CONFIDENTIAL

ROTTERDAM SITE DEVELOPMENT
NESTE

CALCULATION NOTE

FOR

PILING PLAN ZONE “A” AND ZONE “I”

			Written By Antonio Bindi 2021.08.06 16:58:50 +02'00'	Written By Antonio Bindi 2021.08.06 16:59:10 +02'00' Gabriele Pieri Olimpia Loiacono	
0	06/08/2021	IFC (FOR DS+V APPROVAL)	G. FONTANA	A. BINDI	V. COLONE / O. LOIACONO
REV.	**DATE**	**STATUS**	**WRITTEN BY** (name & visa)	**CHECKED BY** (name & visa)	**APPROV./AUTHOR. BY** (name & visa)
DOCUMENT REVISIONS					

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1. SCOPE

The scope of this calculation note is to provide an evaluation of the loads to which the piles of the structures A20-STR-1000 and A20-PR-1100 located in “Zone A” and “Zone I” of the plant within *NESTE Rotterdam Site Development* Project are subject, and to check the geotechnical capacity of the piles.

This document will illustrate the geometry of the structures, the loads to which the structure will be subjected, the load combinations used and the results in terms of actions on the piles for these combinations.

Consequence Class considered for the calculations is CC3.

2. REFERENCE DOCUMENTS

The documents reported below shall be considered as integral part of this calculation note as well as their addenda, updating and reference documents.

2.1. Codes and Standards

EN 1990	Eurocode – Basis of structural design
EN 1991	Eurocode1 – Actions on structures
EN 1991-1-3	Eurocode1 part 1-3 Actions on Structures-Snow Loads
EN 1991-1-4	Eurocode1 part 1-4 Actions on Structures-Wind Loads
EN 1992-1-1	Eurocode2 part 1-1 General rules and rules for buildings
NEN EN 1990 NB	Eurocode – Basis of structural design – National Annex
NEN EN 1991-1-3 NB	Eurocode1 – part 1-3 Actions on Structures – Snow Load – National Annex
NEN EN 1991-1-4 NB	Eurocode1 – part 1-4 Actions on Structures – Wind Load – National Annex
NEN EN 1992-1-1 NB	Eurocode2 part 1-1 General rules and rules for buildings – National Annex
EN 1997-1	Eurocode7 Part 1 General Rules for Geotechnical Design
NEN EN 1997-1 NB	Eurocode7 Part 1 General Rules for Geotechnical Design – National Annex

2.2. Project Standard Drawings and Documents

080871C-000-JSD-1700-001	General design rules for Steel Structures and Civil Works
080871C-000-JSD-1410-004	JSD for Geotechnical Recommendations – RJF Plant Area
080871C-000-JSD-1430-004	Job Design Specification for Piles – RJF Area
080871C-000-CN-1431-001	Calculation note for piles
080871C-000-DW-1431-001-01	General notes for piles

2.3. Reference Drawings

080871C-A00-DW-1431-001-01 Zone “A” Piling Plan
080871C-I00-DW-1431-001-01 Zone “I” Piling Plan (1)
080871C-I00-DW-1431-001-02 Zone “I” Piling Plan (2)

3. GEOTECHNICAL PILE CAPACITIES FOR DESIGN

Regarding the design capacity in compression and tension for the piles reference was made on the document 080871C-000-JSD-1430-004.
In the following table, which shows the design capacity for compression and tension for full displacement piles having a diameter D = 457mm are indicated the values related to the structures covered by this calculation report based on the pile tip elevation considered.

Table 4.2: Full displacement pile D = 457 mm

Area	Structure	CUT OFF	Reference CPTs	P_{dp}	T_{dp}	Pile tip elevation
-	-	m NAP	-	kN	kN	m NAP
M	Hot Oil Unit (M56-STR-100) Heater	3,3	CE805	2900	1100	-16.0 (*)
			CE804A			
			CP313	3650	1450	-21.5 (**)
	Hot Oil Unit (M56-STR-100)	3,3	CE805			
			CE806			
			CP317	3000	1000	-16.0 (*)
			CP321	4050	1450	-22.0 (**)
			CE807A			
			M047			
Zone A	New RJF (A20-STR-1000)	5,3	CE800			
			CP301			
			M040	3100	1000	-16.0 (*)
			CE801	3800	1300	-19.0 (**)
			M042			
			S68			
	New RJF (A20-STR-1000)	4,35	CE801	3250	1000	-16.0 (*)
			M042			
			S68	3500	1100	-18.0 (**)
	New RJF (A20-STR-1100)	5,3	CE802A	2850	1050	-16.0 (*)
			M036			
			S74	3550	1450	-21.5 (**)
Zone I	A20-STR-1000	5,3	M041	3150	1000	-16.0 (*)
	A20-PR-1100	5,3	CE802A	3000	1100	-16.0 (*)
			S73			
			S74	3650	1450	-22.0 (**)
(*) RECOMMENDED PILE TIP ELEVATION						
(**) INSTALLATION AT THIS DEPTH TO BE CONFIRMED BY THE SPECIALIST SUBCONTRACTOR						

Design load in compression and in Tension shall be compared with the design actions at pile head, that are characteristic actions factorized with the appropriate partial factors on action given in NEN EN 1997-1+C1+A1: 2016/NB:2019.

The design value considered for the checks in terms of bearing capacity and tension are the lowest of those shown in the previous table for the structures, the values are reported in the table below for convenience

	A20-STR-1000	A20-PR-1100
P_d [kN]	3100	2850
T_d [kN]	1000	1050

4. ANALYSIS OF THE STRUCTURE A20-STR-1000

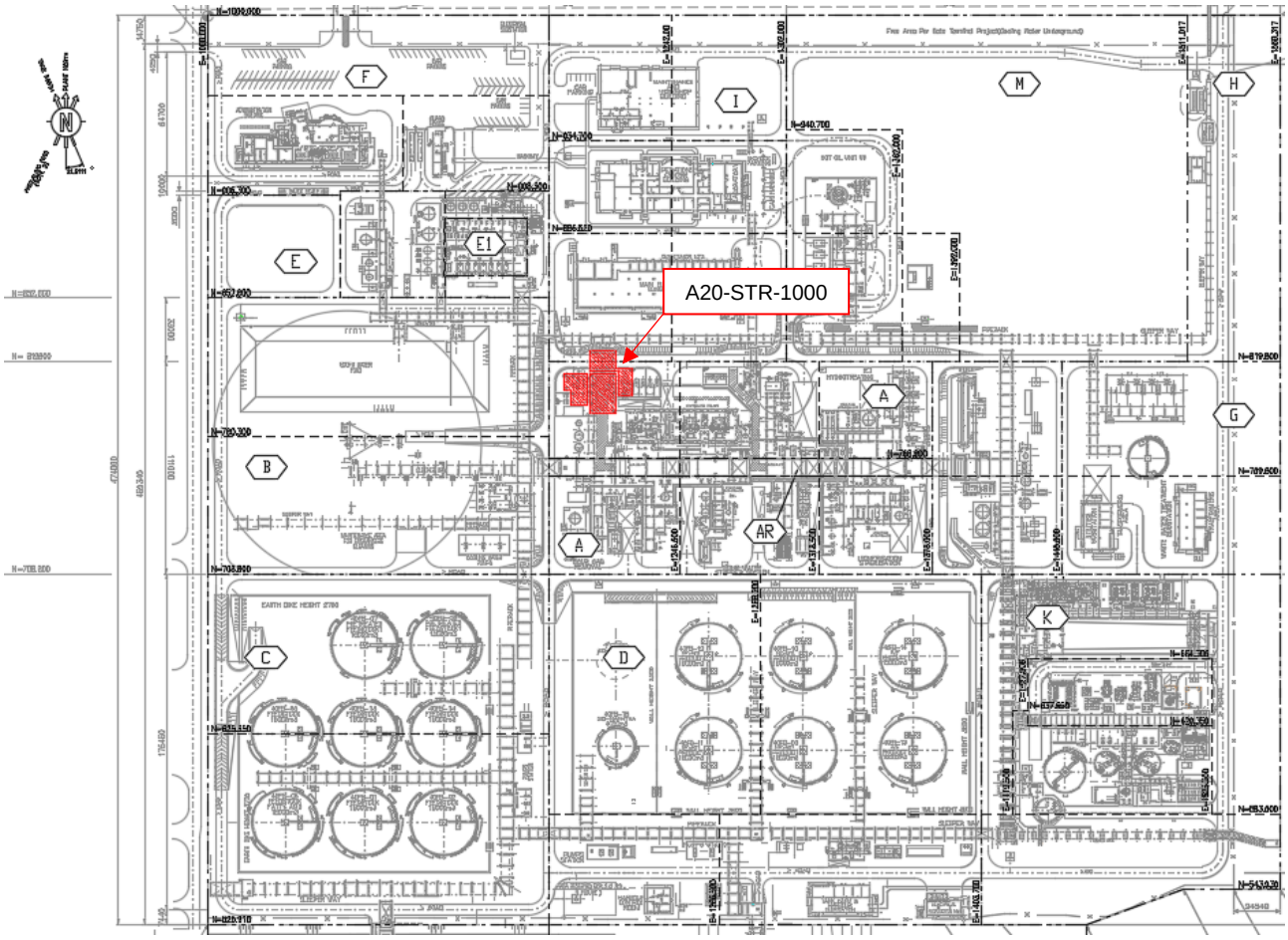
4.1. Description

The new RJF structure A20-STR-1000 is within the existing Process Area North (Zone A).

The Process structure, steel type, has vertical bracing in the north-south direction (braced frames), while in the transverse direction (east-west) it has frames with main beams having moment connections (moment frames).

the structure on the north side has a road crossing resting on a portal, which together with its foundation falls into "Zone I".

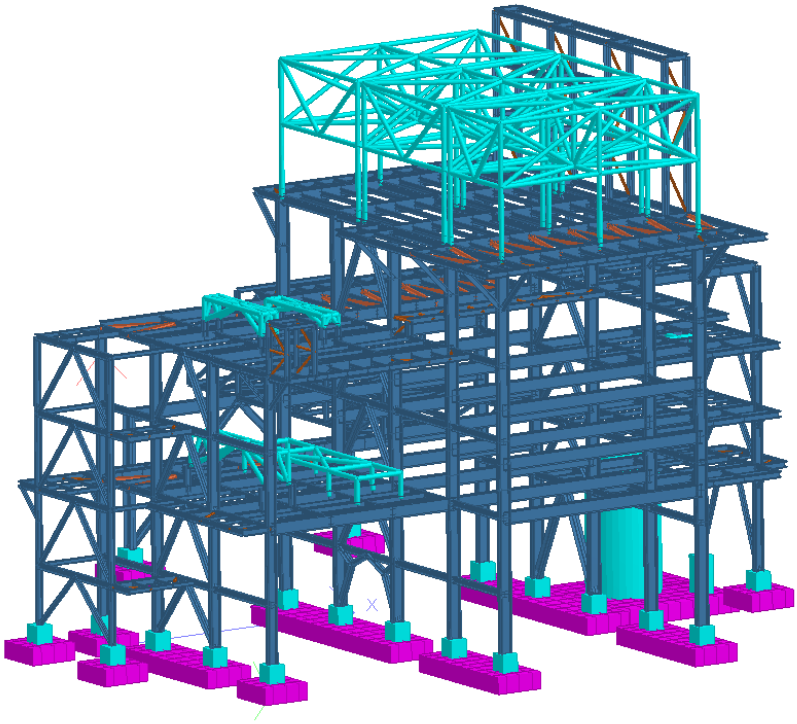
Process structure A20-STR-1000 location in refinery plan is shown in the picture below.



Location of A20-STR-1000

4.2. Structural Model

The software used for the analysis is **STAAD.Pro**, the picture below shown a 3D view of the structural model of pipe-rack A20-STR-100 int the STAAD.Pro workplace.



Structural model of A20-STR-1000

The pile foundations are modeled by means of shell elements and vertical springs representing the piles. For the stiffness of the springs reference was made to the document 080871C-000-JSD-1430-004, the table below shows the values used in the structural model

Table 4.5- Spring values D=457

UNIT	Pile lenght	F_{rep}	$w_{total;d}$	$k_{pile;d}$
[-]	[m]	[kN]	[mm]	[MN/m]
Hot Oil Unit - Heater	19.3	2900	-7.54	384.5
Hot Oil Unit	19.3	3000	-7.85	382.1
New RJF (A20-STR-1000)	21.3	3100	-8.78	353.2
New RJF (A20-STR-1000)	20.35	3250	-9.49	342.3
New RJF (A20-STR-1100)	21.3	2250	-5.45	413.2
A20-STR-1000	21.3	3150	-8.25	382.0
A20-PR-1100	21.3	3000	-8.00	375.0

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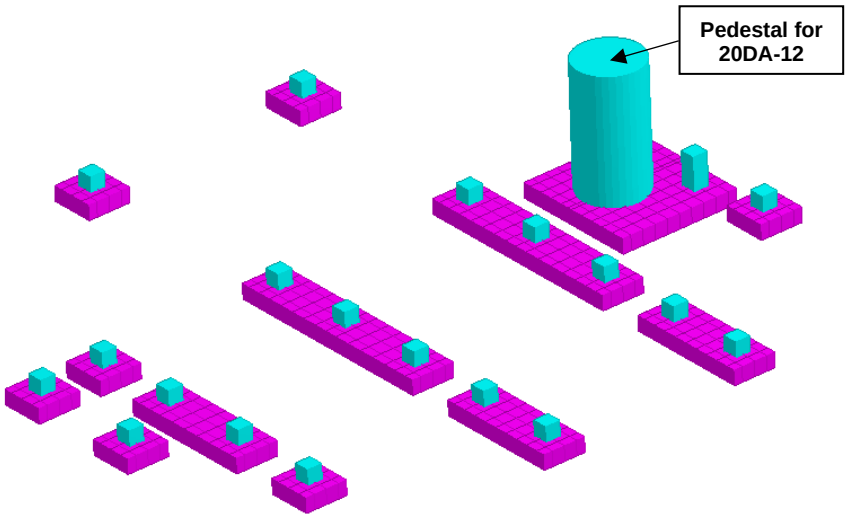
In the image below the foundations modeled for the structure A20-STR-1000

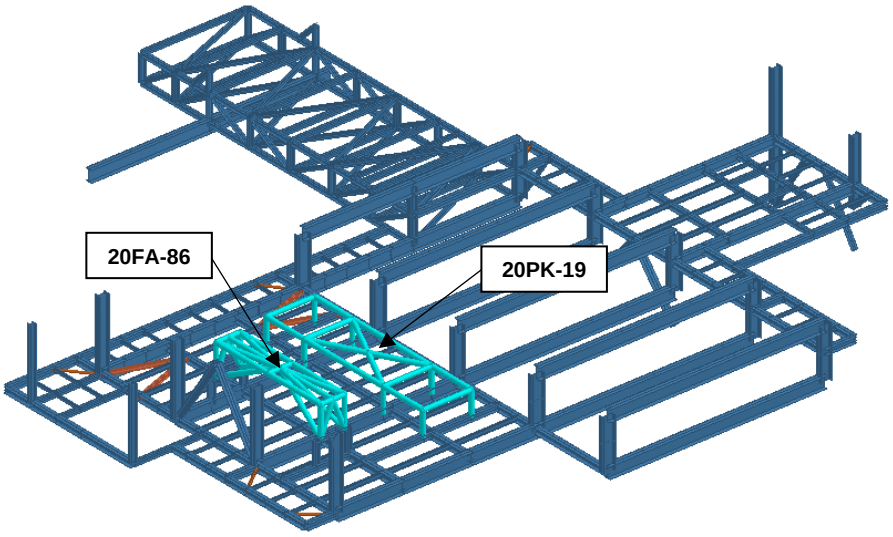


3D view of the foundation

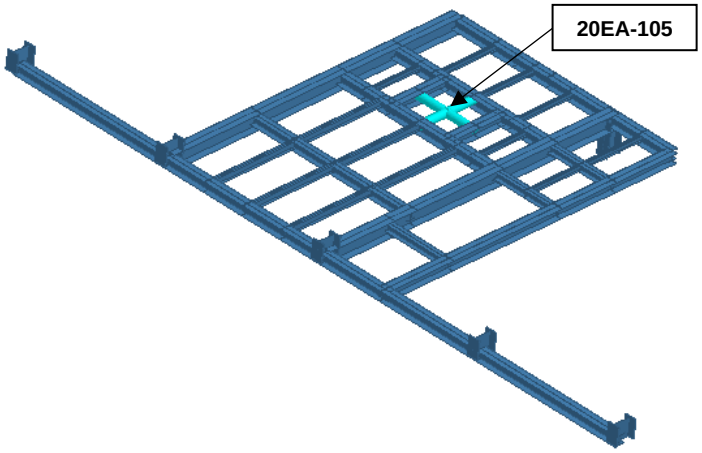
Plan view of the foundation

The presence of the equipment is taken into account through the use of master joint, where the loads are applied, rigidly connected to slave joint that transfer the loads on the supporting structural members.

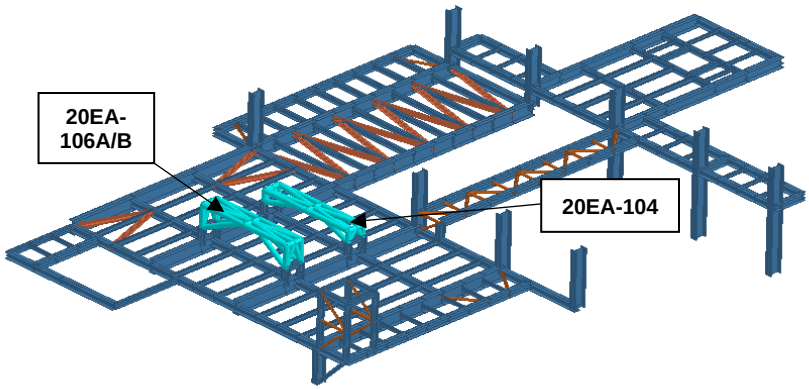
In the following images the plans of the structure at the different elevations.



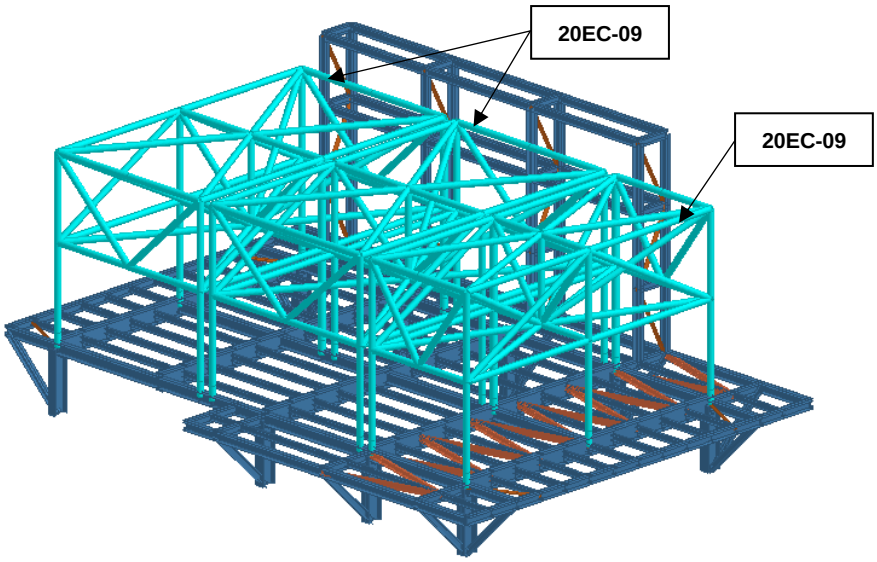
Plan of the structure at elevation +107800 to +109100



Plan of the structure at elevation +112300

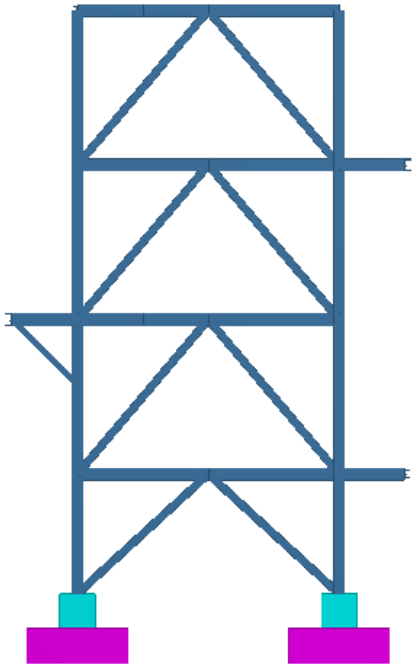


Plan of the structure at elevation +114900 to +115700

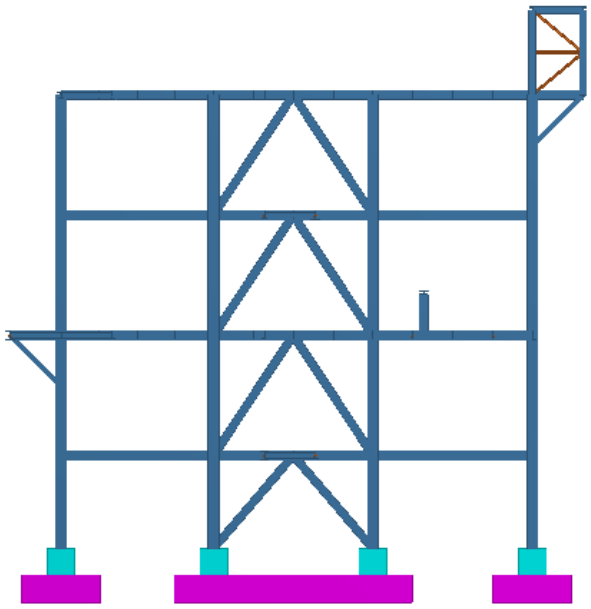


Plan of the structure at elevation +119700

In the images below the longitudinal frames of the structure



Alignment X



Alignment 4

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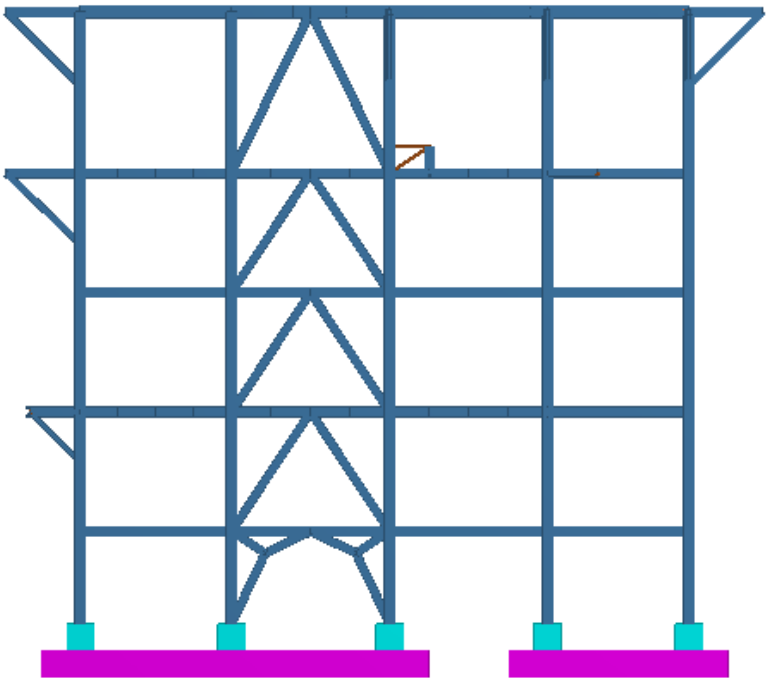
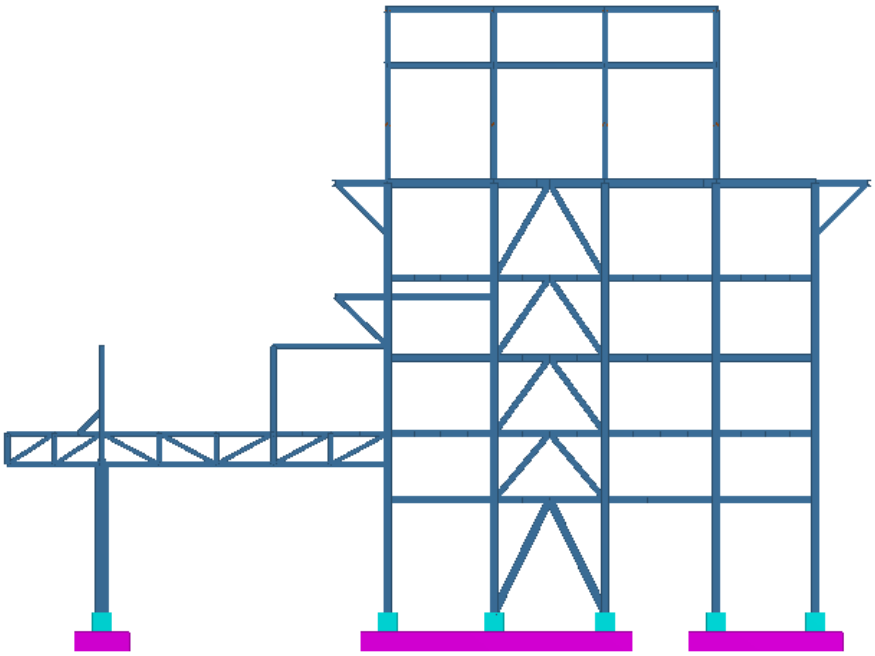
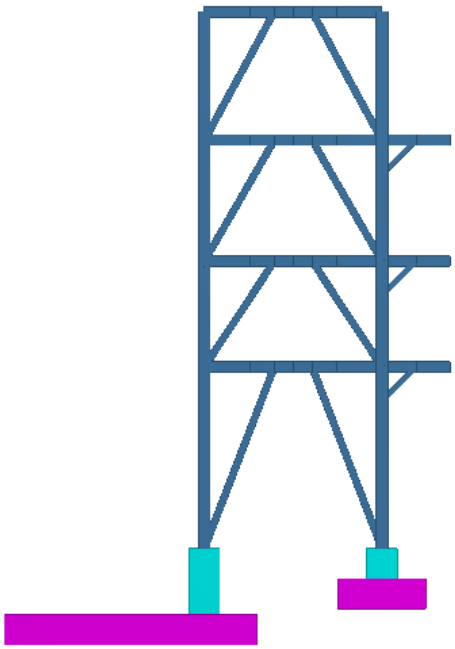


