
Horizontal Reinforcement Zones
Far Side Face

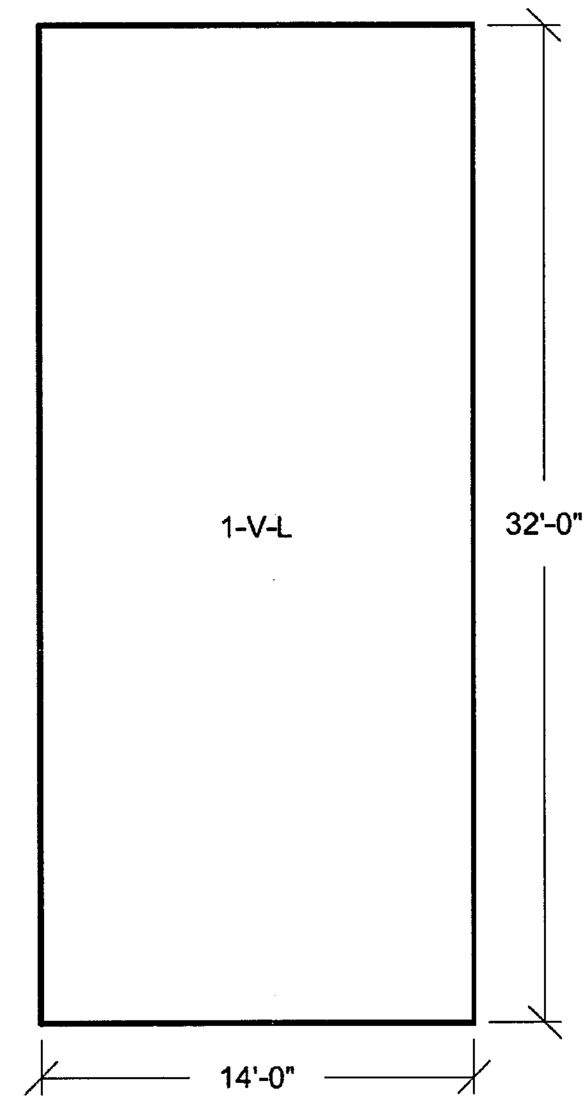


Figure 3H.6-158: Roof 5 Looking Down
Vertical Reinforcement Zones
Far Side Face

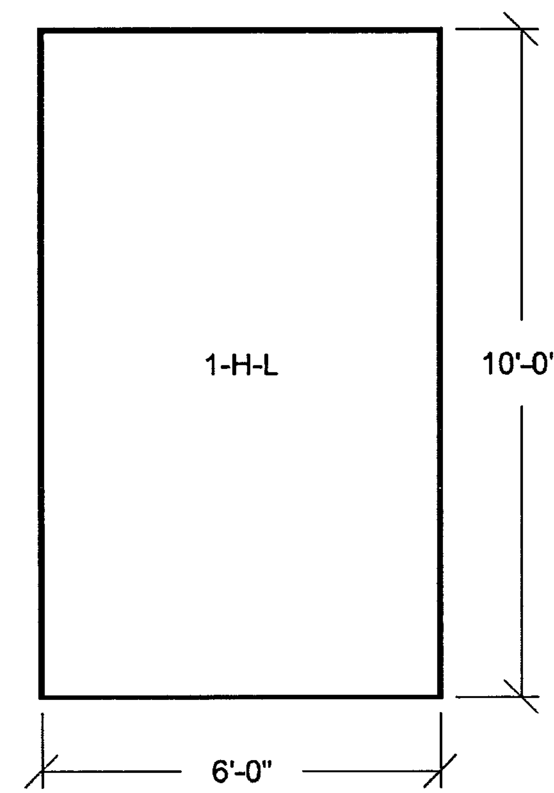


Figure 3H.6-159: Roof 6 Looking Down
Horizontal Reinforcement Zones
Near Side Face

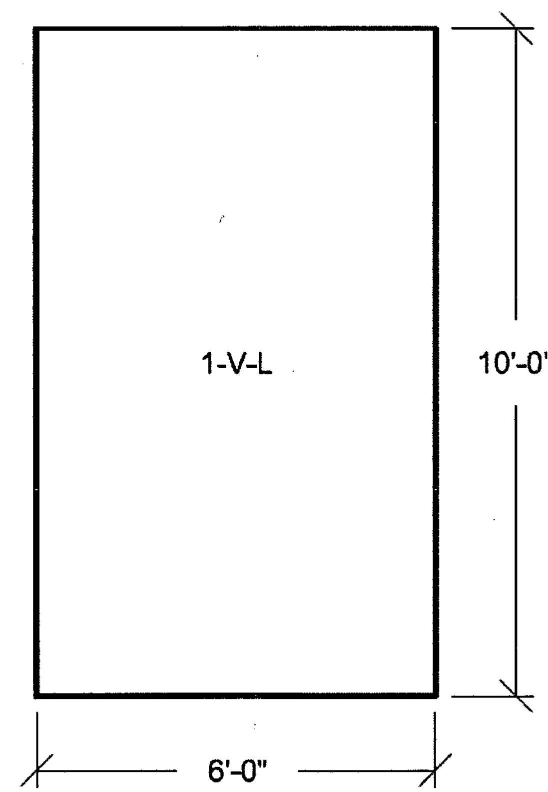


Figure 3H.6-160: Roof 6 Looking Down
Vertical Reinforcement Zones
Near Side Face

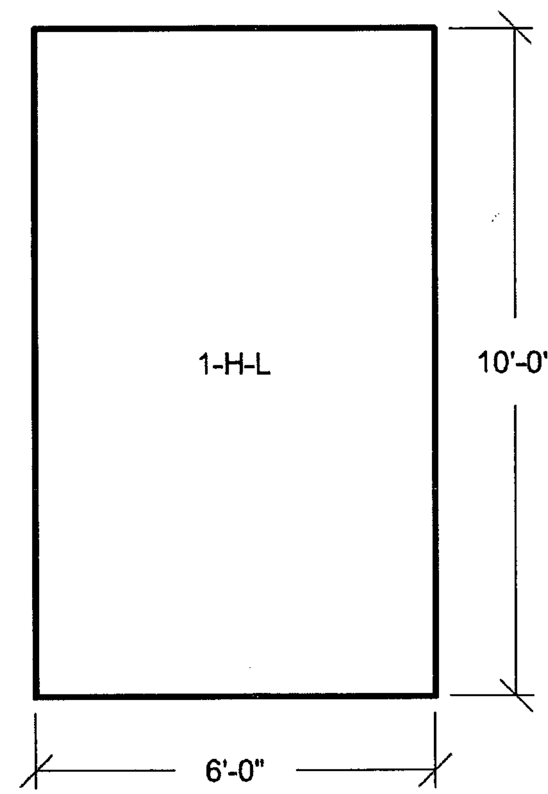


Figure 3H.6-161: Roof 6 Looking Down
Horizontal Reinforcement Zones
Far Side Face

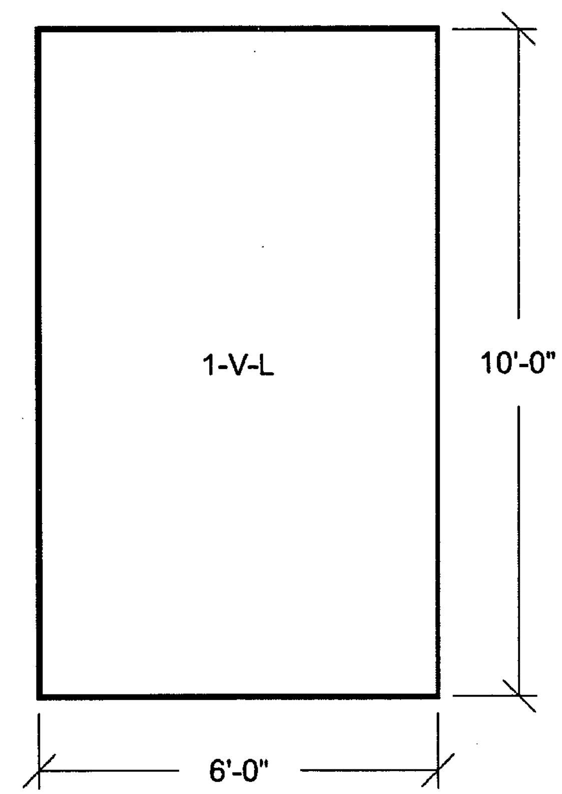


Figure 3H.6-162: Roof 6 Looking Down
Vertical Reinforcement Zones
Far Side Face

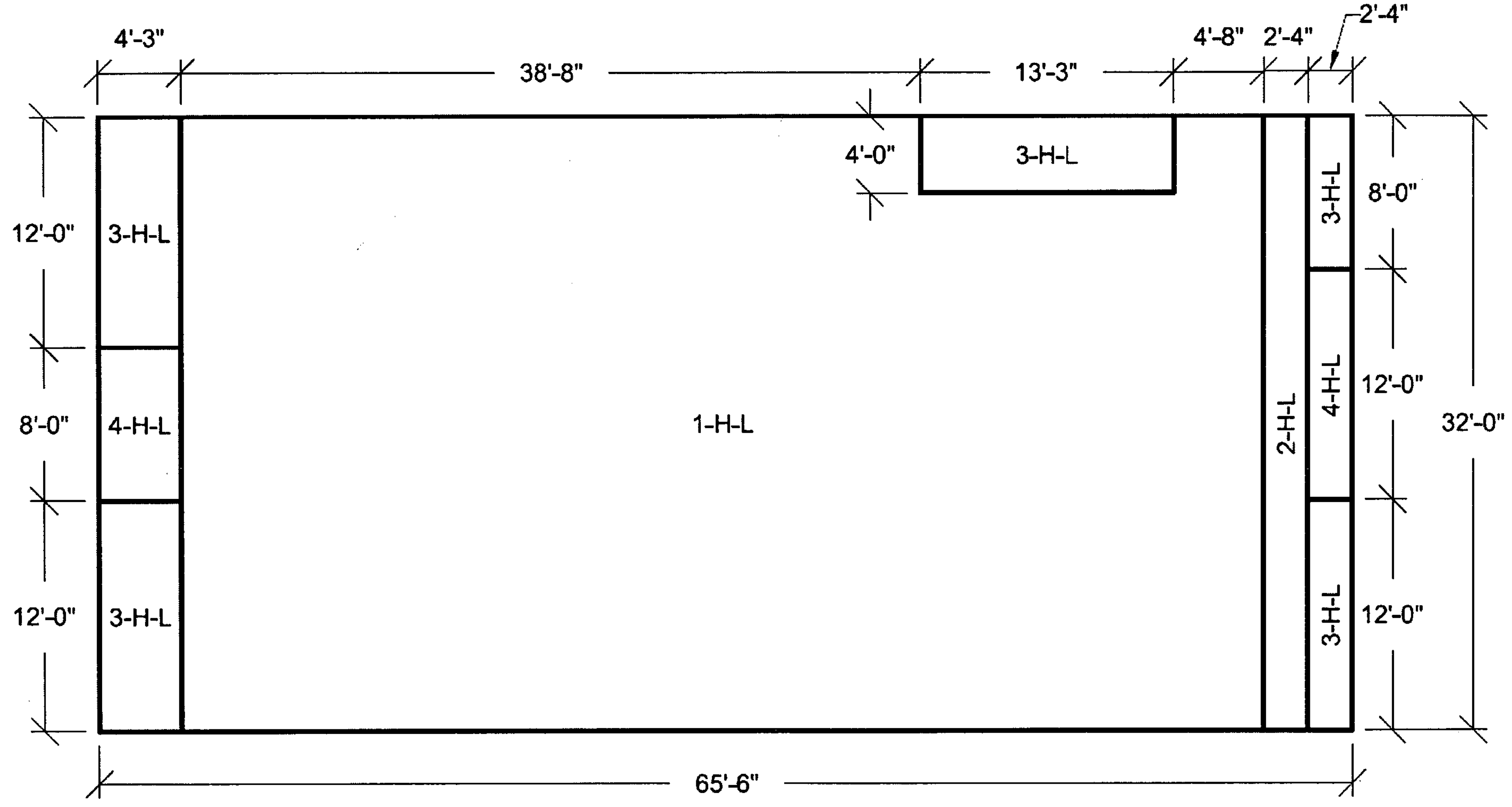


Figure 3H.6-163: Wall 7 Looking From Outside
Horizontal Reinforcement Zones
Near Side Face

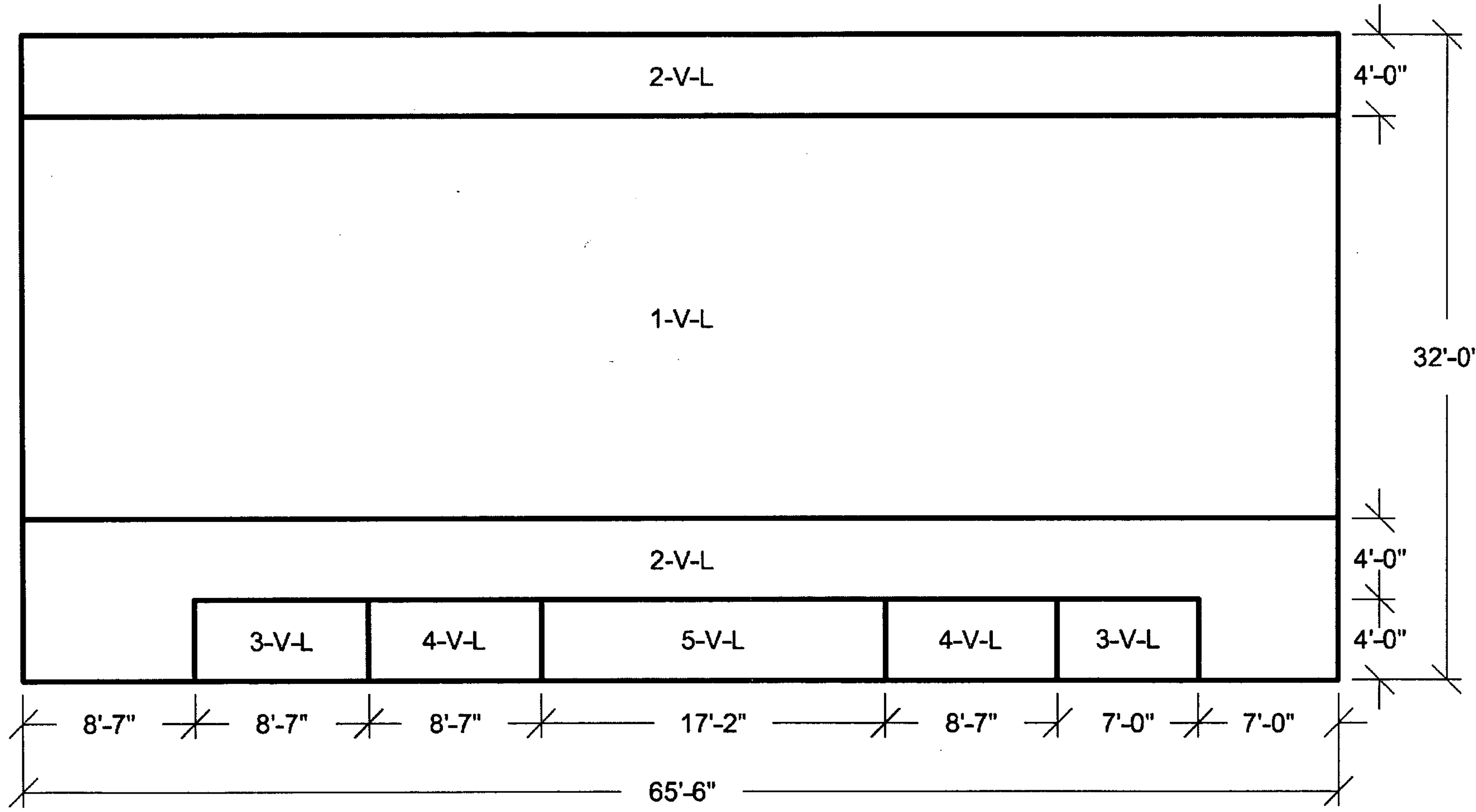


Figure 3H.6-164: Wall 7 Looking From Outside
Vertical Reinforcement Zones
Near Side Face

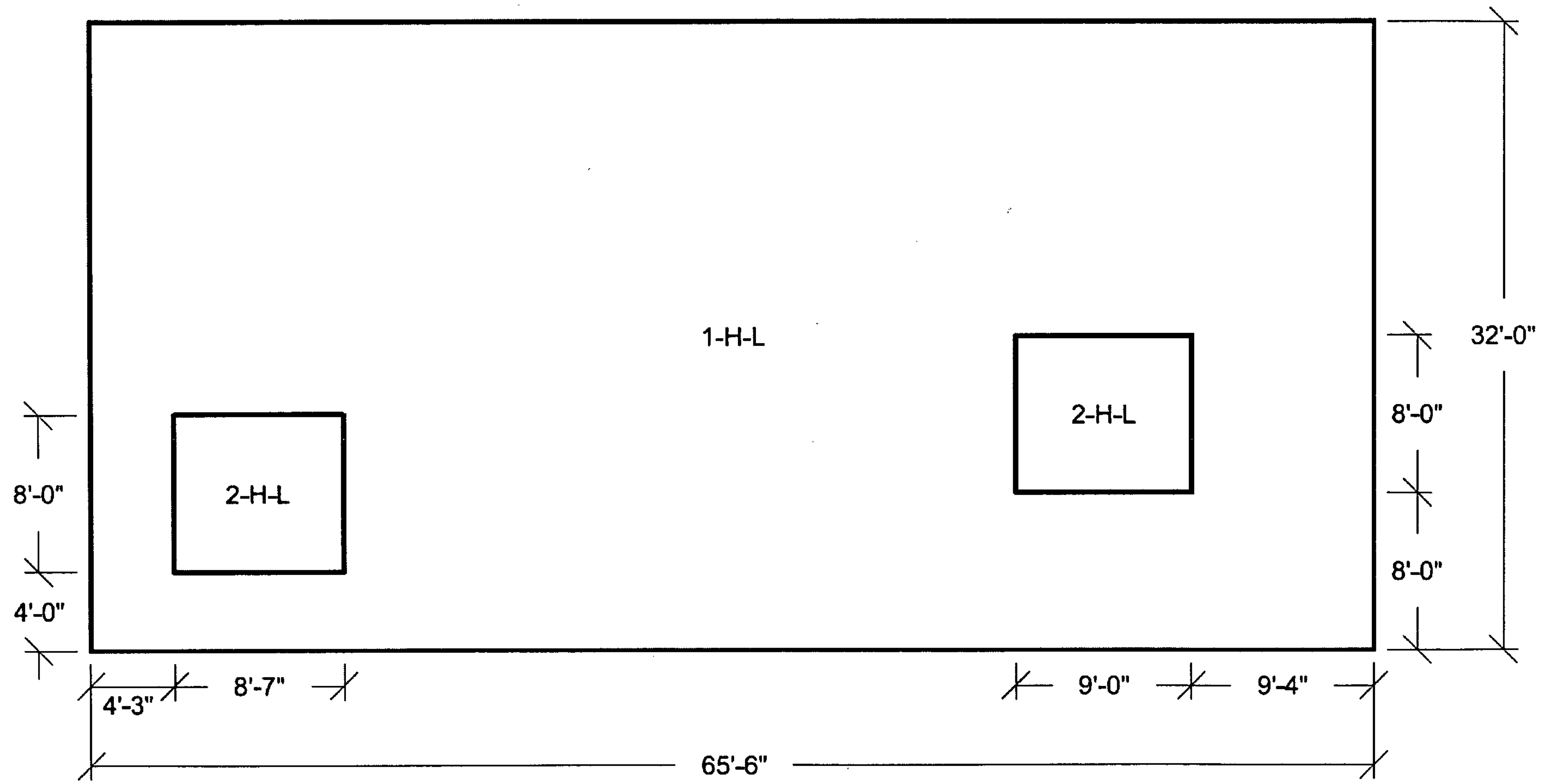


Figure 3H.6-165: Wall 7 Looking From Outside
Horizontal Reinforcement Zones
Far Side Face

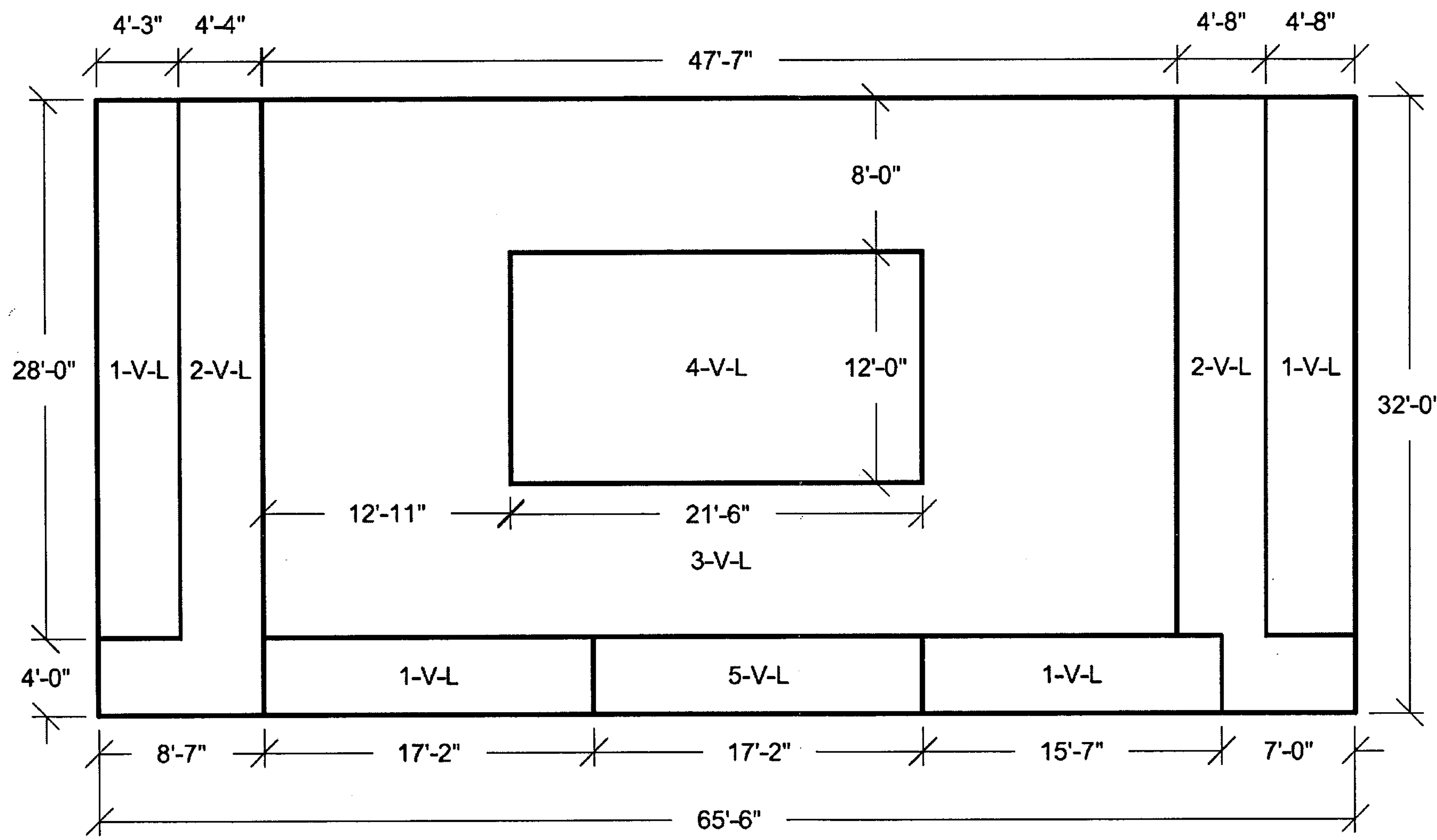


Figure 3H.6-166: Wall 7 Looking From Outside
Vertical Reinforcement Zones
Far Side Face

