DETENTION VAULT DESIGN CRITERIA:
INTERIM PROVISIONS INCLUDING FIRE LADDER TRUCK LOADING.

JANUARY 8, 2003
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THE INTENT OF THIS SPECIFICATION IS TO GIVE A UNIFIED DESIGN CRITERIA FOR DETENTION VAULT LIDS WHICH WILL PROVIDE FOR SAFE USE BY POLICE, FIRE, OR EMERGENCY EQUIPMENT.

IT IS INTENDED THAT THESE PROVISIONS SHALL REMAIN IN PLACE UNTIL A FINAL SPECIFICATION CAN BE ESTABLISHED USING STANDARD CODE DEVELOPMENT PROCEDURES WHERE A CONSENSUS IS ACHIEVED BETWEEN THE JURISDICTION, CODE DEVELOPMENT, THE ENGINEERING COMMUNITY, AND THE PUBLIC.

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LOAD COMBINATIONS

DESCRIPTION	DEAD LOAD	SOIL COVER	AXIAL FROM BACKFILL P(CASE 8)	UNIFORM VEHICLE SURCHARGE	VEHICLE WT	LADDER LOAD
GENERAL LOADING	D	$P.D_E$	A	UVS #2	–	–
VEHICLE LOADS (CASE #1–#6)	D	$P.D_E$	A	UVS #1	AXLE x IE	–
FIRE TRUCK – OUTRIGGERS PLACED (CASE #7)	D	$P.D_E$	A	UVS #1	OUTRIGGERS	LADDER x IE

NOTES:

1. APPLY A UNIFORM VEHICLE SURCHARGE OF 150 PSF OUTSIDE THE PERIMETER OF ANY VEHICLE LOAD.
2. IMPACT FACTOR SHALL BE APPLIED TO ALL FIRE TRUCK VEHICLE AND OUTRIGGER LOADS.
   IE = 33(1.0 – 0.125 * DE) > 0% PER AASHTO LRFD 3.6.2.2
3. VEHICLE LOADS SHALL BE PLACED ON VAULT LIDS SO THAT DIRECTION OF TRAFFIC IS EITHER PARALLEL OR PERPENDICULAR TO LID SPAN, REGARDLESS OF ACCESS CONDITIONS. VEHICLE LOADS SHALL ALSO BE PLACED AT VARIOUS LOCATIONS ALONG THE SPAN SO AS TO CREATE THE MAX STRESS OR COMBINATION.
4. TIRE CONTACT AREA SHALL BE 0.01P, AND A LENGTH IN DIRECTION OF TRAFFIC/WIDTH OF TIRE RATIO OF 1/2.5, IN WHICH P = WHEEL LOAD IN LBS.
   PER AASHTO 3.30.
5. VEHICLE LOADS SHALL BE APPLIED TO ANY ROADWAY, PARKING, OR UNIMPROVED SURFACE WHICH POLICE, FIRE, OR EMERGENCY EQUIPMENT MIGHT USE. STRIPING ZONES IN PARKING LOTS SHALL NOT BE USED TO LIMIT ACCESS OR USE OF FIRE LADDER TRUCKS.
6. LOAD FACTORS USED FOR DESIGN SHALL BE BASED ON ASCE-7 OR APPLICABLE DESIGN CODE.