Alignment 3

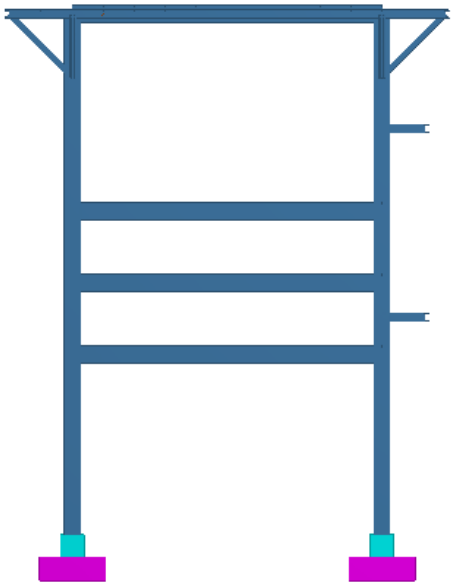


Alignment 2



Alignment 1

In the images below the transversal frames of the structure



Alignment A

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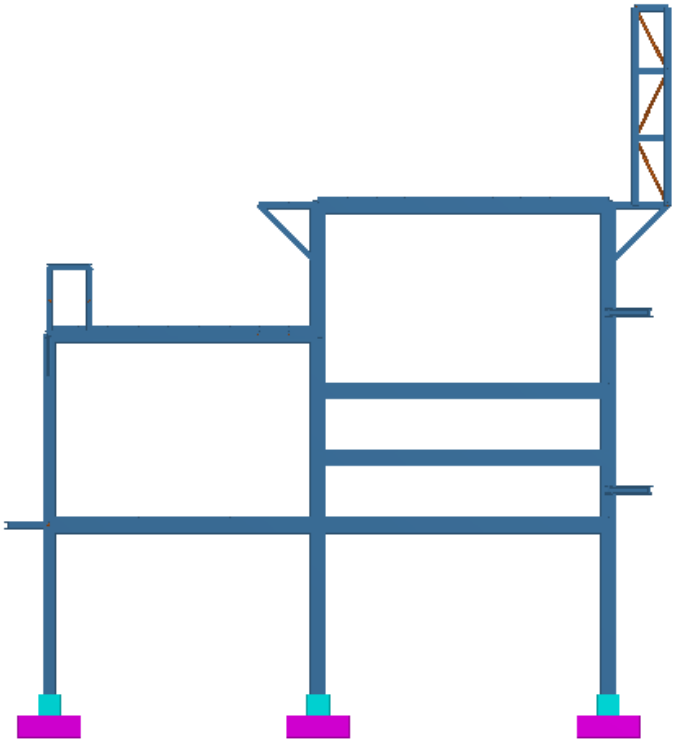
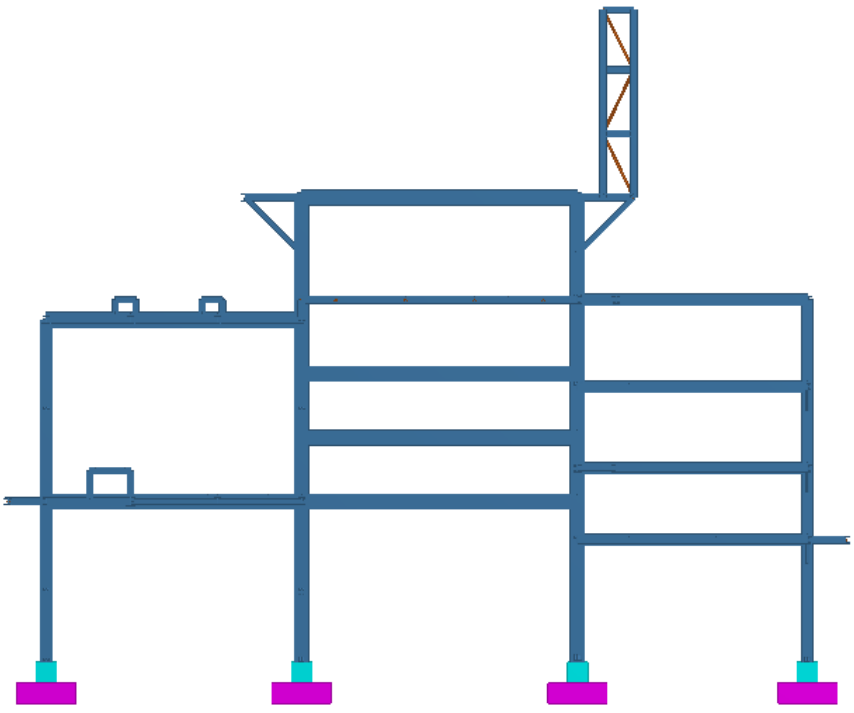


Alignment B



Alignment C

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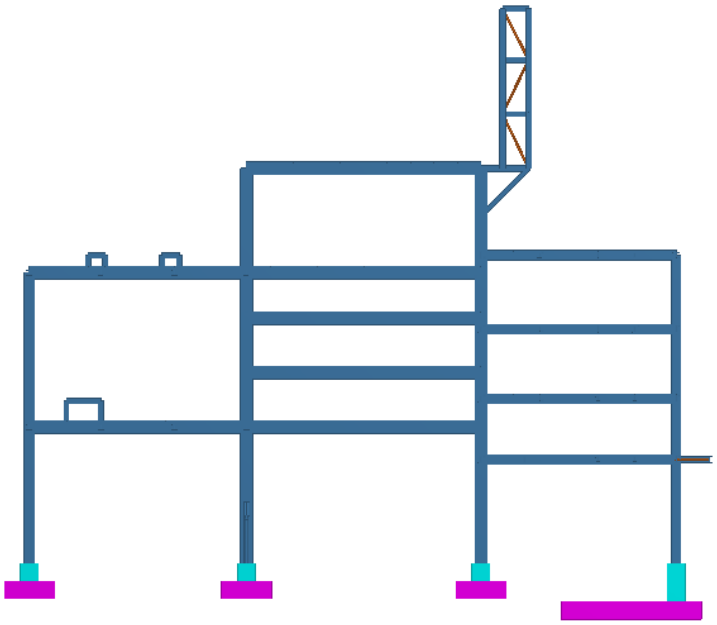
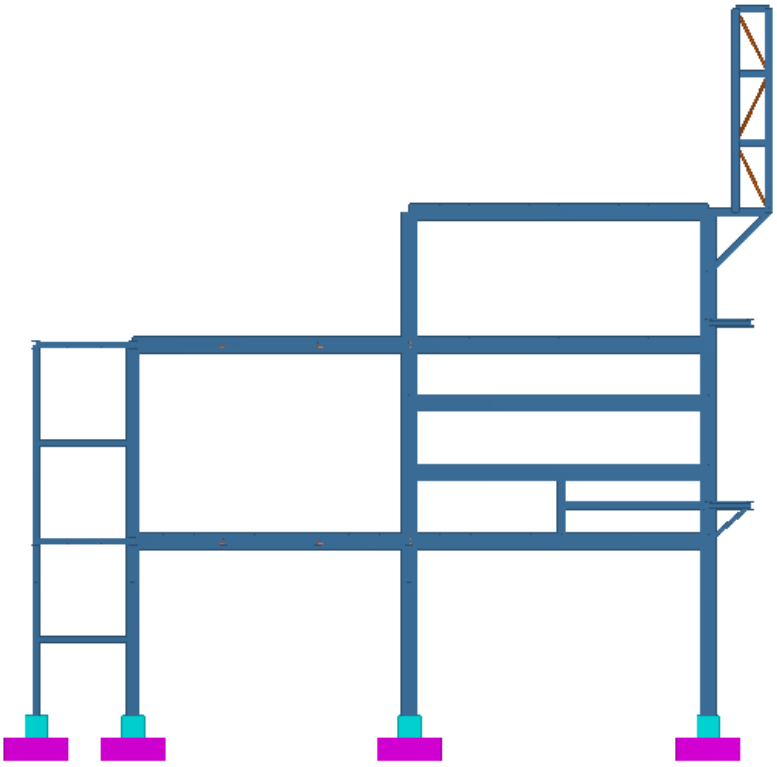
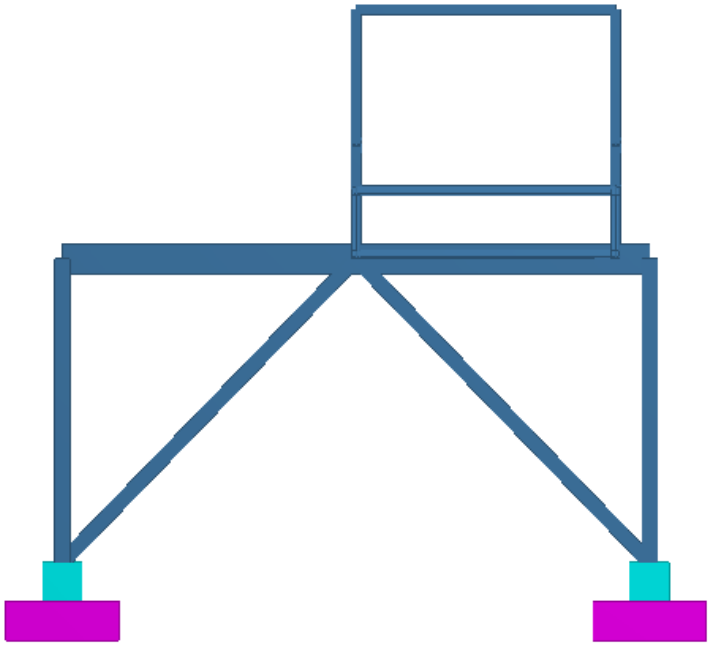


Alignment D



Alignment E



Alignment F

4.3. Load Analysis

4.3.1. Dead Load

The selfweight of the structure is automatically calculated by the program, considering the following density of materials:

Reinforced concrete: γ_c = 25 kN/m^3
Structural steel: γ_s = 78.5 kN/m^3

For secondary elements and stairs dead load reference was made to the document 080871C-000-JSD-1700-001. In the table below the indication of the values considered.

Symbols	Category	UNIFORM LOAD	
DL1	*Structure Self weight*	gravity	
DL2	*Self weight of grating and checkered plate*	0.5	kN/m^2
DL3	*Self weight of handrail*	0.3	kN/m
	Self weight of stairs and vertical ladders:		
	• *Ladder with cage*	0.42	kN/m
	• *Ladder without cage*	0.22	kN/m
	• *UPN 180 stair without steps*	0.76	kN/m
	• *UPN 220 stair without steps*	1.14	kN/m
DL4	• *UPN 280 stair without steps*	1.52	kN/m
	• *Sloped railing*	0.23	kN/m
	• *Embossed plate step 750x280x(6 + 2) 1 pcs.*	0.16	kN
	• *Grating 30x50-30x3 step 750x280 1 pcs.*	0.12	kN

4.3.2. Piping Load: EE/EO/ET

Uniformly distributed loads or concentrated forces on beams for Empty, Erection, Operating and Test conditions are considered based on the location and sizes of pipes (uniform load for small diameter bundle pipes, concentrated loads for pipes 12” dia. and above), following the indications reported in 080871C-000-1700-001 *General Design Rules for Steel Structures and Civil Works*. For example, EO load distribution corresponding to 1.8 kN/m^2 for pipe bundle and to 1.0 kN/ m^2 for cable trays is considered.

4.3.3. Live Load: LL

Live load taken into account for the steel structure, as uniformly distributed is equal to 5.0 kN/m^2.

4.3.4. Equipment Load

- Weight and loading data for **20EA-104**

  RJF COLUMN OVHD TRIM COOLER, doc. n. 080871C-020-DW-0610-002_B

WEIGHTS & LOADING DATA				
		ERECT.	TEST	OPERAT.
WEIGHTS	kg	5801	8185	8237
EART.VERT.LOADS	kN	–	–	–
SHEAR				
LG.WIND/EARTH.	kN	242 / –	121 / –	242 / –
TV.WIND/EARTH.	kN	483 / –	242 / –	483 / –
MOMENT				
LG.WIND/EARTH.	kN.m	131 / –	65 / –	131 / –
TV.WIND/EARTH.	kN.m	261 / –	131 / –	261 / –

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ROTTERDAM SITE DEVELOPMENT
DEFINITION PHASE – NESTE

ITEM : 20EA–104

SERVICE : RJF COLUMN OVHD TRIM COOLER

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NONE	080871C	020	DW	06	10	002	2 of 4	B
	Project	Unit	Doc.Type	Disc	Subj	Ser.No		

NESTE DOC N° — Confidential – Not to disclose without authorization

Project	Sub Project	PdC/CdM	Unit	Phase/Discipline/Type	Class	Ser.No.	Page	Rev.
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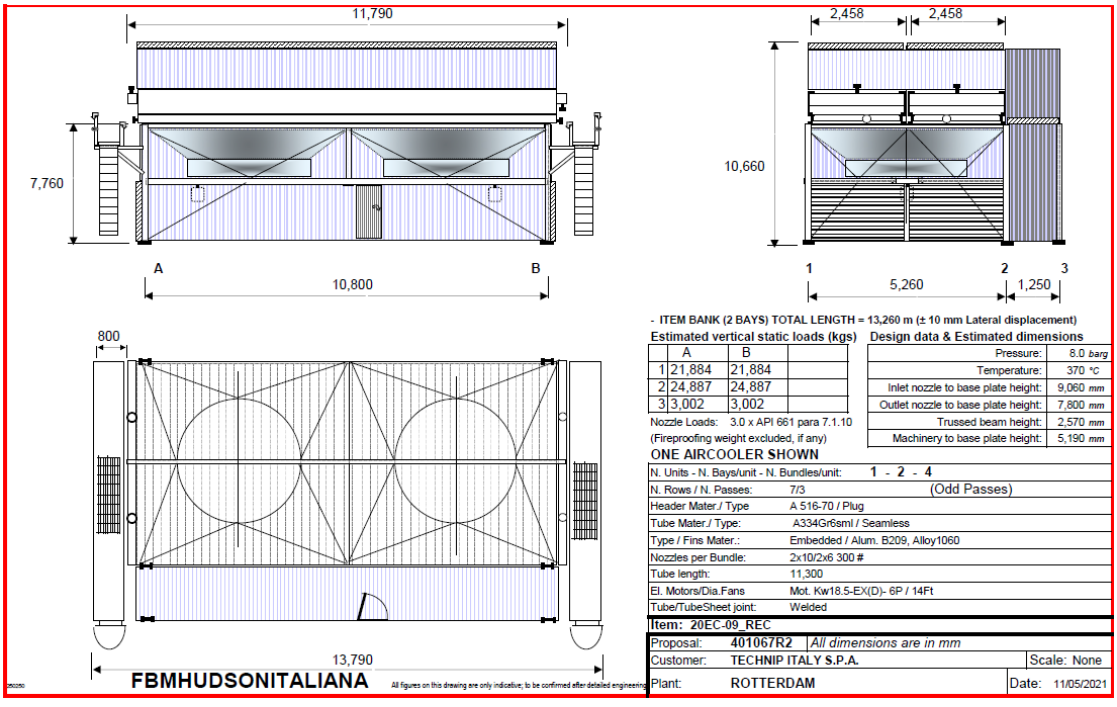
- Weight and loading data for **20EC-09**

  RJF PRODUCT AIR COOLER, doc. n. 401067R2



- ITEM BANK (2 BAYS) TOTAL LENGTH = 13,260 m (± 10 mm Lateral displacement)

Estimated vertical static loads (kgs)

	A	B	
1	21,884	21,884	
2	24,887	24,887	
3	3,002	3,002	

Nozzle Loads: 3.0 x API 661 para 7.1.10
(Fireproofing weight excluded, if any)

Design data & Estimated dimensions

Pressure:	8.0 barg
Temperature:	370 °C
Inlet nozzle to base plate height:	9,060 mm
Outlet nozzle to base plate height:	7,800 mm
Trussed beam height:	2,570 mm
Machinery to base plate height:	5,190 mm

ONE AIRCOOLER SHOWN

N. Units - N. Bays/unit - N. Bundles/unit:	1 - 2 - 4
N. Rows / N. Passes:	7/3 (Odd Passes)
Header Mater./ Type	A 516-70 / Plug
Tube Mater./ Type:	A334Gr6sml / Seamless
Type / Fins Mater.:	Embedded / Alum. B209, Alloy1060
Nozzles per Bundle:	2x10/2x6 300 #
Tube length:	11,300
El. Motors/Dia.Fans	Mot. Kw18.5-EX(D)- 6P / 14Ft
Tube/TubeSheet joint:	Welded

Item: 20EC-09_REC

Proposal:	401067R2	All dimensions are in mm	
Customer:	TECHNIP ITALY S.P.A.		Scale: None
Plant:	ROTTERDAM		Date: 11/05/2021

Weight and loading data for **20EC-11**

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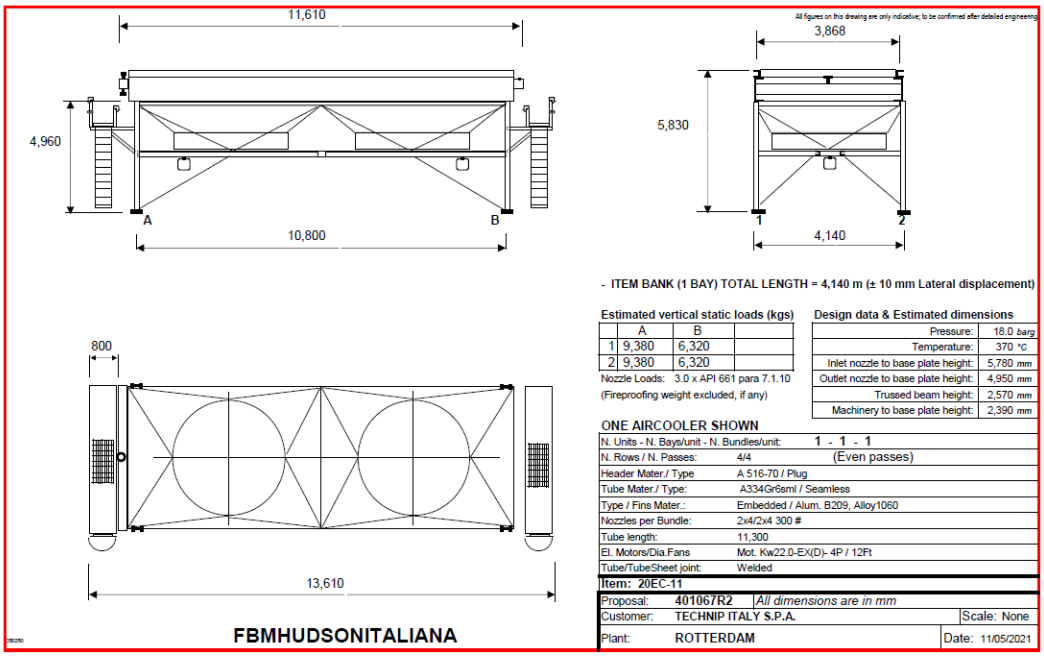

On the safety side the load values shown in the datasheet have been increased as follow

20EC-09: 1100 kN

20EC-11: 360 kN

- Weight and loading data for **20EA-105**

  RJF COLUMN REBOILER, doc. n. 080871C-020-DW-0610-003_B

WEIGHTS & LOADING DATA				
		ERECT.	TEST	OPERAT.
WEIGHTS	kg	12715	18414	16662
EART.VERT.LOADS	kN	–	–	–
SHEAR				
LG.WIND/EARTH.	kN	10.71 / –	5.4 / –	10.71 / –
TV.WIND/EARTH.	kN	10.71 / –	5.4 / –	10.71 / –
MOMENT				
LG.WIND/EARTH.	kN.m	11.13 / –	5.7 / –	11.13 / –
TV.WIND/EARTH.	kN.m	11.13 / –	5.7 / –	11.13 / –

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ROTTERDAM SITE DEVELOPMENT
DEFINITION PHASE – NESTE

ITEM : 20EA–105

SERVICE : RFJ COLUMN REBOILER

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	Project	Unit	Doc.Type	Disc	Subj	Ser.No		

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- Weight and loading data for **20EA-106 A/B**

  RJF PRODUCT TRIM COOLER, doc. n. 080871C-020-DW-0610-004_B

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NOTE:
1) WEIGHTS AND LOADING DATA ARE REFERRED TO THE EXCHANGER COUPLE

WEIGHTS & LOADING DATA

		ERECT.	TEST	OPERAT.
WEIGHTS	kg	11903	16381	16009
EART.VERT.LOADS	kN	–	–	–
SHEAR				
LG.WIND/EARTH.	kN	4.48 / –	2.24 / –	4.48 / –
TV.WIND/EARTH.	kN	8.95 / –	4.48 / –	8.95 / –
MOMENT				
LG.WIND/EARTH.	kN.m	4.93 / –	2.47 / –	4.93 / –
TV.WIND/EARTH.	kN.m	9.85 / –	4.93 / –	9.85 / –

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ROTTERDAM SITE DEVELOPMENT
DEFINITION PHASE – NESTE

ITEM : 20EA–106 A/B

SERVICE : RJF PRODUCT TRIM COOLER

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NESTE DOC. N°			Confidential – Not to disclose without authorization					
Project	Sub Project	PdC/CdM	Unit	Phase/Discipline/Type	Class	Ser.No.	Page	Rev.
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- Weight and loading data for **20FA-86**

  RJF PRODUCT OVHD DRUM, doc. n. 080871C-020-SP-0810-001_C

LOADS ON FOUNDATION

		ERECTION	TEST	OPERATION
Weight	kg	9376	49885	41316
Earthquake Vertical Force	kN	-	-	-
SHEAR		-	-	-
LG Wind / Earthquake	kN	15,46 / -	7,73 / -	15,46 / -
TV Wind / Earthquake	kN	30,91 / -	15,46 / -	30,91 / -
MOMENT		-	-	-
LG Wind / Earthquake	kNm	23,18 / -	11,59 / -	23,18 / -
TV Wind / Earthquake	kNm	46,36 / -	23,18 / -	46,36 / -

NESTE T.EN TECHNIP ENERGIES

ROTTERDAM SITE DEVELOPMENT - NESTE

ITEM: 20FA-86

SERVICE: RJF COLUMN OVHD DRUM

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Project	Sub Proj.	PdC/CdM	Unit	Phase/Discipline/Type	Class	Ser. No.	Page	Rev.
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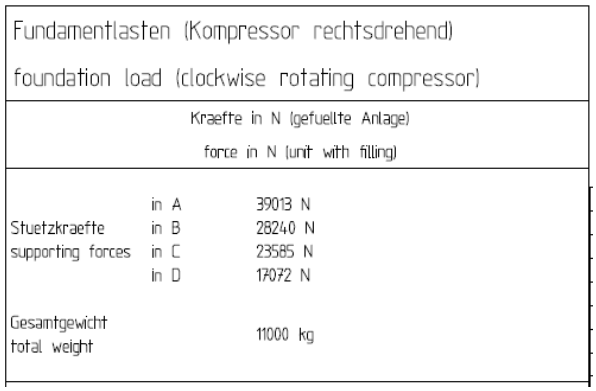
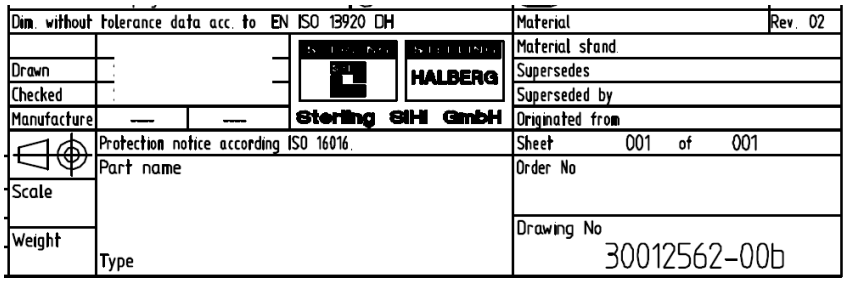
- Weight and loading data for **20PK-19**

  RJF COLUMN VACUUM SYSTEM, doc. n. 30012562-00b_02



Fundamentlasten (Kompressor rechtsdrehend) foundation load (clockwise rotating compressor)		
Kraefte in N (gefuellte Anlage) force in N (unit with filling)		
Stuetzkraefte supporting forces	in A	39013 N
	in B	28240 N
	in C	23585 N
	in D	17072 N
Gesamtgewicht total weight		11000 kg

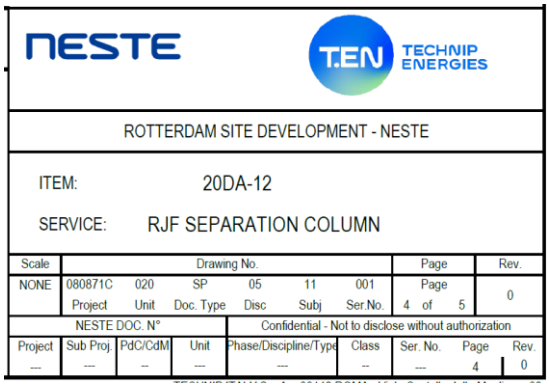


Dim. without tolerance data acc. to EN ISO 13920 DH			Material / Rev. 02
Drawn		HALBERG	Material stand.
Checked			Supersedes
Manufacture	—	— Sterling SIHI GmbH	Superseded by
	Protection notice according ISO 16016.		Originated from
	Part name		Sheet 001 of 001
Scale			Order No
Weight	Type		Drawing No 30012562-00b

- Weight and loading data for **20DA-12**

  RJF SEPARATION COLUMN, doc. n. 080871C-020-SP-0511-001_0

LOADS ON FOUNDATION											
		ERECTION			TEST			OPERATION			
Weight	kg	118933			301199			183413			
Earthquake Vertical Force	kN										
SHEAR											
LG Wind / Earthquake	kN	289	/	-	198	/	-	366	/	-	
TV Wind / Earthquake	kN		/	-		/	-		/	-	
MOMENT											
LG Wind / Earthquake	kNm	4859	/	-	3323	/	-	6138	/	-	
TV Wind / Earthquake	kNm	-	/	-	-	/	-	-	/	-	



4.3.5. Thermal Loads:TLT/TLS/FL

Thermal loads have been calculated computed according to doc. 080871C-000-JSD-1700-001.

4.3.6. Wind Load: WL

Wind loads are conservatively applied on all frames, and is calculated according to doc. 080871C-000-JSD-1700-001.
Wind load on piping and equipment are added to the wind load of the frame.

4.3.7. Snow Load: SL

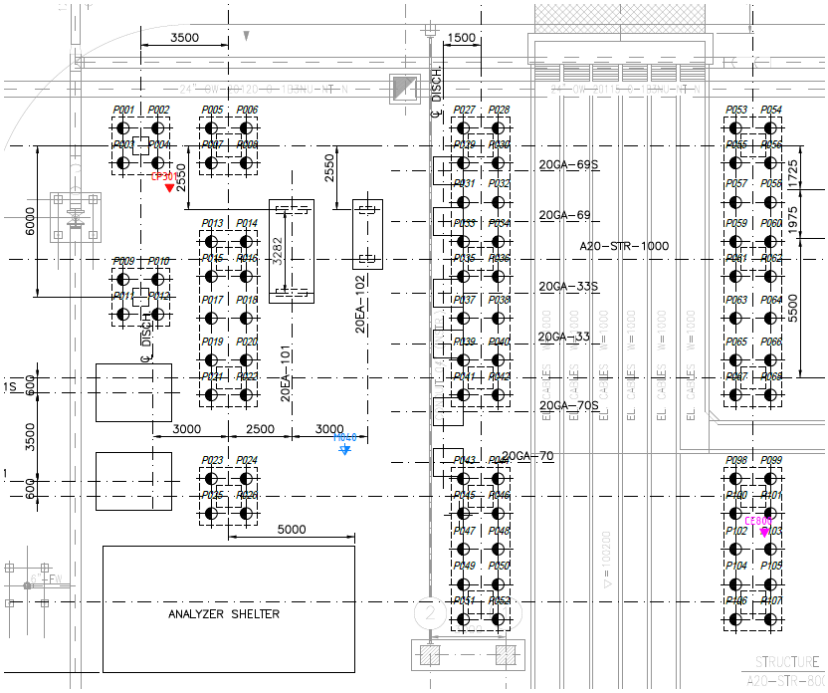
Snow load has been computed according to doc. 080871C-000-JSD-1700-001.