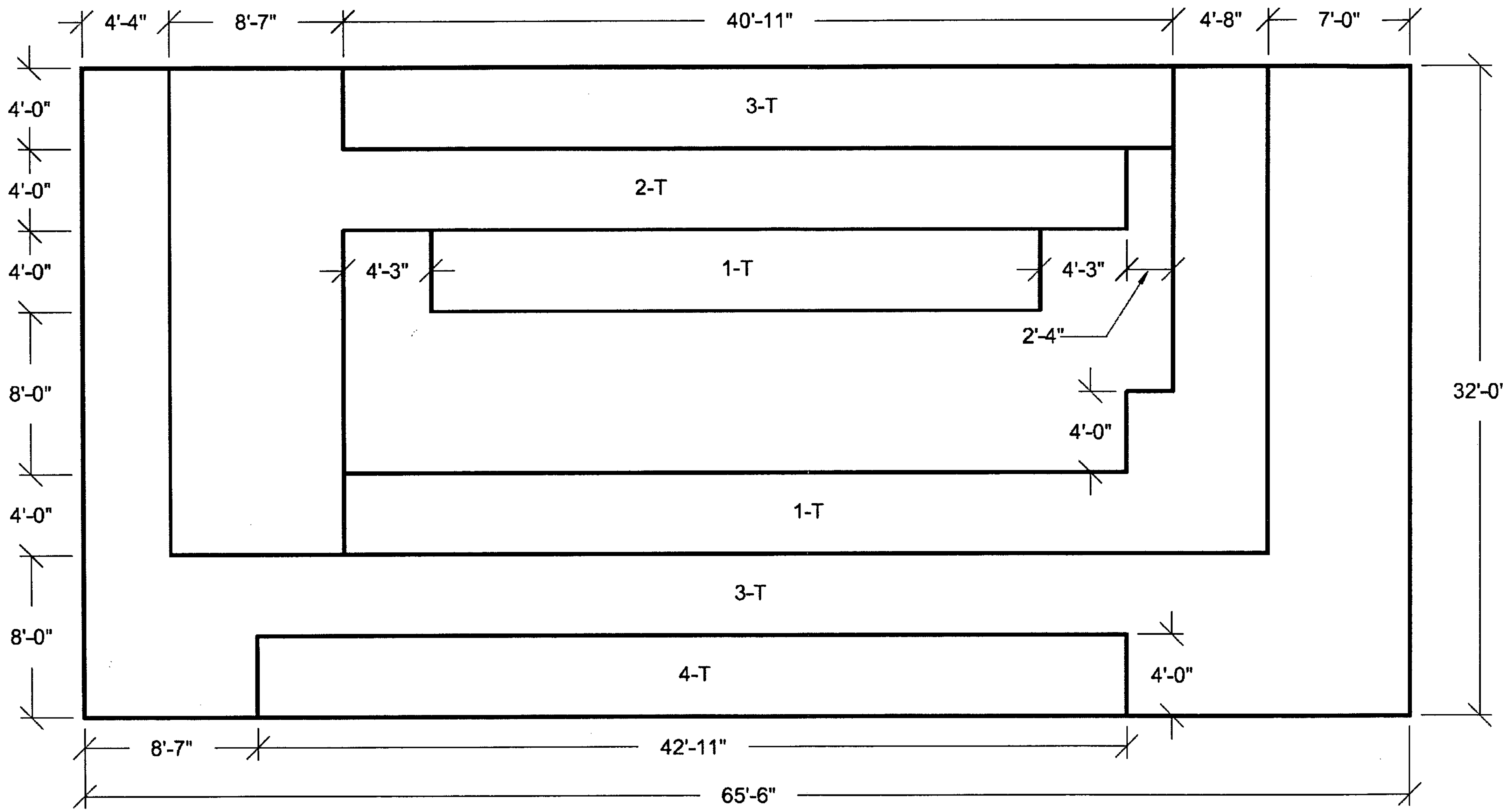


Figure 3H.6-167: Wall 7 Looking From Outside
Transverse Reinforcement Zones

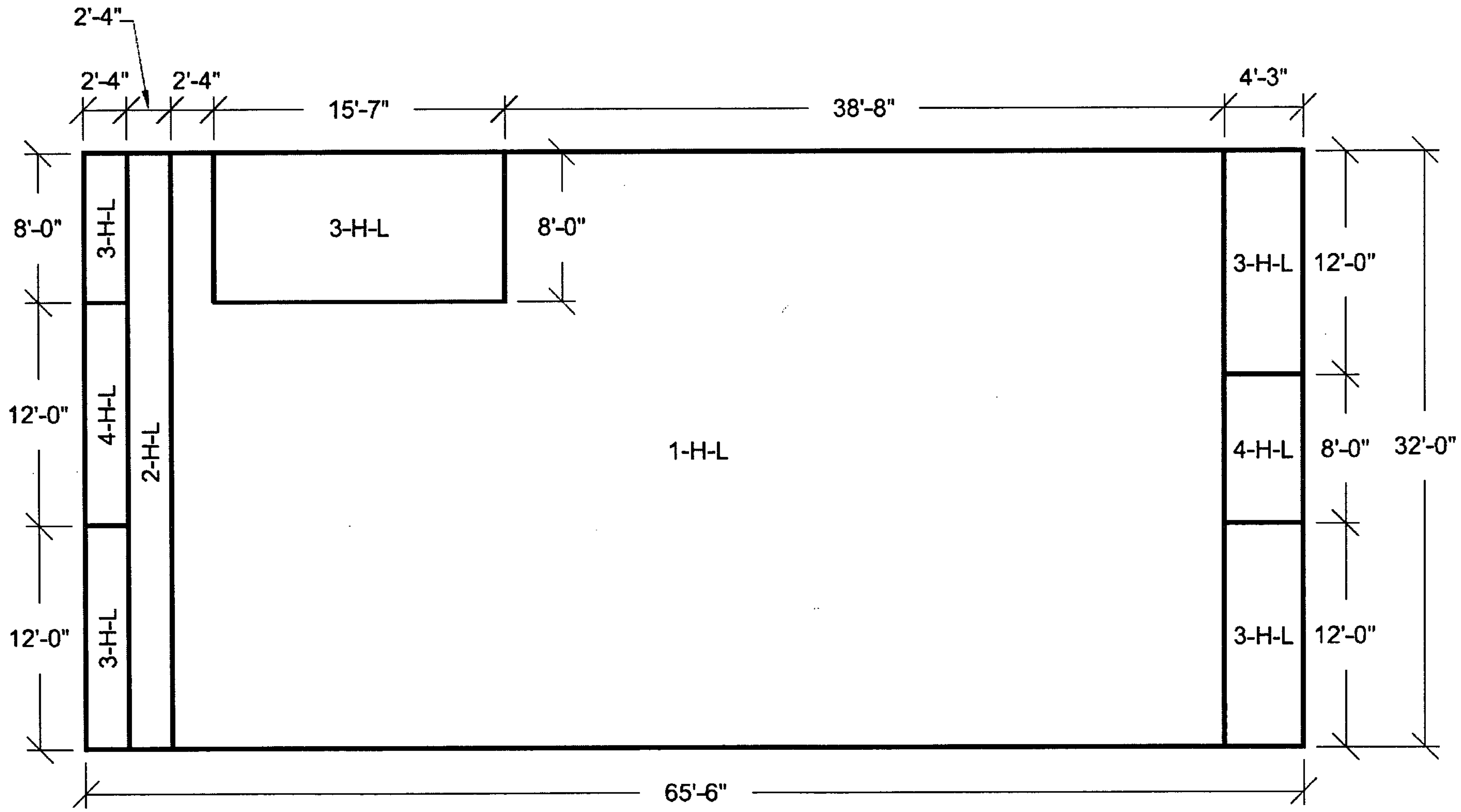


Figure 3H.6-168: Wall 8 Looking From Outside
Horizontal Reinforcement Zones
Near Side Face

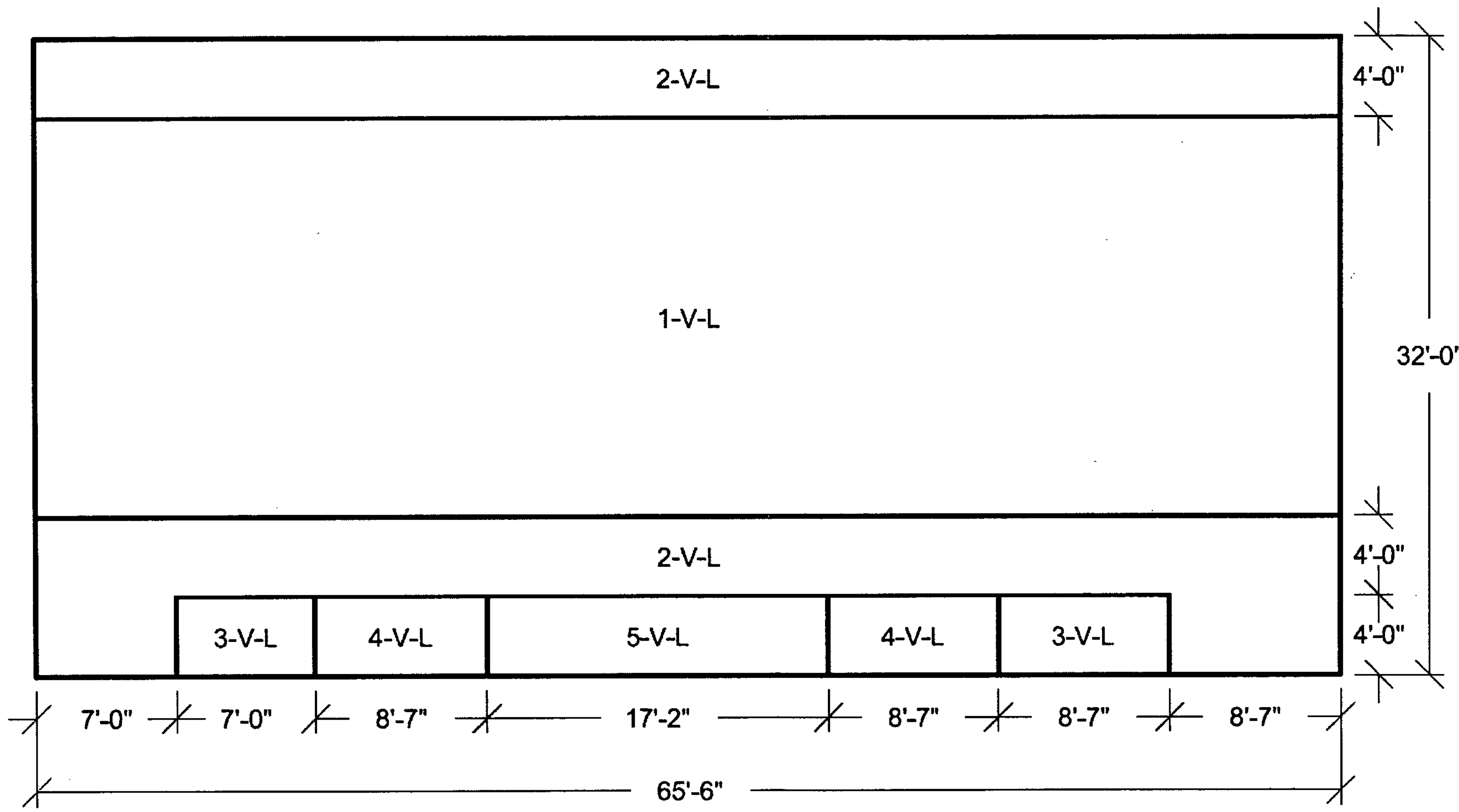


Figure 3H.6-169: Wall 8 Looking From Outside
Vertical Reinforcement Zones
Near Side Face

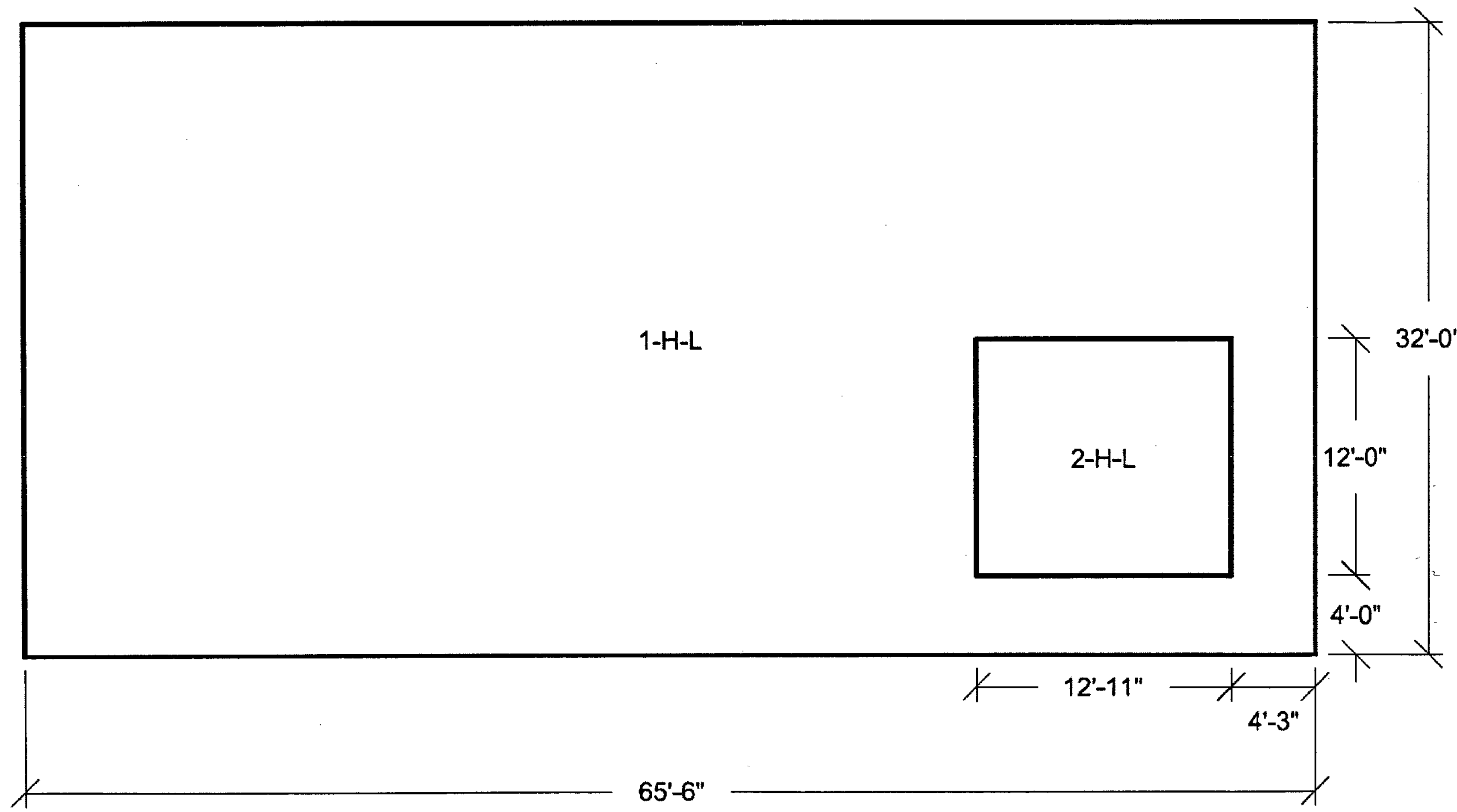


Figure 3H.6-170: Wall 8 Looking From Outside
Horizontal Reinforcement Zones
Far Side Face

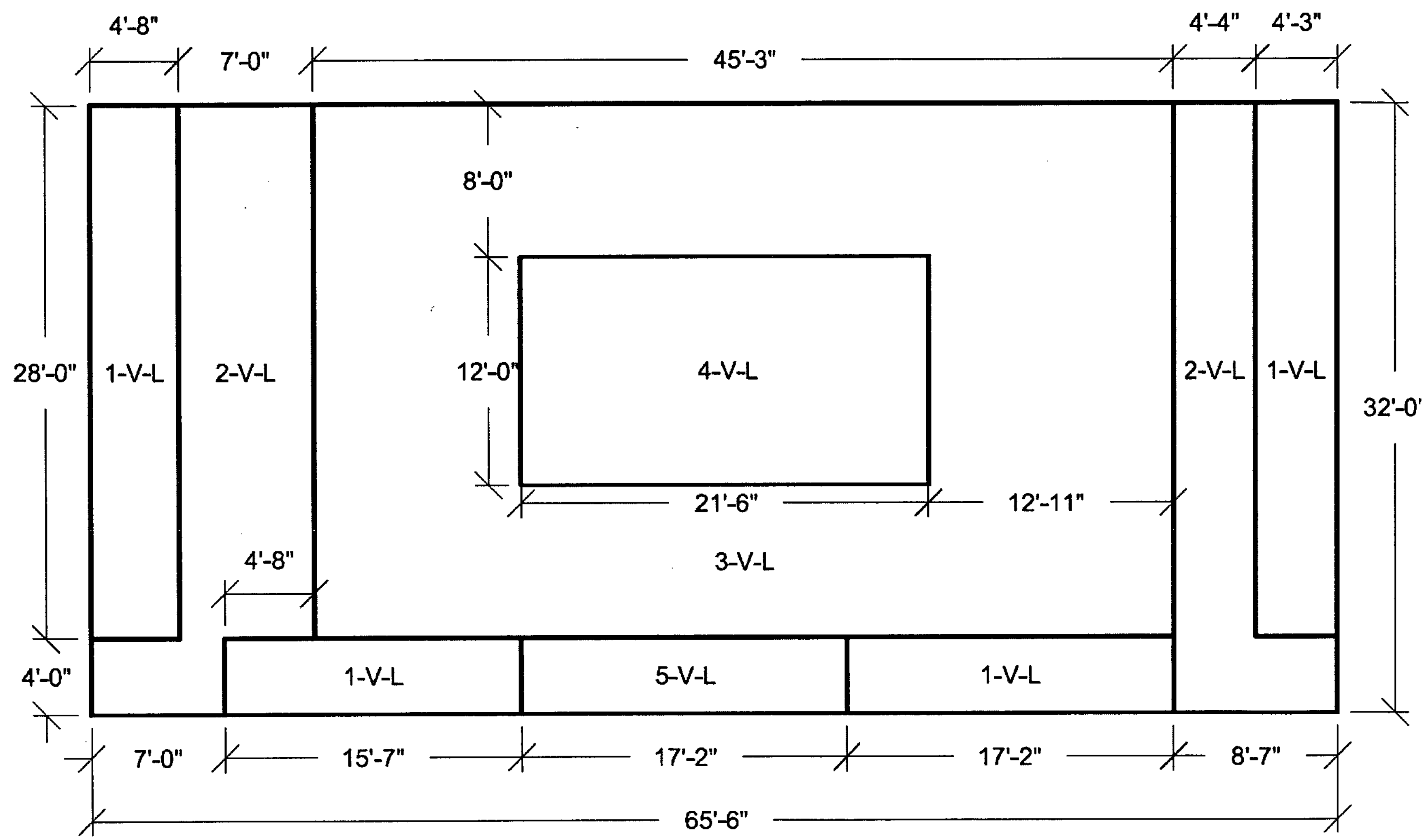


Figure 3H.6-171: Wall 8 Looking From Outside
Vertical Reinforcement Zones
Far Side Face