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ISSUE DATE: 08/05/04	

CASE 1: UNIFORM DEAD LOADS

CONC TOPPING SLAB: 3½" 44 PSF, TYP
PRE CAST PLANK: 12" 68 PSF, TYP

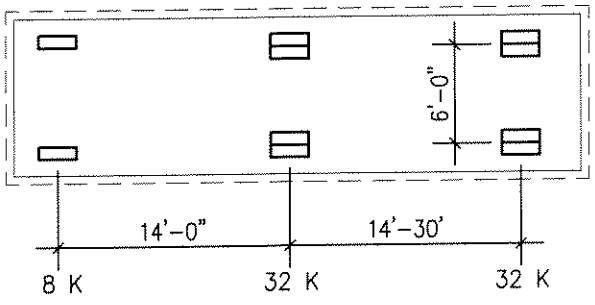
CASE 2: SOIL COVER

SATURATED SOIL COVER: 145 PCF X DE, TYP

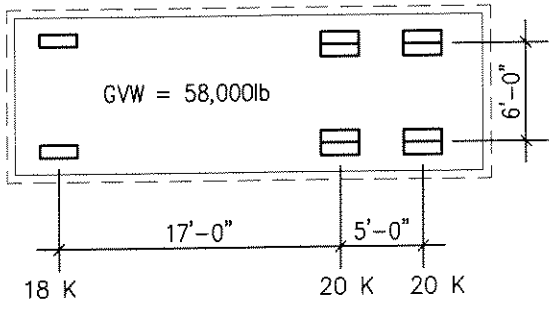
CASE 3: UNIFORM VEHICLE SURCHARGE USV

UVS #1: 150 PSF, TYP MIN.
UVS #2: 250 PSF, TYP MIN.

CASE 4: HS20 – AXLE LOADS

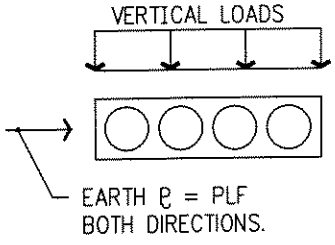


CASE 5: VACTOR TRUCK – AXLE LOADS



CASE 8: AXIAL LOAD ON LID

DUE TO BACK FILL PRESSURE.

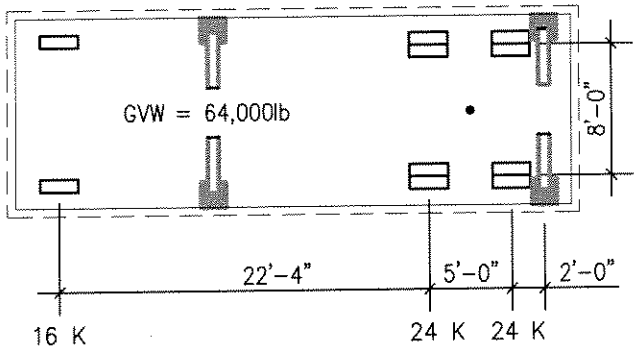


LOAD CASES AND PATTERNS.

INTERIM PROVISIONS INCLUDING FIRE LADDER TRUCK LOADING.
REFER SHEET D1 FOR GENERAL INFORMATION, LOAD COMBINATIONS, AND GENERAL NOTES.

CASE 6: FIRE LADDER TRUCK – AXLE LOADS

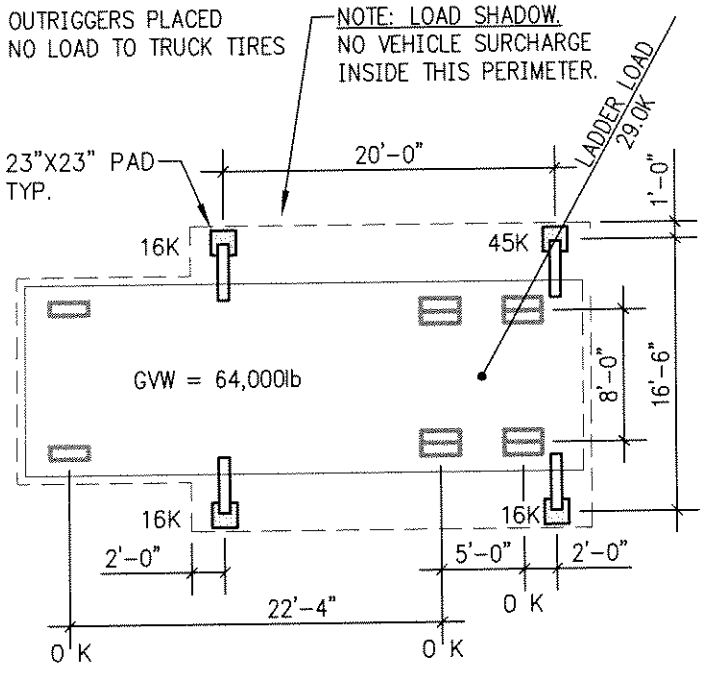
OUTRIGGERS UP
FULL LOAD TO TRUCK TIRES



CASE 7: FIRE LADDER TRUCK

OUTRIGGERS PLACED
NO LOAD TO TRUCK TIRES

NOTE: LOAD SHADOW.
NO VEHICLE SURCHARGE
INSIDE THIS PERIMETER.



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