4.4. Load Combinations

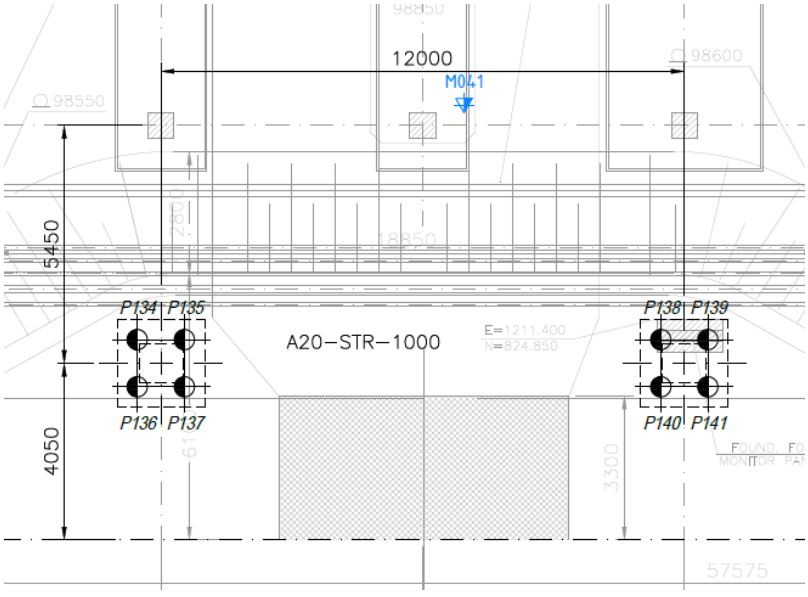
Loading combinations are defined in doc. 080871C-000-JSD-1700-001.

4.5. Piling Plan Geotechnical Check

In the following images the piling plan for the structure A20-STR-1000



Piling Plan ZONE "A" for A20-STR-1000



Piling Plan ZONE "I" for A20-STR-1000

In the following table the summary of the pile reactions for the envelope of combinations ULS STR/GEO

			Horizontal	Vertical	Horizontal	Moment		
	Node	L/C	Fx kN	Fy kN	Fz kN	Mx kN-m	My kN-m	Mz kN-m
Max Fx	1371	1007 0.9(DL+E	**187.711**	-23.555	25.143	0.000	0.000	0.000
Min Fx	1371	1146 1.3(DL+E	**-187.767**	763.684	-25.227	0.000	0.000	0.000
Max Fy	1109	1148 1.3(DL+E	-66.168	**1406.713**	-144.131	0.000	0.000	0.000
Min Fy	906	1129 0.9(DL+E	-63.221	**-752.355**	135.679	0.000	0.000	0.000
Max Fz	1109	1149 1.3(DL+E	66.559	-529.930	**140.717**	0.000	0.000	0.000
Min Fz	906	1148 1.3(DL+E	68.126	1400.647	**-145.033**	0.000	0.000	0.000
Max Mx	12	1000 1.5(DL+E	1.156	74.855	1.847	**0.000**	0.000	0.000
Min Mx	12	1000 1.5(DL+E	1.156	74.855	1.847	**0.000**	0.000	0.000
Max My	12	1000 1.5(DL+E	1.156	74.855	1.847	0.000	**0.000**	0.000
Min My	12	1000 1.5(DL+E	1.156	74.855	1.847	0.000	**0.000**	0.000
Max Mz	12	1000 1.5(DL+E	1.156	74.855	1.847	0.000	0.000	**0.000**
Min Mz	12	1000 1.5(DL+E	1.156	74.855	1.847	0.000	0.000	**0.000**

Max compression:

P_{Ed} = 1406.71 kN

Max tension:

T_{Ed} = 752.36 kN

The design capacity in compression and tension considered for the checks are the lowest in absolute value among those reported in the document 080871C-000-JSD-1430-004 for the structure:

Capacity check in Compression

P_{Ed} = 1406.71 kN **<** P_D = 3100 kN, Checked

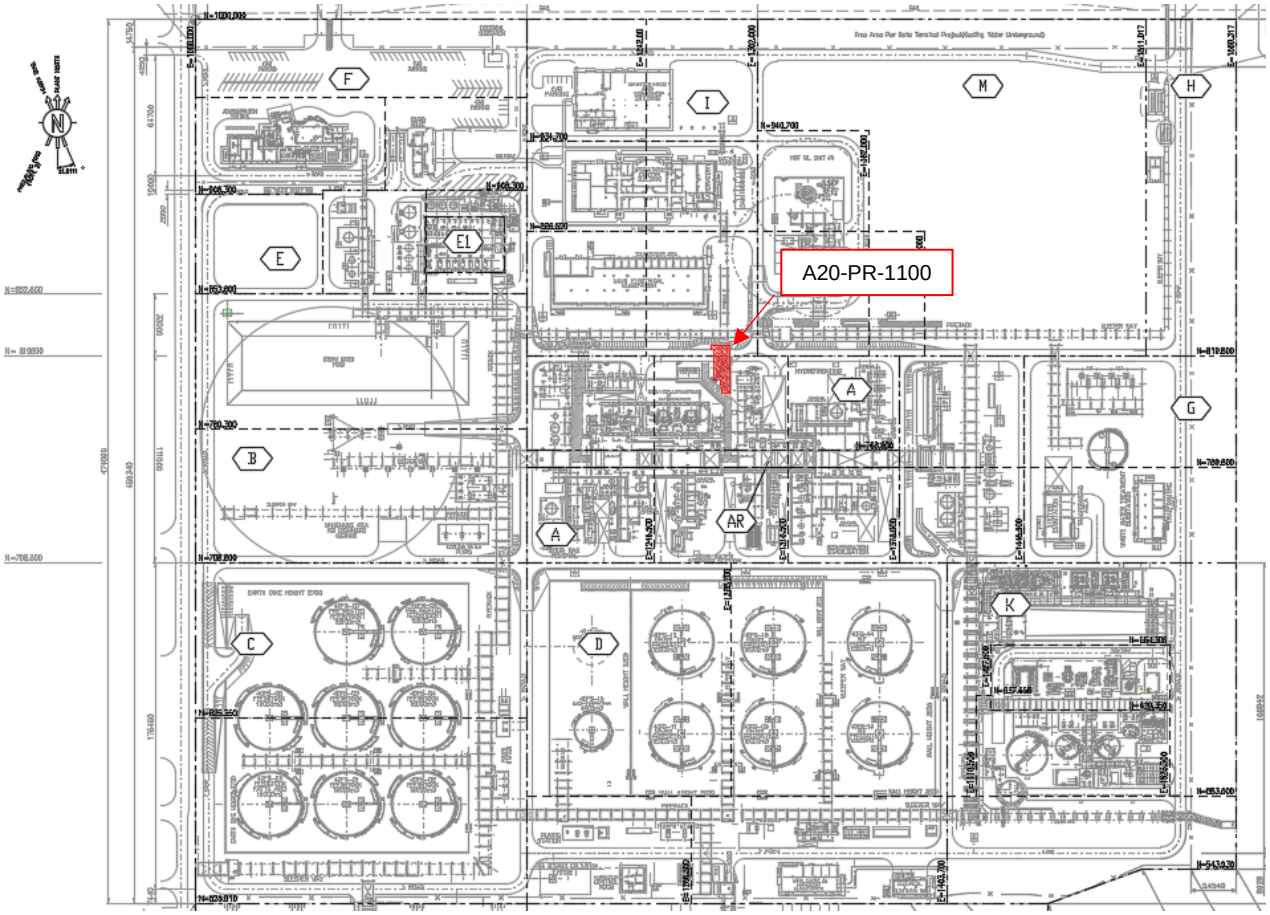
Check in Tension

P_{Ed} = 752.36 kN **<** P_D = 1000 kN, Checked

5. ANALYSIS OF THE PIPE-RACK A20-PR-1100

5.1. Description

Pipe-rack A20-PR-600 location in refinery plan is shown in the picture below.

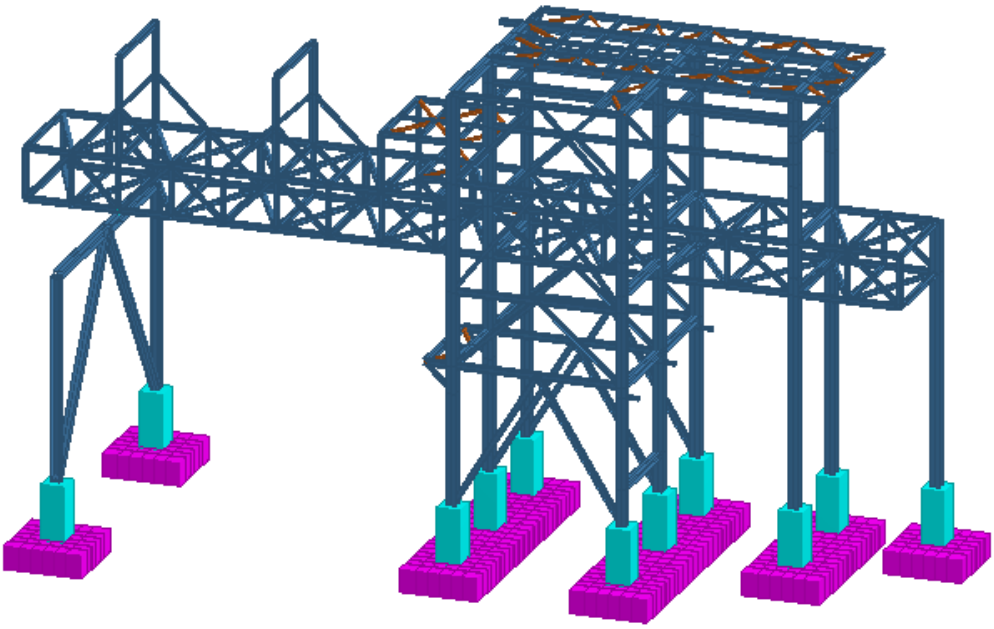


Location of A20-PR-1100

The structure has vertical bracing in the north-south direction (braced frames), while in the transverse direction (east-west) it has frames with main beams having moment connections (moment frames).
The function of the structure is simply to support piping lines and cable trays.

5.2. Structural Model

A 3D view of the structural model of pipe-rack A20-PR-1100 is shown in the picture below.



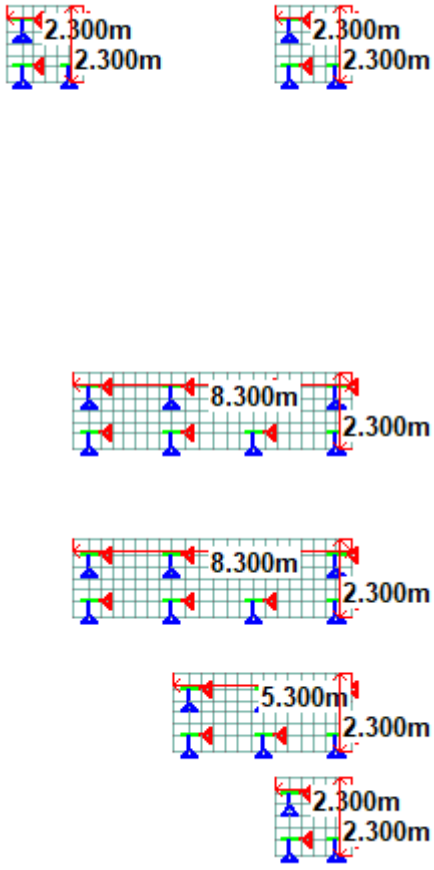
Structural model of A20-PR-1100

The pile foundations are modeled by means of shell elements (thickness 800 mm) and vertical springs representing the piles. For the stiffness of the springs reference was made to the document 080871C-000-JSD-1430-004, the table below shows the values used in the structural model

Table 4.5- Spring values D=457

UNIT	Pile lenght	F_{rep}	$w_{total;d}$	$k_{pile;d}$
[-]	[m]	[kN]	[mm]	[MN/m]
Hot Oil Unit - Heater	19.3	2900	-7.54	384.5
Hot Oil Unit	19.3	3000	-7.85	382.1
New RJF (A20-STR-1000)	21.3	3100	-8.78	353.2
New RJF (A20-STR-1000)	20.35	3250	-9.49	342.3
New RJF (A20-STR-1100)	21.3	2250	-5.45	413.2
A20-STR-1000	21.3	3150	-8.25	382.0
A20-PR-1100	21.3	3000	-8.00	375.0

In the image below the foundations modeled for the structure A20-STR-1000



Plan view of the foundation

5.3. **Load Analysis**

5.3.1. Dead Load

The selfweight of the structure is automatically calculated by the program, considering the following density of materials:

Reinforced concrete: $\gamma_c = 25$ kN/m^3
Structural steel: $\gamma_s = 78.5$ kN/m^3
Soil: $\gamma_{soil} = 18$ kN/m^3

For secondary elements and stairs dead load reference was made to the document 080871C-000-JSD-1700-001. In the table below the indication of the values considered.

Symbols	Category	UNIFORM LOAD	
DL1	*Structure Self weight*	gravity	
DL2	*Self weight of grating and checkered plate*	0.5	kN/m^2
DL3	*Self weight of handrail*	0.3	kN/m
	Self weight of stairs and vertical ladders:		
	• *Ladder with cage*	0.42	kN/m
	• *Ladder without cage*	0.22	kN/m
	• *UPN 180 stair without steps*	0.76	kN/m
	• *UPN 220 stair without steps*	1.14	kN/m
DL4	• *UPN 280 stair without steps*	1.52	kN/m
	• *Sloped railing*	0.23	kN/m
	• *Embossed plate step 750x280x(6 + 2) 1 pcs.*	0.16	kN
	• *Grating 30x50-30x3 step 750x280 1 pcs.*	0.12	kN

5.3.2. Piping Load: EE/EO/ET

Uniformly distributed loads or concentrated forces on beams for Empty, Erection, Operating and Test conditions are considered based on the location and sizes of pipes (uniform load for small diameter bundle pipes, concentrated loads for pipes 12” dia. and above), following the indications reported in 080871C-000-1700-001 *General Design Rules for Steel Structures and Civil Works*. For example, EO load distribution corresponding to 1.8 kN/m^2 for pipe bundle and to 1.0 kN/ m^2 for cable trays is considered.

5.3.3. Live Load: LL

Live load taken into account for the steel structure, as uniformly distributed is equal to 5.0 kN/m^2.

5.3.4. Equipment Load

Not applicable.

5.3.5. Thermal Loads:TLT/TLS/FL

Thermal loads have been calculated computed according to doc. 080871C-000-JSD-1700-001.

5.3.6. Wind Load: WL

Wind loads are conservatively applied on all frames, and is calculated according to doc. 080871C-000-JSD-1700-001.
Wind load on piping and equipment are added to the wind load of the frame.

5.3.7. Snow Load: SL

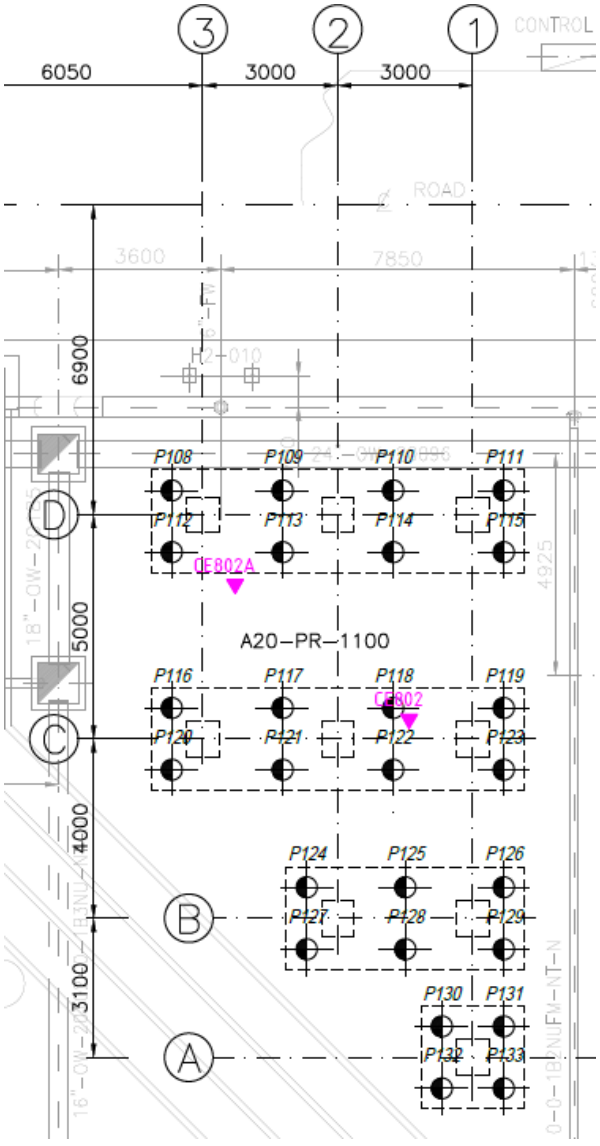
Snow load has been computed according to doc. 080871C-000-JSD-1700-001.

5.4. Load Combinations

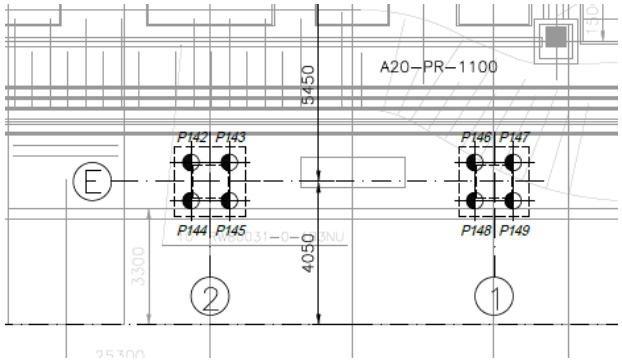
Loading combinations are defined in doc. 080871C-000-JSD-1700-001.

5.5. Piling Plan Geotechnical Check

In the following images the piling plan for the structure A20-PR-1100



Piling Plan ZONE "A" for A20-PR-1100



Piling Plan ZONE "I" for A20-PR-1100

In the following table the summary of the pile reactions for the envelope of combinations ULS STR/GEO

			Horizontal	Vertical	Horizontal	Moment		
	Node	L/C	Fx kN	Fy kN	Fz kN	Mx kN-m	My kN-m	Mz kN-m
Max Fx	789	1147 1.3(DL+E	**42.211**	3.960	15.210	0.000	0.000	0.000
Min Fx	736	1146 1.3(DL+E	**-44.718**	58.917	16.076	0.000	0.000	0.000
Max Fy	304	1149 1.3(DL+E	-2.674	**504.855**	40.444	0.000	0.000	0.000
Min Fy	433	1129 0.9(DL+E	14.505	**-49.452**	33.588	0.000	0.000	0.000
Max Fz	305	1149 1.3(DL+E	2.856	315.682	**40.610**	0.000	0.000	0.000
Min Fz	501	1148 1.3(DL+E	-5.463	455.865	**-41.924**	0.000	0.000	0.000
Max Mx	287	1000 1.5(DL+E	1.147	139.027	1.737	**0.000**	0.000	0.000
Min Mx	287	1000 1.5(DL+E	1.147	139.027	1.737	**0.000**	0.000	0.000
Max My	287	1000 1.5(DL+E	1.147	139.027	1.737	0.000	**0.000**	0.000
Min My	287	1000 1.5(DL+E	1.147	139.027	1.737	0.000	**0.000**	0.000
Max Mz	287	1000 1.5(DL+E	1.147	139.027	1.737	0.000	0.000	**0.000**
Min Mz	287	1000 1.5(DL+E	1.147	139.027	1.737	0.000	0.000	**0.000**

Max compression:

P_{Ed} = 504 kN

Max tension:

T_{Ed} = -49 kN

The design capacity in compression and tension considered for the checks are the lowest in absolute value among those reported in the document 080871C-000-JSD-1430-004 for the structure:

Capacity check in Compression

P_{Ed} = 504 kN **<** P_D = 2850 kN, Checked

Check in Tension

P_{Ed} = -49 kN **<** P_D = 1050 kN, Checked

ATTACHMENTS:

ATT. A Input STAAD.Pro Structure A20-STR-1000

```
STAAD SPACE
START JOB INFORMATION
JOB NAME JET+IP
JOB NO 080871C
JOB REV A
JOB PART 000
JOB REF STRUCTURE NAME
JOB CLIENT NESTE
ENGINEER DATE *DD/MM/YYYY*
END JOB INFORMATION
INPUT WIDTH 79
INPUT WIDTH 79
OUTPUT WIDTH 118
SET NL 200
UNIT METER KN
JOINT COORDINATES
1 -4.65001 0.300001 -1.15; 2 -4.65001 0.300001 -0.690001;
3 -4.65001 0.300001 4.84468e-08; 4 -4.65001 0.300001 0.690001;
5 -4.65001 0.300001 1.15; 6 -4.65001 0.300001 4.85001;
7 -4.65001 0.300001 5.31001; 8 -4.65001 0.300001 6.00001;
9 -4.65001 0.300001 6.69001; 10 -4.65001 0.300001 7.15001;
11 -4.19001 0.300001 -1.15; 12 -4.19001 0.300001 -0.690001;
13 -4.19001 0.300001 0; 14 -4.19001 0.300001 0.690001;
15 -4.19001 0.300001 1.15; 16 -4.19001 0.300001 4.85001;
17 -4.19001 0.300001 5.31001; 18 -4.19001 0.300001 6.00001;
19 -4.19001 0.300001 6.69001; 20 -4.19001 0.300001 7.15001;
21 -3.50001 7.80002 -1.5; 22 -3.50001 0.300001 -1.15;
23 -3.50001 0.300001 -0.690001; 24 -3.50001 0.300001 0; 25 -3.50001 1.5 0;
26 -3.50001 1.6 0; 27 -3.50001 4.25001 0; 28 -3.50001 6.30001 0;
29 -3.50001 7.80002 0; 30 -3.50001 11.35 0; 31 -3.50001 14.9 0;
32 -3.50001 0.300001 0.690001; 33 -3.50001 0.300001 1.15;
34 -3.50001 7.80002 1.5; 35 -3.50001 14.9 1.5; 36 -3.50001 7.80002 3;
37 -3.50001 14.9 3; 38 -3.50001 4.25001 3.00001; 39 -3.50001 11.35 3.00001;
40 -3.50001 0.300001 4.85001; 41 -3.50001 0.300001 5.31001;
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51 -3.50001 4.25001 7.50001; 52 -3.50001 11.35 7.50002;
53 -2.81001 0.300001 -1.15; 54 -2.81001 0.300001 -0.690001;
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65 -2.35001 0.300001 -0.690001; 66 -2.35001 7.80002 0; 67 -2.35001 14.9 0;
68 -2.35001 0.300001 4.84468e-08; 69 -2.35001 0.300001 0.690001;
70 -2.35001 0.300001 1.15; 71 -2.35001 7.80002 1.5; 72 -2.35001 14.9 1.5;
73 -2.35001 0.300001 4.85001; 74 -2.35001 0.300001 5.31001;
```

75 -2.35001 0.300001 6.00001; 76 -2.35001 4.25001 6.00001;
77 -2.35001 11.35 6.00001; 78 -2.35001 0.300001 6.69001;
79 -2.35001 0.300001 7.15001; 80 -2.35001 4.25001 7.50001;
81 -2.35001 11.35 7.50002; 82 -1.5 7.80002 6.00001; 83 -1.5 7.80002 6.85001;
84 -1.5 7.80002 8.02501; 85 -1.5 7.80002 9.20002; 86 -1.5 7.80002 10.375;
87 -1.5 7.80002 11.55; 88 -1.5 7.80002 12.725; 89 -1.5 7.80002 13.9;
90 -1.15001 0.300001 -1.15; 91 -1.15001 0.300001 -0.690001;
92 -1.15001 7.80002 0; 93 -1.15001 14.9 0; 94 -1.15001 0.300001 4.84468e-08;
95 -1.15001 0.300001 0.690001; 96 -1.15001 0.300001 1.15;
97 -1.15001 7.80002 1.5; 98 -1.15001 14.9 1.5; 99 -1.15001 0.300001 3.35001;
100 -1.15001 0.300001 3.81001; 101 -1.15001 0.300001 4.50001;
102 -1.15001 0.300001 5.19001; 103 -1.15001 4.25001 6.00001;
104 -1.15001 11.35 6.00001; 105 -1.15001 0.300001 6.02001;
106 -1.15001 0.300001 6.85001; 107 -1.15001 4.25001 7.50001;
108 -1.15001 11.35 7.50002; 109 -1.15001 0.300001 7.68001;
110 -1.15001 0.300001 8.51002; 111 -1.15001 0.300001 9.20002;
112 -1.15001 0.300001 9.89002; 113 -1.15001 0.300001 10.35;
114 -1.15001 0.300001 12.75; 115 -1.15001 0.300001 13.21;
116 -1.15001 0.300001 13.9; 117 -1.15001 0.300001 14.59;
118 -1.15001 0.300001 15.05; 119 -1.15 7.80002 -1.5;
120 -0.690005 0.300001 -1.15; 121 -0.690005 0.300001 -0.690001;
122 -0.690005 0.300001 0; 123 -0.690005 0.300001 0.690001;
124 -0.690005 0.300001 1.15; 125 -0.690005 0.300001 3.35001;
126 -0.690005 0.300001 3.81001; 127 -0.690005 0.300001 4.50001;
128 -0.690005 0.300001 5.19001; 129 -0.690005 0.300001 6.02001;
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152 -3.10059e-06 0.300001 9.89002; 153 -3.10059e-06 0.300001 10.35;
154 -3.10059e-06 0.300001 12.75; 155 -3.10059e-06 0.300001 13.21;
156 -3.10059e-06 0.300001 14.59; 157 0 7.80002 -1.5; 158 0 0.300001 0;
159 0 1.5 0; 160 0 4.25001 0; 161 0 6.30001 0; 162 0 7.80002 0; 163 0 11.35 0;
164 0 14.9 0; 165 0 7.80002 1.125; 166 0 14.9 1.125; 167 0 7.80002 1.5;
168 0 14.9 1.5; 169 0 7.80002 2.25; 170 0 14.9 2.25; 171 0 7.80002 3.375;
172 0 14.9 3.375; 173 0 0.300001 4.50001; 174 0 1.5 4.50001; 175 0 1.6 4.50001;
176 0 4.25001 4.50001; 177 0 7.80002 4.50001; 178 0 11.35 4.50001;
179 0 14.9 4.50001; 180 0 7.80002 5.67501; 181 0 14.9 5.67501;
182 0 4.25001 6.00001; 183 0 7.80002 6.00001; 184 0 11.35 6.00001;
185 0 14.9 6.00001; 186 0 4.25001 6.85001; 187 0 7.80002 6.85001;
188 0 11.35 6.85001; 189 0 14.9 6.85001; 190 0 4.25001 7.50001;
191 0 11.35 7.50002; 192 0 7.80002 8.02501; 193 0 14.9 8.02501;
194 0 0.300001 9.20002; 195 0 1.5 9.20002; 196 0 1.6 9.20002;
197 0 4.25001 9.20002; 198 0 7.80002 9.20002; 199 0 11.35 9.20002;
200 0 14.9 9.20002; 201 0 7.80002 10.375; 202 0 14.9 10.375;
203 0 7.80002 10.7; 204 0 7.80002 11.55; 205 0 14.9 11.55;