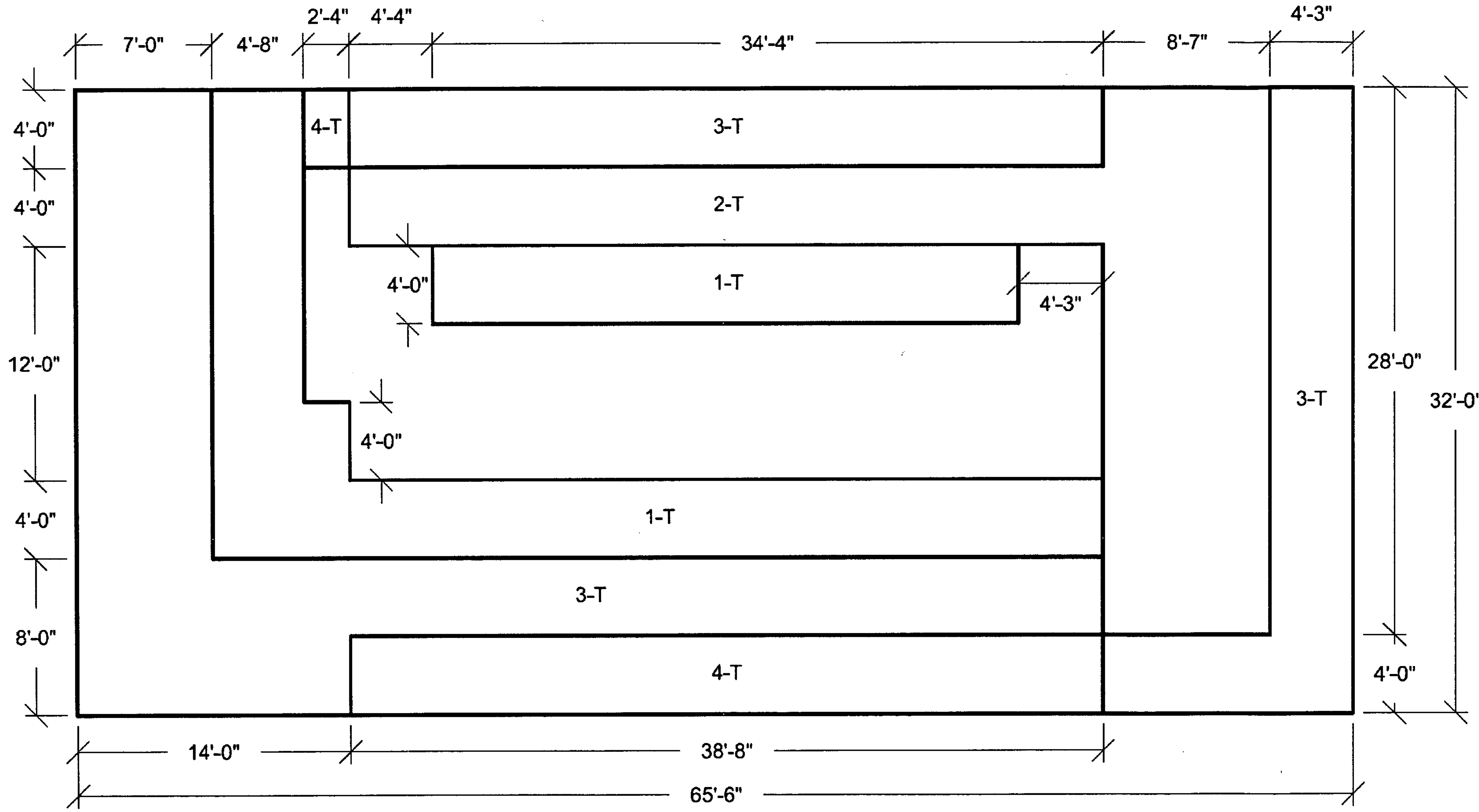


Figure 3H.6-172: Wall 8 Looking From Outside
Transverse Reinforcement Zones

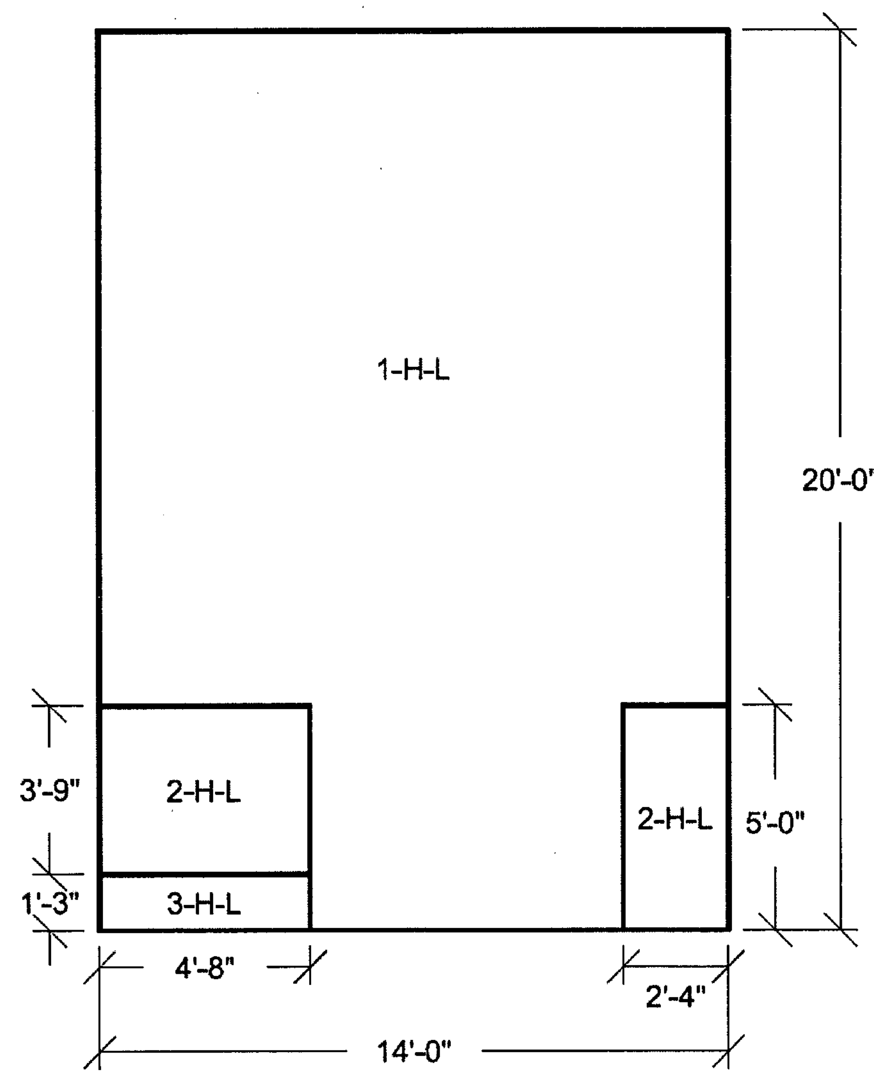


Figure 3H.6-173: Wall 9 Looking From Outside
Horizontal Reinforcement Zones
Near Side Face

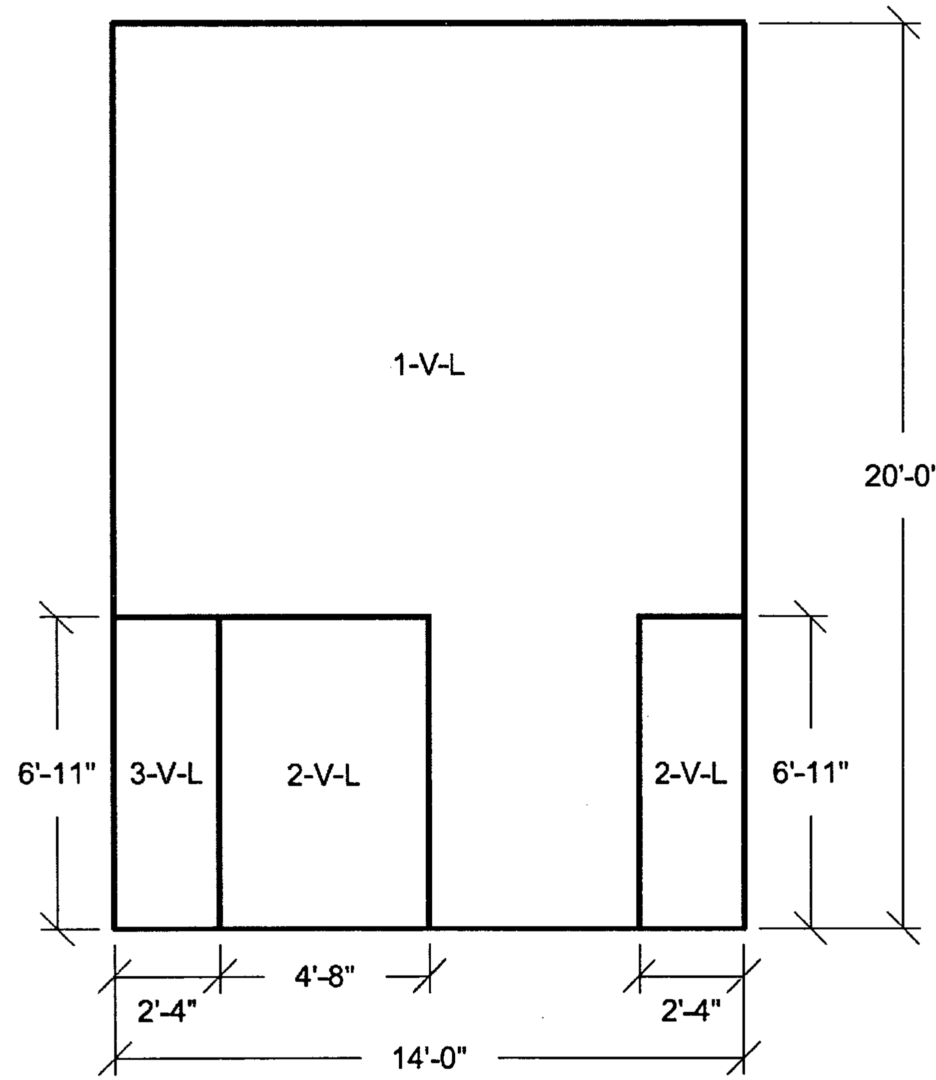


Figure 3H.6-174: Wall 9 Looking From Outside
Vertical Reinforcement Zones
Near Side Face

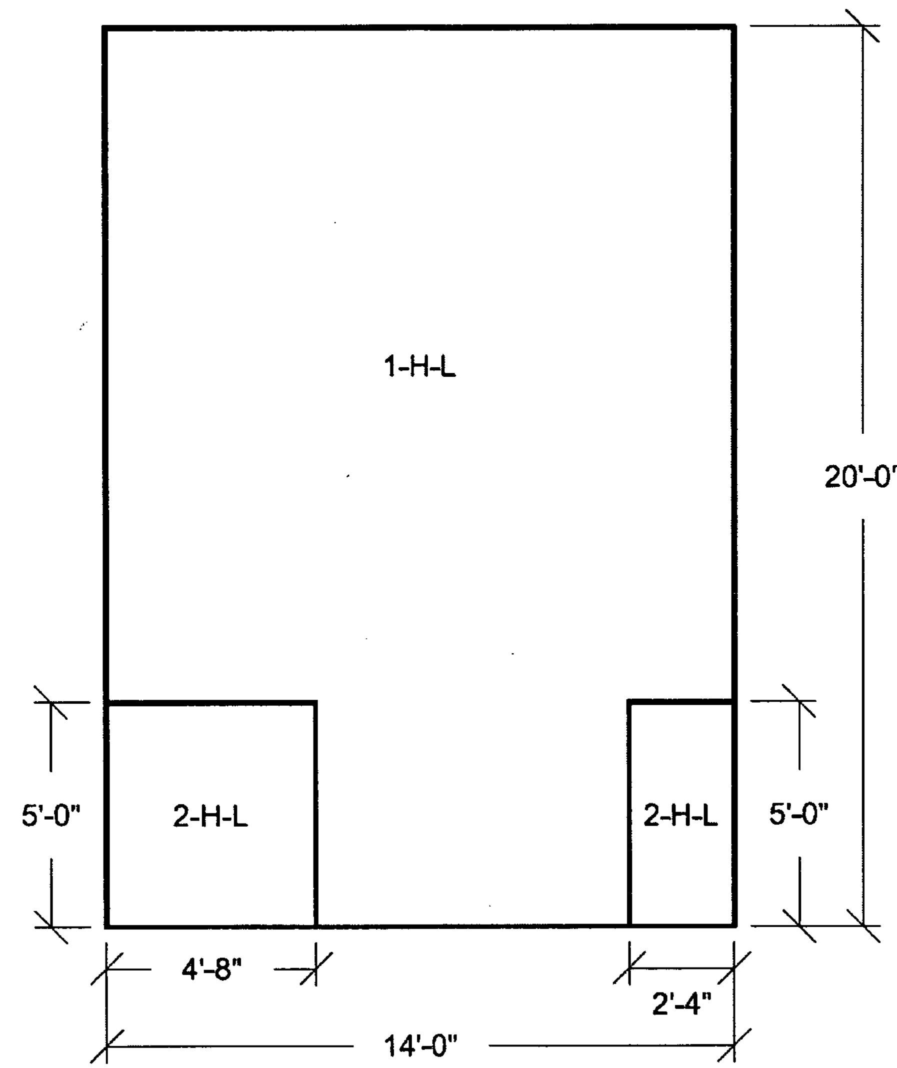


Figure 3H.6-175: Wall 9 Looking From Outside
Horizontal Reinforcement Zones
Far Side Face

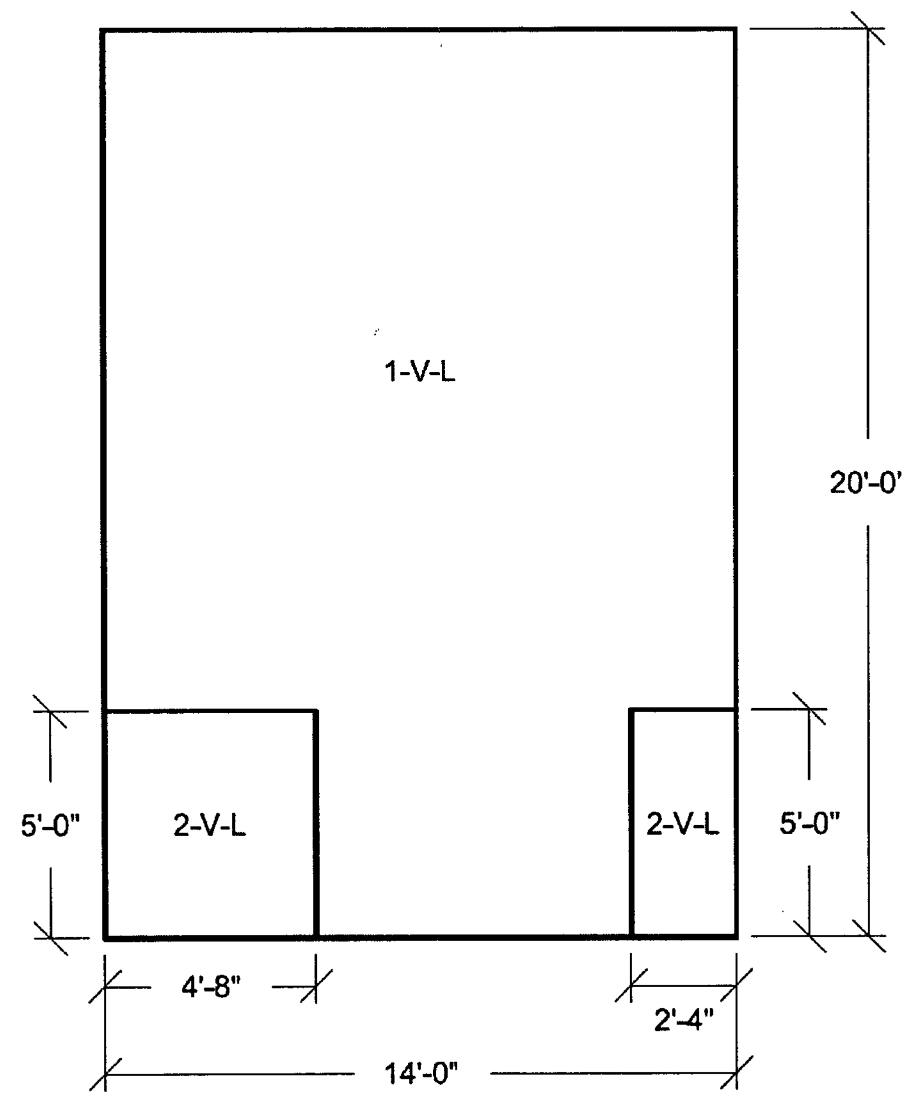


Figure 3H.6-176A: Wall 9 Looking From Outside
Vertical Reinforcement Zones
Far Side Face

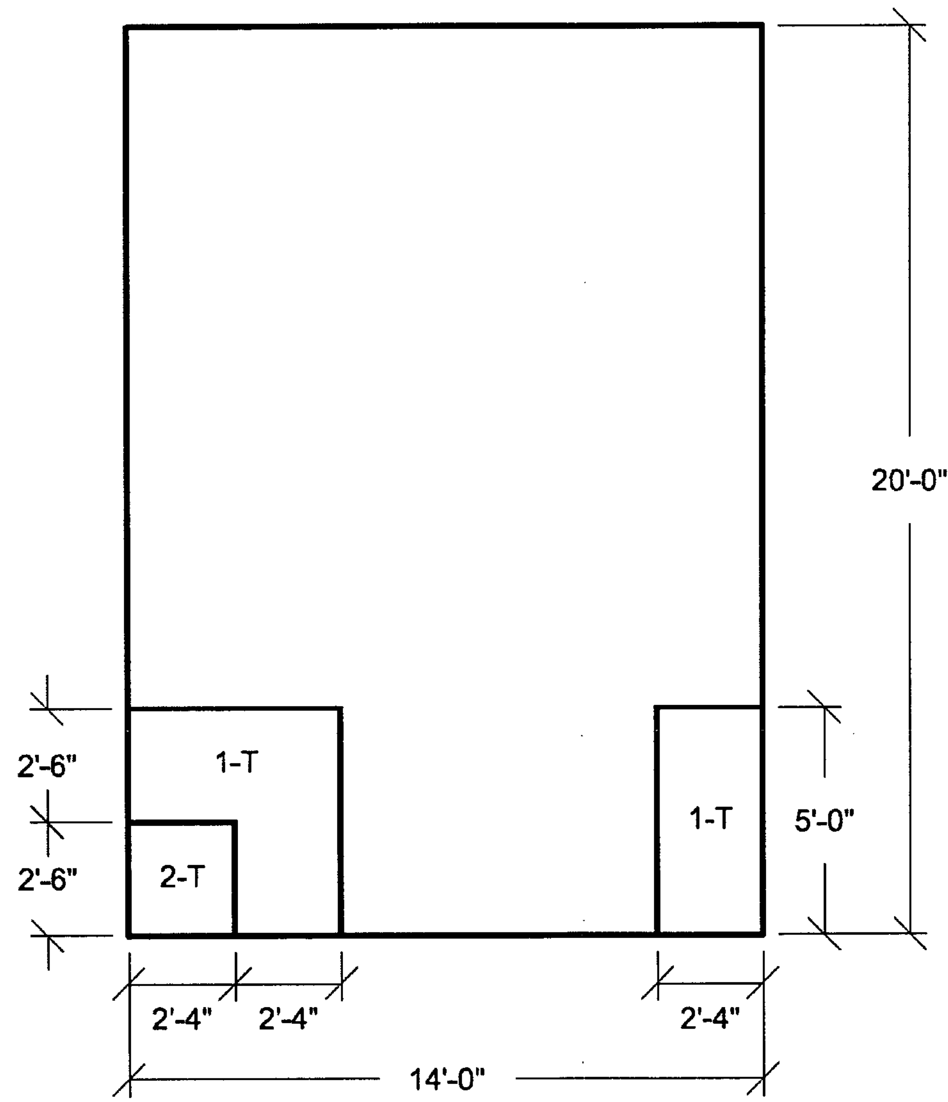


Figure 3H.6-176B: Wall 9 Looking From Outside
Transverse Reinforcement Zones

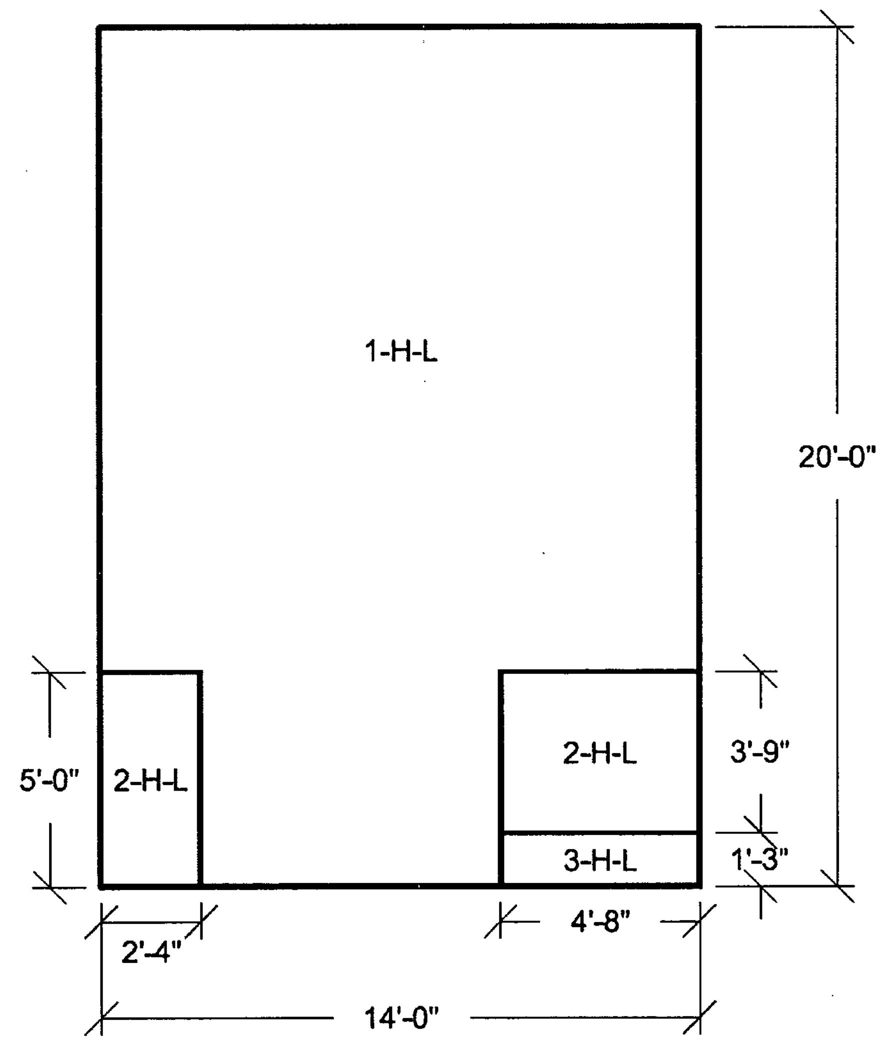


Figure 3H.6-177: Wall 10 Looking From Outside
Horizontal Reinforcement Zones
Near Side Face

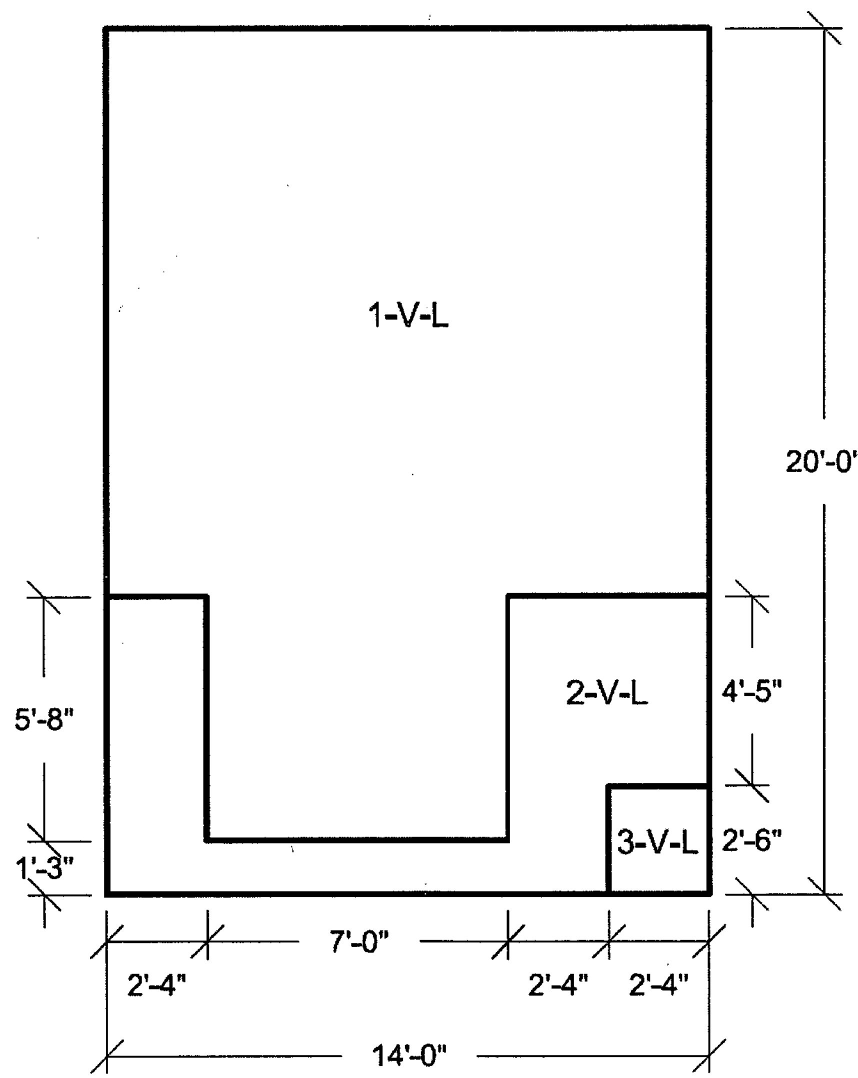


Figure 3H.6-178: Wall 10 Looking From Outside
Vertical Reinforcement Zones
Near Side Face

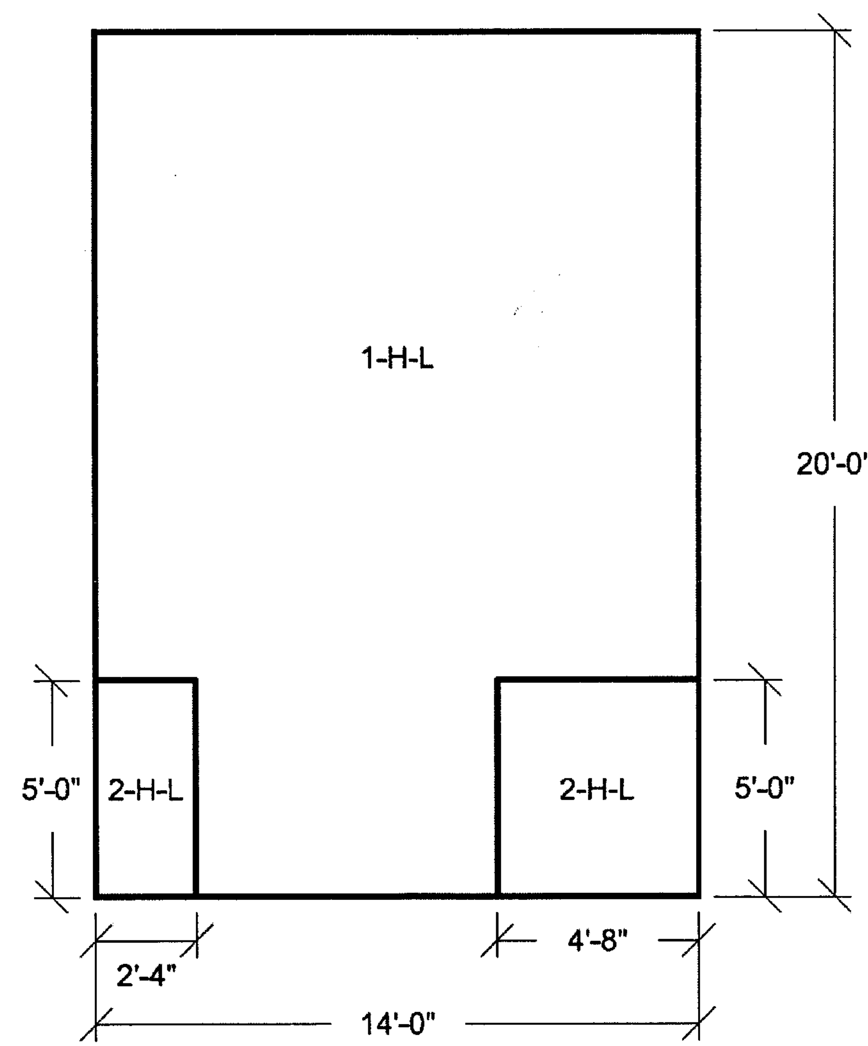


Figure 3H.6-179: Wall 10 Looking From Outside
Horizontal Reinforcement Zones
Far Side Face

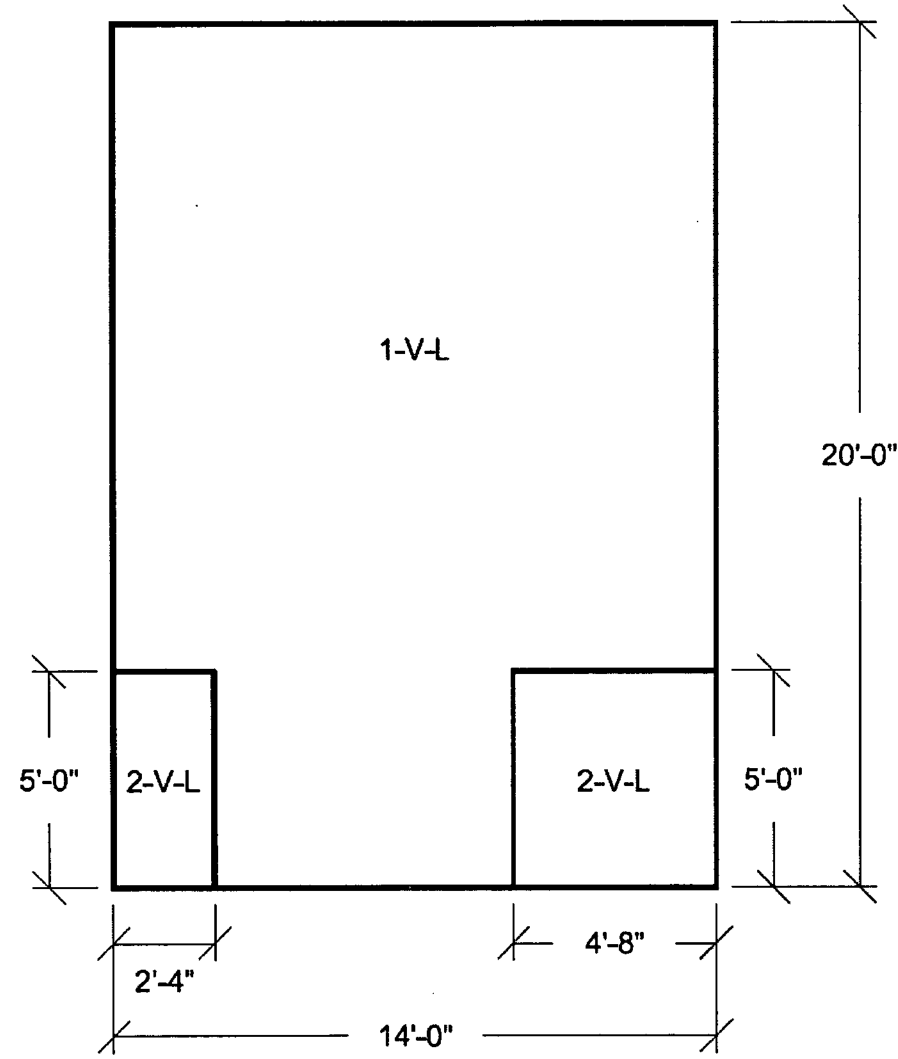


Figure 3H.6-180A: Wall 10 Looking From Outside
Vertical Reinforcement Zones
Far Side Face

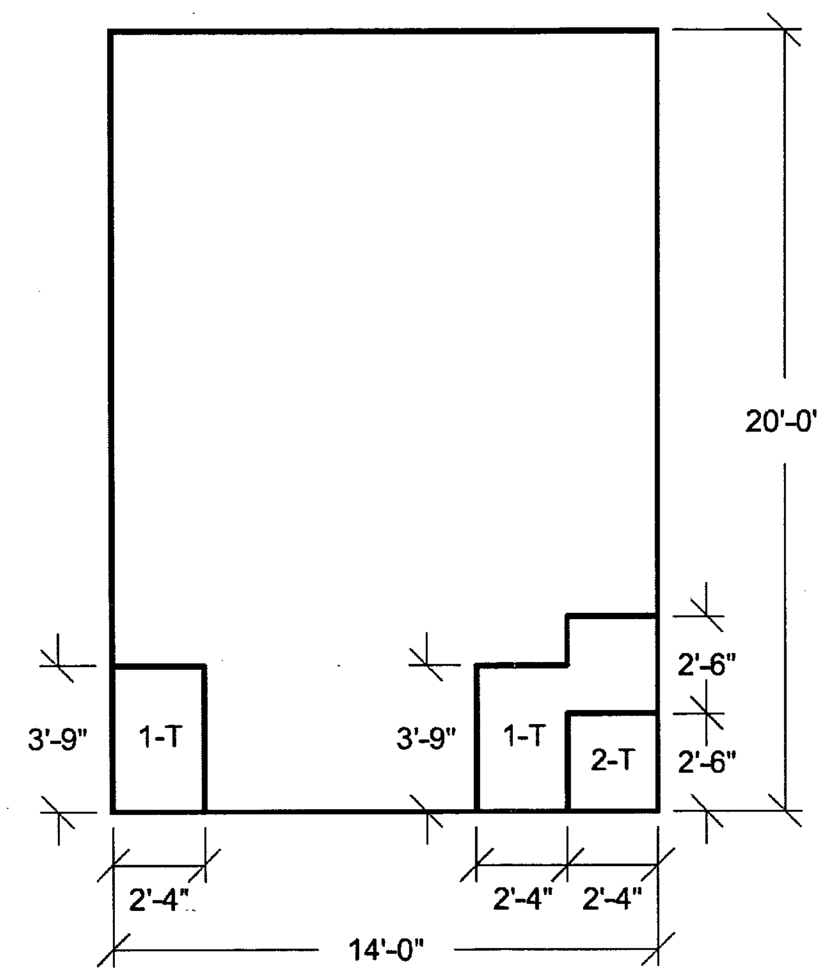


Figure 3H.6-180B: Wall 10 Looking From Outside
Transverse Reinforcement Zones

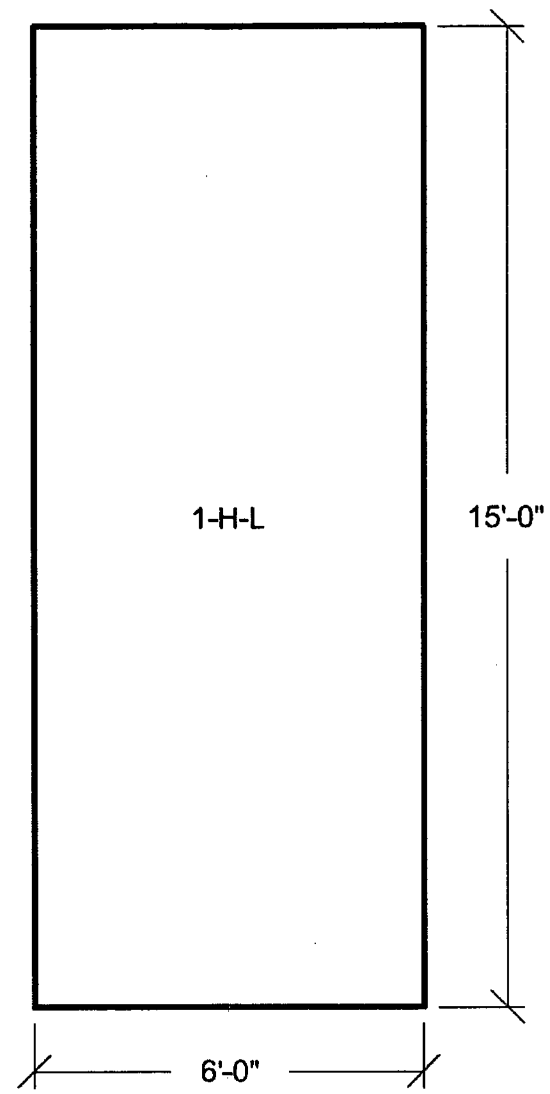


Figure 3H.6-181: Wall 11 Looking From Outside
Horizontal Reinforcement Zones
Near Side Face

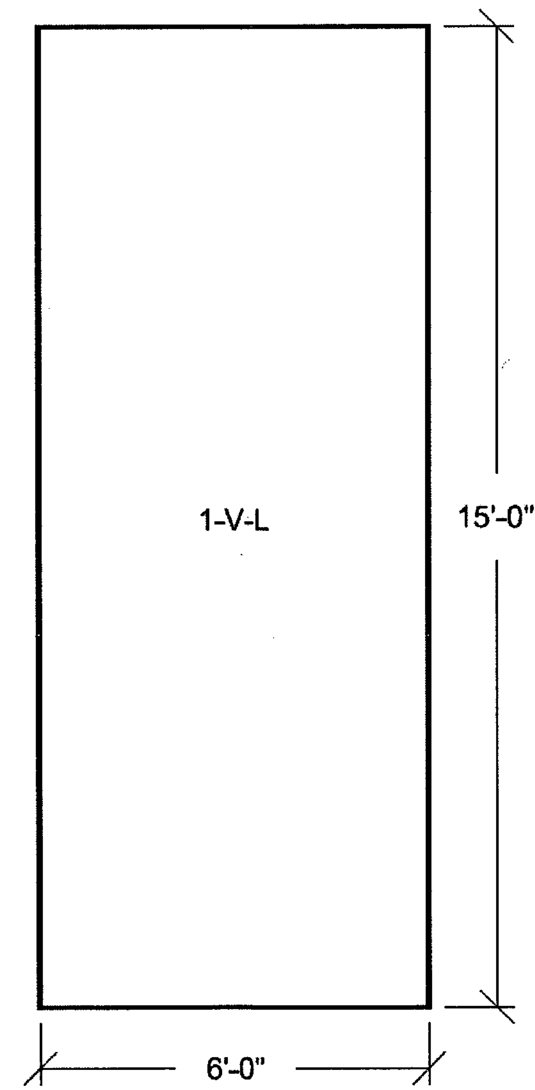


Figure 3H.6-182: Wall 11 Looking From Outside
Vertical Reinforcement Zones
Near Side Face

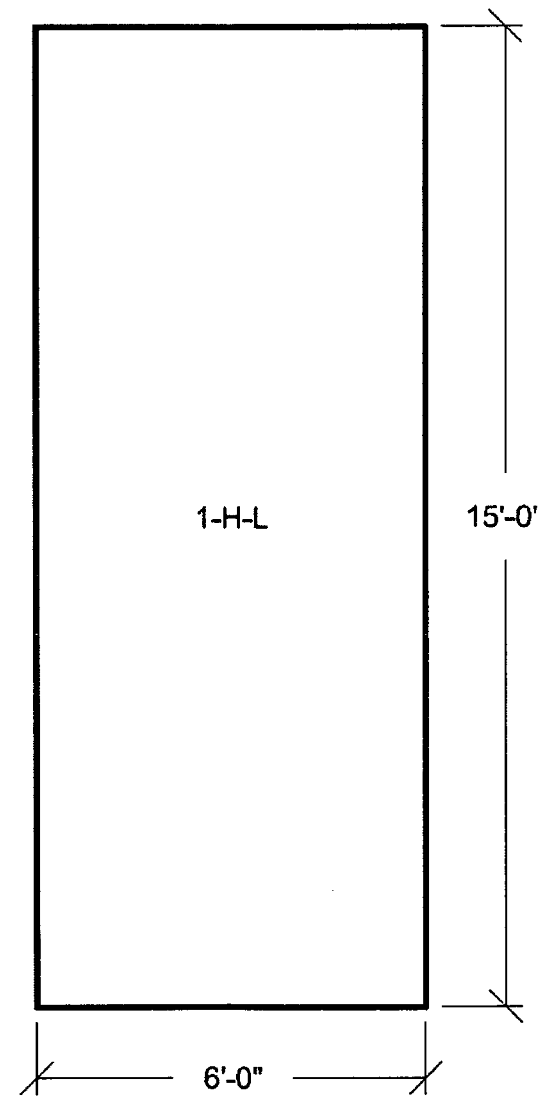


Figure 3H.6-183: Wall 11 Looking From Outside
Horizontal Reinforcement Zones
Far Side Face

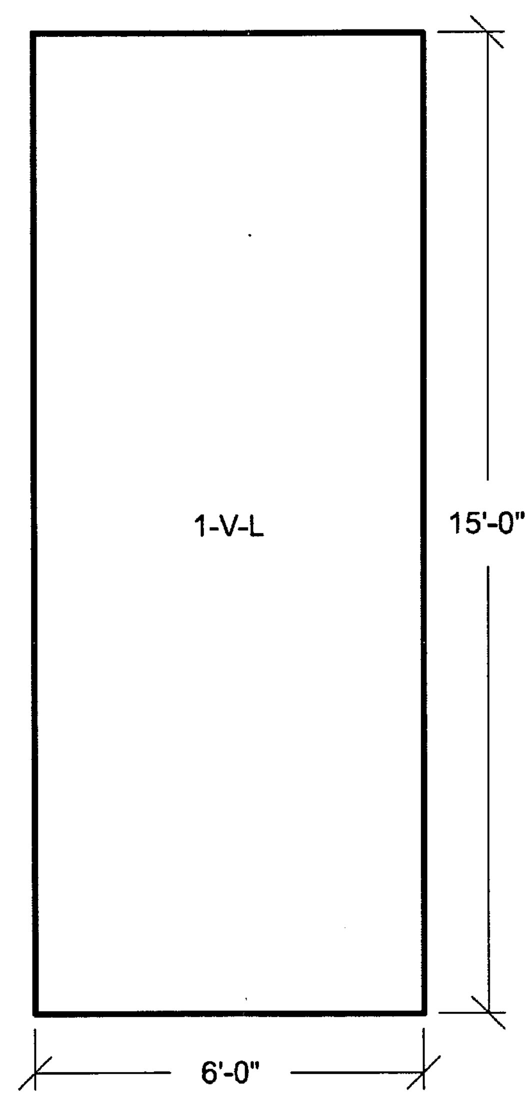


Figure 3H.6-184: Wall 11 Looking From Outside
Vertical Reinforcement Zones
Far Side Face

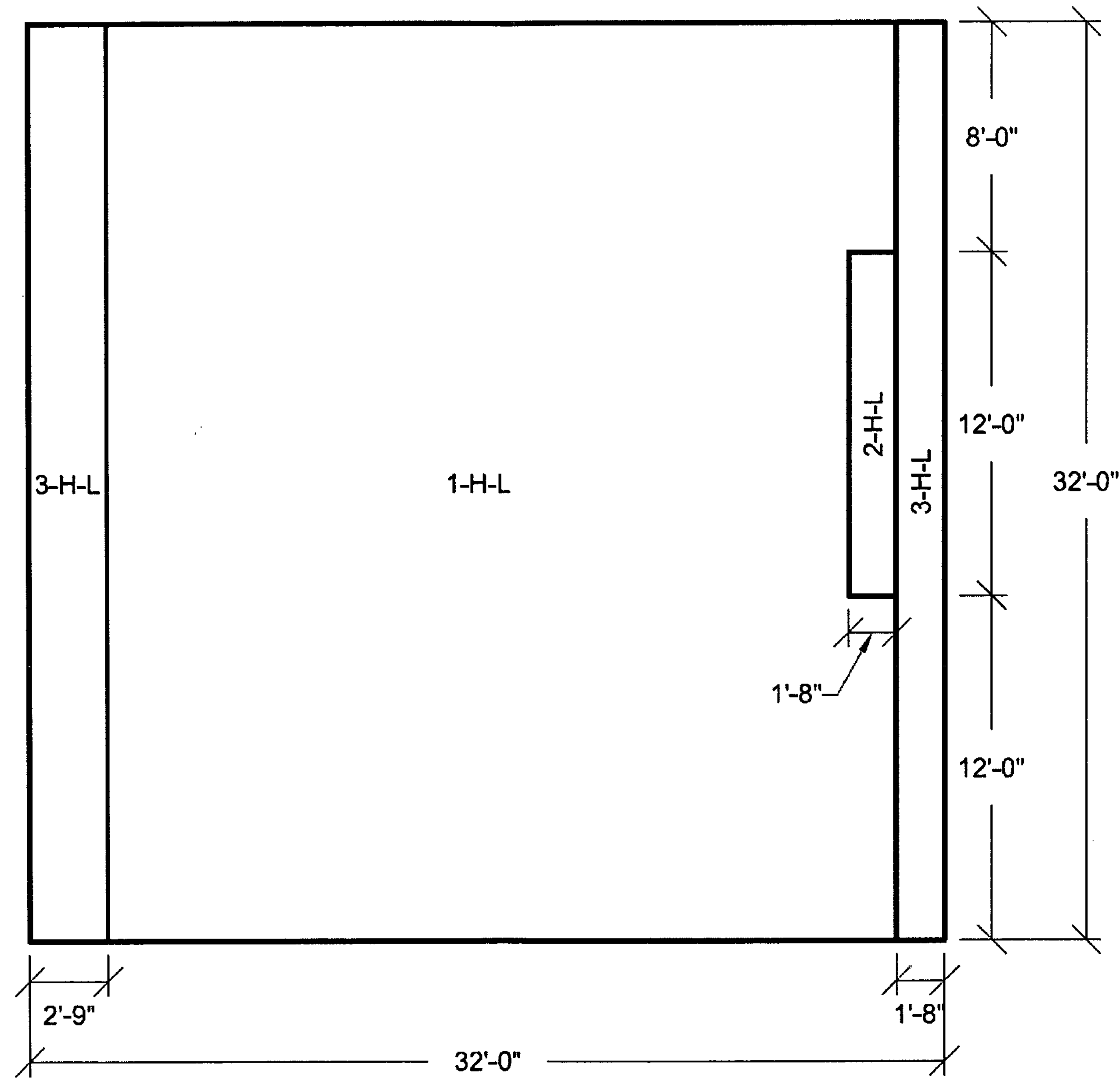


Figure 3H.6-185: Wall 12 Looking From Outside
Horizontal Reinforcement Zones
Near Side Face