206 0 7.80002 12.725; 207 0 14.9 12.725; 208 0 0.300001 13.9; 209 0 1.5 13.9;
210 0 4.25001 13.9; 211 0 7.80002 13.9; 212 0 11.35 13.9; 213 0 13.4 13.9;
214 0 14.9 13.9; 215 0 16.15 13.9; 216 0 17.4 13.9; 217 0 0.300001 15.05;
218 0 14.9 15.4; 219 0 16.15 15.4; 220 0 17.4 15.4;
221 0.689998 0.300001 -1.15; 222 0.689998 0.300001 -0.690001;
223 0.689998 0.300001 0; 224 0.689998 0.300001 0.690001;
225 0.689998 0.300001 1.15; 226 0.689998 0.300001 3.35001;
227 0.689998 0.300001 3.81001; 228 0.689998 0.300001 4.50001;
229 0.689998 0.300001 5.19001; 230 0.689998 0.300001 6.02001;
231 0.689998 0.300001 6.85001; 232 0.689998 0.300001 7.68002;
233 0.689998 0.300001 8.51002; 234 0.689998 0.300001 9.20002;
235 0.689998 0.300001 9.89002; 236 0.689998 0.300001 10.35;
237 0.689998 0.300001 12.75; 238 0.689998 0.300001 13.21;
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DEFINE PMEMBER
1528 1527 PMEMBER 1
START GROUP DEFINITION
MEMBER
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2162 2168
_BRG_STA 1906 1908 2134 2136
_BRG_END 1937 1938 1940 1941 2166 2167 2173
_LGB_STA 10 11 1004 1006 1097 1098 1103 1104 1115 TO 1118 1147 1148 1152 1153 -
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1858 1862 1866 1875 1882 1892 2477 TO 2480 2547 TO 2578 2622 TO 2653
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ELEMENT
_PILE_CAP 14 33 58 60 TO 63 98 108 149 204 205 210 211 217 TO 222 234 236 -
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_PILE_CAP_4-3 550 TO 553 591 598 TO 600 609 616 TO 618 633 TO 636
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_PILE_CAP_2-2 773 TO 782 799 TO 808 829 TO 838 859 TO 868
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2166 2173
_FLR_107800_2 2 1025 1027 1038 1043 1054 1066 1077 1087 1090 1174 1176 1183 -
1197 1198 1234 1257 1258 1300 1337 1339 1341 1367 1369 1371 1379 1381 1433 -

1443 1446 1452 1486 1488 1499 1511 1514 1524 1691 1692 1704 1718 1719 1731 -
1786 1787 1796 1812 1813 1823 1839 1840 1940
_FLR_107800_3 1055 TO 1061 1067 TO 1070 1072 TO 1074 1076 1126 1131 1139 1147 -
1149 1151 1154 1156
_FLR_114900_2 1167 1177 1178 1184 TO 1186 1228 1229 1244 1259 1260 1328 1338 -
1340 1342 1368 1370 1372 1380 1382 1434 1444 1447 1455 1487 1489 1500 1513 -
1516 1649
_FLR_114900_3 1520 1539 1544 1549 1551 1676 1680 1683 1696 1698 1706 1708 -
1711 1723 1725 1734 1737 1746 1788 1790 1800 1802 1805 1815 1817 1827 1829 -
1832 1841 1849 1944 1946 1949 1959 1961 1972 1974 1977 1987 1989 1995 1997 -
2000 2079 2081 2090 2092 2095 2107 2109 2118 2122 2125 2170 2197
GEOMETRY
_ALIGN_STA 1 2 4 TO 13 1003 TO 1016 1018 TO 1024
_ALIGN_4 1089 1090 1092 TO 1108 1110 TO 1140 1142 TO 1157 1159 TO 1173
_ALIGN_3 1519 TO 1524 1526 TO 1534 1538 1539 1543 TO 1551 1553 TO 1560 1564 -
1565 TO 1577 1581 1585 TO 1594 1598 TO 1602 1604 TO 1624 1628 TO 1631 1635 -
1637 TO 1645 1649 1653 TO 1657 1662 TO 1670 1674 1675
_ALIGN_2 2133 TO 2173 2175 TO 2202 2204 TO 2254 2256 TO 2285 2287 TO 2315 -
2317 TO 2330 2776
_ALIGN_1 2687 TO 2724 2726 TO 2733 2735 2737 2739 TO 2742
_ALIGN_E 4 TO 9 1027 1028 1043 1044 1051 1052 1077 1078 1092 TO 1096 1176 -
1198 1199 1258 1337 1349 1367 1379 1443 1458 1486 1511 1526 TO 1534 1680 -
1681 1692 1708 1709 1719 1736 TO 1738 1784 1787 1802 1803 1813 1829 1830 -
1840 1942 1943 1946 1947 1974 1975 1997 1998 2007 2074 TO 2076 2092 2093 -
2122 2123 2175 TO 2184 2333 2374 TO 2376 2403 2446 TO 2452 2488 TO 2490
_ALIGN_D 1110 TO 1114 1181 1187 1224 1226 1245 1246 1251 1279 1282 1289 1309 -
1329 1331 1343 1346 1373 1392 1395 1396 1435 1437 1449 1490 1502 -
1553 TO 1560 1683 1684 1711 1712 1746 1747 1805 1806 1832 1833 1852 TO 1854 -
1949 1950 1977 1978 2000 2001 2095 2096 2125 2126 2204 TO 2214 2334 2353 -
2354 2380 TO 2383 2404 2408 2453 TO 2459 2483 2484 2494 TO 2496 2525 2532 -
2533 TO 2534 2591 TO 2594 2660 TO 2663 2687 TO 2692 2743
_ALIGN_C 1070 1142 TO 1146 1188 1216 1255 1280 1287 1330 1335 1344 1347 1377 -
1393 1397 1398 1436 1441 1450 1481 1491 1496 1503 1506 1604 TO 1613 1685 -
1693 1713 1720 1760 1797 1807 1824 1834 1870 TO 1872 1951 1956 1979 1984 -
2002 2087 2097 2115 2127 2256 TO 2265 2335 2355 2356 2388 TO 2392 2405 2460 -
2461 TO 2466 2485 2486 2500 TO 2502 2511 2529 2544 TO 2546 2609 TO 2612 2676 -
2677 TO 2679 2726 TO 2733 2749
_ALIGN_B 1076 1159 TO 1165 1177 1179 1185 1189 1190 1223 1228 1259 1340 1366 -
1370 1380 1444 1479 1482 1489 1497 1507 1516 1637 TO 1645 1686 1714 1768 -
1808 1835 1883 TO 1885 1952 1980 2003 2098 2128 2287 TO 2295 2336 2363 2364 -
2406 2467
_ALIGN_A 1484 1498 1509 1662 TO 1670 1688 1716 1779 1810 1837 1897 TO 1899 -
1954 1982 2005 2100 2130 2317 TO 2325 2338 2371 2372 2407 2475
_EL_107800 2 10 1007 1010 1025 TO 1027 1029 1037 TO 1039 1043 1045 -
1054 TO 1062 1066 TO 1077 1079 1087 1088 1090 1097 1099 1101 1105 1107 1115 -
1123 1126 1131 1139 1147 1149 1151 1154 1156 1174 TO 1176 1181 TO 1183 1197 -
1198 1200 1202 1204 1206 1208 1210 1212 1214 1216 1217 1219 1221 1223 1234 -
1245 1249 1257 1258 1300 1301 1303 1305 1307 1310 1312 1314 1316 1318 1320 -
1323 1324 1326 1337 1339 1341 1345 TO 1348 1350 1353 1355 1357 1359 1361 -
1364 1366 1367 1369 1371 1379 1381 1394 1395 1397 1399 1400 1402 1404 1406 -
1410 1414 1417 1421 1425 1427 1429 1431 1433 1443 1446 1448 TO 1452 1459 -
1461 1463 1466 1468 1470 1472 1474 1477 1479 1486 1488 1499 1501 TO 1504 -
1511 1514 1515 1524 1538 1543 1548 1550 1566 1576 1586 1599 1614 1620 1628 -

1630 1654 1691 1692 1704 1718 1719 1731 1786 1787 1796 1812 1813 1823 1839 -
1840 1852 1870 1883 1897 1906 1911 1919 1923 1927 1933 1937 1940 2045 2047 -
2049 2051 2054 2057 2059 2061 2063 2065 2067 2070 2071 2073 2074 2134 2139 -
2147 2151 2155 2161 2167
_EL_106300 2195 2218 2228 2243 2268 2278 2306 2380 2384 2388 2393 -
2477 TO 2481 2525 TO 2530 2547 2551 2555 2559 2563 2570 2574 2575 2579 2582 -
2591 2595 2599 2602 2605 2609 2613 2616 2622 2626 2630 2634 2638 2642 2646 -
2650 2654 2657 2660 2664 2668 2672 2676 2680 2683 2693 2701 2705 2709 2713 -
2721 2735 2740 2743 TO 2753
_EL_109100 1908 1910 1913 1921 1925 1929 1932 1935 1938 1941 1968 TO 1971 -
2046 2048 2050 2052 2055 2058 2060 2062 2064 2066 2068 2072 2075 -
2103 TO 2106 2136 2138 2141 2149 2153 2157 2160 2163 2166 2173 2189 2194 -
2200 2202 2219 2229 2239 2252 2266 2270 2276 2280 2299 2304 2309 2314 2342 -
2343 2346 2348 2350 2352 2353 2355 2357 2359 2361 2363 2365 2367 2369 2371 -
2409 2412 2415 2418 2420 2422 2424 2426 2427 2429 2431 2433 2435 2437 2439 -
2441 2443 2483 2485 2512 2515 2518 2521 2524 2532 2535 2538 2541 2544 2548 -
2552 2556 2560 2564 2567 2571 2576 2580 2583 2592 2596 2600 2603 2606 2610 -
2614 2617 2623 2627 2631 2635 2639 2643 2647 2651 2655 2658 2661 2665 2669 -
2673 2677 2681 2684 2694 2702 2706 2710 2714 2722 2737 2741
_EL_112300 2196 2220 2230 2240 2253 2269 2279 2307 2389 2394 2408 2410 2413 -
2416 2482 2511 2513 2516 2519 2522 2531 2533 2536 2539 2542 2545 2549 2553 -
2557 2561 2565 2568 2572 2577 2581 2584 TO 2587 2589 2590 2593 2597 2607 -
2611 2615 2618 TO 2621 2624 2628 2632 2636 2640 2644 2648 2652 2656 2659 -
2662 2666 2670 2674 2678 2682 2685 2695 2703 2707 2711 2715 2723 2739 2742
_EL_114900 11 1008 1012 1028 1030 1040 1044 1046 1053 1063 1078 1080 1098 -
1100 1102 1106 1108 1116 1124 1128 1132 1140 1148 1150 1155 1157 1167 1177 -
1178 1184 TO 1188 1199 1201 1203 1205 1207 1209 1211 1213 1215 1218 1220 -
1222 1228 1229 1244 1259 1260 1279 1280 1302 1304 1306 1308 1311 1313 1315 -
1317 1319 1322 1325 1327 TO 1330 1338 1340 1342 TO 1344 1349 1351 1352 1354 -
1356 1358 1360 1362 1363 1365 1368 1370 1372 1380 1382 1392 1393 1401 1403 -
1405 1407 1411 1415 1418 1422 1426 1428 1430 1432 1434 TO 1436 1444 1445 -
1447 1455 1458 1460 1462 1464 1465 1467 1469 1471 1473 1475 1476 1478 1487 -
1489 TO 1491 1500 1512 1513 1516 1520 1539 1544 1549 1551 1567 1577 1587 -
1600 1615 1618 1621 1629 1631 1649 1657 1676 1678 1680 1682 1683 1696 1698 -
1706 1708 1710 1711 1723 1725 1734 1737 1745 1746 1788 1790 1800 1802 1804 -
1805 1815 1817 1827 1829 1831 1832 1841 1849 1944 1946 1948 1949 1959 1961 -
1972 1974 1976 1977 1987 1989 1995 1997 1999 2000 2079 2081 2090 2092 2094 -
2095 2107 2109 2118 2120 2122 2124 2125 2170 2197
_EL_115700 1617 1693 TO 1695 1705 1720 TO 1722 1761 1797 TO 1799 1814 1824 -
1825 TO 1826 1873 1956 TO 1958 1967 1984 TO 1986 2026 2087 TO 2089 2102 2115 -
2116 TO 2117 2188 2193 2199 2201 2221 2231 2241 2254 2267 2271 2277 2281 2300 -
2305 2310 2315 2344 2347 2349 2351 2354 2356 2358 2360 2362 2364 2366 2368 -
2370 2372 2411 2414 2417 2419 2421 2423 2425 2428 2430 2432 2434 2436 2438 -
2440 2442 2444 2484 2486 2514 2517 2520 2523 2534 2537 2540 2543 2546 2550 -
2554 2558 2562 2566 2569 2573 2578 2594 2598 2601 2604 2608 2612 2625 2629 -
2633 2637 2641 2645 2649 2653 2663 2667 2671 2675 2679 2696 2704 2708 2712 -
2716 2724 2776
_EL_119700 1453 1454 1456 1457 1480 TO 1485 1492 TO 1495 1505 TO 1510 1522 -
1547 1568 1581 1585 1598 1622 1635 1656 1675 1677 1679 1681 1684 TO 1690 -
1697 1699 TO 1703 1707 1709 1712 TO 1717 1724 1726 TO 1730 1735 1738 1747 -
1760 1768 1775 1779 1783 1789 1791 TO 1795 1801 1803 1806 TO 1811 1816 1818 -
1819 TO 1822 1828 1830 1833 TO 1838 1842 1850 1858 1862 1866 1875 1882 1892 -
1903 1945 1947 1950 TO 1955 1960 1962 TO 1966 1973 1975 1978 TO 1983 1988 -

1990 TO 1994 1996 1998 2001 TO 2006 2080 2082 TO 2086 2091 2093 2096 TO 2101 -
2108 2110 TO 2114 2119 2121 2123 2126 TO 2132 2172 2198 2222 2235 2248 2272 -
2285 2308 2330 2332 TO 2339 2373 2377 2385 2395 2401 2402 2445 2446 2453 -
2460 2467 2474 TO 2476 2487 2491 2497 2503 2509 2510
END GROUP DEFINITION
*
*
*
ELEMENT PROPERTY
14 33 58 60 TO 63 98 108 149 204 205 210 211 217 TO 222 234 236 237 240 241 -
246 247 249 250 381 382 386 TO 388 397 403 404 424 433 531 533 535 537 539 -
541 543 550 TO 555 585 TO 1002 THICKNESS 0.8
DEFINE MATERIAL START
ISOTROPIC CONCRETE
* fck = C30/37 N/mm²
E 3.28366e+07
POISSON 0.2
DENSITY 25
ALPHA 1e-05
DAMP 0.05
*
ISOTROPIC STEEL
* S275J0 fy=275 N/mm²
E 2.1e+08
POISSON 0.3
DENSITY 78.5
ALPHA 1.2e-05
DAMP 0.03
*
ISOTROPIC RIGID
E 2e+08
POISSON 0.3
DENSITY 1e-20
ALPHA 1.2e-06
DAMP 0.3
G 5e+08
*
ISOTROPIC CONCZEROWGHT
* CONCRETE FOR FOUND SLAB, TO EXCLUDE IT FROM DYNAMIC MASS
E 3.28366e+07
POISSON 0.2
DENSITY 1e-05
ALPHA 1e-05
DAMP 0.05
G 1.375e+07
*
END DEFINE MATERIAL
MEMBER PROPERTY EUROPEAN
2 10 11 1004 1006 TO 1008 1010 1012 1014 1016 1023 TO 1025 1030 1031 1036 -
1046 1047 1050 1054 TO 1061 1070 1076 1080 1081 1086 1087 1090 1097 TO 1108 -
1115 TO 1118 1123 TO 1132 1137 TO 1140 1147 TO 1157 1167 1174 1178 1182 1186 -
1197 1249 1257 1260 1301 TO 1308 1310 TO 1317 1319 1322 1325 1327 1338 1339 -
1345 1348 1368 1369 1381 1382 1394 1399 TO 1407 1410 1411 1414 1415 1417 -

1418 1421 1422 1425 TO 1432 1446 TO 1448 1451 1453 1454 1456 1457 -
1480 TO 1482 1484 1485 1487 1488 1501 1504 TO 1507 1509 1510 1513 1514 1520 -
1522 1524 1538 1539 1543 1545 1546 1548 TO 1551 1566 1567 1569 1572 1576 -
1577 1586 1587 1589 1592 1599 1600 1614 1615 1618 TO 1621 1623 1624 1628 -
1629 TO 1631 1649 1653 TO 1655 1657 1675 TO 1677 1690 1691 1693 1695 1707 -
1717 1718 1720 1722 1735 1783 1786 1797 1799 1801 1811 1812 1824 1826 1828 -
1838 1839 1942 1943 1945 1955 1956 1958 1973 1983 1984 1986 1996 2006 2075 -
2087 2089 2091 2101 2115 2117 2119 2132 2170 2172 2188 2189 2195 TO 2197 -
2218 TO 2221 2228 TO 2231 2239 TO 2241 2243 2252 TO 2254 2266 TO 2269 2271 -
2278 2299 2300 2306 2307 2309 2310 2330 2332 TO 2336 2338 2339 2363 2371 -
2393 2427 2437 2445 2446 2453 2460 2467 2475 TO 2480 2487 2491 2497 2503 -
2509 2510 2530 2549 2553 2557 2561 2565 2568 2572 2577 2585 2587 2616 2624 -
2628 2632 2636 2640 2644 2648 2652 2683 2693 TO 2696 2701 TO 2716 -
2721 TO 2724 TABLE ST HE280A
2776 TABLE ST HE280A
2735 TABLE ST HE280A
2740 TABLE ST HE280A
2743 2749 TO 2751 TABLE ST HE280A
1544 1706 1734 1800 1827 1944 1972 1995 2090 2118 2193 2199 -
2201 TABLE ST HE280A
2194 2200 2202 2342 2346 2418 2420 2422 2424 2426 TABLE ST HE280A
1229 2270 2276 2277 2279 TO 2281 2304 2305 2314 2315 2344 2364 2372 2394 2419 -
2421 2423 2425 2428 TO 2436 2438 TO 2444 2524 2531 2617 TO 2619 2621 2684 -
2685 2737 2739 2741 2742 2752 2753 TABLE ST HE280A
MEMBER PROPERTY EUROPEAN
3 1017 1091 1109 1141 1158 1517 1525 1552 1603 1636 1661 2174 2203 2255 2286 -
2316 2340 2686 2725 PRIS YD 0.8 ZD 0.8
MEMBER PROPERTY EUROPEAN
1616 1617 1694 1705 1721 1761 1798 1814 1825 1873 1957 1967 1985 2026 2088 -
2102 2116 TABLE ST L90X90X9
MEMBER PROPERTY EUROPEAN
2588 PRIS YD 3.5
2687 TO 2692 2726 TO 2733 TABLE ST HE400B
1526 TO 1534 1553 TO 1560 1604 TO 1613 1637 TO 1645 1662 TO 1670 2175 TO 2184 -
2204 TO 2214 2256 TO 2265 2287 TO 2295 2317 TO 2325 TABLE ST HE550B
1496 TO 1498 1519 1521 1674 1915 2143 2169 2171 2329 2403 TO 2406 -
2407 TABLE ST HE200A
1176 1177 1181 1185 1187 1188 1198 1199 1216 1223 1228 1245 1258 1259 1279 -
1280 1329 1330 1337 1340 1343 1344 1346 1347 1349 1366 1367 1370 1379 1380 -
1392 1393 1395 1397 1435 1436 1443 1444 1449 1450 1458 1479 1486 -
1489 TO 1491 1502 1503 1511 1516 1680 1681 1683 TO 1686 1688 1692 1708 1709 -
1711 TO 1714 1716 1719 1733 1736 TO 1738 1746 1747 1760 1768 1779 1784 1787 -
1802 1803 1805 TO 1808 1810 1813 1829 1830 1832 TO 1835 1837 1840 -
1852 TO 1854 1870 TO 1872 1883 TO 1885 1897 TO 1899 1946 1947 1949 TO 1952 -
1954 1974 1975 1977 TO 1980 1982 1997 1998 2000 TO 2003 2005 2007 2053 2074 -
2076 2092 2093 2095 TO 2098 2100 2122 2123 2125 TO 2128 2130 -
2331 TABLE ST HE600A
2353 TO 2356 2380 2388 2389 2408 2483 TO 2486 2511 2525 2529 2532 TO 2534 -
2544 TO 2546 2591 TO 2594 2609 TO 2612 2660 TO 2663 2676 TO 2678 -
2679 TABLE ST HE450A
2223 2242 TABLE ST HE320A
1092 TO 1096 1110 TO 1114 1142 TO 1146 1159 TO 1163 TABLE ST HE450B
1119 TO 1122 1133 TO 1136 1564 1565 1570 1571 1573 TO 1575 1588 1590 1591 -

1593 1594 1601 1602 2224 TO 2227 2244 TO 2247 TABLE ST HE240A
1904 1906 1908 1910 1911 1913 1914 1917 TO 1919 1921 1923 1925 1927 1929 1931 -
1932 TO 1933 1935 1937 1938 1940 1941 1968 1971 2056 2069 2104 2105 2134 2136 -
2138 2139 2141 2142 2145 TO 2147 2149 2151 2153 2155 2157 2159 TO 2161 2163 -
2165 TO 2167 2173 TABLE ST HE200A
1907 1912 1920 1924 1928 1934 1939 1969 1970 2047 2048 2051 2052 2057 2058 -
2061 2062 2065 2066 2070 2073 2103 2106 2135 2140 2148 2152 2156 2162 -
2168 TABLE ST HE160A
2378 2379 2386 2387 2396 2397 2448 2450 2452 2455 2457 2459 2462 2464 2466 -
2469 2471 2473 2492 2493 2498 2499 2504 2505 TABLE ST HE240A
2447 2449 2451 2454 2456 2458 2461 2463 2465 2468 2470 -
2472 TABLE ST L110X110X10
1518 2341 TABLE ST HE550B
1224 TO 1227 1246 1250 1251 1255 1282 1287 1289 1290 1309 1321 1331 1335 1373 -
1377 1396 1398 1437 1441 2374 TO 2376 2381 TO 2383 2390 TO 2392 2398 TO 2400 -
2488 TO 2490 2494 TO 2496 2500 TO 2502 2506 TO 2508 TABLE ST HE240A
1732 2078 TABLE ST HE300A
1905 1909 1916 1922 1926 1930 1936 2045 2046 2049 2050 2054 2055 2059 2060 -
2063 2064 2067 2068 2071 2072 2133 2137 2144 2150 2154 2158 -
2164 TABLE ST HE200A
4 TO 9 1018 TO 1022 TABLE ST HE240A
1027 TO 1029 1032 1035 1037 1043 TO 1045 1048 1049 1051 TO 1053 1067 1077 -
1078 TO 1079 1082 1085 TABLE ST HE200A
MEMBER PROPERTY EUROPEAN
1230 TO 1233 1235 TO 1243 1247 1248 1252 TO 1254 1256 1261 TO 1278 1281 1283 -
1284 TO 1286 1288 1291 TO 1299 1332 TO 1334 1336 1374 TO 1376 1378 -
1383 TO 1391 1408 1409 1412 1413 1416 1419 1420 1423 1424 1438 TO 1440 1442 -
1535 TO 1537 1540 TO 1542 1561 TO 1563 1578 TO 1580 1582 TO 1584 -
1595 TO 1597 1625 TO 1627 1632 TO 1634 1646 TO 1648 1650 TO 1652 -
1658 TO 1660 1671 TO 1673 1739 TO 1744 1748 TO 1759 1762 TO 1767 -
1769 TO 1774 1776 TO 1778 1780 TO 1782 1843 TO 1848 1851 1855 TO 1857 1859 -
1860 TO 1861 1863 TO 1865 1867 TO 1869 1874 1876 TO 1881 1886 TO 1891 1893 -
1894 TO 1896 1900 TO 1902 2008 TO 2025 2027 TO 2044 2185 TO 2187 2190 TO 2192 -
2215 TO 2217 2232 TO 2234 2236 TO 2238 2249 TO 2251 2273 TO 2275 -
2282 TO 2284 2296 TO 2298 2301 TO 2303 2311 TO 2313 2326 TO 2328 2586 2589 -
2590 2620 2754 TO 2775 PRIS YD 0.2
12 13 1003 1005 1009 1011 1013 1015 2697 TO 2700 2717 TO 2720 TABLE ST HE180A
1 1089 1166 1523 2345 2734 2736 2738 TABLE ST HE140A
1038 TO 1042 1062 TO 1066 1068 1069 1072 TO 1074 1183 1184 1234 1244 1300 -
1328 1341 1342 1371 1372 1433 1434 1452 1455 1499 1500 1704 1731 1796 1823 -
2347 TO 2352 2357 TO 2362 2365 TO 2370 2595 TO 2598 2605 TO 2608 -
2613 TO 2615 2664 TO 2675 2680 TO 2682 2745 TO 2747 TABLE ST IPE140
1547 1568 1581 1585 1598 1622 1635 1656 1850 1858 1862 1866 1875 1882 1892 -
2198 2222 2235 2248 2272 2285 2308 TABLE ST HE360A
1492 TO 1495 1696 TO 1703 1723 TO 1730 1788 TO 1795 1815 TO 1822 1841 1842 -
1849 1903 1959 TO 1966 1987 TO 1994 2079 TO 2086 2107 TO 2114 2373 2377 2385 -
2395 2401 2402 TABLE ST HE180A
1164 1165 1171 TO 1173 1179 1180 1189 1190 1194 TO 1196 2384 2481 2482 2547 -
2548 2550 TO 2552 2554 TO 2556 2558 TO 2560 2562 TO 2564 2566 2567 -
2569 TO 2571 2573 TO 2576 2578 TO 2584 2599 TO 2604 2622 2623 2625 TO 2627 -
2629 TO 2631 2633 TO 2635 2637 TO 2639 2641 TO 2643 2645 TO 2647 -
2649 TO 2651 2653 TO 2659 TABLE ST HE200A
2512 TO 2523 TABLE ST HE240A