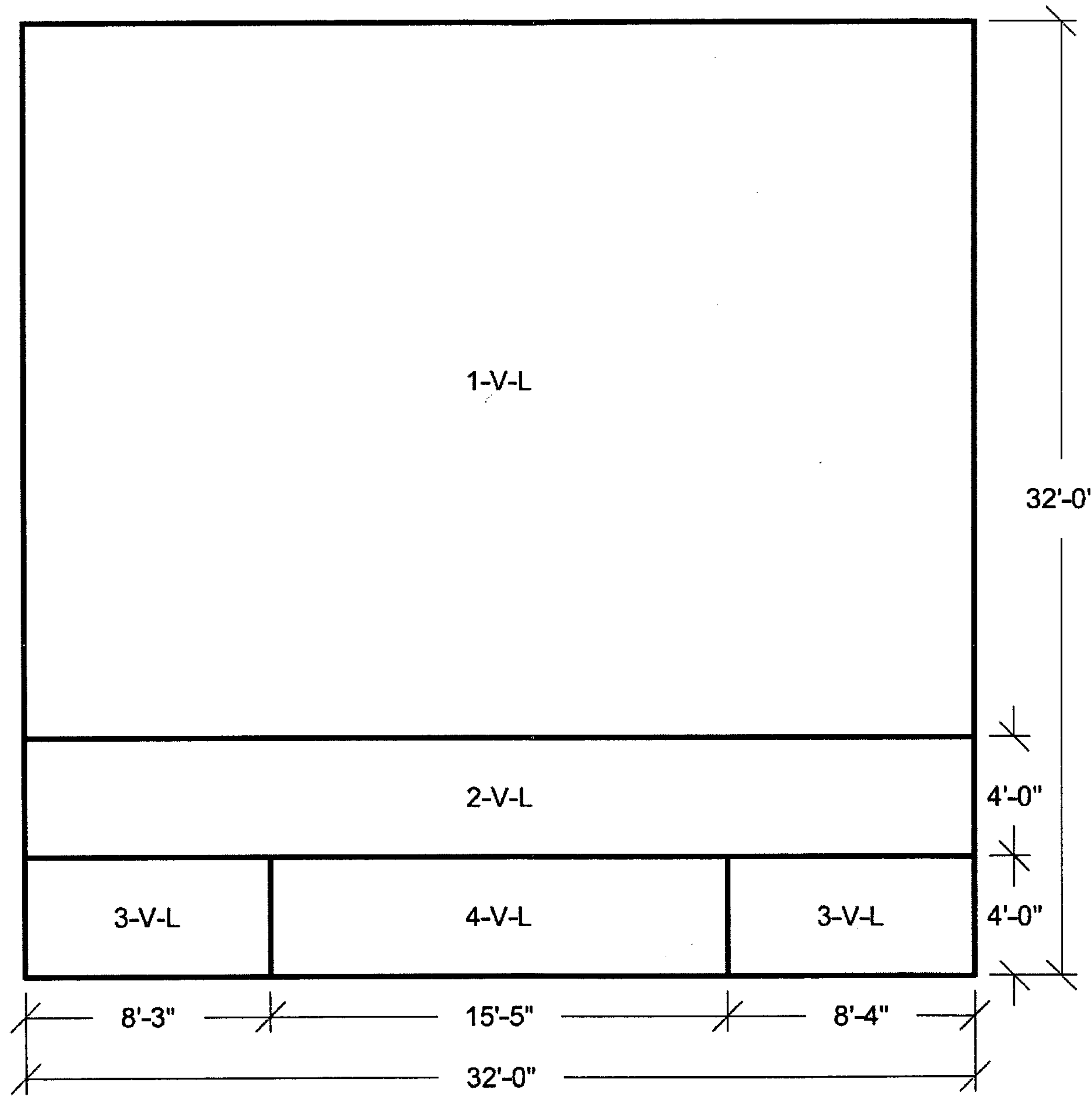


Figure 3H.6-186: Wall 12 Looking From Outside
Vertical Reinforcement Zones
Near Side Face

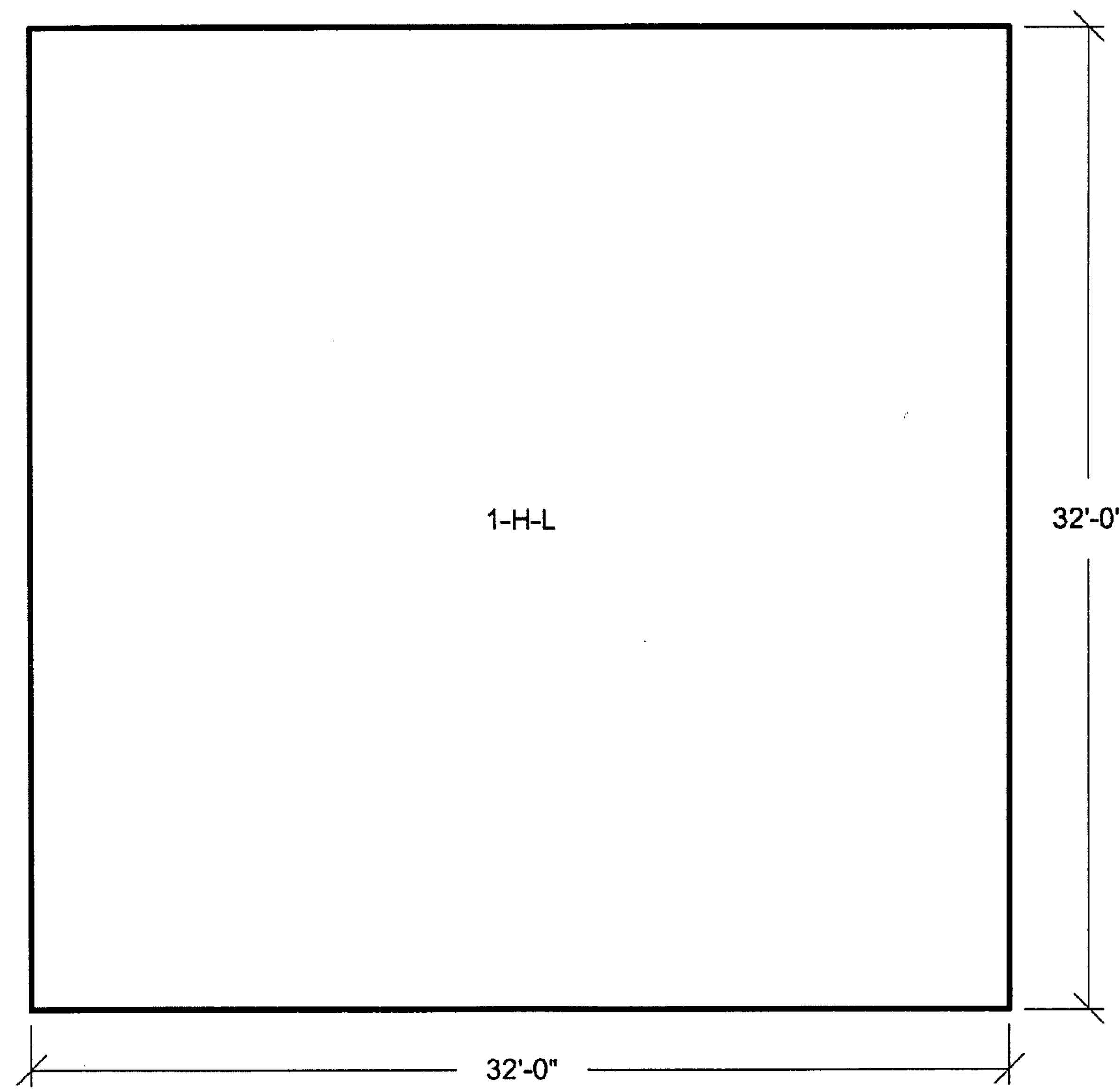


Figure 3H.6-187: Wall 12 Looking From Outside
Horizontal Reinforcement Zones
Far Side Face

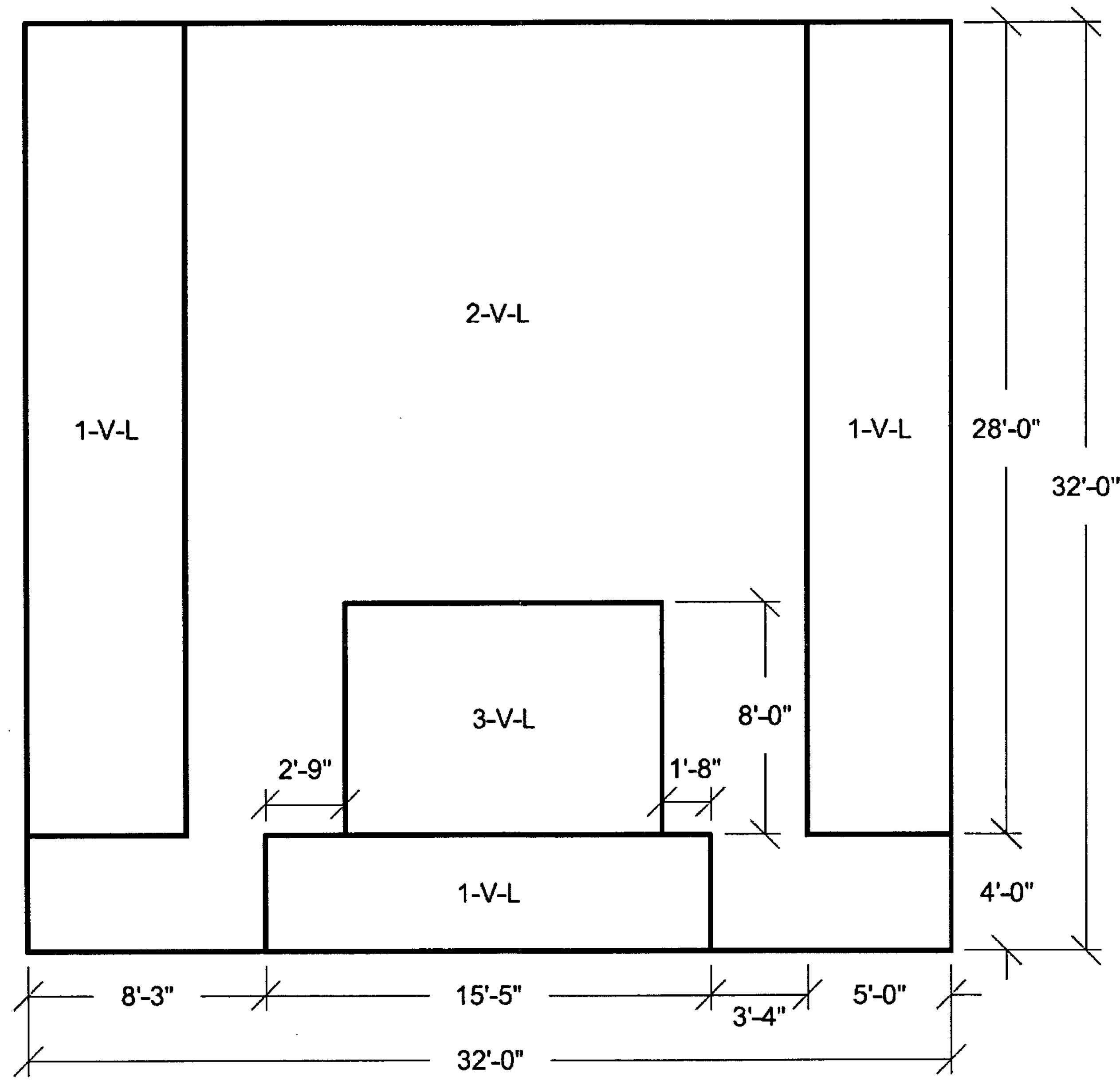


Figure 3H.6-188: Wall 12 Looking From Outside
Vertical Reinforcement Zones
Far Side Face

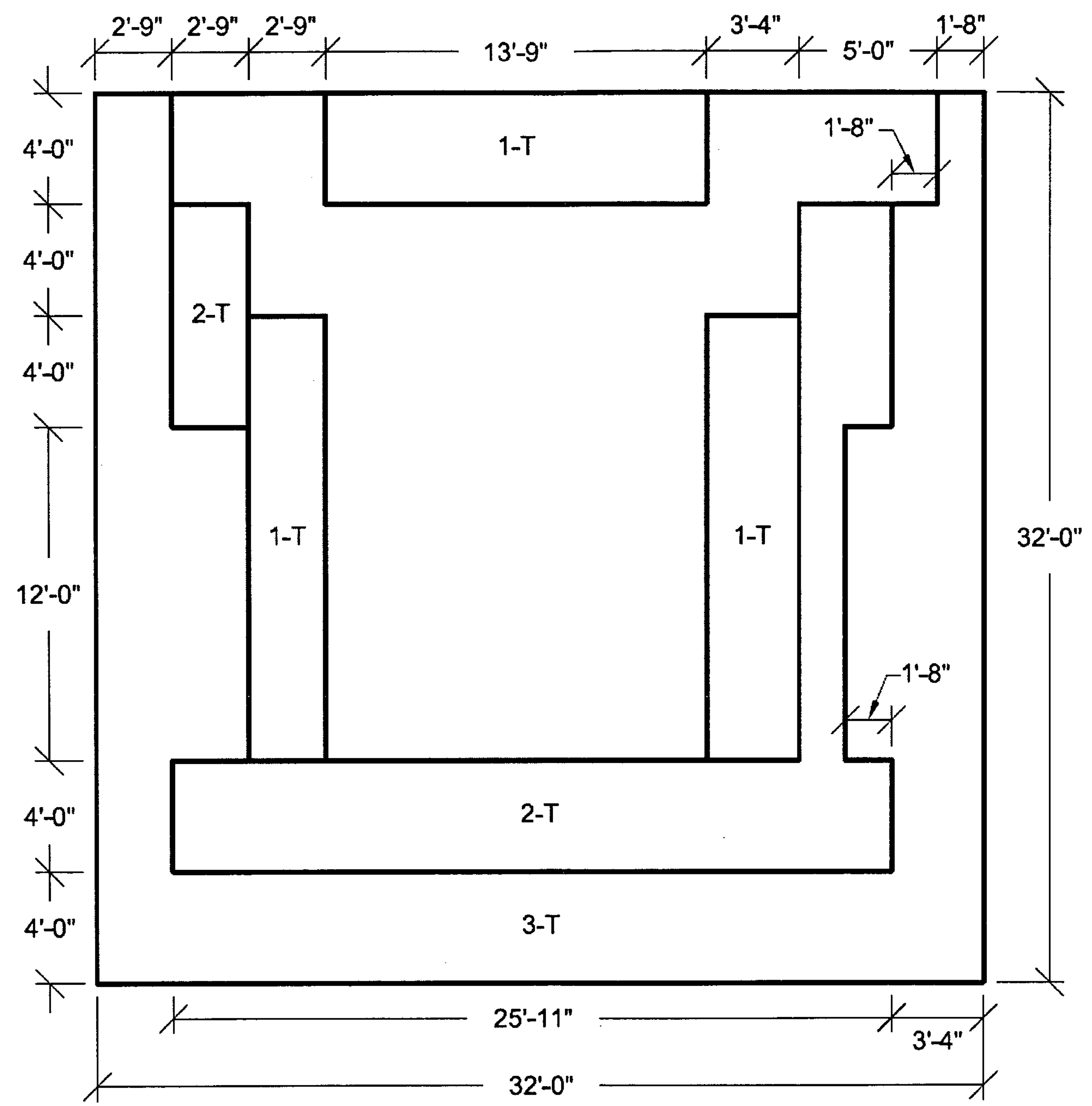


Figure 3H.6-189: Wall 12 Looking From Outside
Transverse Reinforcement Zones

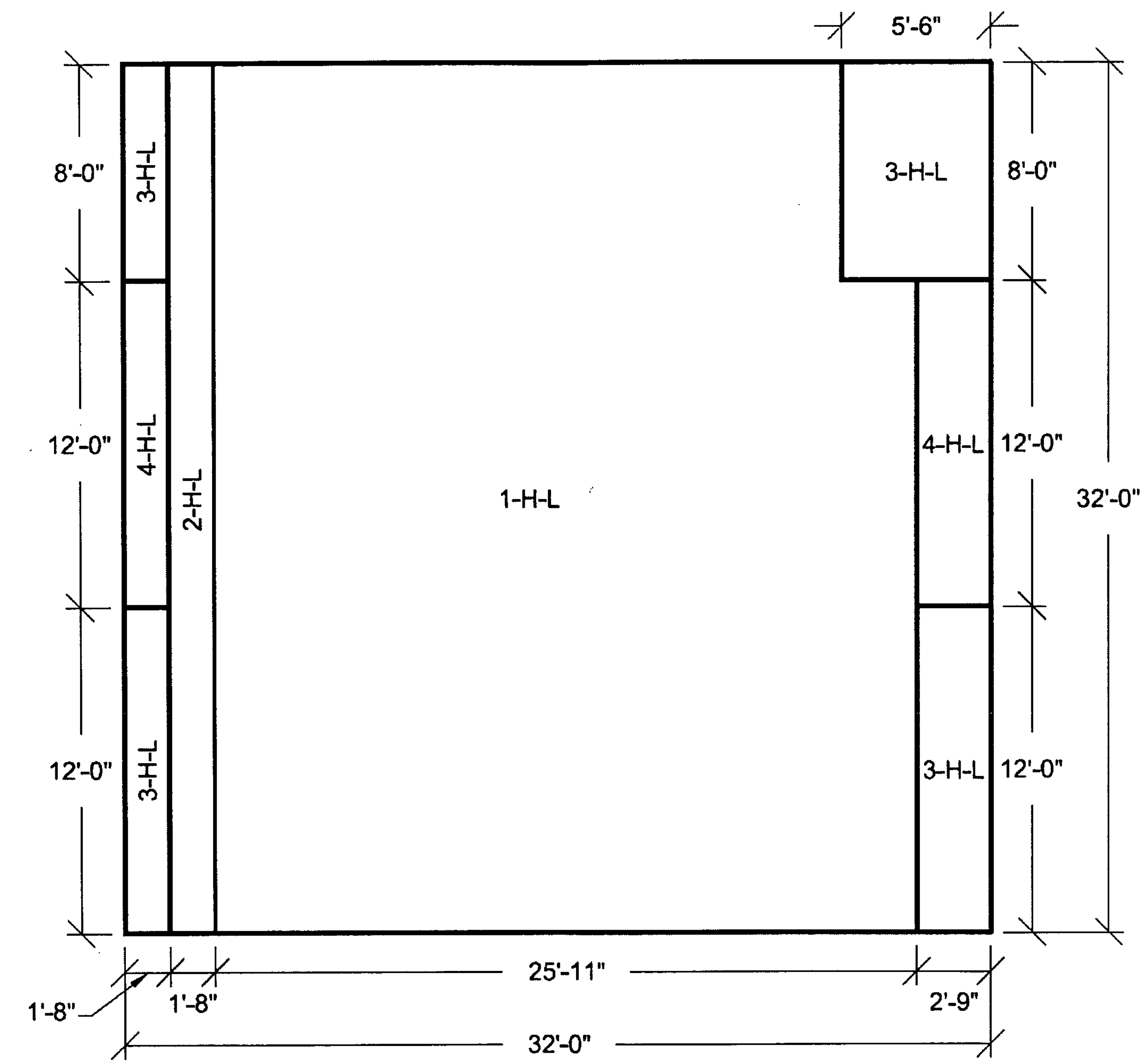


Figure 3H.6-190: Wall 13 Looking From Outside
Horizontal Reinforcement Zones
Near Side Face

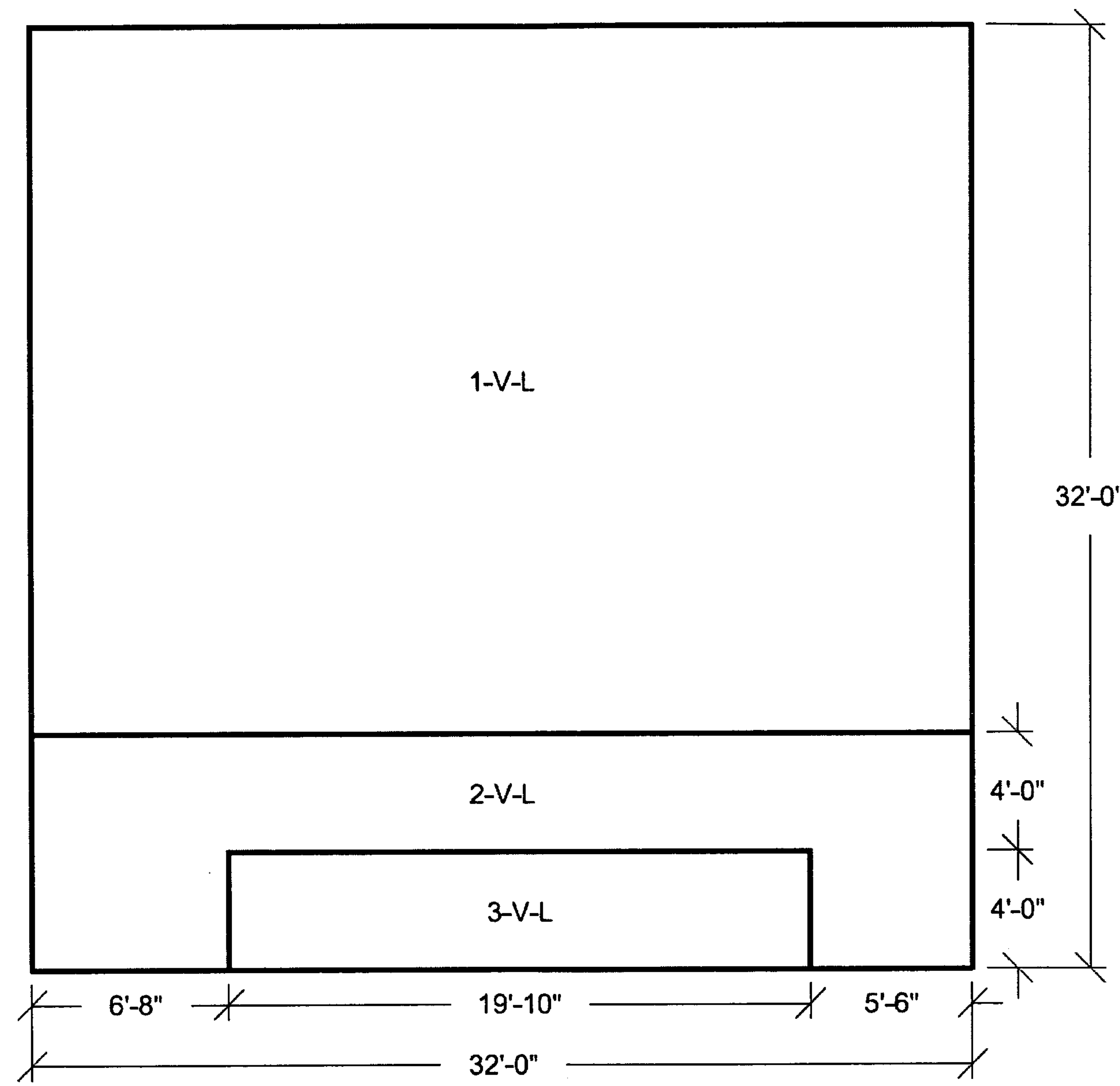


Figure 3H.6-191: Wall 13 Looking From Outside
Vertical Reinforcement Zones
Near Side Face

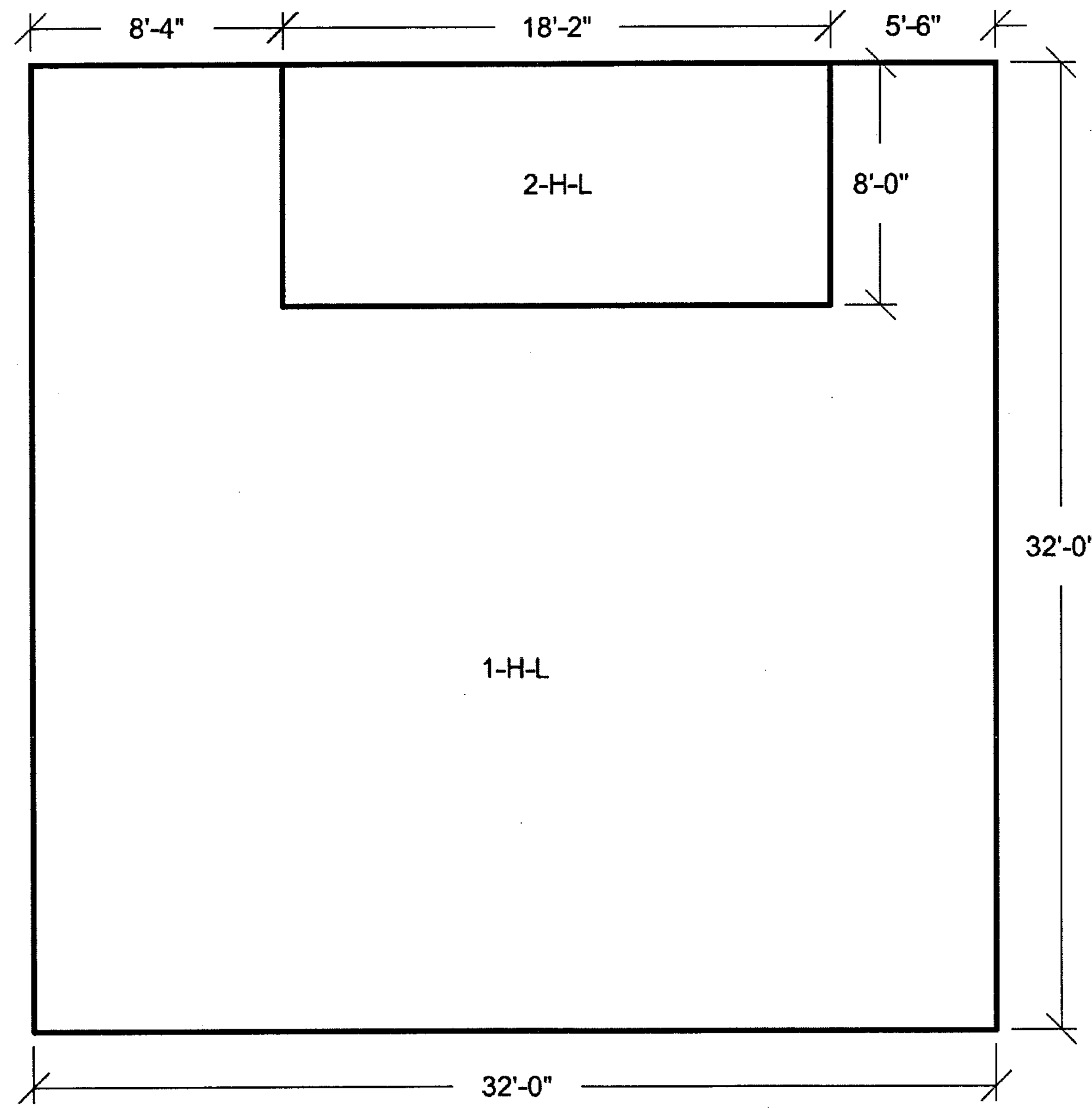


Figure 3H.6-192 Wall 13 Looking From Outside
Horizontal Reinforcement Zones
Far Side Face

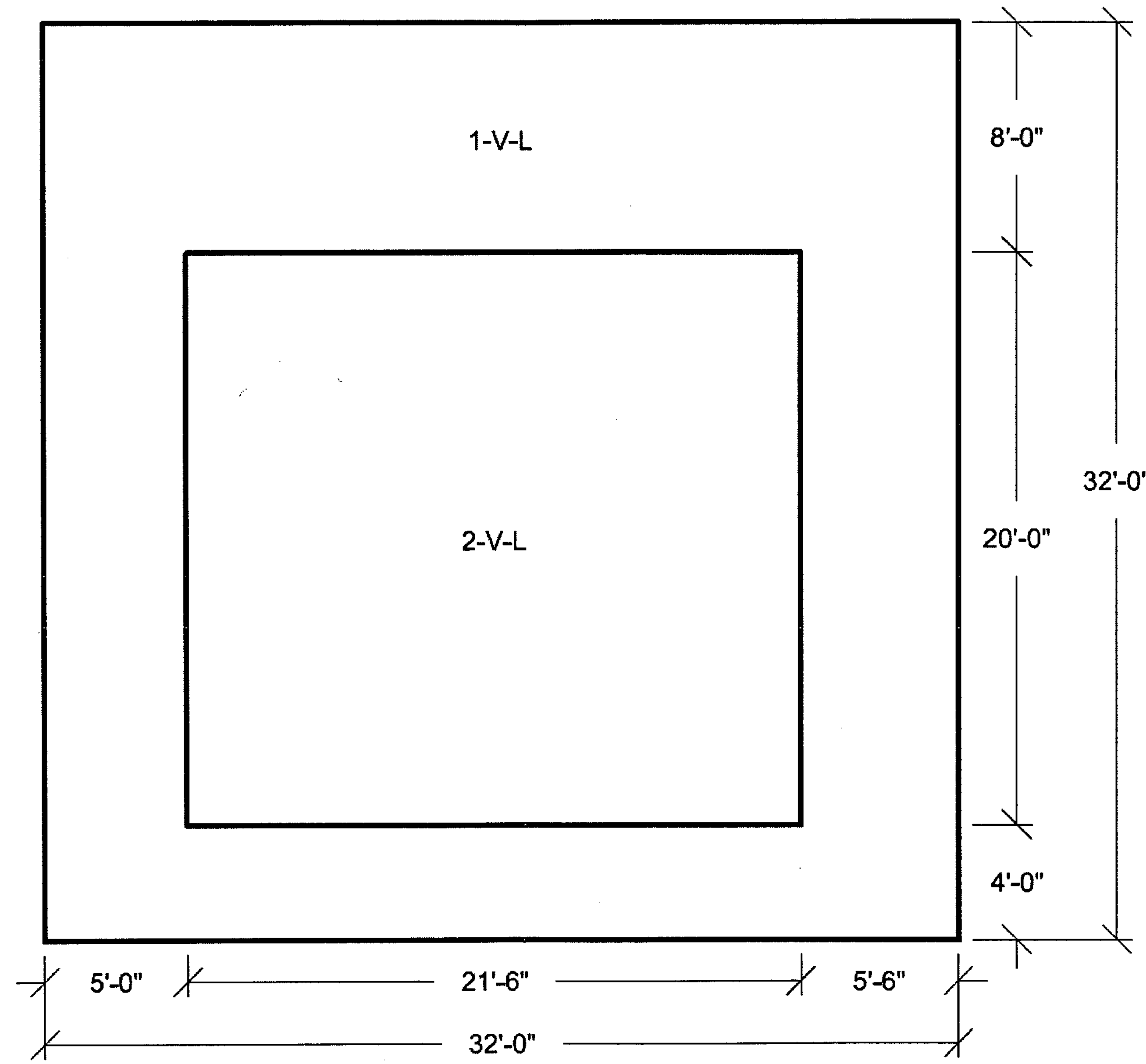


Figure 3H.6-193: Wall 13 Looking From Outside
Vertical Reinforcement Zones
Far Side Face

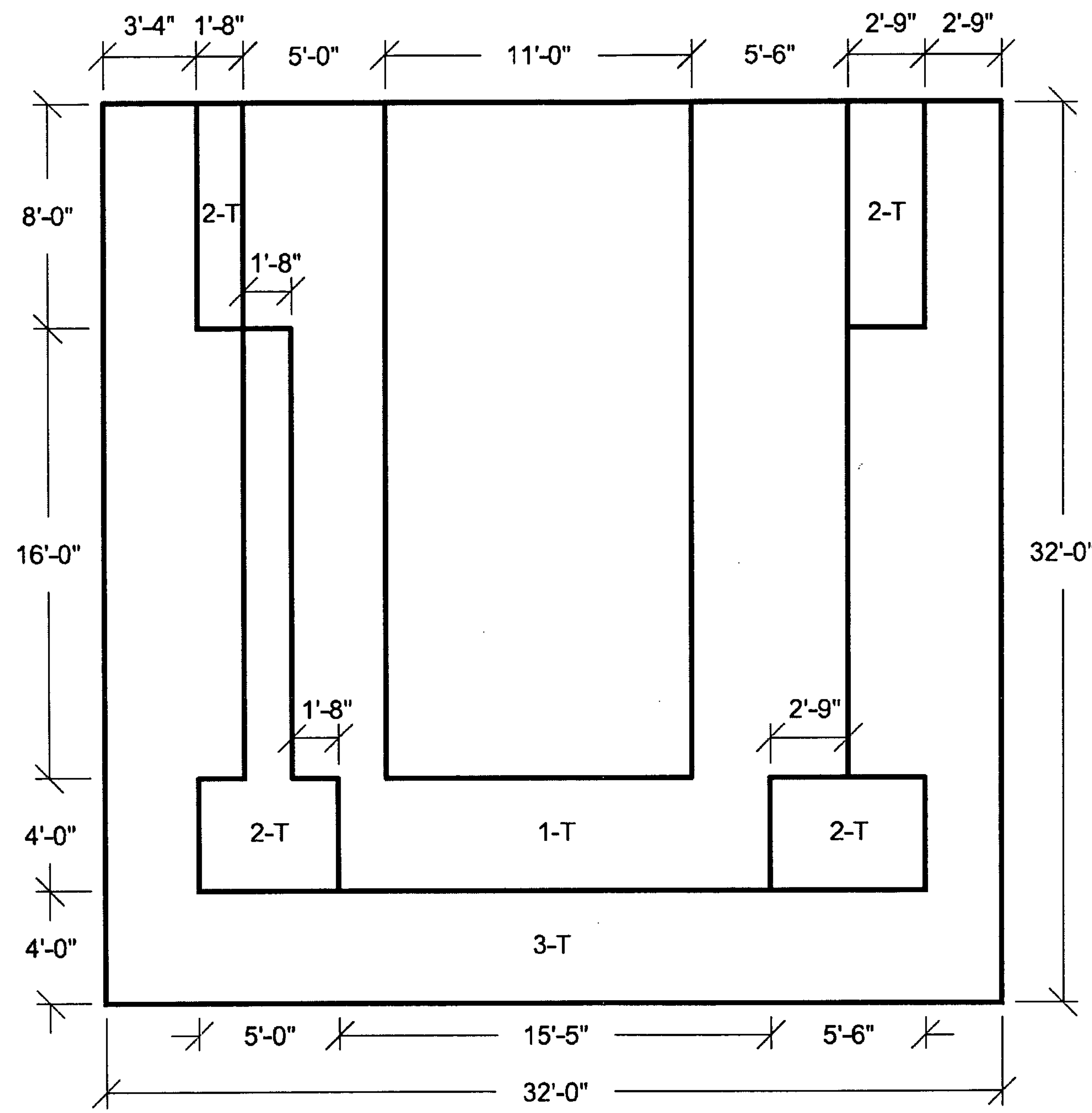


Figure 3H.6-194: Wall 13 Looking From Outside
Transverse Reinforcement Zones

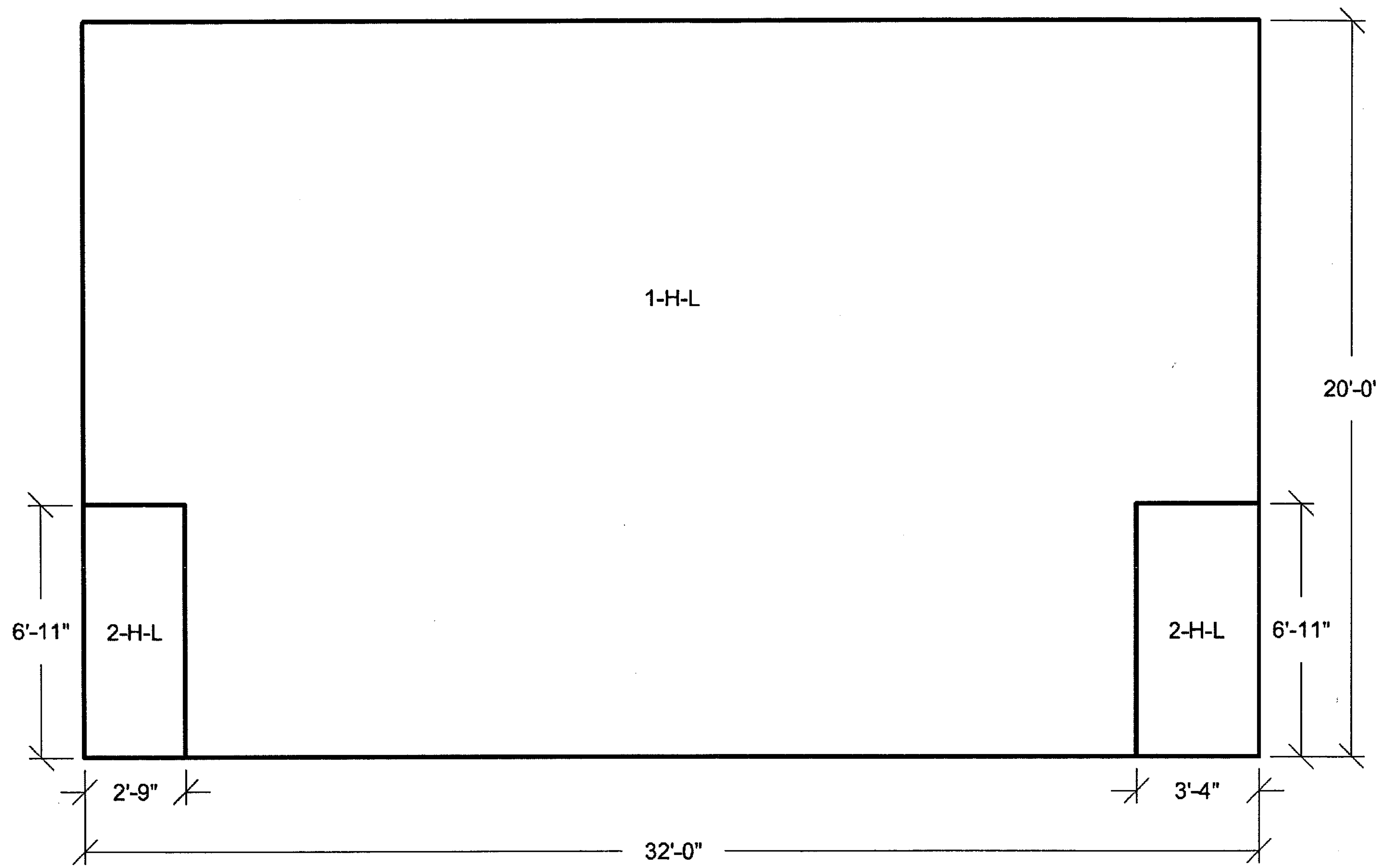


Figure 3H.6-195: Wall 14 Looking From Outside
Horizontal Reinforcement Zones
Near Side Face

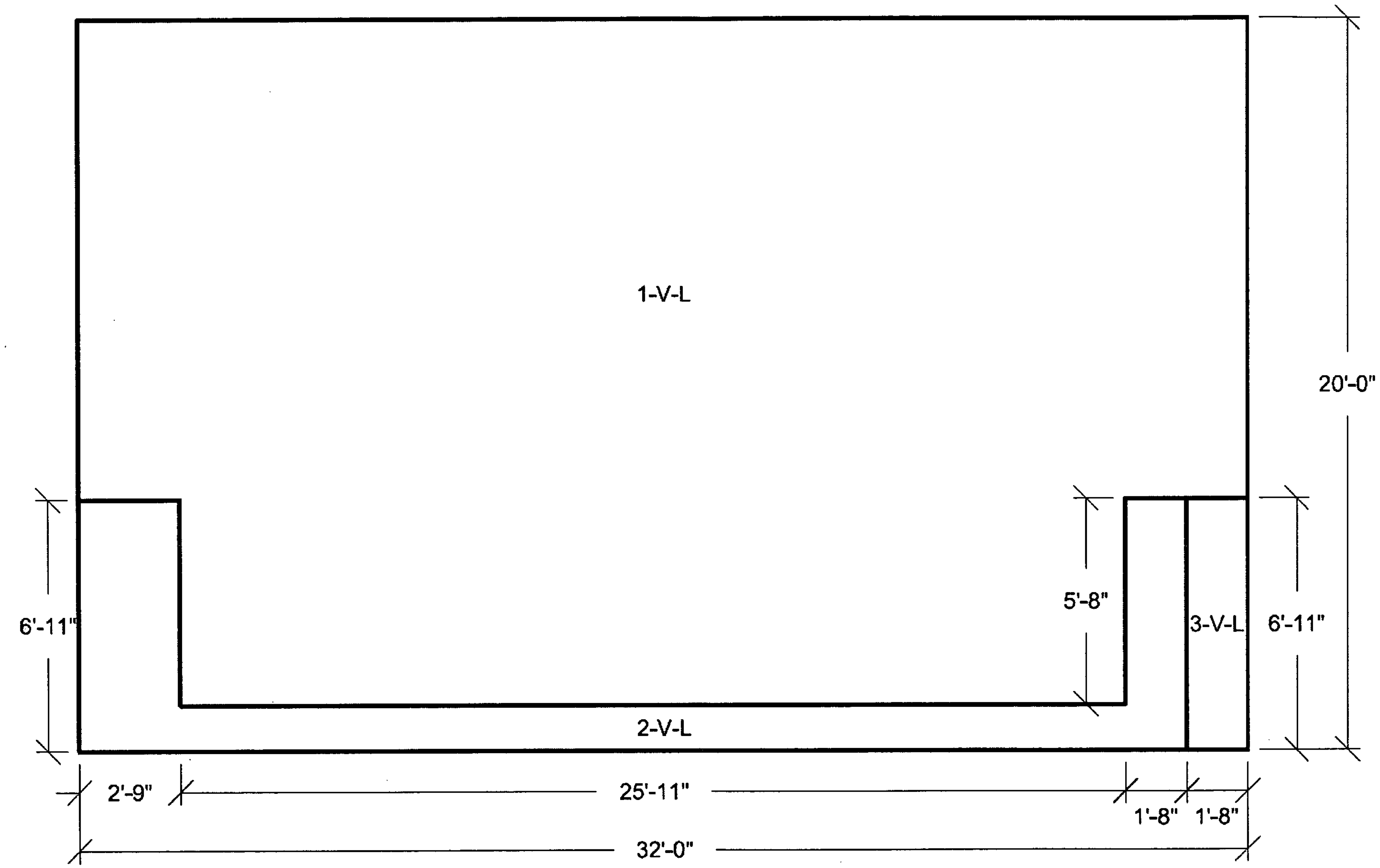


Figure 3H.6-196: Wall 14 Looking From Outside
Vertical Reinforcement Zones
Near Side Face

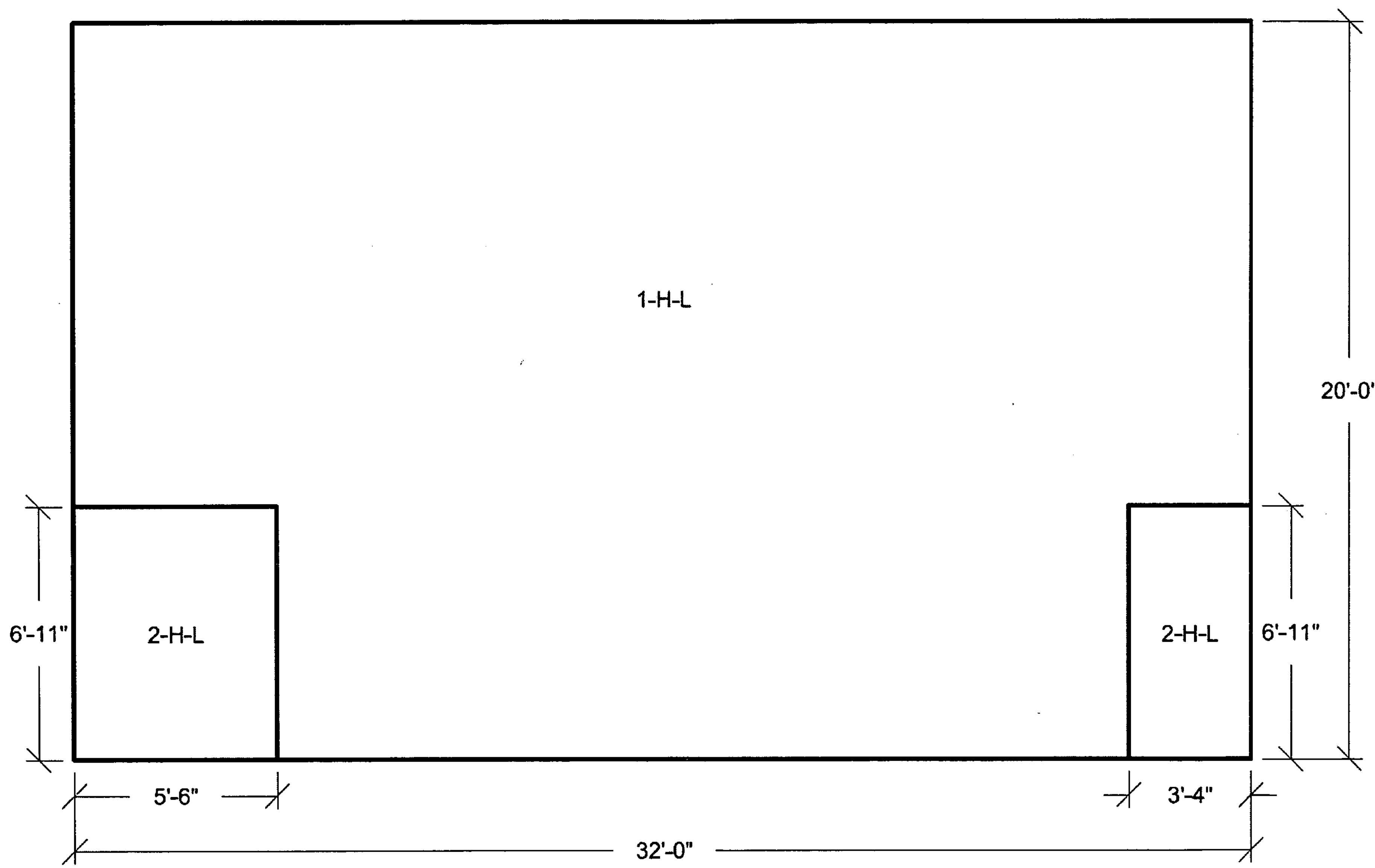


Figure 3H.6-197: Wall 14 Looking From Outside
Horizontal Reinforcement Zones
Far Side Face