1026 1033 1034 1071 1075 1083 1084 1088 1168 TO 1170 1175 1191 TO 1193 1445 -
1512 1515 1678 1679 1689 2120 2121 2131 2343 2744 2748 TABLE ST L80X80X8
1200 1201 1204 1205 1459 1460 1463 1464 1483 1508 1682 1687 1710 1715 1745 -
1775 1804 1809 1831 1836 1948 1953 1976 1981 1999 2004 2094 2099 2124 2129 -
2337 2474 TABLE D UPN160 SP 0.01
1202 1203 1206 TO 1215 1217 TO 1222 1350 TO 1365 1461 1462 1465 TO 1478 2409 -
2410 TO 2417 2526 TO 2528 2535 TO 2543 TABLE ST IPE200
1318 1320 1323 1324 1326 TABLE ST HE340A
CONSTANTS
BETA 90 MEMB 1518 2341 2374 TO 2376 2381 TO 2383 2390 TO 2392 2398 TO 2400 -
2488 TO 2490 2494 TO 2496 2500 TO 2502 2506 TO 2508
MATERIAL STEEL MEMB 1 2 4 TO 13 1003 TO 1016 1018 TO 1090 1092 TO 1108 1110 -
1111 TO 1140 1142 TO 1157 1159 TO 1229 1234 1244 TO 1246 1249 TO 1251 1255 -
1257 TO 1260 1279 1280 1282 1287 1289 1290 1300 TO 1331 1335 1337 TO 1373 -
1377 1379 TO 1382 1392 TO 1407 1410 1411 1414 1415 1417 1418 1421 1422 1425 -
1426 TO 1437 1441 1443 TO 1516 1518 TO 1524 1526 TO 1534 1538 1539 -
1543 TO 1551 1553 TO 1560 1564 TO 1577 1581 1585 TO 1594 1598 TO 1602 1604 -
1605 TO 1624 1628 TO 1631 1635 1637 TO 1645 1649 1653 TO 1657 1662 TO 1670 -
1674 TO 1738 1745 TO 1747 1760 1761 1768 1775 1779 1783 1784 1786 TO 1842 -
1849 1850 1852 TO 1854 1858 1862 1866 1870 TO 1873 1875 1882 TO 1885 1892 -
1897 TO 1899 1903 TO 2007 2026 2045 TO 2076 2078 TO 2173 2175 TO 2184 2188 -
2189 2193 TO 2202 2204 TO 2214 2218 TO 2231 2235 2239 TO 2248 2252 TO 2254 -
2256 TO 2272 2276 TO 2281 2285 2287 TO 2295 2299 2300 2304 TO 2310 2314 2315 -
2317 TO 2325 2329 TO 2339 2341 TO 2585 2587 2591 TO 2619 2621 TO 2685 2687 -
2688 TO 2724 2726 TO 2753 2776
MATERIAL CONCRETE MEMB 3 14 33 58 60 TO 63 98 108 149 204 205 210 211 217 -
218 TO 222 234 236 237 240 241 246 247 249 250 381 382 386 TO 388 397 403 -
404 424 433 531 533 535 537 539 541 543 550 TO 555 585 TO 1002 1017 1091 -
1109 1141 1158 1517 1525 1552 1603 1636 1661 2174 2203 2255 2286 2316 2340 -
2588 2686 2725
MATERIAL RIGID MEMB 1230 TO 1233 1235 TO 1243 1247 1248 1252 TO 1254 1256 -
1261 TO 1278 1281 1283 TO 1286 1288 1291 TO 1299 1332 TO 1334 1336 -
1374 TO 1376 1378 1383 TO 1391 1408 1409 1412 1413 1416 1419 1420 1423 1424 -
1438 TO 1440 1442 1535 TO 1537 1540 TO 1542 1561 TO 1563 1578 TO 1580 1582 -
1583 TO 1584 1595 TO 1597 1625 TO 1627 1632 TO 1634 1646 TO 1648 1650 TO 1652 -
1658 TO 1660 1671 TO 1673 1739 TO 1744 1748 TO 1759 1762 TO 1767 -
1769 TO 1774 1776 TO 1778 1780 TO 1782 1843 TO 1848 1851 1855 TO 1857 1859 -
1860 TO 1861 1863 TO 1865 1867 TO 1869 1874 1876 TO 1881 1886 TO 1891 1893 -
1894 TO 1896 1900 TO 1902 2008 TO 2025 2027 TO 2044 2185 TO 2187 2190 TO 2192 -
2215 TO 2217 2232 TO 2234 2236 TO 2238 2249 TO 2251 2273 TO 2275 -
2282 TO 2284 2296 TO 2298 2301 TO 2303 2311 TO 2313 2326 TO 2328 2586 2589 -
2590 2620 2754 TO 2775
*
*
SUPPORTS
12 14 17 19 54 56 59 61 121 123 126 128 130 132 134 137 139 222 224 227 229 -
231 233 235 238 240 461 463 465 467 469 471 473 475 478 480 482 484 486 641 -
643 645 647 649 651 653 655 658 660 662 664 666 892 894 896 898 900 902 904 -
906 909 911 913 915 917 1095 1097 1099 1101 1103 1105 1107 1109 1112 1114 -
1116 1118 1120 1449 1451 1525 1527 FIXED BUT MX MY MZ KFY 353200
1272 1274 1277 1279 1281 1338 1340 1343 1345 1347 1366 1368 1371 1373 1375 -
1437 1439 1442 1444 1446 1513 1515 1518 1520 -
1522 FIXED BUT MX MY MZ KFY 342200

419 421 631 633 1090 1092 1177 1179 FIXED BUT MX MY MZ KFY 382000
MEMBER RELEASE
1 12 13 1003 1005 1009 1011 1013 1015 1089 1119 TO 1122 1133 TO 1136 1521 -
1523 1564 1570 1571 1573 1574 1590 1591 1593 1594 1601 1674 2171 -
2223 TO 2227 2242 2244 TO 2247 2329 2697 TO 2700 2717 TO 2720 START MY MZ
1 12 13 1003 1005 1009 1011 1013 1015 1089 1119 TO 1122 1133 TO 1136 1521 -
1523 1564 1570 1571 1573 1574 1590 1591 1593 1594 1601 1674 2171 -
2223 TO 2227 2242 2244 TO 2247 2329 2697 TO 2700 2717 TO 2720 END MY MZ
1940 1941 2167 2173 END MY MZ
10 11 1004 1006 1097 1098 1103 1104 1115 TO 1118 1147 1148 1152 1153 1538 -
1539 1545 TO 1547 1566 TO 1569 1572 1614 1615 1618 1622 TO 1624 1649 2188 -
2189 2195 TO 2198 2218 TO 2222 2266 TO 2269 2272 2299 2300 2306 2307 2693 -
2694 TO 2696 START MY MZ
1010 1012 1014 1016 1023 1103 1104 1107 1108 1137 TO 1140 1152 1153 1156 1157 -
1545 TO 1547 1550 1551 1589 1592 1598 TO 1600 1623 1624 1630 1631 1635 2195 -
2196 TO 2198 2201 2202 2243 2248 2252 TO 2254 2278 TO 2281 2285 2306 2307 -
2314 2315 2426 2721 TO 2724 END MY MZ
1907 1912 1920 1928 1934 1939 1968 1971 2047 2048 2051 2052 2061 2062 2065 -
2066 2070 2073 2135 2140 2148 2156 2162 2168 START MY MZ
1907 1912 1920 1928 1934 1939 2047 2048 2051 2052 2061 2062 2065 2066 2070 -
2073 2104 2105 2135 2140 2148 2156 2162 2168 END MY MZ
1301 1302 1310 1311 1318 1319 1400 1401 1410 1411 1425 1426 1849 1850 1858 -
1875 1892 2477 2547 TO 2550 2622 TO 2625 START MY MZ
1307 1308 1316 1317 1326 1327 1406 1407 1421 1422 1431 1432 1849 1850 1866 -
1882 1892 2480 2575 TO 2578 2650 TO 2653 END MY MZ
1616 1617 1694 1705 1721 1761 1798 1814 1825 1873 1957 1967 1985 2026 2088 -
2102 2116 START MY MZ
1616 1617 1694 1705 1721 1761 1798 1814 1825 1873 1957 1967 1985 2026 2088 -
2102 2116 END MY MZ
4 1018 1092 1110 1142 1159 1526 1553 1604 2175 2204 2256 2687 2726 START MY
1909 1916 1926 1930 1936 2137 2144 2154 2158 2164 START MY MZ
1909 1916 1926 1930 1936 2137 2144 2154 2158 2164 END MY MZ
1200 1201 1459 1460 START MY MZ
1200 1201 1459 1460 END MY MZ
1575 1588 START MY MZ
1565 1575 1588 1602 END MY MZ
1924 2057 2058 2152 START MY MZ
1924 2057 2058 2152 END MY MZ
1915 2143 END MX MY MZ
2403 TO 2407 START MY MZ
2403 TO 2407 END MY MZ
2374 2381 2390 2398 2488 2494 2500 2506 START MY MZ
2447 TO 2452 2454 TO 2459 2461 TO 2466 2468 TO 2473 START MY MZ
2447 TO 2452 2454 TO 2459 2461 TO 2466 2468 TO 2473 END MY MZ
1733 START MY MZ
2331 END MY MZ
1732 2078 START MY MZ
1732 2078 END MY MZ
1535 1578 1582 1632 1646 1671 1843 1859 1863 1879 1886 1900 2185 2232 2236 -
2282 2296 2326 START MY MZ
1182 START MY MZ
1249 END MY MZ
1202 1203 1206 TO 1215 1217 TO 1222 1345 1348 1350 TO 1365 1448 1451 1461 -

1462 1465 TO 1478 START MY MZ
1202 1203 1206 TO 1215 1217 TO 1222 1350 TO 1365 1394 1399 1461 1462 1465 -
1466 TO 1478 1501 1504 END MY MZ
1068 1069 1072 TO 1074 START MY MZ
1068 1069 1072 TO 1074 END MY MZ
1038 TO 1040 1062 1063 1066 1183 1184 1234 1244 1300 1341 1342 1371 1372 1433 -
1452 1455 1499 1500 1704 1731 1796 1823 START MY MZ
1038 TO 1040 1062 1063 1066 1183 1184 1234 1244 1300 1341 1342 1371 1372 1433 -
1452 1455 1499 1500 1704 1731 1796 1823 END MY MZ
1041 1042 1064 1065 START MY MZ
1041 1042 1064 1065 END MY MZ
1166 START MY MZ
1166 END MY MZ
1496 TO 1498 START MY MZ
1496 TO 1498 END MY MZ
1698 1699 1725 1726 1790 1791 1817 1818 1961 1962 1989 1990 2081 2082 2109 -
2110 START MY MZ
1698 1699 1725 1726 1790 1791 1817 1818 1961 1962 1989 1990 2081 2082 2109 -
2110 END MY MZ
1696 1697 1703 1723 1724 1730 1788 1789 1795 1815 1816 1822 1959 1960 1966 -
1987 1988 1994 2079 2080 2086 2107 2108 2114 START MY MZ
1696 1697 1703 1723 1724 1730 1788 1789 1795 1815 1816 1822 1959 1960 1966 -
1987 1988 1994 2079 2080 2086 2107 2108 2114 END MY MZ
1700 1701 1727 1728 1792 1793 1819 1820 1963 1964 1991 1992 2083 2084 2111 -
2112 START MY MZ
1700 1701 1727 1728 1792 1793 1819 1820 1963 1964 1991 1992 2083 2084 2111 -
2112 END MY MZ
1702 1729 1794 1821 1965 1993 2085 2113 START MY MZ
1702 1729 1794 1821 1965 1993 2085 2113 END MY MZ
1492 TO 1495 2373 2377 2385 2395 2401 2402 START MY MZ
1492 TO 1495 2373 2377 2385 2395 2401 2402 END MY MZ
2585 2587 2595 TO 2608 2613 TO 2615 START MY MZ
2595 TO 2608 2613 TO 2615 2619 2621 END MY MZ
2384 START MY MZ
2384 END MY MZ
2526 TO 2528 START MY MZ
2526 TO 2528 END MY MZ
2664 TO 2675 2680 TO 2682 START MY MZ
2664 TO 2675 2680 TO 2682 END MY MZ
2512 TO 2514 START MY MZ
2521 TO 2523 END MY MZ
2409 TO 2417 2535 TO 2543 START MY MZ
2409 TO 2417 2535 TO 2543 END MY MZ
2734 2736 2738 START MY MZ
2734 2736 2738 END MY MZ
2750 START MY MZ
2753 END MY MZ
2745 TO 2747 START MY MZ
2745 TO 2747 END MY MZ
2735 2739 START MY MZ
2683 2685 END MY MZ
2393 2394 START MY MZ
2435 2436 END MY MZ

2524 START MY MZ
2443 2444 END MY MZ
2437 2438 START MY MZ
2427 2428 START MY MZ
2347 2349 2351 2357 TO 2362 2365 TO 2370 START MY MZ
2347 2349 2351 2357 TO 2362 2365 TO 2370 END MY MZ
2165 START MY MZ
2165 END MY MZ
1904 START MY MZ
1904 END MY MZ
2103 START MY MZ
2103 END MY MZ
1969 START MY MZ
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2106 START MY MZ
2106 END MY MZ
1970 START MY MZ
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2142 START MY MZ
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1914 END MY MZ
2586 START MY MZ
2620 END MY MZ
2589 START MY MZ
2590 END MY MZ
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1033 1034 END MY MZ
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1083 1084 END MY MZ
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1175 END MY MZ
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1178 START MY MZ
1513 END MY MZ
1169 1171 START MY MZ
1169 1171 END MY MZ
1192 1194 START MY MZ
1192 1194 END MY MZ
1164 START MY MZ
1172 START MY MZ
1189 START MY MZ
1195 START MY MZ
1168 1191 START MY MZ

1168 1191 END MY MZ
1170 1193 START MY MZ
1170 1193 END MY MZ
1512 START MY MZ
1512 END MY MZ
1445 START MY MZ
1445 END MY MZ
1678 1679 START MY MZ
1678 1679 END MY MZ
2121 START MY MZ
2121 END MY MZ
2474 START MY MZ
2474 END MY MZ
2337 START MY MZ
2337 END MY MZ
1953 2004 2129 START MY MZ
1953 2004 2129 END MY MZ
1981 2099 START MY MZ
1981 2099 END MY MZ
1715 1809 START MY MZ
1715 1809 END MY MZ
1508 START MY MZ
1508 END MY MZ
1483 START MY MZ
1483 END MY MZ
1689 START MY MZ
1689 END MY MZ
2131 START MY MZ
2131 END MY MZ
2744 START MY MZ
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2748 START MY MZ
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2345 START MY MZ
2345 END MY MZ
2342 2346 START MY MZ
2348 2350 2352 START MY MZ
2348 2350 2352 END MY MZ
2342 END MY MZ
2346 END MY MZ
2343 START MY MZ
2343 END MY MZ
1682 1745 1831 1976 2094 START MY MZ
1682 1745 1831 1976 2094 END MY MZ
1710 1804 1948 1999 2124 START MY MZ
1710 1804 1948 1999 2124 END MY MZ
1519 START MY MZ
1519 END MY MZ
2169 START MY MZ
2169 END MY MZ
2419 START MY MZ
2425 END MY MZ
1090 END MY MZ

1524 END MY MZ
1522 END MY MZ
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1675 START MY MZ
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1657 END MY MZ
1655 START MY MZ
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1653 START MY MZ
1653 END MY MZ
1637 START MY
1662 START MY
2287 START MY
2317 START MY
2308 START MY MZ
2308 END MY MZ
2330 START MY MZ
2336 START MY MZ
1507 END MY MZ
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1025 START MY MZ
1087 END MY MZ
1174 START MY MZ
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1691 START MY MZ
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2503 END MY MZ
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2159 START MY MZ
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1080 END MY MZ
1036 START MY MZ
1086 END MY MZ
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1903 END MY MZ
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1677 START MY MZ
2172 START MY MZ
1481 START MY MZ
1454 END MY MZ
1484 START MY MZ
2475 END MY MZ
1676 START MY MZ
2118 END MY MZ
2115 END MY MZ
2754 START MY MZ
2756 START MY MZ
2758 START MY MZ
2760 START MY MZ
2755 START MY MZ
2757 START MY MZ
2759 START MY MZ
2761 START MY MZ
MEMBER FIREPROOFING
10 TO 13 1003 TO 1016 1023 1024 1027 TO 1032 1035 TO 1037 1043 TO 1052 1055 -
1056 TO 1061 1067 1070 1076 TO 1082 1085 1086 1097 1098 1100 TO 1108 1115 -
1116 TO 1140 1147 TO 1157 1167 1178 1186 1260 1301 1302 1304 1306 1308 1310 -
1311 TO 1320 1322 TO 1328 1338 1368 1382 1400 1401 1403 1405 1407 1410 1411 -
1414 1415 1417 1418 1421 1422 1425 TO 1432 1434 1447 1454 1456 1457 1480 -
1481 TO 1482 1484 1485 1487 1505 TO 1507 1509 1510 1513 1522 1538 1539 1545 -
1546 TO 1547 1549 1551 1564 1566 TO 1574 1576 1577 1581 1585 TO 1587 1589 -
1590 TO 1594 1598 TO 1601 1614 1615 1618 TO 1624 1628 TO 1631 1635 1649 1675 -
1677 1690 1693 1695 1707 1717 1720 1722 1735 1783 1797 1799 1801 1811 1824 -
1826 1828 1838 1842 1850 1858 1862 1866 1875 1882 1892 1903 1905 TO 1912 -
1916 1919 TO 1921 1923 1925 TO 1930 1932 TO 1934 1936 TO 1940 1942 1943 1956 -
1958 1968 1971 1984 1986 2045 TO 2052 2054 2055 2061 TO 2068 2070 TO 2073 -
2075 2087 2089 2115 2117 2133 TO 2140 2144 2147 TO 2149 2151 2153 TO 2158 -
2160 TO 2162 2164 2166 TO 2168 2172 2188 2189 2195 2196 2198 2218 TO 2222 -

2224 TO 2228 2235 2239 TO 2241 2243 TO 2248 2266 TO 2269 2271 2272 2278 2285 -
2299 2300 2309 2310 2330 2332 TO 2336 2338 2339 2363 2371 2393 2427 2437 -
2445 2446 2453 2460 2467 2475 TO 2480 2487 2491 2497 2503 2509 2510 2547 -
2548 TO 2555 2559 TO 2563 2567 TO 2570 2574 TO 2579 2616 2622 -
2776 FIRE CFP THICK 0.015 DENSITY 18
2623 TO 2640 2642 TO 2648 2650 TO 2654 2683 2693 TO 2723 -
2735 FIRE CFP THICK 0.015 DENSITY 18
1520 1544 1676 1706 1734 1800 1827 1841 1849 2170 2193 2197 2199 2201 2641 -
2649 FIRE CFP THICK 0.015 DENSITY 18
2194 2200 2202 2418 2420 2422 2424 2426 FIRE CFP THICK 0.015 DENSITY 18
1229 1913 1935 1941 2104 2105 2141 2163 2173 2229 2230 2253 2270 2276 2277 -
2279 TO 2281 2304 2305 2314 2315 2344 2347 2349 2351 2357 TO 2362 -
2364 TO 2370 2372 2394 2419 2421 2423 2425 2428 TO 2436 2438 TO 2444 2557 -
2565 2572 2580 2581 2617 2618 2655 2656 2684 2685 2724 2737 2739 -
2750 TO 2753 FIRE CFP THICK 0.015 DENSITY 18
2231 2252 2254 2481 2482 2524 2530 2531 2556 2558 2564 2566 2571 2573 2582 -
2583 TO 2584 2657 TO 2659 2740 TO 2742 FIRE CFP THICK 0.015 DENSITY 18
1616 1617 1694 1705 1721 1761 1798 1814 1825 1873 1957 1967 1985 2026 2088 -
2102 2116 FIRE CFP THICK 0.015 DENSITY 18
4 TO 9 1018 TO 1022 1092 TO 1096 1110 TO 1114 1142 TO 1146 1159 TO 1163 2687 -
2688 TO 2692 2726 TO 2733 FIRE CFP THICK 0.015 DENSITY 18
1526 1529 TO 1534 1553 1554 1556 TO 1560 1604 1605 1607 TO 1613 1639 TO 1645 -
1664 TO 1669 2175 TO 2184 2204 TO 2214 2256 TO 2265 2288 TO 2295 -
2318 TO 2325 FIRE CFP THICK 0.015 DENSITY 18
1 1089 1521 1523 1674 2171 2329 FIRE CFP THICK 0.015 DENSITY 18
1176 1177 1181 1185 1187 1188 1198 1199 1216 1223 1228 1245 1258 1259 1279 -
1280 1329 1330 1337 1340 1343 1344 1346 1347 1349 1366 1367 1370 1379 1380 -
1392 1393 1395 1397 1435 1436 1443 1444 1449 1450 1458 1479 1486 -
1489 TO 1491 1502 1503 1511 1516 1680 1681 1683 TO 1686 1688 1692 1708 1709 -
1711 TO 1714 1716 1719 1736 TO 1738 1746 1747 1760 1768 1779 1784 1787 1802 -
1803 1805 TO 1808 1810 1813 1829 1830 1832 TO 1835 1837 1840 1852 TO 1854 -
1870 TO 1872 1883 TO 1885 1897 TO 1899 2007 2074 -
2076 FIRE CFP THICK 0.015 DENSITY 18
2342 2346 2348 2350 2352 TO 2356 2380 2388 2389 2408 2483 TO 2486 2511 2525 -
2529 2532 TO 2534 2544 TO 2546 2591 TO 2594 2609 TO 2612 2660 TO 2663 2676 -
2677 TO 2679 FIRE CFP THICK 0.015 DENSITY 18
2223 2242 FIRE CFP THICK 0.015 DENSITY 18
1200 1201 1459 1460 FIRE CFP THICK 0.015 DENSITY 18
1565 1575 1588 1602 FIRE CFP THICK 0.015 DENSITY 18
1924 2057 2058 2152 FIRE CFP THICK 0.015 DENSITY 18
1923 1925 2151 2153 FIRE CFP THICK 0.015 DENSITY 18
1517 1518 1733 2053 2331 2340 2341 FIRE CFP THICK 0.015 DENSITY 18
2403 TO 2407 FIRE CFP THICK 0.015 DENSITY 18
2374 TO 2376 2378 2379 2381 TO 2383 2386 2387 2390 TO 2392 2396 TO 2400 2447 -
2448 TO 2452 2454 TO 2459 2461 TO 2466 2468 TO 2473 2488 TO 2490 2492 TO 2496 -
2498 TO 2502 2504 TO 2508 FIRE CFP THICK 0.015 DENSITY 18
1732 2078 FIRE CFP THICK 0.015 DENSITY 18
SLAVE RIGID MASTER 399 JOINT 1551 TO 1558
CUT OFF MODE SHAPE 100
*
****
DEFINE REFERENCE LOADS
*