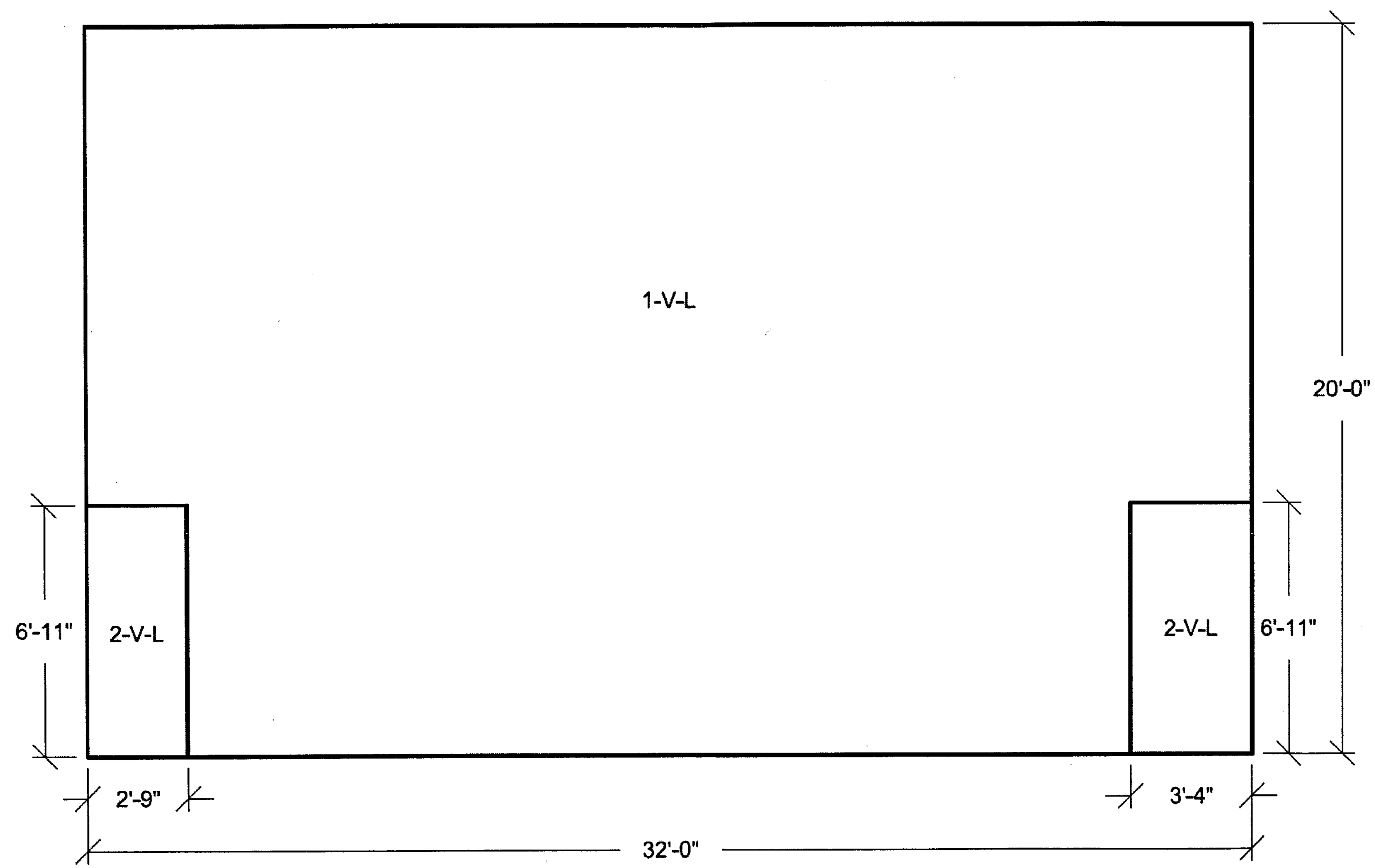


Figure 3H.6-198: Wall 14 Looking From Outside
Vertical Reinforcement Zones
Far Side Face

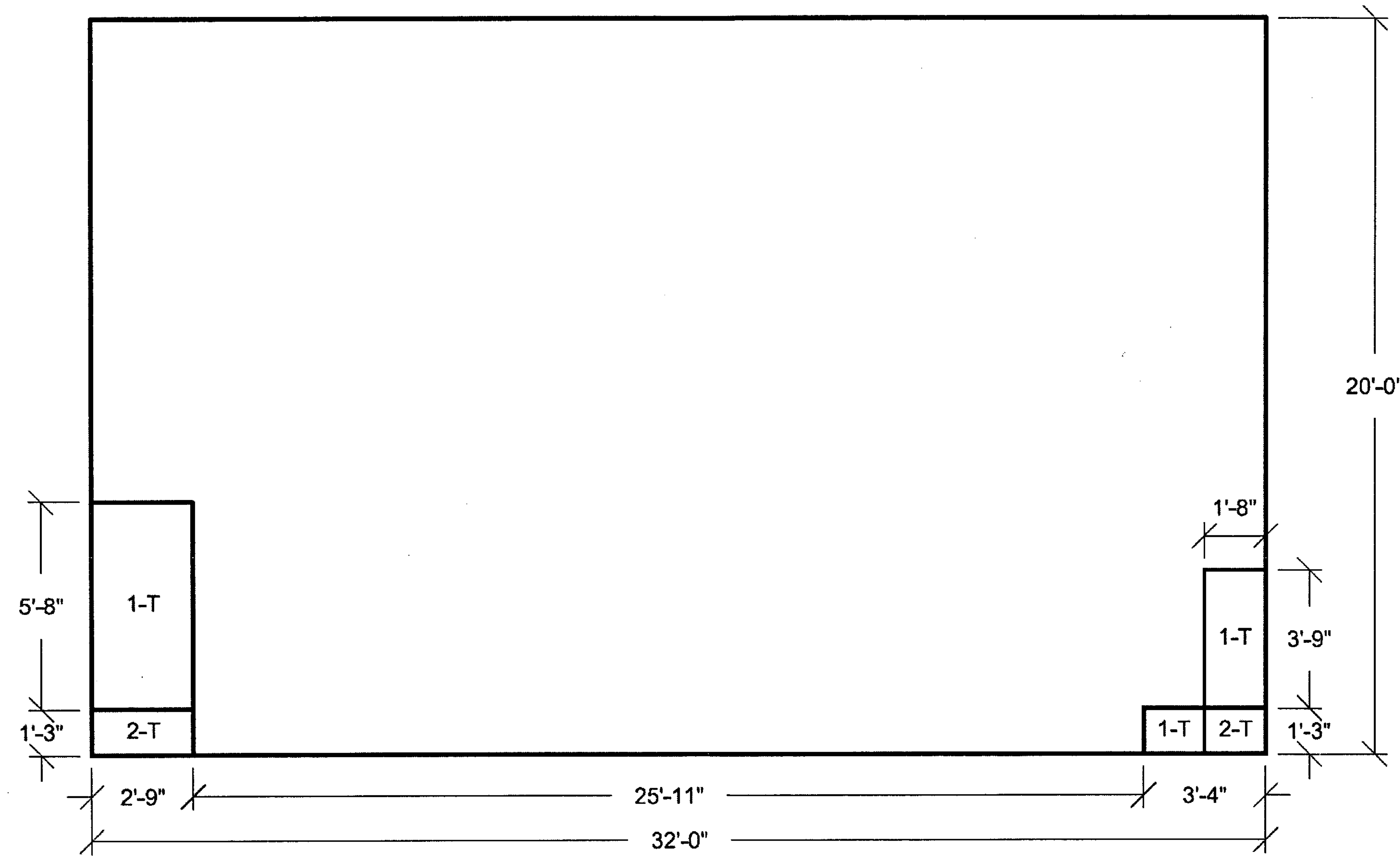


Figure 3H.6-199: Wall 14 Looking From Outside
Transverse Reinforcement Zones

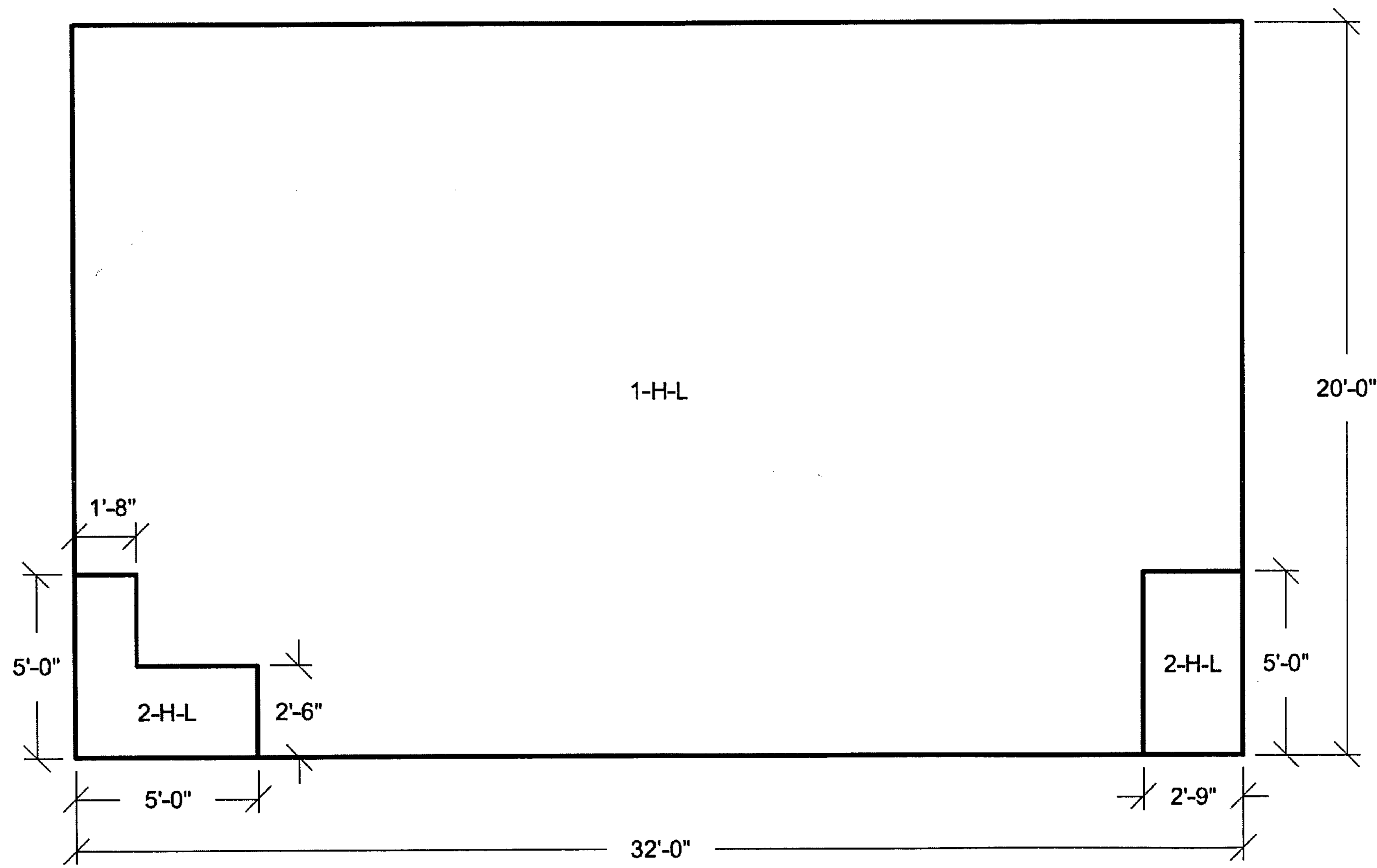


Figure 3H.6-200: Wall 15 Looking From Outside
Horizontal Reinforcement Zones
Near Side Face

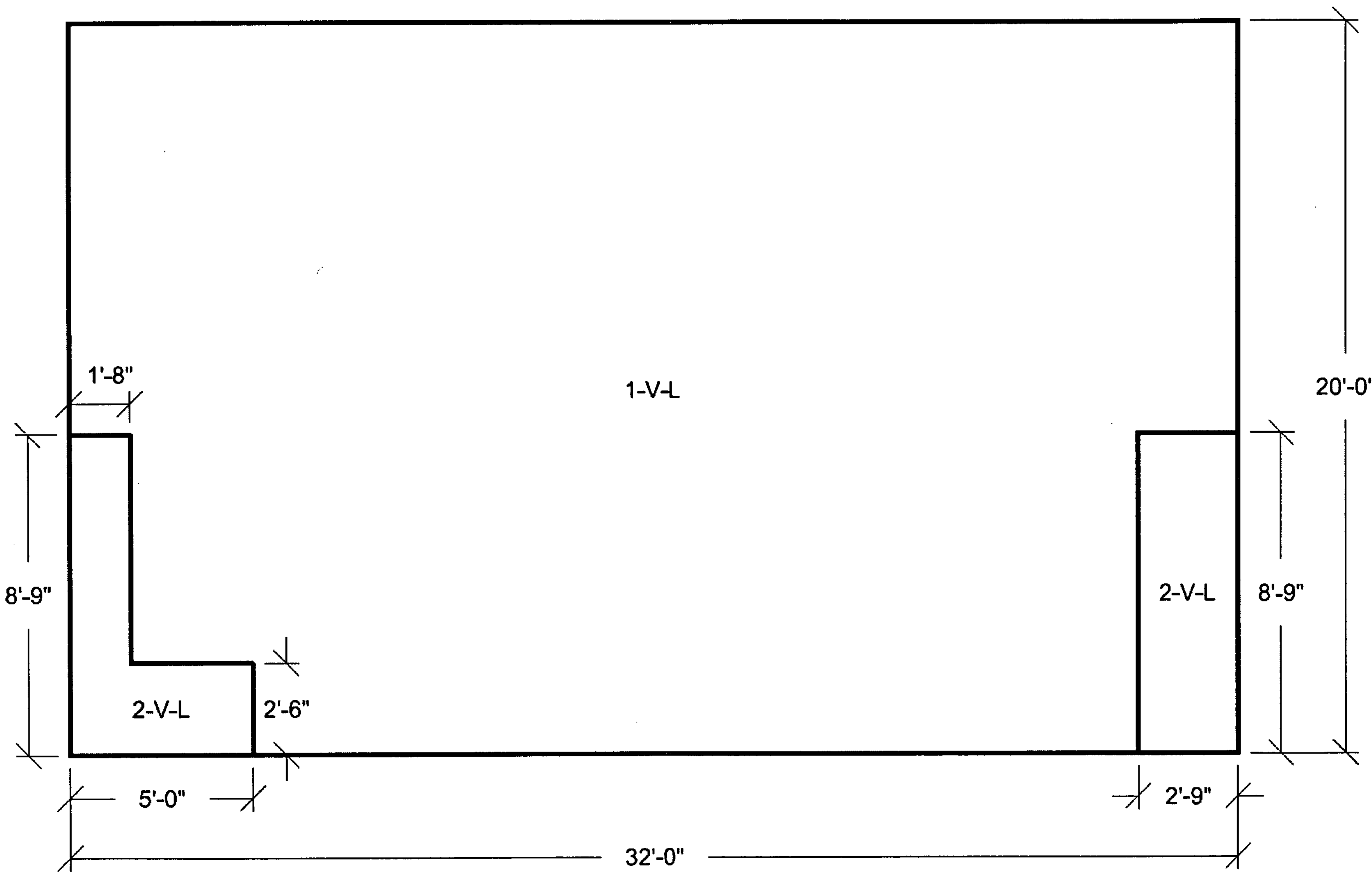


Figure 3H.6-201: Wall 15 Looking From Outside
Vertical Reinforcement Zones
Near Side Face

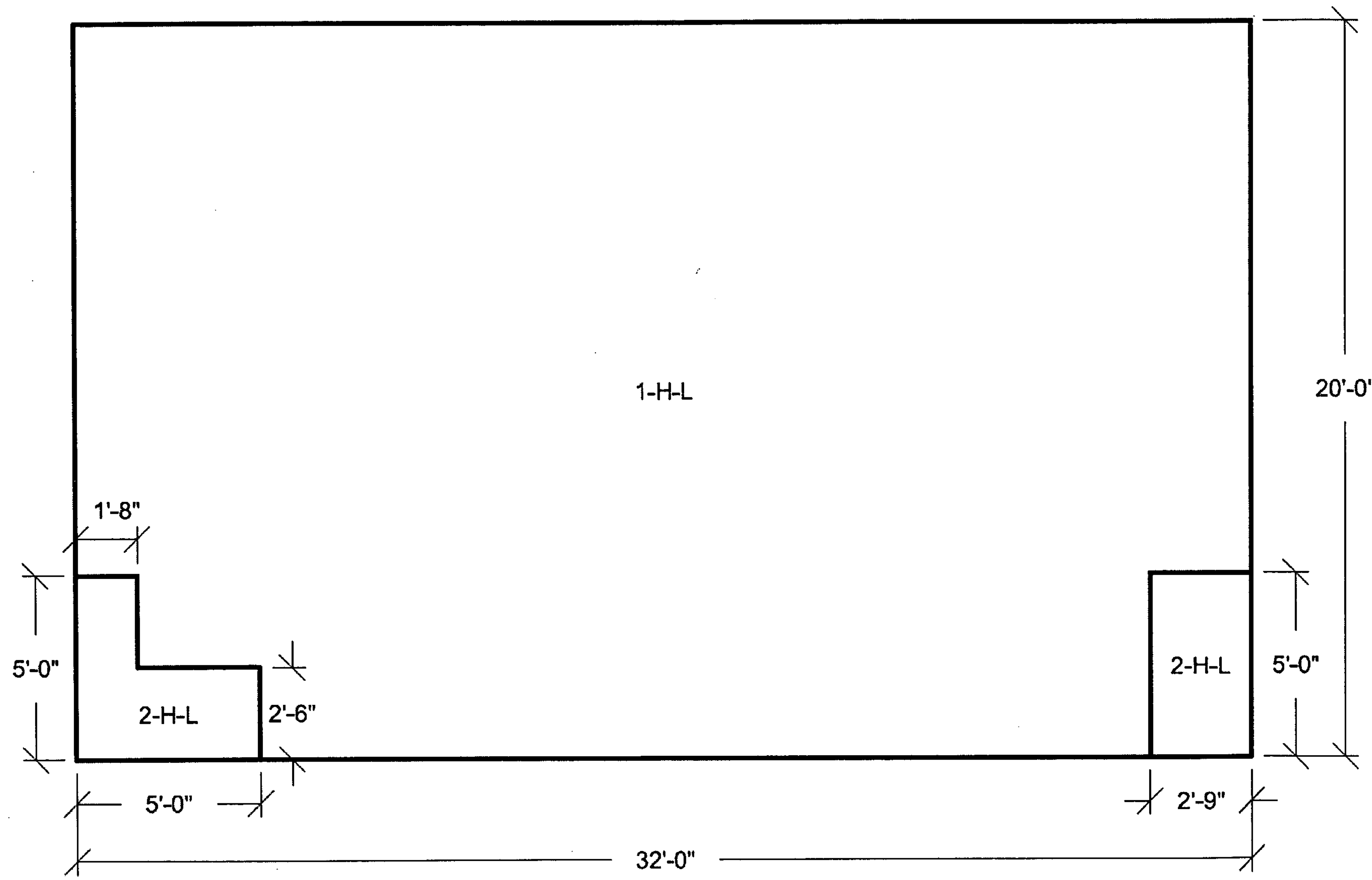


Figure 3H.6-202: Wall 15 Looking From Outside
Horizontal Reinforcement Zones
Far Side Face

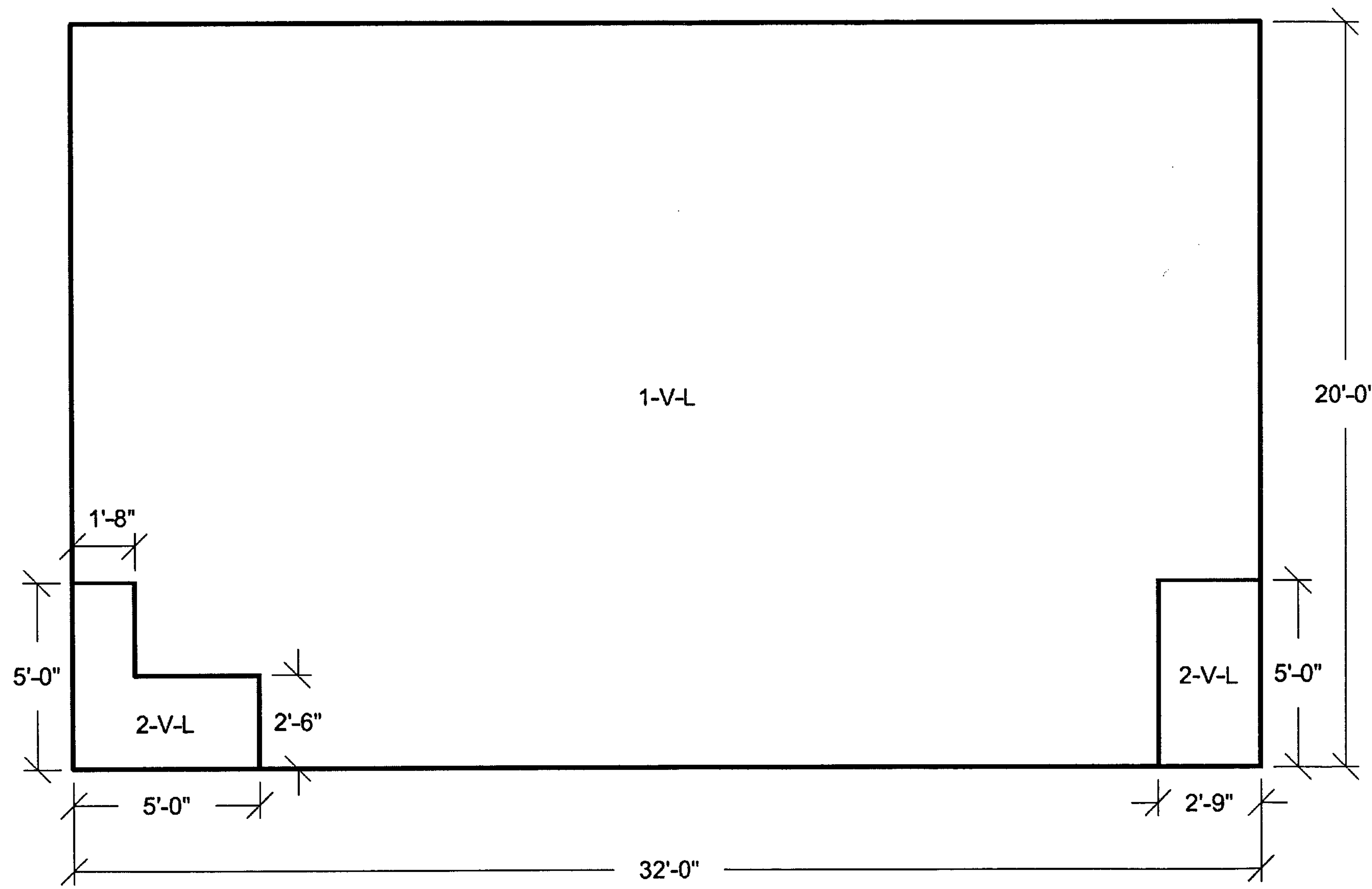


Figure 3H.6-203A: Wall 15 Looking From Outside
Vertical Reinforcement Zones
Far Side Face

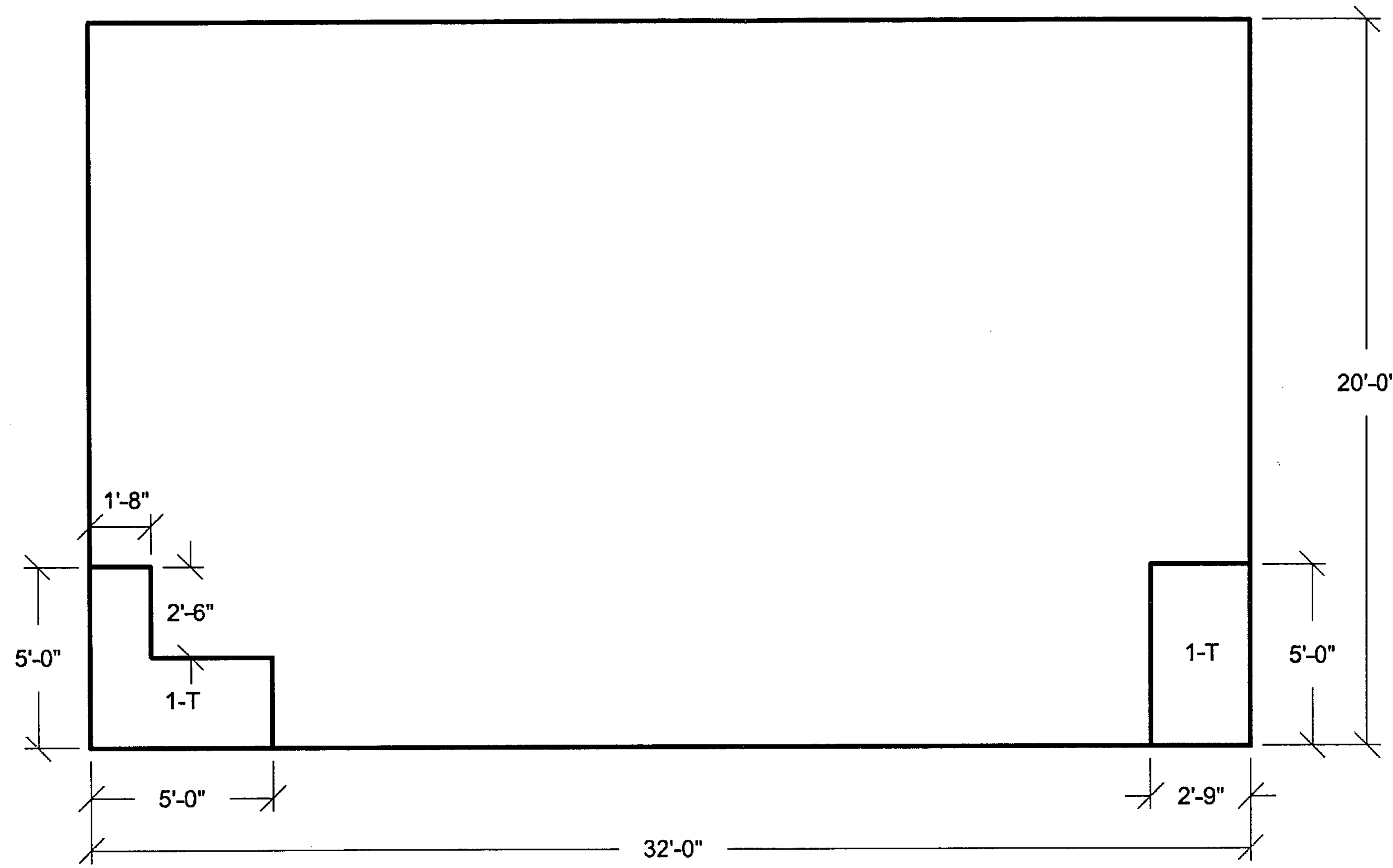


Figure 3H.6-203B: Wall 15 Looking From Outside
Transverse Reinforcement Zones

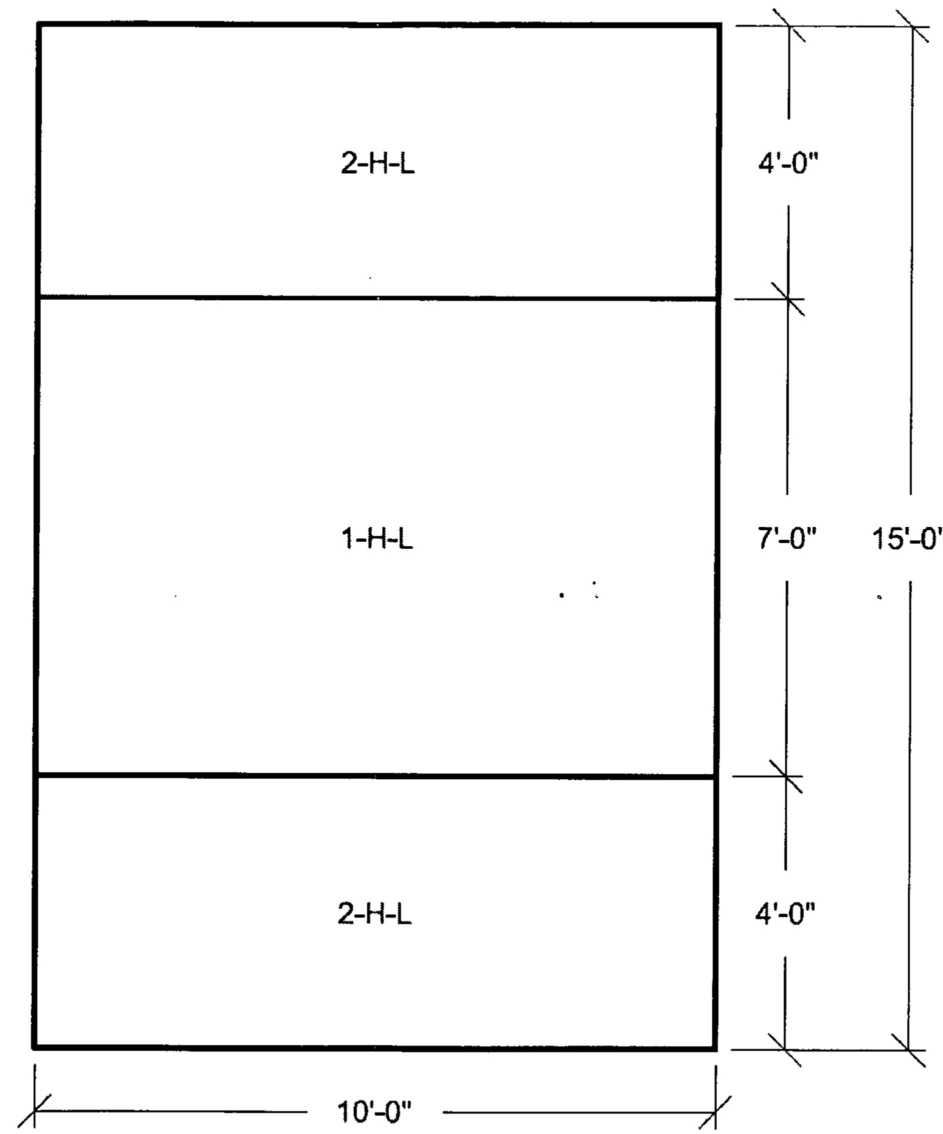


Figure 3H.6-204: Wall 16 Looking From Outside
Horizontal Reinforcement Zones
Near Side Face

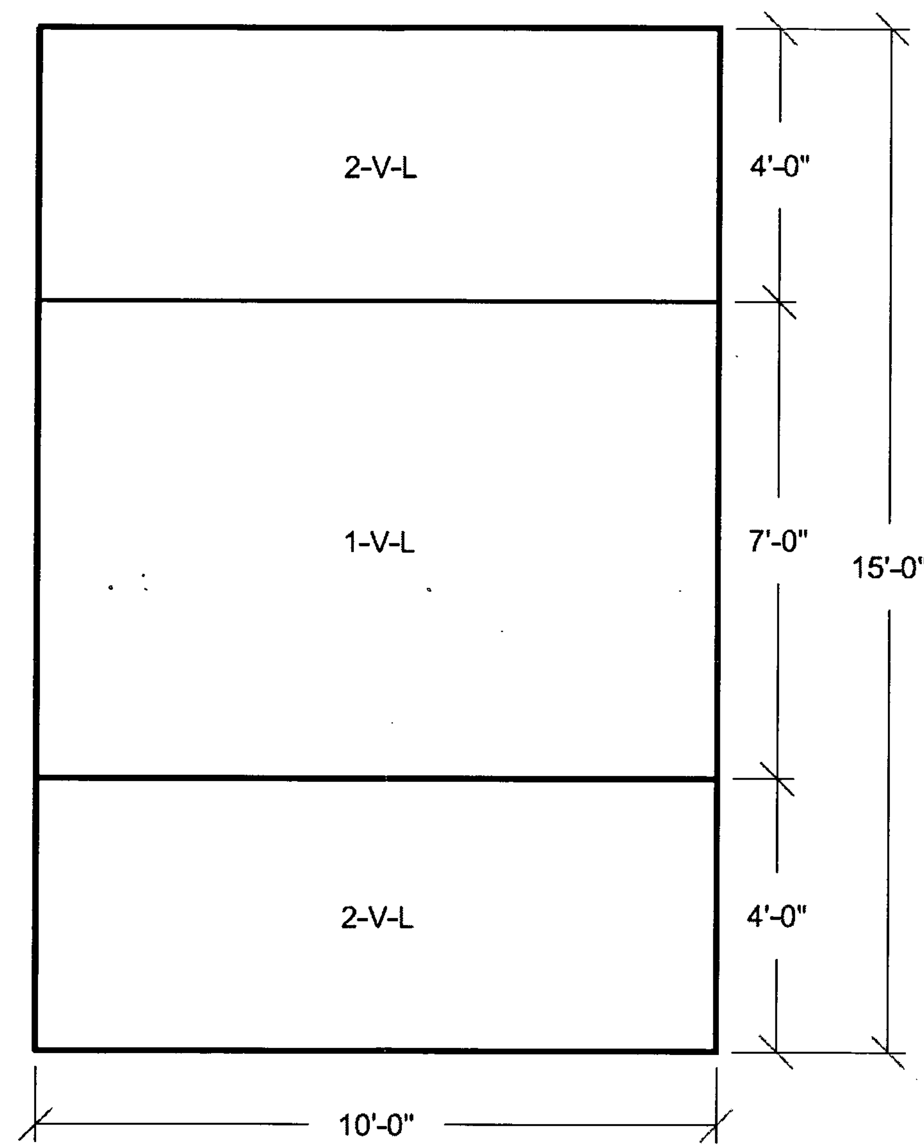


Figure 3H.6-205: Wall 16 Looking From Outside
Vertical Reinforcement Zones
Near Side Face

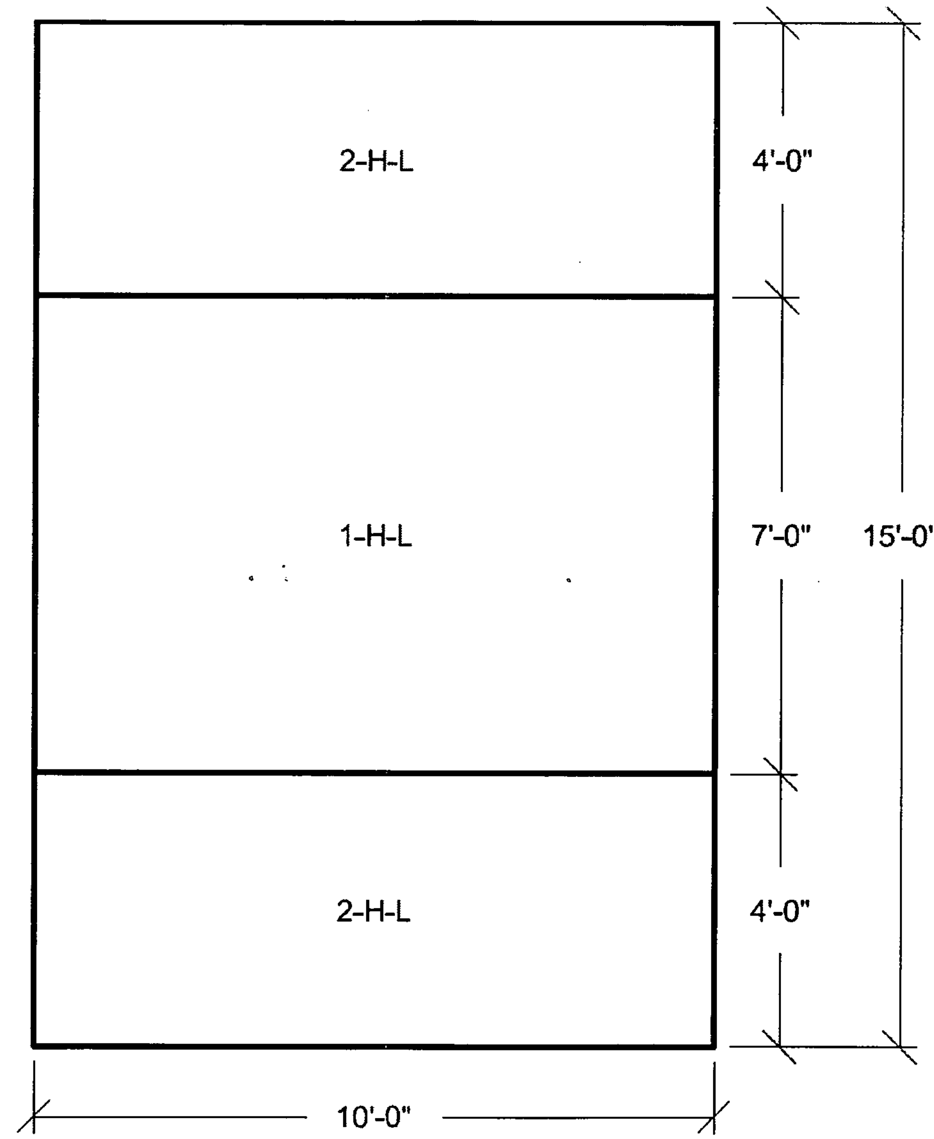


Figure 3H.6-206: Wall 16 Looking From Outside
Horizontal Reinforcement Zones
Far Side Face

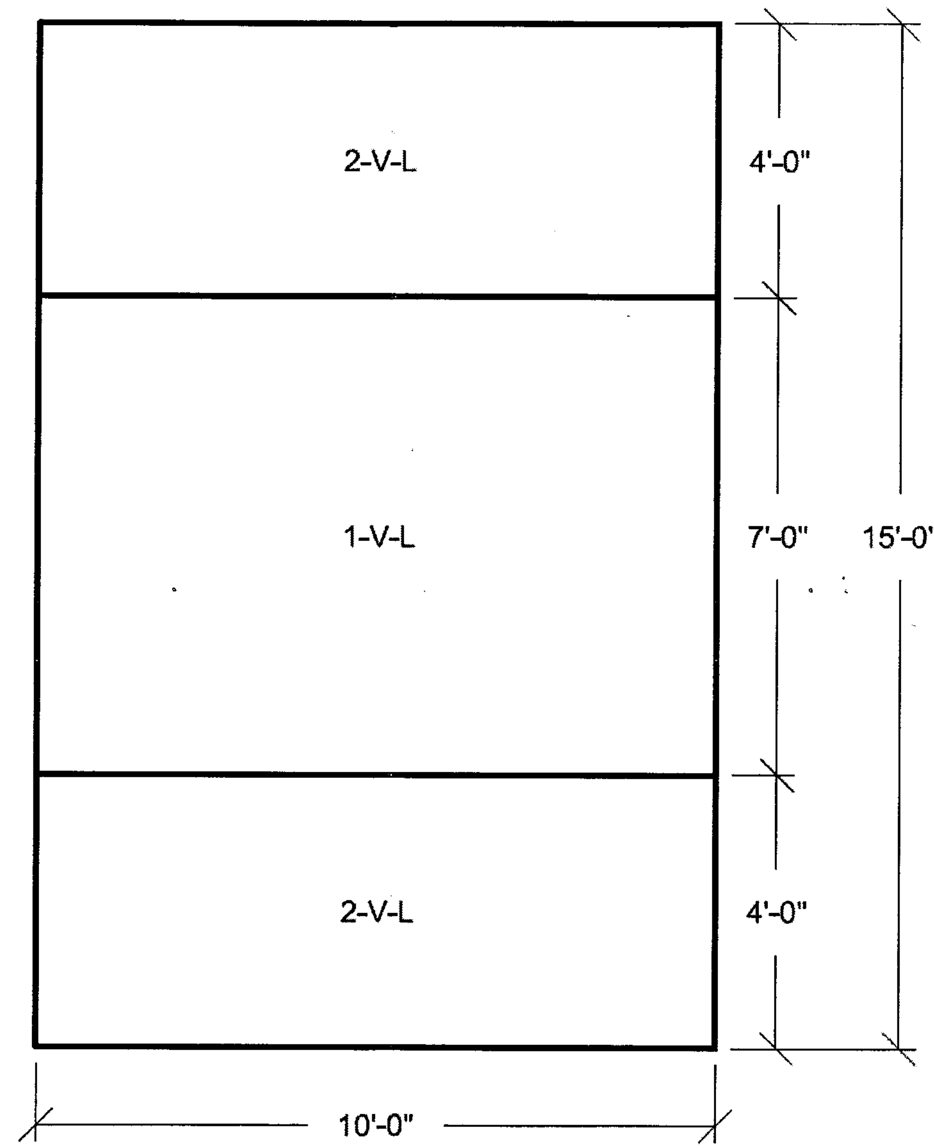


Figure 3H.6-207: Wall 16 Looking From Outside
Vertical Reinforcement Zones
Far Side Face

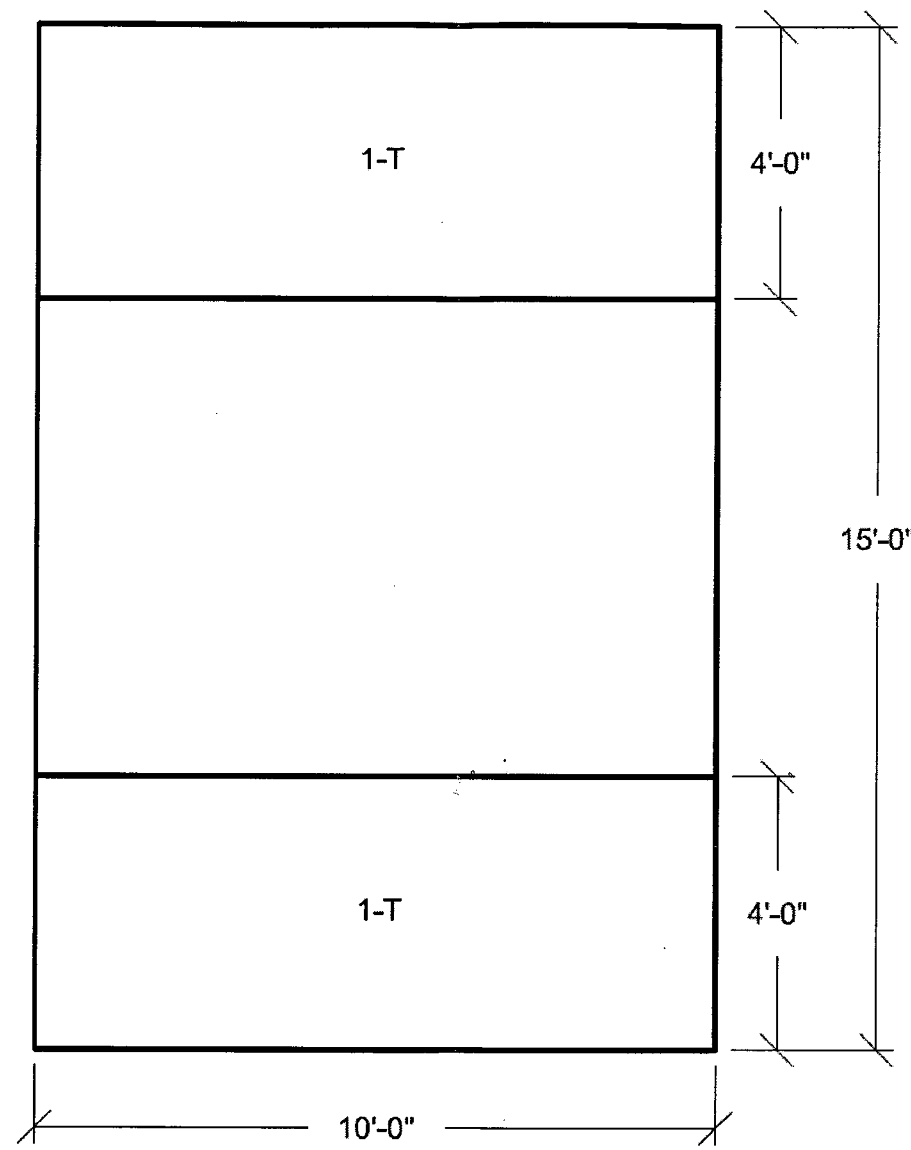


Figure 3H.6-208: Wall 16 Looking From Outside
Transverse Reinforcement Zones