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LOAD R1 LOADTYPE None  TITLE SELF
*SELFWEIGHT OF STEEL ELEMENTS. COEFFICIENT 1.1 USED TO ACCOUNT FOR WEIGHT OF
*CONNECTIONS BETWEEN MEMBERS
SELFWEIGHT Y -1.1 LIST 1 2 4 TO 13 1003 TO 1016 1018 TO 1090 1092 TO 1108 -
1110 TO 1140 1142 TO 1157 1159 TO 1229 1234 1244 TO 1246 1249 TO 1251 1255 -
1257 TO 1260 1279 1280 1282 1287 1289 1290 1300 TO 1331 1335 1337 TO 1373 -
1377 1379 TO 1382 1392 TO 1407 1410 1411 1414 1415 1417 1418 1421 1422 1425 -
1426 TO 1437 1441 1443 TO 1524 1526 TO 1534 1538 1539 1543 TO 1551 -
1553 TO 1560 1564 TO 1577 1581 1585 TO 1594 1598 TO 1602 1604 TO 1624 1628 -
1629 TO 1631 1635 1637 TO 1645 1649 1653 TO 1657 1662 TO 1670 1674 TO 1738 -
1745 TO 1747 1760 1761 1768 1775 1779 1783 1784 1786 TO 1842 1849 1850 1852 -
1853 TO 1854 1858 1862 1866 1870 TO 1873 1875 1882 TO 1885 1892 1897 TO 1899 -
1903 TO 2007 2026 2045 TO 2076 2078 TO 2173 2175 TO 2184 2188 2189 -
2193 TO 2202 2204 TO 2214 2218 TO 2231 2235 2239 TO 2248 2252 TO 2254 2256 -
2257 TO 2272 2276 TO 2281 2285 2287 TO 2295 2299 2300 2304 TO 2310 2314 2315 -
2317 TO 2325 2329 TO 2585 2587 2591 TO 2619 2621 TO 2685 2687 TO 2724 2726 -
2727 TO 2753
*SELFWEIGHT OF CONCRETE ELEMENTS
SELFWEIGHT Y -1 LIST 3 14 33 58 60 TO 63 98 108 149 204 205 210 211 -
217 TO 222 234 236 237 240 241 246 247 249 250 381 382 386 TO 388 397 403 -
404 424 433 531 533 535 537 539 541 543 550 TO 555 585 TO 1002 1017 1091 -
1109 1141 1158 1517 1525 1552 1603 1636 1661 2174 2203 2255 2286 2316 2340 -
2588 2686 2725
*
MEMBER LOAD
*SELFWEIGHT DUE TO STAIR RAMPS, STEPS AND HANDRAILS
1046 CON GY -1.925 0.6
1080 CON GY -1.925 0.9
1032 CON GY -1.925 0.25
1048 CON GY -3.85 0.6
1082 CON GY -1.925 0.9
1029 CON GY -1.925 0.25
1045 CON GY -3.85 0.6
1079 CON GY -1.925 0.899998
1031 CON GY -1.925 0.25
1047 CON GY -3.85 0.6
1081 CON GY -1.925 0.899998
*
*
*
*
*
********************************************************************************
LOAD R2 LOADTYPE None  TITLE DEAD HANDRAIL
*DEAD LOAD OF HANDRAILS
MEMBER LOAD
_HND_STAIR UNI GY -0.3
_HND_107800 UNI GY -0.3
_HND_114900 UNI GY -0.3
_HND_119700 UNI GY -0.3
_HND_106300 UNI GY -0.3
_HND_109100 UNI GY -0.3
_HND_112300 UNI GY -0.3
```

2188 2193 2199 2201 2221 2231 2241 2254 2267 2271 2277 2281 2300 2305 2310 -
2315 2344 2372 2419 2421 2423 2425 2430 2432 2434 2436 2438 2440 2442 2444 -
2484 2486 2534 2546 2594 2612 2663 2679 2696 2704 2708 2712 2716 2724 -
2776 UNI GY -0.3
_HND_WLK UNI GY -0.3
*
****
LOAD R3 LOADTYPE None TITLE DEAD GRATING
*DEAD LOAD OF GRATINGS
ONEWAY LOAD
_FLR_STAIR ONE -0.5 GY
_FLR_107800_1 ONE -0.5 GY
_FLR_107800_2 ONE -0.5 GY
_FLR_106300 ONE -0.5 GY
_FLR_109100 ONE -0.5 GY
_FLR_112300 ONE -0.5 GY
_FLR_114900_1 ONE -0.5 GY
_FLR_114900_2 ONE -0.5 GY
_FLR_114900_3 ONE -0.5 GY
_FLR_115700 ONE -0.5 GY
_FLR_119700 ONE -0.5 GY
_FLR_WLK ONE -0.5 GY
_FLR_BRG ONE -0.5 GY
*
****
LOAD R4 LOADTYPE None TITLE LIVE
MEMBER LOAD
*LIVE LOAD DUE TO STAIR RAMPS
1046 CON GY -5.625 0.6
1080 CON GY -5.625 0.9
1032 CON GY -5.625 0.25
1048 CON GY -11.25 0.6
1082 CON GY -5.625 0.9
1029 CON GY -5.625 0.25
1045 CON GY -11.25 0.6
1079 CON GY -5.625 0.899998
1031 CON GY -5.625 0.25
1047 CON GY -11.25 0.6
1081 CON GY -5.625 0.899998
*LIVE LOAD ON GRATINGS
ONEWAY LOAD
_FLR_STAIR ONE -5 GY
_FLR_107800_1 ONE -5 GY
_FLR_107800_2 ONE -5 GY
_FLR_106300 ONE -5 GY
_FLR_109100 ONE -5 GY
_FLR_112300 ONE -5 GY
_FLR_114900_1 ONE -5 GY
_FLR_114900_2 ONE -5 GY
_FLR_114900_3 ONE -5 GY
_FLR_115700 ONE -5 GY
_FLR_119700 ONE -5 GY
_FLR_WLK ONE -3 GY

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_FLR_BRG ONE -3 GY
*
*
*********************************************************************************
LOAD R5 LOADTYPE None  TITLE SL
*SNOW LOAD
ONEWAY LOAD
_FLR_STAIR ONE -0.84 GY
_FLR_107800_1 ONE -0.84 GY
_FLR_107800_2 ONE -0.84 GY
_FLR_106300 ONE -0.84 GY
_FLR_109100 ONE -0.84 GY
_FLR_112300 ONE -0.84 GY
_FLR_114900_1 ONE -0.84 GY
_FLR_114900_2 ONE -0.84 GY
_FLR_114900_3 ONE -0.84 GY
_FLR_115700 ONE -0.84 GY
_FLR_119700 ONE -0.84 GY
_FLR_WLK ONE -0.84 GY
_FLR_BRG ONE -0.84 GY
*
*********************************************************************************
LOAD R6 LOADTYPE None  TITLE SLACC (SNOW ACCIDENTAL)
*SNOW LOAD ACCIDENTAL - NOT APPLICABLE IN THE NETHERLANDS
*NONE
*
*********************************************************************************
LOAD R7 LOADTYPE None  TITLE EE (EMPTY LOAD)
JOINT LOAD
*20FA-86
287 FY -95
*20EA-106AB
299 FY -120
*20EA-104
362 FY -58
*20EA-105
1363 FY -127
*20PK-19
399 FY -110
*AIR COOLERS 20EC-09/11
758 759 FY -550
772 773 FY -550
783 784 FY -180
*20DA-12
JOINT LOAD
1361 FY -1190
*PIPING LOAD ON "RACK" BEAMS
MEMBER LOAD
1692 1719 1736 1784 1787 1813 1840 1852 TO 1854 1870 TO 1872 1883 TO 1885 -
1897 TO 1899 2007 2074 2076 UNI GY -3
2045 2049 2054 2059 2063 2067 2071 UNI GY -3
*CONCENTRATED LOAD DUE TO PIPING SUPPORT AT TOP ELEVATION
*
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LOAD R8 LOADTYPE None  TITLE EER (ERECTION LOAD)
JOINT LOAD
*20FA-86
287 FY -95
*20EA-106AB
299 FY -120
*20EA-104
362 FY -58
*20EA-105
1363 FY -127
*20PK-19
399 FY -110
*AIR COOLERS 20EC-09/11
758 759 FY -550
772 773 FY -550
783 784 FY -180
*20DA-12
JOINT LOAD
1361 FY -1190
*PIPING LOAD ON "RACK" BEAMS
MEMBER LOAD
1692 1719 1736 1784 1787 1813 1840 1852 TO 1854 1870 TO 1872 1883 TO 1885 -
1897 TO 1899 2007 2074 2076 UNI GY -3
2045 2049 2054 2059 2063 2067 2071 UNI GY -3
*CONCENTRATED LOAD DUE TO PIPING SUPPORT AT TOP ELEVATION
*
**************************************************************************
LOAD R9 LOADTYPE None  TITLE EO (OPERATING LOAD)
JOINT LOAD
*20FA-86
287 FY -415
*20EA-106AB
299 FY -160
*20EA-104
362 FY -83
*20EA-105
1363 FY -167
*20PK-19
399 FY -110
*AIR COOLERS 20EC-09/11
758 759 FY -550
772 773 FY -550
783 784 FY -180
*20DA-12
JOINT LOAD
1361 FY -1835
*PIPING LOAD ON "RACK" BEAMS
MEMBER LOAD
1692 1719 1736 1784 1787 1813 1840 1852 TO 1854 1870 TO 1872 1883 TO 1885 -
1897 TO 1899 2007 2074 2076 UNI GY -6
2045 2049 2054 2059 2063 2067 2071 UNI GY -6
*CONCENTRATED LOAD DUE TO PIPING SUPPORT AT TOP ELEVATION
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*
********************************************************************************
LOAD R10 LOADTYPE None  TITLE ET (TEST LOAD)
JOINT LOAD
*20FA-86
287 FY -500
*20EA-106AB
299 FY -165
*20EA-104
362 FY -82
*20EA-105
1363 FY -185
*20PK-19
399 FY -110
*AIR COOLERS 20EC-09/11
758 759 FY -550
772 773 FY -550
783 784 FY -180
*20DA-12
JOINT LOAD
1361 FY -3015
*PIPING LOAD ON "RACK" BEAMS
MEMBER LOAD
1692 1719 1736 1784 1787 1813 1840 1852 TO 1854 1870 TO 1872 1883 TO 1885 -
1897 TO 1899 2007 2074 2076 UNI GY -3
2045 2049 2054 2059 2063 2067 2071 UNI GY -3
*CONCENTRATED LOAD DUE TO PIPING SUPPORT AT TOP ELEVATION
*
********************************************************************************
LOAD R11 LOADTYPE None  TITLE TLSX (THERMAL ANCHOR FORCE X)
*ANCHOR LOADS DUE TO EXPANSION/CONTRACTION OF EQUIPMENT OR PIPES - X DIRECTION
*
********************************************************************************
LOAD R12 LOADTYPE None  TITLE TLSZ (THERMAL ANCHOR FORCE Z)
MEMBER LOAD
1692 1719 1736 1784 1787 1813 1840 1852 TO 1854 1870 TO 1872 1883 TO 1885 -
1897 TO 1899 2007 2074 2076 UNI GZ 1
2045 2049 2054 2059 2063 2067 2071 UNI GZ 1
*ANCHOR LOADS DUE TO EXPANSION/CONTRACTION OF EQUIPMENT OR PIPES - Z DIRECTION
*
********************************************************************************
LOAD R13 LOADTYPE None  TITLE TLFX (FRICTION FORCE X)
*FRICTION LOADS DUE TO EXPANSION/CONTRACTION OF EQUIPMENT OR PIPES - X DIRECTION
*
********************************************************************************
LOAD R14 LOADTYPE None  TITLE TLFZ (FRICTION FORCE Z)
*FRICTION LOADS DUE TO EXPANSION/CONTRACTION OF EQUIPMENT OR PIPES - Z DIRECTION
*
********************************************************************************
LOAD R15 LOADTYPE Temperature  TITLE TLT  (STRUCTURE THERMAL LOAD)
TEMPERATURE LOAD
1 2 4 TO 13 1003 TO 1016 1018 TO 1090 1092 TO 1108 1110 TO 1140 1142 TO 1157 -
1159 TO 1229 1234 1244 TO 1246 1249 TO 1251 1255 1257 TO 1260 1279 1280 1282 -
```

1287 1289 1290 1300 TO 1331 1335 1337 TO 1373 1377 1379 TO 1382 1392 TO 1407 -
1410 1411 1414 1415 1417 1418 1421 1422 1425 TO 1437 1441 1443 TO 1516 1518 -
1519 TO 1524 1526 TO 1534 1538 1539 1543 TO 1551 1553 TO 1560 1564 TO 1577 -
1581 1585 TO 1594 1598 TO 1602 1604 TO 1624 1628 TO 1631 1635 1637 TO 1645 -
1649 1653 TO 1657 1662 TO 1670 1674 TO 1738 1745 TO 1747 1760 1761 1768 1775 -
1779 1783 1784 1786 TO 1842 1849 1850 1852 TO 1854 1858 1862 1866 -
1870 TO 1873 1875 1882 TO 1885 1892 1897 TO 1899 1903 TO 2007 2026 -
2045 TO 2076 2078 TO 2173 2175 TO 2184 2188 2189 2193 TO 2202 2204 TO 2214 -
2218 TO 2231 2235 2239 TO 2248 2252 TO 2254 2256 TO 2272 2276 TO 2281 2285 -
2287 TO 2295 2299 2300 2304 TO 2310 2314 2315 2317 TO 2325 2329 TO 2339 2341 -
2342 TO 2585 2587 2591 TO 2619 2621 TO 2685 2687 TO 2724 2726 TO 2752 -
2753 TEMP 31
*TEMPERATURE LOADS ON EXPOSED STRUCTURES
*
****
LOAD R16 LOADTYPE None TITLE WLX (WIND LOAD X)
*WIND LOADS - X DIRECTION
*
****
LOAD R17 LOADTYPE None TITLE WLZ (WIND LOAD Z)
*WIND LOADS - Z DIRECTION
*
****
END DEFINE REFERENCE LOADS
*
****
DEFINE WIND LOAD
TYPE 1 WIND STRUCTURAL
* WIND PRESSURE ALONG HEIGHT
INT 0.776423 0.776423 0.776423 0.776423 0.776423 0.927483 1.02115 1.08999 -
1.14474 1.19036 1.22955 1.26395 1.29465 1.32239 1.34771 1.37102 1.39262 -
1.41275 1.43161 1.44936 1.46612 1.482 1.4971 1.51149 1.52523 1.53838 1.551 -
1.56313 1.5748 1.58605 1.59691 1.6074 1.61756 1.62741 1.63695 1.64622 -
1.65522 1.66398 1.67251 1.68081 1.6889 1.6968 1.7045 1.71203 1.71939 1.72658 -
1.73361 1.7405 1.74725 1.75385 1.76033 1.76668 1.77291 1.77903 1.78503 -
1.79093 1.79672 1.80241 1.808 1.81351 1.81892 1.82425 1.82949 1.83465 HEIG -
0.1 0.25 0.5 0.75 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 -
23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 -
48 49 50 51 52 53 54 55 56 57 58 59 60
*
****
*LOAD CONDITIONS
*
LOAD 100 LOADTYPE Dead TITLE DL (DEAD LOAD)
REFERENCE LOAD
R1 1.0 R2 1.0 R3 1.0
****
LOAD 110 LOADTYPE Dead TITLE EE (EMPTY LOAD)
REFERENCE LOAD
R7 1.0
****
LOAD 111 LOADTYPE Dead TITLE EER (ERECTION LOAD)
REFERENCE LOAD

R8 1.0
****
LOAD 115 LOADTYPE Dead TITLE EO (OPERATING LOAD)
REFERENCE LOAD
R9 1.0
****
LOAD 120 LOADTYPE Dead TITLE ET (TEST LOAD)
REFERENCE LOAD
R10 1.0
****
LOAD 125 LOADTYPE Snow TITLE SL (SNOW LOAD)
REFERENCE LOAD
R5 1.0
****
LOAD 126 LOADTYPE Snow TITLE SLACC (SNOW LOAD ACCIDENTAL)
*REFERENCE LOAD
*R6 1.0
****
LOAD 130 LOADTYPE Live TITLE LL (LIVE LOAD)
REFERENCE LOAD
R4 1.0
****
LOAD 140 LOADTYPE Dead TITLE TLSX (THERMAL ANCHOR FORCE X)
REFERENCE LOAD
R11 1.0
****
LOAD 141 LOADTYPE Dead TITLE TLSZ (THERMAL ANCHOR FORCE Z)
REFERENCE LOAD
R12 1.0
****
LOAD 145 LOADTYPE Accidental TITLE TLFX (FRICTION FORCE X)
REFERENCE LOAD
R13 1.0
****
LOAD 146 LOADTYPE Accidental TITLE TLFZ (FRICTION FORCE Z)
REFERENCE LOAD
R14 1.0
****
LOAD 150 LOADTYPE Temperature TITLE TLT (STRUCTURE THERMAL LOAD)
REFERENCE LOAD
R15 1.0
****
*
LOAD 160 LOADTYPE Wind TITLE WLX (WIND LOAD +X)
JOINT LOAD
*20FA-86
287 FX 30.91
*20EA-106AB
299 FX 8.95
*20EA-104
362 FX 4.83
*20EA-105
1363 FX 10.71

*20PK-19
399 FX 60
JOINT LOAD
*AIR COOLERS 20EC-09/11
759 FX 195
773 FX 195
784 FX 77.4
*20DA-12
JOINT LOAD
1361 FX 365 MZ -6138
*PIPES
MEMBER LOAD
1692 1736 1784 1852 TO 1854 1870 TO 1872 1883 TO 1885 1897 TO 1899 2045 2049 -
2054 2059 2063 2067 2071 CON GX 5 1
*WIND FORCES ON STRUCTUREAL ELEMENTS
*ALIGN. STAIR
WIND LOAD X 1.9 TYPE 1 XR -3.6 -3.4 YR 1.5 14.5 ZR 0 6 OPEN
*ALIGN. 4
WIND LOAD X 1.9 TYPE 1 XR -0.1 0.1 YR 1.5 14.5 ZR 0 13.9 OPEN
*ALIGN. 3
WIND LOAD X 1.9 TYPE 1 XR 9.9 10.1 YR 1.5 19.7 ZR 0 18.1 OPEN
*ALIGN. 2
WIND LOAD X 1.9 TYPE 1 XR 20.7 20.9 YR 1.5 19.7 ZR 0 18.1 OPEN
*ALIGN. 1
WIND LOAD X 1.9 TYPE 1 XR 29.7 29.9 YR 1.5 15.3 ZR 4.5 9.2 OPEN
*ALIGN. BRIDGE WEST
WIND LOAD X 1.9 TYPE 1 XR 15.4 15.6 YR 7.8 9.1 ZR -16.1 0 OPEN
*ALIGN. BRIDGE EAST
WIND LOAD X 1.9 TYPE 1 XR 20.7 20.9 YR 7.8 9.1 ZR -16.1 0 OPEN
*PIPE SUPPORT E-W
WIND LOAD X 1.9 TYPE 1 XR 21.7 21.9 YR 19.7 26.7 ZR 0 13.9 OPEN
*
****
LOAD 161 LOADTYPE Wind TITLE WLZ (WIND LOAD +Z)
JOINT LOAD
*20FA-86
287 FZ 15.46
*20EA-106AB
299 FZ 4.48
*20EA-104
362 FZ 2.42
*20EA-105
1363 FZ 10.71
*20PK-19
399 FZ 16
JOINT LOAD
*AIR COOLERS 20EC-09/11
759 FZ 118
773 FZ 118
784 FZ 118
*20DA-12
JOINT LOAD
1361 FZ 365 MX 6138

*WIND FORCES ON STRUCTUREAL ELEMENTS
*ALIGN. E
WIND LOAD Z 1.9 TYPE 1 XR -3.5 20.8 YR 1.5 19.7 ZR -0.1 0.1 OPEN
*ALIGN. D
WIND LOAD Z 1.9 TYPE 1 XR 0 29.8 YR 1.5 19.7 ZR 4.4 4.6 OPEN
*ALIGN. C
WIND LOAD Z 1.9 TYPE 1 XR 0 29.8 YR 1.5 19.7 ZR 9.1 9.3 OPEN
*ALIGN. B
WIND LOAD Z 1.9 TYPE 1 XR 0 20.8 YR 1.5 19.7 ZR 13.8 14 OPEN
*ALIGN. A
WIND LOAD Z 1.9 TYPE 1 XR 0 20.8 YR 1.5 19.7 ZR 18 18.2 OPEN
*PIPE SUPPORT
WIND LOAD Z 1.9 TYPE 1 XR 21.8 23 YR 19.7 26.7 ZR 0 13.9 OPEN
*BRIDGE NORTH
WIND LOAD Z 1.9 TYPE 1 XR 15.5 20.8 YR 7.8 9.1 ZR -16.2 -16 OPEN
*PORTAL
WIND LOAD Z 1.9 TYPE 1 XR 9.5 21.5 YR 1.5 15 ZR -12.2 -12 OPEN
*
****
LOAD 162 LOADTYPE Wind TITLE WLX50% (WIND LOAD X PARTIAL)
*50% WIND FORCES ALONG X CALCULATED STARTING FROM LC160, WITH COEFF. 0.5
JOINT LOAD
*20FA-86
287 FX 15.46
*20EA-106AB
299 FX 4.48
*20EA-104
362 FX 2.42
*20EA-105
1363 FX 5.36
*20PK-19
399 FX 30
*AIR COOLERS 20EC-09/11
JOINT LOAD
759 FX 97.5
773 FX 97.5
784 FX 38.7
*20DA-12
JOINT LOAD
1361 FX 199 MZ -3323
*PIPES
MEMBER LOAD
1692 1736 1784 1852 TO 1854 1870 TO 1872 1883 TO 1885 1897 TO 1899 2045 2049 -
2054 2059 2063 2067 2071 CON GX 2.5 1
*WIND FORCES ON STRUCTUREAL ELEMENTS
*ALIGN. STAIR
WIND LOAD X 1 TYPE 1 XR -3.6 -3.4 YR 1.5 14.5 ZR 0 6 OPEN
*ALIGN. 4
WIND LOAD X 1 TYPE 1 XR -0.1 0.1 YR 1.5 14.5 ZR 0 13.9 OPEN
*ALIGN. 3
WIND LOAD X 1 TYPE 1 XR 9.9 10.1 YR 1.5 19.7 ZR 0 18.1 OPEN
*ALIGN. 2
WIND LOAD X 1 TYPE 1 XR 20.7 20.9 YR 1.5 19.7 ZR 0 18.1 OPEN

*ALIGN. 1
WIND LOAD X 1 TYPE 1 XR 29.7 29.9 YR 1.5 15.3 ZR 4.5 9.2 OPEN
*ALIGN. BRIDGE WEST
WIND LOAD X 1 TYPE 1 XR 15.4 15.6 YR 7.8 9.1 ZR -16.1 0 OPEN
*ALIGN. BRIDGE EAST
WIND LOAD X 1 TYPE 1 XR 20.7 20.9 YR 7.8 9.1 ZR -16.1 0 OPEN
*PIPE SUPPORT E-W
WIND LOAD X 1 TYPE 1 XR 21.7 21.9 YR 19.7 26.7 ZR 0 13.9 OPEN
*
****
LOAD 163 LOADTYPE Wind TITLE WLZ50% (WIND LOAD Z PARTIAL)
*50% WIND FORCES ALONG Z CALCULATED STARTING FROM LC161, WITH COEFF. 0.5
JOINT LOAD
*20FA-86
287 FZ 7.83
*20EA-106AB
299 FZ 2.24
*20EA-104
362 FZ 1.21
*20EA-105
1363 FZ 5.36
*20PK-19
399 FZ 8
*AIR COOLERS 20EC-09/11
JOINT LOAD
759 FZ 59
773 FZ 59
784 FZ 59
*20DA-12
JOINT LOAD
1361 FZ 199 MX 3323
*WIND FORCES ON STRUCTUREAL ELEMENTS
*ALIGN. E
WIND LOAD Z 1 TYPE 1 XR -3.5 20.8 YR 1.5 19.7 ZR -0.1 0.1 OPEN
*ALIGN. D
WIND LOAD Z 1 TYPE 1 XR 0 29.8 YR 1.5 19.7 ZR 4.4 4.6 OPEN
*ALIGN. C
WIND LOAD Z 1 TYPE 1 XR 0 29.8 YR 1.5 19.7 ZR 9.1 9.3 OPEN
*ALIGN. B
WIND LOAD Z 1 TYPE 1 XR 0 20.8 YR 1.5 19.7 ZR 13.8 14 OPEN
*ALIGN. A
WIND LOAD Z 1 TYPE 1 XR 0 20.8 YR 1.5 19.7 ZR 18 18.2 OPEN
*PIPE SUPPORT
WIND LOAD Z 1 TYPE 1 XR 21.8 23 YR 19.7 26.7 ZR 0 13.9 OPEN
*BRIDGE NORTH
WIND LOAD Z 1 TYPE 1 XR 15.5 20.8 YR 7.8 9.1 ZR -16.2 -16 OPEN
*PORTAL
WIND LOAD Z 1 TYPE 1 XR 9.5 21.5 YR 1.5 15 ZR -12.2 -12 OPEN
*
*
****
LOAD 164 LOADTYPE Wind TITLE WL-X (WIND LOAD -X)
*LC 164 CORRESPONDS TO WIND ALONG (-X), WHICH FOR BUILDINGS IS DIFFERENT FROM

```
*-WINDX DUE TO THE DIFFERENCE IN THE WINDWARD AND LEEWARD SHAPE COEFFICIENTS
*IN THE BUILDING PORTION OF THE STRUCTURE: IN THE COMBINATIONS, "-WINDX"
*IS NOT "-160" BUT "+164 = +WIND(-X)" -
*NOT USED FOR OPEN FRAME PROCESS STRUCTURES
*********************************************************************************
LOAD 165 LOADTYPE Wind  TITLE WL-Z (WIND LOAD -Z)
*LC 165 CORRESPONDS TO WIND ALONG (-Z), WHICH FOR BUILDINGS IS DIFFERENT FROM
*-WINDZ DUE TO THE DIFFERENCE IN THE WINDWARD AND LEEWARD SHAPE COEFFICIENTS
*IN THE BUILDING PORTION OF THE STRUCTURE: IN THE COMBINATIONS, "-WINDZ"
*IS NOT "-161" BUT "+165 = +WIND(-Z)" -
*NOT USED FOR OPEN FRAME PROCESS STRUCTURES
*********************************************************************************
LOAD 170 LOADTYPE None  TITLE ELX (EARTHQUAKE LOAD X)
*EARTHQUAKE LOAD NOT APPLICABLE IN THE NETHERLANDS
*********************************************************************************
LOAD 171 LOADTYPE None  TITLE ELZ (EARTHQUAKE LOAD Z)
*EARTHQUAKE LOAD NOT APPLICABLE IN THE NETHERLANDS
*********************************************************************************
LOAD 172 LOADTYPE None  TITLE ELEX (EARTHQUAKE LOAD X EMPTY)
*EARTHQUAKE LOAD NOT APPLICABLE IN THE NETHERLANDS
*********************************************************************************
LOAD 173 LOADTYPE None  TITLE ELEZ (EARTHQUAKE LOAD Z EMPTY)
*EARTHQUAKE LOAD NOT APPLICABLE IN THE NETHERLANDS
*********************************************************************************
LOAD 174 LOADTYPE None  TITLE RAYLEIGH-X
*EARTHQUAKE LOAD NOT APPLICABLE IN THE NETHERLANDS
*********************************************************************************
LOAD 175 LOADTYPE None  TITLE RAYLEIGH-Z
*EARTHQUAKE LOAD NOT APPLICABLE IN THE NETHERLANDS
*********************************************************************************
LOAD 176 LOADTYPE None  TITLE ELOVERTICAL
*EARTHQUAKE LOAD NOT APPLICABLE IN THE NETHERLANDS
*********************************************************************************
LOAD 177 LOADTYPE None  TITLE ELEVERTICAL
*EARTHQUAKE LOAD NOT APPLICABLE IN THE NETHERLANDS
*********************************************************************************
LOAD 180 LOADTYPE Accidental  TITLE ML (MAINTANANCE LOAD/BUNDLE PULL)
*
*********************************************************************************
LOAD 185 LOADTYPE Accidental  TITLE IL (IMPACT LOAD)
*
*********************************************************************************
LOAD 190 LOADTYPE Dead  TITLE VLX (VIBRATION LOAD)
*
*********************************************************************************
LOAD 191 LOADTYPE Dead  TITLE VLZ (VIBRATION LOAD)
*
*********************************************************************************
LOAD 192 LOADTYPE Dead  TITLE VLY (VIBRATION LOAD)
*
*********************************************************************************
LOAD 195 LOADTYPE Accidental  TITLE BL (BLAST LOAD)
*
```

```
*****************************************************************************
LOAD 200 LOADTYPE Accidental  TITLE CL (CONSTRUCTION LOAD)
*
*****************************************************************************
LOAD 205 LOADTYPE Fluids  TITLE FL (FLUID LOAD)
*
*****************************************************************************
LOAD 210 LOADTYPE Soil  TITLE HL (EARTH LOAD)
*
*****************************************************************************
LOAD 215 LOADTYPE None  TITLE DS (DIFFERENTIAL SETTLEMET LOAD)
*
*****************************************************************************
*
*LOAD COMBINATIONS ARE DEFINED ACCORDING TO THE COMBINATION PARAMETERS PSI ***
*REPORTED IN THE DUTCH NATIONAL ANNEX TO EN1990 (EUROCODE) ********************
*USE OF COEFFICIENT KFI FOR UNFAVOURABLE LOADS IS CONSIDERED, FOR CC3 ********
*
*
*
*****************************************************************************
********************************************** COMBINATION SLS - CHARACTERISTIC**
*****************************************************************************
*
*****************************************************************************
********************************** EMPTY & CONSTRUCTION SLS ********************
*****************************************************************************
*
* SLS E&C - VERTICAL (PERMANENT) ********************************************
LOAD COMB 300 DL+EE+HL
100 1.0 110 1.0 210 1.0
*
* SLS E&C - THERMAL AMBIENTAL ***********************************************
LOAD COMB 301 DE+EE+HL+TLT
100 1.0 110 1.0 210 1.0 150 1.0
LOAD COMB 302 DL+EE+HL-TLT
100 1.0 110 1.0 210 1.0 150 -1.0
*
* SLS E&C - WIND (OVERTURNING) **********************************************
LOAD COMB 303 DL+EE+HL+WLX
100 1.0 110 1.0 210 1.1 160 1.0
LOAD COMB 304 DL+EE+HL-WLX
100 1.0 110 1.0 210 1.0 160 -1.0
LOAD COMB 305 DL+EE+HL+WLZ
100 1.0 110 1.0 210 1.0 161 1.0
LOAD COMB 306 DL+EE+HL-WLZ
100 1.0 110 1.0 210 1.0 161 -1.0
*
* SLS E&C - CONSTRUCTION ****************************************************
LOAD COMB 307 DL+EE+HL+CL
100 1.0 110 1.0 210 1.0 200 1.0
*
* SLS E&C - CONSTRUCTION (NO INSTANTANEOUS ACTIONS) *************************
```

```
LOAD COMB 308 DE+EE+HL+0.6TLT+CL
100 1.0 110 1.0 210 1.0 150 0.6 200 1.0
LOAD COMB 309 DE+EE+HL-0.6TLT+CL
100 1.0 110 1.0 210 1.0 150 -0.6 200 1.0
*
* SLS E&C - WIND ****************************************************************
LOAD COMB 310 DL+EE+HL+WLX+0.7CL
100 1.0 110 1.0 210 1.0 160 1.0 200 0.7
LOAD COMB 311 DL+EE+HL-WLX+0.7CL
100 1.0 110 1.0 210 1.0 160 -1.0 200 0.7
LOAD COMB 312 DL+EE+HL+WLZ+0.7CL
100 1.0 110 1.0 210 1.0 161 1.0 200 0.7
LOAD COMB 313 DL+EE+HL-WLZ+0.7CL
100 1.0 110 1.0 210 1.0 161 -1.0 200 0.7
*
* SLS E&C - SNOW *****************************************************************
LOAD COMB 314 DL+EE+HL+0.7CL+SL
100 1.0 110 1.0 210 1.0 200 0.7 125 1.0
*
*
*
*******************************************************************************
********************************************** OPERATING SLS ***************
*******************************************************************************
*
* SLS OPE - VERTICAL (PERMANENT) ************************************************
LOAD COMB 400 DL+EO+VL+HL
100 1.0 115 1.0 210 1.0 190 1.0 191 1.0 192 1.0
*
* SLS OPE - THERMAL AMBIENTAL ***************************************************
LOAD COMB 401 DL+EO+TLSX+TLSZ+VL+HL+LL+TLT+0.6TLFX+0.6TLFZ
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 1.0 145 0.6 146 0.6
LOAD COMB 402 DL+EO+TLSX+TLSZ+VL+HL+LL-TLT+0.6TLFX+0.6TLFZ
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 -1.0 145 0.6 146 0.6
LOAD COMB 403 DL+EO+TLSX+TLSZ+VL+HL+LL-TLT-0.6TLFX-0.6FLFZ
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 -1.0 145 -0.6 146 -0.6
LOAD COMB 404 DL+EO-TLSX-TLSZ+VL+HL+LL+TLT+0.6TLFX+0.6TLFZ
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 1.0 145 0.6 146 0.6
LOAD COMB 405 DL+EO-TLSX-TLSZ+VL+HL+LL-TLT+0.6TLFX+0.6TLFZ
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 -1.0 145 0.6 146 0.6
LOAD COMB 406 DL+EO-TLSX+TLSZ+VL+HL+LL-TLT-0.6TLFX-0.6TLFZ
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 -1.0 145 -0.6 146 -0.6
*
* SLS OPE - THERMAL PIPES *******************************************************
LOAD COMB 407 DL+EO+TLSX+TLSZ+VL+HL+LL+0.6TLT+TLFX+TLFZ
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 0.6 145 1.0 146 1.0
```

LOAD COMB 408 DL+EO+TLSX+TLSZ+VL+HL+LL-0.6TLT+TLFX+TLFZ
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 -0.6 145 1.0 146 1.0
LOAD COMB 409 DL+EO+TLSX+TLSZ+VL+HL+LL-0.6TLT-TLFX-TLFZ
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 -0.6 145 -1.0 146 -1.0
LOAD COMB 410 DL+EO-TLSX-TLSZ+VL+HL+LL+0.6TLT+TLFX+TLFZ
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 0.6 145 1.0 146 1.0
LOAD COMB 411 DL+EO-TLSX-TLSZ+VL+HL+LL-0.6TLT+TLFX+TLFZ
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 -0.6 145 1.0 146 1.0
LOAD COMB 412 DL+EO-TLSX-TLSZ+VL+HL+LL-0.6TLT-TLFX-TLFZ
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 -0.6 145 -1.0 146 -1.0
*
* SLS OPE - WIND (OVERTURNING) **********
LOAD COMB 413 DL+EO+TLSX+TLSZ+VL+HL+WLX
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 160 1.0
LOAD COMB 414 DL+EO-TLSX-TLSZ+VL+HL-WLX
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 160 -1.0
LOAD COMB 415 DL+EO+TLSX+TLSZ+VL+HL+WLZ
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 161 1.0
LOAD COMB 416 DL+EO-TLSX-TLSZ+VL+HL-WLZ
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 161 -1.0
*
* SLS OPE - LIVE **********
LOAD COMB 417 DL+EO+TLSX+TLSZ+VL+HL+LL+0.6IL
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
185 0.6
LOAD COMB 418 DL+EO-TLSX-TLSZ+VL+HL+LL+0.6IL
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
185 0.6
*
* SLS OPE - LIVE (NO INSTANTANEOUS ACTIONS) **********
LOAD COMB 419 DL+EO+TLSX+TLSZ+VL+HL+LL+0.6TLT+0.6TLFX+0.6TLFZ
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 0.6 145 0.6 146 0.6
LOAD COMB 420 DL+EO+TLSX+TLSZ+VL+HL+LL-0.6TLT+0.6TLFX+0.6TLFZ
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 -0.6 145 0.6 146 0.6
LOAD COMB 421 DL+EO+TLSX+TLSZ+VL+HL+LL-0.6TLT-0.6TLFX-0.6TLFZ
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 -0.6 145 -0.6 146 -0.6
LOAD COMB 422 DL+EO-TLSX-TLSZ+VL+HL+LL+0.6TLT+0.6TLFX+0.6TLFZ
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 0.6 145 0.6 146 0.6
LOAD COMB 423 DL+EO-TLSX-TLSZ+VL+HL+LL-0.6TLT+0.6TLFX+0.6TLFZ
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 -0.6 145 0.6 146 0.6
LOAD COMB 424 DL+EO-TLSX-TLSZ+VL+HL+LL-0.6TLT-0.6TLFX-0.6TLFZ
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 -0.6 145 -0.6 146 -0.6

```
*
* SLS OPE - WIND ******************************************************************
LOAD COMB 425 DL+EO+TLSX+TLSZ+VL+HL+LL+WLX+0.6IL
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
160 1.0 185 0.6
LOAD COMB 426 DL+EO-TLSX-TLSZ+VL+HL+LL-WLX+0.6IL
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
160 -1.0 185 0.6
LOAD COMB 427 DL+EO+TLSX+TLSZ+VL+HL+LL+WLZ+0.6IL
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
161 1.0 185 0.6
LOAD COMB 428 DL+EO-TLSX-TLSZ+VL+HL+LL-WLZ+0.6IL
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
161 -1.0 185 0.6
*
* SLS OPE - SNOW ******************************************************************
LOAD COMB 429 DL+EO+TLSX+TLSZ+VL+HL+LL+0.6IL+SL
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
185 0.6 125 1.0
LOAD COMB 430 DL+EO-TLSX-TLSZ+VL+HL+VL+LL+0.6IL+SL
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
185 0.6 125 1.0
*
* SLS OPE - IMPACT ****************************************************************
LOAD COMB 431 DL+EO+TLSX+TLSZ+VL+HL+LL+IL
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
185 1.0
LOAD COMB 432 DL+EO-TLSX-TLSZ+VL+HL+LL+IL
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
185 1.0
*
*
*
*******************************************************************************
********************************************** TEST SLS ********************
*******************************************************************************
*
* SLS TEST - VERTICAL (PERMANENT) *************************************************
LOAD COMB 500 DL+ET+HL
100 1.0 120 1.0 210 1.0
*
* SLS TEST - WIND-REDUCED VALUE (OVERTURNING) *********************************
LOAD COMB 501 DL+ET+HL+WLX50%
100 1.0 120 1.0 210 1.0 162 1.0
LOAD COMB 502 DL+ET+HL-WLX50%
100 1.0 120 1.0 210 1.0 162 -1.0
LOAD COMB 503 DL+ET+HL+WLZ50%
100 1.0 120 1.0 210 1.0 163 1.0
LOAD COMB 504 DL+ET+HL-WLZ50%
100 1.0 120 1.0 210 1.0 163 -1.0
*
* SLS TEST - LIVE ******************************************************************
LOAD COMB 505 DL+ET+HL+LL+0.6IL
```

```
100 1.0 120 1.0 210 1.0 130 1.0 185 0.6
*
* SLS TEST - WIND-REDUCED VALUE ************************************************
LOAD COMB 506 DL+ET+HL+LL+WLX50%+0.6IL
100 1.0 120 1.0 210 1.0 130 1.0 162 1.0 185 0.6
LOAD COMB 507 DL+ET+HL+LL-WLX50%+0.6IL
100 1.0 120 1.0 210 1.0 130 1.0 162 -1.0 185 0.6
LOAD COMB 508 DL+ET+HL+LL+WLZ50%+0.6IL
100 1.0 120 1.0 210 1.0 130 1.0 163 1.0 185 0.6
LOAD COMB 509 DL+ET+HL+LL-WLZ50%+0.6IL
100 1.0 120 1.0 210 1.0 130 1.0 163 -1.0 185 0.6
*
* SLS TEST - SNOW ***************************************************************
LOAD COMB 510 DL+ET+HL+LL+0.6IL+SL
100 1.0 120 1.0 210 1.0 130 1.0 185 0.6 125 1.0
*
* SLS TEST - IMPACT *************************************************************
LOAD COMB 511 DL+ET+HL+LL+IL
100 1.0 120 1.0 210 1.0 130 1.0 185 1.0
*
*
*
*******************************************************************************
********************************************** MAINTENANCE SLS *************
*******************************************************************************
*
* SLS MAINTENANCE - MAINTENANCE (OVERTURNING) ***********************************
*
*
* SLS MAINTENANCE - MAINTENANCE *************************************************
LOAD COMB 550 DL+EE+HL+LL+ML+BL+0.6IL
100 1.0 110 1.0 210 1.0 130 1.0 180 1.0 195 1.0 185 0.6
*
*
*
*******************************************************************************
********************************** QUASI-PERMANENT SLS ************************
*******************************************************************************
LOAD COMB 600 DL+EO+TLSX+TLSZ+VL+HL+0.8LL
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 0.8
LOAD COMB 601 DL+EO-TLSX-TLSZ+VL+HL+0.8LL
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 0.8
*
*
*
*
*******************************************************************************
********************************************** COMBINATION ULS - STR/GEO ***
*******************************************************************************
*
*******************************************************************************
******************************** EMPTY & CONSTRUCTION ULS - STR/GEO ************
*******************************************************************************
```

```
*
* ULS STR/GEO E&C - VERTICAL (PERMANENT) ************************************
LOAD COMB 1000 1.5(DL+EE)+1.0HL
100 1.5 110 1.5 210 1.0
*
LOAD COMB 1001 1.3(DL+EE)+1.0HL
100 1.3 110 1.3 210 1.0
*
* ULS STR/GEO E&C - THERMAL AMBIENTAL ***************************************
LOAD COMB 1002 0.9(DE+EE)+HL+1.65(0.6TLT)
100 0.9 110 0.9 210 1.0 150 1.0
LOAD COMB 1003 0.9(DL+EE)+HL-1.65(0.6TLT)
100 0.9 110 0.9 210 1.0 150 -1.0
*
LOAD COMB 1004 0.9(DL+EE)+HL+1.65TLT
100 0.9 110 0.9 210 1.0 150 1.65
LOAD COMB 1005 0.9(DL+EE)+HL-1.65TLT
100 0.9 110 0.9 210 1.0 150 -1.65
*
*
* ULS STR/GEO E&C - WIND (OVERTURNING) **************************************
LOAD COMB 1006 0.9(DL+EE)+HL+1.65WLX
100 0.9 110 0.9 210 1.1 160 1.65
LOAD COMB 1007 0.9(DL+EE)+HL-1.65WLX
100 0.9 110 0.9 210 1.0 160 -1.65
LOAD COMB 1008 0.9(DL+EE)+HL+1.65WLZ
100 0.9 110 0.9 210 1.0 161 1.65
LOAD COMB 1009 0.9(DL+EE)+HL-1.65WLZ
100 0.9 110 0.9 210 1.0 161 -1.65
*
* ULS STR/GEO E&C - CONSTRUCTION ********************************************
LOAD COMB 1010 1.5(DL+EE)+1.0HL+1.65(0.7CL)
100 1.5 110 1.5 210 1.0 200 1.15
*
LOAD COMB 1011 1.3(DL+EE)+1.0HL+1.65CL
100 1.3 110 1.3 210 1.0 200 1.65
*
* ULS STR/GEO E&C - CONSTRUCTION (NO INSTANTANEOUS ACTIONS) ******************
LOAD COMB 1012 1.5(DE+EE)+1.0HL+1.65(0.6TLT+0.7CL)
100 1.5 110 1.5 210 1.0 150 1.0 200 1.15
LOAD COMB 1013 1.5(DE+EE)+1.0HL+1.65(-0.6TLT+0.7CL)
100 1.5 110 1.5 210 1.0 150 -1.0 200 1.15
*
LOAD COMB 1014 1.3(DE+EE)+1.0HL+1.65(0.6TLT+CL)
100 1.3 110 1.3 210 1.0 150 1.0 200 1.65
LOAD COMB 1015 1.3(DE+EE)+1.0HL+1.65(-0.6TLT+CL)
100 1.3 110 1.3 210 1.0 150 -1.0 200 1.65
*
*
* ULS STR/GEO E&C - WIND ****************************************************
LOAD COMB 1016 1.3(DL+EE)+1.0HL+1.65(WLX+0.7CL)
100 1.3 110 1.3 210 1.0 160 1.65 200 1.15
LOAD COMB 1017 1.3(DL+EE)+1.0HL+1.65(-WLX+0.7CL)
```

```
100 1.3 110 1.3 210 1.0 160 -1.65 200 1.15
LOAD COMB 1018 1.3(DL+EE)+1.0HL+1.65(WLZ+0.7CL)
100 1.3 110 1.3 210 1.0 161 1.65 200 1.15
LOAD COMB 1019 1.3(DL+EE)+1.0HL+1.65(-WLZ+0.7CL)
100 1.3 110 1.3 210 1.0 161 -1.65 200 1.15
*
* ULS STR/GEO E&C - SNOW ******************************************************
LOAD COMB 1020 1.3(DL+EE)+1.0HL+1.65(0.7CL+SL)
100 1.3 110 1.3 210 1.0 200 1.15 125 1.65
*
*
*
*
*******************************************************************************
********************************************** OPERATING ULS STR/GEO ******
*******************************************************************************
*
*
* ULS STR/GEO OPE - VERTICAL (PERMANENT) ***************************************
LOAD COMB 1100 1.5(DL+EO+VL)+1.0HL
100 1.5 115 1.5 190 1.5 191 1.5 192 1.5 210 1.0
LOAD COMB 1101 1.3(DL+EO+VL)+1.0HL
100 1.3 115 1.3 190 1.3 191 1.3 192 1.3 210 1.0
*
* ULS STR/GEO OPE - THERMAL AMBIENTAL ******************************************
LOAD COMB 1102 0.9(DL+EO)+1.5(TLSX+TLSZ)+0.9VL+HL+1.65(LL+0.6TLT+0.6TLFX+0.6TLFZ)
100 0.9 115 0.9 140 1.5 141 1.5 190 0.9 191 0.9 192 0.9 210 1.0 130 1.65 -
150 1.0 145 1.0 146 1.0
LOAD COMB 1103 0.9(DL+EO)+1.5(TLSX+TLSZ)+0.9VL+HL+1.65(LL-0.6TLT+0.6TLFX+0.6TLFZ)
100 0.9 115 0.9 140 1.5 141 1.5 190 0.9 191 0.9 192 0.9 210 1.0 130 1.65 -
150 -1.0 145 1.0 146 1.0
LOAD COMB 1104 0.9(DL+EO)+1.5(TLSX+TLSZ)+0.9VL+HL+1.65(LL-0.6TLT-0.6TLFX-0.6FLFZ)
100 0.9 115 0.9 140 1.5 141 1.5 190 0.9 191 0.9 192 0.9 210 1.0 130 1.65 -
150 -1.0 145 -1.0 146 -1.0
LOAD COMB 1105 0.9(DL+EO)+1.5(-TLSX-TLSZ)+0.9VL+HL+1.65(LL+0.6TLT+0.6TLFX+0.6TLFZ)
100 0.9 115 0.9 140 -1.5 141 -1.5 190 0.9 191 0.9 192 0.9 210 1.0 130 1.65 -
150 1.0 145 1.0 146 1.0
LOAD COMB 1106 0.9(DL+EO)+1.5(-TLSX-TLSZ)+0.9VL+HL+1.65(LL-0.6TLT+0.6TLFX+0.6TLFZ)
100 0.9 115 0.9 140 -1.5 141 -1.5 190 0.9 191 0.9 192 0.9 210 1.0 130 1.65 -
150 -1.0 145 1.0 146 1.0
LOAD COMB 1107 0.9(DL+EO)+1.5(-TLSX-TLSZ)+0.9VL+HL+1.65(LL-0.6TLT-0.6TLFX-0.6TLFZ)
100 0.9 115 0.9 140 -1.5 141 -1.5 190 0.9 191 0.9 192 0.9 210 1.0 130 1.65 -
150 -1.0 145 -1.0 146 -1.0
*
LOAD COMB 1108 0.9(DL+EO)+1.3(TLSX+TLSZ)+0.9VL+HL+1.65(LL+TLT+0.6TLFX+0.6TLFZ)
100 0.9 115 0.9 140 1.3 141 1.3 190 0.9 191 0.9 192 0.9 210 1.0 130 1.65 -
150 1.65 145 1.0 146 1.0
LOAD COMB 1109 0.9(DL+EO)+1.3(TLSX+TLSZ)+0.9VL+HL+1.65(LL-TLT+0.6TLFX+0.6TLFZ)
100 0.9 115 0.9 140 1.3 141 1.3 190 0.9 191 0.9 192 0.9 210 1.0 130 1.65 -
150 -1.65 145 1.0 146 1.0
LOAD COMB 1110 0.9(DL+EO)+1.3(TLSX+TLSZ)+0.9VL+HL+1.65(LL-TLT-0.6TLFX-0.6FLFZ)
100 0.9 115 0.9 140 1.3 141 1.3 190 0.9 191 0.9 192 0.9 210 1.0 130 1.65 -
150 -1.65 145 -1.0 146 -1.0
```

LOAD COMB 1111 0.9(DL+EO)+1.3(-TLSX-TLSZ)+0.9VL+HL+1.65(LL+TLT+0.6TLFX+0.6TLFZ)
100 0.9 115 0.9 140 -1.3 141 -1.3 190 0.9 191 0.9 192 0.9 210 1.0 130 1.65 -
150 1.65 145 1.0 146 1.0
LOAD COMB 1112 0.9(DL+EO)+1.3(-TLSX-TLSZ)+0.9VL+HL+1.65(LL-TLT+0.6TLFX+0.6TLFZ)
100 0.9 115 0.9 140 -1.3 141 -1.3 190 0.9 191 0.9 192 0.9 210 1.0 130 1.65 -
150 -1.65 145 1.0 146 1.0
LOAD COMB 1113 0.9(DL+EO)+1.3(-TLSX-TLSZ)+0.9VL+HL+1.65(LL-TLT-0.6TLFX-0.6TLFZ)
100 0.9 115 0.9 140 -1.3 141 -1.3 190 0.9 191 0.9 192 0.9 210 1.0 130 1.65 -
150 -1.65 145 -1.0 146 -1.0
*
*
* ULS STR/GEO OPE - THERMAL PIPES **********
LOAD COMB 1114 1.5(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL+0.6TLT+0.6TLFX+0.6TLFZ)
100 1.5 115 1.5 140 1.5 141 1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
150 1.0 145 1.0 146 1.0
LOAD COMB 1115 1.5(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL-0.6TLT+0.6TLFX+0.6TLFZ)
100 1.5 115 1.5 140 1.5 141 1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
150 -1.0 145 1.0 146 1.0
LOAD COMB 1116 1.5(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL-0.6TLT-0.6TLFX-0.6TLFZ)
100 1.5 115 1.5 140 1.5 141 1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
150 -1.0 145 -1.0 146 -1.0
LOAD COMB 1117 1.5(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL+0.6TLT+0.6TLFX+0.6TLFZ)
100 1.5 115 1.5 140 -1.5 141 -1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
150 1.0 145 1.0 146 1.0
LOAD COMB 1118 1.5(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL-0.6TLT+0.6TLFX+0.6TLFZ)
100 1.5 115 1.5 140 -1.5 141 -1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
150 -1.0 145 1.0 146 1.0
LOAD COMB 1119 1.5(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL-0.6TLT-0.6TLFX-0.6TLFZ)
100 1.5 115 1.5 140 -1.5 141 -1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
150 -1.0 145 -1.0 146 -1.0
*
LOAD COMB 1120 1.3(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL+0.6TLT+TLFX+TLFZ)
100 1.3 115 1.3 140 1.3 141 1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
150 1.0 145 1.65 146 1.65
LOAD COMB 1121 1.3(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL-0.6TLT+TLFX+TLFZ)
100 1.3 115 1.3 140 1.3 141 1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
150 -1.0 145 1.65 146 1.65
LOAD COMB 1122 1.3(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL-0.6TLT-TLFX-TLFZ)
100 1.3 115 1.3 140 1.3 141 1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
150 -1.0 145 -1.65 146 -1.65
LOAD COMB 1123 1.3(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL+0.6TLT+TLFX+TLFZ)
100 1.3 115 1.3 140 -1.3 141 -1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
150 1.0 145 1.65 146 1.65
LOAD COMB 1124 1.3(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL-0.6TLT+TLFX+TLFZ)
100 1.3 115 1.3 140 -1.3 141 -1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
150 -1.0 145 1.65 146 1.65
LOAD COMB 1125 1.3(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL-0.6TLT-TLFX-TLFZ)
100 1.3 115 1.3 140 -1.3 141 -1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
150 -1.0 145 -1.65 146 -1.65
*
*
* ULS STR/GEO OPE - WIND (OVERTURNING) **********
LOAD COMB 1126 0.9(DL+EO+TLSX+TLSZ+VL)+HL+1.65WLX

100 0.9 115 0.9 140 0.9 141 0.9 190 0.9 191 0.9 192 0.9 210 1.0 160 1.65
LOAD COMB 1127 0.9(DL+EO-TLSX-TLSZ+VL)+HL-1.65WLX
100 0.9 115 0.9 140 -0.9 141 -0.9 190 0.9 191 0.9 192 0.9 210 1.0 160 -1.65
LOAD COMB 1128 0.9(DL+EO+TLSX+TLSZ+VL)+HL+1.65WLZ
100 0.9 115 0.9 140 0.9 141 0.9 190 0.9 191 0.9 192 0.9 210 1.0 161 1.65
LOAD COMB 1129 0.9(DL+EO-TLSX-TLSZ+VL)+HL-1.65WLZ
100 0.9 115 0.9 140 -0.9 141 -0.9 190 0.9 191 0.9 192 0.9 210 1.0 161 -1.65
*
* ULS STR/GEO OPE - LIVE **********
LOAD COMB 1130 1.5(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL+0.6IL)
100 1.5 115 1.5 140 1.5 141 1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
185 1.0
LOAD COMB 1131 1.5(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL+0.6IL)
100 1.5 115 1.5 140 -1.5 141 -1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
185 1.0
*
LOAD COMB 1132 1.3(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL+0.6IL)
100 1.3 115 1.3 140 1.3 141 1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
185 1.0
LOAD COMB 1133 1.3(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL+0.6IL)
100 1.3 115 1.3 140 -1.3 141 -1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
185 1.0
*
*
* ULS STR/GEO OPE - LIVE (NO INSTANTANEOUS ACTIONS) **********
LOAD COMB 1134 1.5(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL+0.6TLT+0.6TLFX+0.6TLFZ)
100 1.5 115 1.5 140 1.5 141 1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
150 1.0 145 1.0 146 1.0
LOAD COMB 1135 1.5(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL-0.6TLT+0.6TLFX+0.6TLFZ)
100 1.5 115 1.5 140 1.5 141 1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
150 -1.0 145 1.0 146 1.0
LOAD COMB 1136 1.5(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL-0.6TLT-0.6TLFX-0.6TLFZ)
100 1.5 115 1.5 140 1.5 141 1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
150 -1.0 145 -1.0 146 -1.0
LOAD COMB 1137 1.5(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL+0.6TLT+0.6TLFX+0.6TLFZ)
100 1.5 115 1.5 140 -1.5 141 -1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
150 1.0 145 1.0 146 1.0
LOAD COMB 1138 1.5(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL-0.6TLT+0.6TLFX+0.6TLFZ)
100 1.5 115 1.5 140 -1.5 141 -1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
150 -1.0 145 1.0 146 1.0
LOAD COMB 1139 1.5(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL-0.6TLT-0.6TLFX-0.6TLFZ)
100 1.5 115 1.5 140 -1.5 141 -1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
150 -1.0 145 -1.0 146 -1.0
*
LOAD COMB 1140 1.3(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL+0.6TLT+0.6TLFX+0.6TLFZ)
100 1.3 115 1.3 140 1.3 141 1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
150 1.0 145 1.0 146 1.0
LOAD COMB 1141 1.3(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL-0.6TLT+0.6TLFX+0.6TLFZ)
100 1.3 115 1.3 140 1.3 141 1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
150 -1.0 145 1.0 146 1.0
LOAD COMB 1142 1.3(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL-0.6TLT-0.6TLFX-0.6TLFZ)
100 1.3 115 1.3 140 1.3 141 1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
150 -1.0 145 -1.0 146 -1.0

```
LOAD COMB 1143 1.3(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL+0.6TLT+0.6TLFX+0.6TLFZ)
100 1.3 115 1.3 140 -1.3 141 -1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
150 1.0 145 1.0 146 1.0
LOAD COMB 1144 1.3(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL-0.6TLT+0.6TLFX+0.6TLFZ)
100 1.3 115 1.3 140 -1.3 141 -1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
150 -1.0 145 1.0 146 1.0
LOAD COMB 1145 1.3(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL-0.6TLT-0.6TLFX-0.6TLFZ)
100 1.3 115 1.3 140 -1.3 141 -1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
150 -1.0 145 -1.0 146 -1.0
*
*
* ULS STR/GEO OPE - WIND ******************************************************
LOAD COMB 1146 1.3(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL+WLX+0.6IL)
100 1.3 115 1.3 140 1.3 141 1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
160 1.65 185 1.0
LOAD COMB 1147 1.3(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL-WLX+0.6IL)
100 1.3 115 1.3 140 -1.3 141 -1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
160 -1.65 185 1.0
LOAD COMB 1148 1.3(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL+WLZ+0.6IL)
100 1.3 115 1.3 140 1.3 141 1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
161 1.65 185 1.0
LOAD COMB 1149 1.3(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL-WLZ+0.6IL)
100 1.3 115 1.3 140 -1.3 141 -1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
161 -1.65 185 1.0
*
* ULS STR/GEO OPE - SNOW ******************************************************
LOAD COMB 1150 1.3(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL+0.6IL+SL)
100 1.3 115 1.3 140 1.3 141 1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
185 1.1 125 1.65
LOAD COMB 1151 1.3(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL+0.6IL+SL)
100 1.3 115 1.3 140 -1.3 141 -1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
185 1.1 125 1.65
*
*
* ULS STR/GEO OPE - IMPACT ****************************************************
LOAD COMB 1152 1.5(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL+0.6IL)
100 1.5 115 1.5 140 1.5 141 1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
185 1.0
LOAD COMB 1153 1.5(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL+0.6IL)
100 1.5 115 1.5 140 -1.5 141 -1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
185 1.0
*
LOAD COMB 1154 1.3(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL+IL)
100 1.3 115 1.3 140 1.3 141 1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
185 1.65
LOAD COMB 1155 1.3(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL+IL)
100 1.3 115 1.3 140 -1.3 141 -1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
185 1.65
*
*
*
********************************************************************************
********************************************** TEST ULS STR/GEO **********
```

```
*********************************************************************************
* ULS STR/GEO TEST - VERTICAL (PERMANENT) ************************************
LOAD COMB 1200 1.5(DL+ET)+1.0HL
100 1.5 120 1.5 210 1.0
*
LOAD COMB 1201 1.3(DL+ET)+1.0HL
100 1.3 120 1.3 210 1.0
*
*
* ULS STR/GEO TEST - WIND-REDUCED VALUE (OVERTURNING) ************************
LOAD COMB 1202 0.9(DL+ET)+HL+1.65WLX50%
100 0.9 120 0.9 210 1.0 162 1.65
LOAD COMB 1203 0.9(DL+ET)+HL-1.65WLX50%
100 0.9 120 0.9 210 1.0 162 -1.65
LOAD COMB 1204 0.9(DL+ET)+HL+1.65WLZ50%
100 0.9 120 0.9 210 1.0 163 1.65
LOAD COMB 1205 0.9(DL+ET)+HL-1.65WLZ50%
100 0.9 120 0.9 210 1.0 163 -1.65
*
* ULS STR/GEO TEST - LIVE ****************************************************
LOAD COMB 1206 1.5(DL+ET)+1.0HL+1.65(LL+0.6IL)
100 1.5 120 1.5 210 1.0 130 1.65 185 1.1
*
LOAD COMB 1207 1.3(DL+ET)+1.0HL+1.65(LL+0.6IL)
100 1.3 120 1.3 210 1.0 130 1.65 185 1.0
*
*
* ULS STR/GEO TEST - WIND-REDUCED VALUE **************************************
LOAD COMB 1208 1.3(DL+ET)+1.0HL+1.65(LL+WLX50%+0.6IL)
100 1.3 120 1.3 210 1.0 130 1.65 162 1.65 185 1.0
LOAD COMB 1209 1.3(DL+ET)+1.0HL+1.65(LL-WLX50%+0.6IL)
100 1.3 120 1.3 210 1.0 130 1.65 162 -1.65 185 1.0
LOAD COMB 1210 1.3(DL+ET)+1.0HL+1.65(LL+WLZ50%+0.6IL)
100 1.3 120 1.3 210 1.0 130 1.65 163 1.65 185 1.0
LOAD COMB 1211 1.3(DL+ET)+1.0HL+1.65(LL-WLZ50%+0.6IL)
100 1.3 120 1.3 210 1.0 130 1.65 163 -1.65 185 1.0
*
* ULS STR/GEO TEST - SNOW ****************************************************
LOAD COMB 1212 1.3(DL+ET)+1.0HL+1.65(LL+0.6IL+SL)
100 1.3 120 1.3 210 1.0 130 1.65 185 1.0 125 1.65
*
*
* ULS STR/GEO TEST - IMPACT ***************************************************
LOAD COMB 1213 1.5(DL+ET)+1.0HL+1.65(LL+0.6IL)
100 1.5 120 1.5 210 1.0 130 1.65 185 1.0
*
LOAD COMB 1214 1.3(DL+ET)+1.0HL+1.65(LL+IL)
100 1.3 120 1.3 210 1.0 130 1.65 185 1.65
*
*
*
*********************************************************************************
****************************************** MAINTENANCE ULS STR/GEO **********
```

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*****************************************************************************
*
* ULS STR/GEO MAINTENANCE - MAINTENANCE (OVERTURNING) ************************
LOAD COMB 1250 0.9(DL+EE)+HL+1.65(ML+BL+0.6IL)
100 0.9 110 0.9 210 1.0 180 1.65 195 1.65 185 1.0
*
*
* ULS STR/GEO MAINTENANCE - MAINTENANCE ***************************************
LOAD COMB 1251 1.5(DL+EE)+1.0HL+1.65(LL+ML+BL+0.6IL)
100 1.5 110 1.5 210 1.0 130 1.65 180 1.65 195 1.65 185 1.0
*
LOAD COMB 1252 1.3(DL+EE)+1.0HL+1.65(LL+ML+BL+0.6IL)
100 1.3 110 1.3 210 1.0 130 1.65 180 1.65 195 1.65 185 1.0
*
*
*
*
*****************************************************************************
********************************************************** COMBINATION ULS-EQU
*****************************************************************************
*
*
*
*****************************************************************************
********************************** EMPTY & CONSTRUCTION ULS - EQU ***********
*****************************************************************************
*
* ULS EQU E&C - VERTICAL (PERMANENT) *****************************************
LOAD COMB 2000 1.1(DL+EE+HL)
100 1.1 110 1.1 210 1.1
*
* ULS EQU E&C - THERMAL AMBIENTAL *********************************************
LOAD COMB 2001 0.9(DE+EE+HL)+1.5TLT
100 0.9 110 0.9 210 0.9 150 1.5
LOAD COMB 2002 0.9(DL+EE+HL)-1.5TLT
100 0.9 110 0.9 210 0.9 150 -1.5
*
* ULS EQU E&C - WIND (OVERTURNING) ********************************************
LOAD COMB 2003 0.9(DL+EE+HL)+1.5WLX
100 0.9 110 0.9 210 0.9 160 1.5
LOAD COMB 2004 0.9(DL+EE+HL)-1.5WLX
100 0.9 110 0.9 210 0.9 160 -1.5
LOAD COMB 2005 0.9(DL+EE+HL)+1.5WLZ
100 0.9 110 0.9 210 0.9 161 1.5
LOAD COMB 2006 0.9(DL+EE+HL)-1.5WLZ
100 0.9 110 0.9 210 0.9 161 -1.5
*
* ULS EQU E&C - CONSTRUCTION **************************************************
LOAD COMB 2007 1.1(DL+EE+HL)+1.5(CL)
100 1.1 110 1.1 210 1.1 200 1.5
*
* ULS EQU E&C - CONSTRUCTION (NO INSTANTANEOUS ACTIONS) ***********************
LOAD COMB 2008 1.1(DE+EE+HL)+1.5(0.6TLT+CL)
```

```
100 1.1 110 1.1 210 1.1 150 0.9 200 1.5
LOAD COMB 2009 1.1(DE+EE+HL)+1.5(-0.6TLT+CL)
100 1.1 110 1.1 210 1.1 150 -0.9 200 1.5
*
* ULS EQU E&C - WIND ************************************************************
LOAD COMB 2010 1.1(DL+EE+HL)+1.5(WLX+0.7CL)
100 1.1 110 1.1 210 1.1 160 1.5 200 1.05
LOAD COMB 2011 1.1(DL+EE+HL)+1.5(-WLX+0.7CL)
100 1.1 110 1.1 210 1.1 160 -1.5 200 1.05
LOAD COMB 2012 1.1(DL+EE+HL)+1.5(WLZ+0.7CL)
100 1.1 110 1.1 210 1.1 161 1.5 200 1.05
LOAD COMB 2013 1.1(DL+EE+HL)+1.5(-WLZ+0.7CL)
100 1.1 110 1.1 210 1.1 161 -1.5 200 1.05
*
* ULS EQU E&C - SNOW ************************************************************
LOAD COMB 2014 1.1(DL+EE+HL)+1.5(0.7CL+SL)
100 1.1 110 1.1 210 1.1 200 1.05 125 1.5
*
*
*
*
*******************************************************************************
********************************************** OPERATING ULS EQU **********
*******************************************************************************
*
*
* ULS EQU OPE - VERTICAL (PERMANENT) ****************************************
LOAD COMB 2100 1.1(DL+EO+HL+VL)
100 1.1 115 1.1 210 1.1 190 1.1 191 1.1 192 1.1
*
* ULS EQU OPE - THERMAL AMBIENTAL *******************************************
LOAD COMB 2101 0.9(DL+EO)+1.1(TLSX+TLSZ)+0.9(HL+VL)+1.5(LL+TLT+0.6TLFX+0.6TLFZ)
100 0.9 115 0.9 140 1.1 141 1.1 210 0.9 190 0.9 191 0.9 192 0.9 130 1.5 -
150 1.5 145 0.9 146 0.9
LOAD COMB 2102 0.9(DL+EO)+1.1(TLSX+TLSZ)+0.9(HL+VL)+1.5(LL-TLT+0.6TLFX+0.6TLFZ)
100 0.9 115 0.9 140 1.1 141 1.1 210 0.9 190 0.9 191 0.9 192 0.9 130 1.5 -
150 -1.5 145 0.9 146 0.9
LOAD COMB 2103 0.9(DL+EO)+1.1(TLSX+TLSZ)+0.9(HL+VL)+1.5(LL-TLT-0.6TLFX-0.6FLFZ)
100 0.9 115 0.9 140 1.1 141 1.1 210 0.9 190 0.9 191 0.9 192 0.9 130 1.5 -
150 -1.5 145 -0.9 146 -0.9
LOAD COMB 2104 0.9(DL+EO)+1.1(-TLSX-TLSZ)+0.9(HL+VL)+1.5(LL+TLT+0.6TLFX+0.6TLFZ)
100 0.9 115 0.9 140 -1.1 141 -1.1 210 0.9 190 0.9 191 0.9 192 0.9 130 1.5 -
150 1.5 145 0.9 146 0.9
LOAD COMB 2105 0.9(DL+EO)+1.1(-TLSX-TLSZ)+0.9(HL+VL)+1.5(LL-TLT+0.6TLFX+0.6TLFZ)
100 0.9 115 0.9 140 -1.1 141 -1.1 210 0.9 190 0.9 191 0.9 192 0.9 130 1.5 -
150 -1.5 145 0.9 146 0.9
LOAD COMB 2106 0.9(DL+EO)+1.1(-TLSX-TLSZ)+0.9(HL+VL)+1.5(LL-TLT-0.6TLFX-0.6TLFZ)
100 0.9 115 0.9 140 -1.1 141 -1.1 210 0.9 190 0.9 191 0.9 192 0.9 130 1.5 -
150 -1.5 145 -0.9 146 -0.9
*
* ULS EQU OPE - THERMAL PIPES ***********************************************
LOAD COMB 2107 1.1(DL+EO+TLSX+TLSZ+HL+VL)+1.5(LL+0.6TLT+TLFX+TLFZ)
100 1.1 115 1.1 140 1.1 141 1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
```

150 0.9 145 1.5 146 1.5
LOAD COMB 2108 1.1(DL+EO+TLSX+TLSZ+HL+VL)+1.5(LL-0.6TLT+TLFX+TLFZ)
100 1.1 115 1.1 140 1.1 141 1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
150 -0.9 145 1.5 146 1.5
LOAD COMB 2109 1.1(DL+EO+TLSX+TLSZ+HL+VL)+1.5(LL-0.6TLT-TLFX-TLFZ)
100 1.1 115 1.1 140 1.1 141 1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
150 -0.9 145 -1.5 146 -1.5
LOAD COMB 2110 1.1(DL+EO-TLSX-TLSZ+HL+VL)+1.5(LL+0.6TLT+TLFX+TLFZ)
100 1.1 115 1.1 140 -1.1 141 -1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
150 0.9 145 1.5 146 1.5
LOAD COMB 2111 1.1(DL+EO-TLSX-TLSZ+HL+VL)+1.5(LL-0.6TLT+TLFX+TLFZ)
100 1.1 115 1.1 140 -1.1 141 -1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
150 -0.9 145 1.5 146 1.5
LOAD COMB 2112 1.1(DL+EO-TLSX-TLSZ+HL+VL)+1.5(LL-0.6TLT-TLFX-TLFZ)
100 1.1 115 1.1 140 -1.1 141 -1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
150 -0.9 145 -1.5 146 -1.5
*
* ULS EQU OPE - WIND (OVERTURNING) **
LOAD COMB 2113 0.9(DL+EO+TLSX+TLSZ+HL+VL)+1.5WLX
100 0.9 115 0.9 140 0.9 141 0.9 210 0.9 190 0.9 191 0.9 192 0.9 160 1.5
LOAD COMB 2114 0.9(DL+EO-TLSX-TLSZ+HL+VL)-1.5WLX
100 0.9 115 0.9 140 -0.9 141 -0.9 210 0.9 190 0.9 191 0.9 192 0.9 160 -1.5
LOAD COMB 2115 0.9(DL+EO+TLSX+TLSZ+HL+VL)+1.5WLZ
100 0.9 115 0.9 140 0.9 141 0.9 210 0.9 190 0.9 191 0.9 192 0.9 161 1.5
LOAD COMB 2116 0.9(DL+EO-TLSX-TLSZ+HL+VL)-1.5WLZ
100 0.9 115 0.9 140 -0.9 141 -0.9 210 0.9 190 0.9 191 0.9 192 0.9 161 -1.5
*
* ULS EQU OPE - LIVE **
LOAD COMB 2117 1.1(DL+EO+TLSX+TLSZ+HL+VL)+1.5(LL+0.6IL)
100 1.1 115 1.1 140 1.1 141 1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
185 0.9
LOAD COMB 2118 1.1(DL+EO-TLSX-TLSZ+HL+VL)+1.5(LL+0.6IL)
100 1.1 115 1.1 140 -1.1 141 -1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
185 0.9
*
* ULS EQU OPE - LIVE (NO INSTANTANEOUS ACTIONS) ******************************
LOAD COMB 2119 1.1(DL+EO+TLSX+TLSZ+HL+VL)+1.5(LL+0.6TLT+0.6TLFX+0.6TLFZ)
100 1.1 115 1.1 140 1.1 141 1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
150 0.9 145 0.9 146 0.9
LOAD COMB 2120 1.1(DL+EO+TLSX+TLSZ+HL+VL)+1.5(LL-0.6TLT+0.6TLFX+0.6TLFZ)
100 1.1 115 1.1 140 1.1 141 1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
150 -0.9 145 0.9 146 0.9
LOAD COMB 2121 1.1(DL+EO+TLSX+TLSZ+HL+VL)+1.5(LL-0.6TLT-0.6TLFX-0.6TLFZ)
100 1.1 115 1.1 140 1.1 141 1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
150 -0.9 145 -0.9 146 -0.9
LOAD COMB 2122 1.1(DL+EO-TLSX-TLSZ+HL+VL)+1.5(LL+0.6TLT+0.6TLFX+0.6TLFZ)
100 1.1 115 1.1 140 -1.1 141 -1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
150 0.9 145 0.9 146 0.9
LOAD COMB 2123 1.1(DL+EO-TLSX-TLSZ+HL+VL)+1.5(LL-0.6TLT+0.6TLFX+0.6TLFZ)
100 1.1 115 1.1 140 -1.1 141 -1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
150 -0.9 145 0.9 146 0.9
LOAD COMB 2124 1.1(DL+EO-TLSX-TLSZ+HL+VL)+1.5(LL-0.6TLT-0.6TLFX-0.6TLFZ)
100 1.1 115 1.1 140 -1.1 141 -1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -

```
150 -0.9 145 -0.9 146 -0.9
*
* ULS EQU OPE - WIND ************************************************************
LOAD COMB 2125 1.1(DL+EO+TLSX+TLSZ+HL+VL)+1.5(LL+WLX+0.6IL)
100 1.1 115 1.1 140 1.1 141 1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
160 1.5 185 0.9
LOAD COMB 2126 1.1(DL+EO-TLSX-TLSZ+HL+VL)+1.5(LL-WLX+0.6IL)
100 1.1 115 1.1 140 -1.1 141 -1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
160 -1.5 185 0.9
LOAD COMB 2127 1.1(DL+EO+TLSX+TLSZ+HL+VL)+1.5(LL+WLZ+0.6IL)
100 1.1 115 1.1 140 1.1 141 1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
161 1.5 185 0.9
LOAD COMB 2128 1.1(DL+EO+TLSX+TLSZ+HL+VL)+1.5(LL-WLZ+0.6IL)
100 1.1 115 1.1 140 1.1 141 1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
161 -1.5 185 0.9
*
* ULS EQU OPE - SNOW ************************************************************
LOAD COMB 2129 1.1(DL+EO+TLSX+TLSZ+HL+VL)+1.5(LL+0.6IL+SL)
100 1.1 115 1.1 140 1.1 141 1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
185 0.9 125 1.5
LOAD COMB 2130 1.1(DL+EO-TLSX-TLSZ+HL+VL)+1.5(LL+0.6IL+SL)
100 1.1 115 1.1 140 -1.1 141 -1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
185 0.9 125 1.5
*
* ULS EQU OPE - IMPACT **********************************************************
LOAD COMB 2131 1.1(DL+EO+TLSX+TLSZ+HL+VL)+1.5(LL+IL)
100 1.1 115 1.1 140 1.1 141 1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
185 1.5
LOAD COMB 2132 1.1(DL+EO-TLSX-TLSZ+HL+VL)+1.5(LL+IL)
100 1.1 115 1.1 140 -1.1 141 -1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
185 1.5
*
*
*
*******************************************************************************
********************************************** TEST ULS EQU **************
*******************************************************************************
* ULS EQU TEST - VERTICAL (PERMANENT) ***************************************
LOAD COMB 2200 1.1(DL+ET+HL)
100 1.1 120 1.1 210 1.1
*
* ULS EQU TEST - WIND-REDUCED VALUE (OVERTURNING) ******************************
LOAD COMB 2201 0.9(DL+ET+HL)+1.5WLX50%
100 0.9 120 0.9 210 0.9 162 1.5
LOAD COMB 2202 0.9(DL+ET+HL)-1.5WLX50%
100 0.9 120 0.9 210 0.9 162 -1.5
LOAD COMB 2203 0.9(DL+ET+HL)+1.5WLZ50%
100 0.9 120 0.9 210 0.9 163 1.5
LOAD COMB 2204 0.9(DL+ET+HL)-1.5WLZ50%
100 0.9 120 0.9 210 0.9 163 -1.5
*
* ULS EQU TEST - LIVE ***********************************************************
LOAD COMB 2205 1.1(DL+ET+HL)+1.5(LL+0.6IL)
```

```
100 1.1 120 1.1 210 1.1 130 1.5 185 0.9
*
* ULS EQU TEST - WIND-REDUCED VALUE ******************************************
LOAD COMB 2206 1.1(DL+ET+HL)+1.5(LL+WLX50%+0.6IL)
100 1.1 120 1.1 210 1.1 130 1.5 162 1.5 185 0.9
LOAD COMB 2207 1.1(DL+ET+HL)+1.5(LL-WLX50%+0.6IL)
100 1.1 120 1.1 210 1.1 130 1.5 162 -1.5 185 0.9
LOAD COMB 2208 1.1(DL+ET+HL)+1.5(LL+WLZ50%+0.6IL)
100 1.1 120 1.1 210 1.1 130 1.5 163 1.5 185 0.9
LOAD COMB 2209 1.1(DL+ET+HL)+1.5(LL-WLZ50%+0.6IL)
100 1.1 120 1.1 210 1.1 130 1.5 163 -1.5 185 0.9
*
* ULS EQU TEST - SNOW ********************************************************
LOAD COMB 2210 1.1(DL+ET+HL)+1.5(LL+0.6IL+SL)
100 1.1 120 1.1 210 1.1 130 1.5 185 0.9 125 1.5
*
* ULS EQU TEST - IMPACT *******************************************************
LOAD COMB 2211 1.1(DL+ET+HL)+1.5(LL+IL)
100 1.1 120 1.1 210 1.1 130 1.5 185 1.5
*
*
*
*******************************************************************************
********************************************** MAINTENANCE ULS EQU **********
*******************************************************************************
*
* ULS EQU MAINTENANCE - MAINTENANCE (OVERTURNING) *****************************
LOAD COMB 2250 0.9(DL+EE+HL)+1.5(LL+ML+BL+0.6IL)
100 0.9 110 0.9 210 0.9 130 1.5 180 1.5 195 1.5 185 0.9
*
* ULS EQU MAINTENANCE - MAINTENANCE ***************************************
LOAD COMB 2251 1.1(DL+EE+HL)+1.5(LL+ML+BL+0.6IL)
100 1.1 110 1.1 210 1.1 130 1.5 180 1.5 195 1.5 185 0.9
*
*
*
*
*
*******************************************************************************
PERFORM ANALYSIS PRINT ALL
*
*******************************************************************************
LOAD LIST 300 TO 314 400 TO 432 500 TO 511 550
PRINT STORY DRIFT
*
*
*******************************************************************************
************************** ENVELOPES ***************************************
*******************************************************************************
DEFINE ENVELOPE
*ENVELOPE 1 FOR SERVICEABILITY CHECKS
300 TO 314 400 TO 432 500 TO 511 550 ENVELOPE 1 TYPE SERVICEABILITY
*ENVELOPE 2 FOR STR/GEO CHECKS
```

1000 TO 1020 1100 TO 1155 1200 TO 1214 1250 TO 1252 ENVELOPE 2 TYPE STRENGTH
*ENVELOPE 3 FOR EQU CHECKS
2000 TO 2014 2100 TO 2132 2200 TO 2211 2250 2251 ENVELOPE 3 TYPE STRENGTH
END DEFINE ENVELOPE
*
**
FINISH

ATT. B Input STAAD.Pro Structure A20-PR-1100

STAAD SPACE
START JOB INFORMATION
JOB NAME JET+IP
JOB NO 080871C
JOB REV A
JOB PART 000
JOB REF STRUCTURE NAME
JOB CLIENT NESTE
ENGINEER DATE *DD/MM/YYYY*
END JOB INFORMATION
INPUT WIDTH 79
INPUT WIDTH 79
OUTPUT WIDTH 118
SET NL 200
UNIT METER KN
JOINT COORDINATES
1 0 1.5 0; 2 0 7.58001 0; 3 8.00002 1.5 0; 4 8.00002 7.58001 0; 5 2 1.5 10.95;
6 2 5.60001 10.95; 7 2 7.80001 10.95; 8 2 11 10.95; 9 2 13.6 10.95;
10 2 1.5 15.95; 11 2 5.60001 15.95; 12 2 7.80001 15.95; 13 2 11 15.95;
14 2 13.6 15.95; 15 2 5.60001 13.45; 16 2 7.80001 13.45; 17 2 11 13.45;
18 2 13.6 13.45; 19 4.00001 7.58001 0; 20 5.00001 1.5 10.95;
21 5.00001 5.60001 10.95; 22 5.00001 7.80001 10.95; 23 5.00001 11 10.95;
24 5.00001 13.6 10.95; 25 5.00001 1.5 15.95; 26 5.00001 5.60001 15.95;
27 5.00001 7.80001 15.95; 28 5.00001 11 15.95; 29 5.00001 13.6 15.95;
30 5.00001 5.60001 13.45; 31 5.00001 7.80001 13.45; 34 8.00002 1.5 10.95;
35 8.00002 5.60001 10.95; 36 8.00002 7.80001 10.95; 37 8.00002 11 10.95;
38 8.00002 13.6 10.95; 39 8.00002 1.5 15.95; 40 8.00002 5.60001 15.95;
41 8.00002 7.80001 15.95; 42 8.00002 11 15.95; 43 8.00002 13.6 15.95;
44 8.00002 5.60001 13.45; 45 8.00002 7.80001 13.45; 48 5.00001 9.30002 10.95;
49 5.00001 9.30002 15.95; 50 8.00002 9.30002 10.95; 51 8.00002 9.30002 15.95;
52 5.00001 11.65 10.95; 53 5.00001 11.65 13.45; 54 5.00001 11.65 15.95;
55 5.00001 12.3 10.95; 56 8.00002 12.3 10.95; 57 5.00001 12.3 15.95;
58 8.00002 12.3 15.95; 59 5.00001 12.95 10.95; 61 5.00001 12.95 15.95;
62 8.00002 12.95 10.95; 63 8.00002 12.95 15.95; 64 8.00002 11.65 10.95;
65 8.00002 11.65 13.45; 66 8.00002 11.65 15.95; 67 2 9.30002 15.95;
68 2 8.30001 15.95; 69 5.00001 8.30002 15.95; 70 5.00001 1.5 19.95;
72 5.00001 7.80001 19.95; 73 5.00001 8.30002 19.95; 74 5.00001 11 19.95;
75 5.00001 11.65 19.95; 76 5.00001 13.6 19.95; 77 8.00002 13.6 19.95;
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94 5.00001 11 9.90033; 95 8.00002 11 8.79966; 96 8.00002 11 9.90033;
97 6.50001 11 7.74999; 98 6.50001 11 10.95; 99 6.50001 11 8.79966;
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130 5.00001 12.3 -2.17041e-05; 131 8.00002 12.3 -2.17041e-05;
132 5.00001 9.30002 9.35; 133 8.00002 9.30002 9.35; 134 5.00001 7.80002 9.35;
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384 3.77 -0.500004 11.295; 385 2.354 -0.500004 10.95;
386 2.708 -0.500004 10.95; 387 3.062 -0.500004 10.95;

ROTTERDAM SITE DEVELOPMENT
NESTE

388 3.416 -0.500004 10.95; 389 2.354 -0.500004 10.605;
390 2.708 -0.500004 10.605; 391 3.062 -0.500004 10.605;
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ROTTERDAM SITE DEVELOPMENT
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946 605 600 636 628; 947 628 636 590 601; 948 601 590 637 632;
949 632 637 596 604; 950 594 633 638 586; 951 633 604 603 638;
952 584 639 625 598; 953 639 602 605 625; 954 607 640 616 610;
955 640 583 597 616; 956 609 624 641 608; 957 624 593 585 641;
958 612 642 643 615; 959 642 644 645 643; 960 644 646 647 645;
961 646 584 598 647; 962 583 648 649 597; 963 648 650 651 649;
964 650 652 653 651; 965 652 612 615 653; 966 593 654 655 585;
967 654 656 657 655; 968 656 658 659 657; 969 658 614 613 659;
970 614 660 661 613; 971 660 662 663 661; 972 662 664 665 663;
973 664 594 586 665; 974 611 666 667 668; 975 666 669 670 667;
976 669 671 672 670; 977 671 262 631 672; 978 668 667 660 614;
979 667 670 662 660; 980 670 672 664 662; 981 672 631 594 664;
982 597 649 673 619; 983 649 651 674 673; 984 651 653 675 674;
985 653 615 676 675; 986 619 673 677 261; 987 673 674 678 677;
988 674 675 679 678; 989 675 676 611 679; 990 261 677 680 623;
991 677 678 681 680; 992 678 679 682 681; 993 679 611 668 682;
994 623 680 654 593; 995 680 681 656 654; 996 681 682 658 656;
997 682 668 614 658; 998 615 643 683 676; 999 643 645 684 683;
1000 645 647 685 684; 1001 647 598 627 685; 1002 676 683 666 611;
1003 683 684 669 666; 1004 684 685 671 669; 1005 685 627 262 671;
1007 692 695 708 707; 1010 698 689 706 709; 1019 704 701 690 699;
1022 702 703 696 693; 1023 705 710 711 712; 1024 710 709 713 711;
1025 712 711 714 263; 1026 711 713 697 714; 1027 708 715 716 717;
1028 715 705 712 716; 1029 717 716 718 694; 1030 716 712 263 718;
1031 694 718 719 720; 1032 718 263 721 719; 1033 720 719 722 703;
1034 719 721 700 722; 1035 263 714 723 721; 1036 714 697 724 723;
1037 721 723 725 700; 1038 723 724 704 725; 1039 700 725 726 687;

1040 725 704 699 726; 1041 695 727 715 708; 1042 727 686 705 715;
1043 686 728 710 705; 1044 728 698 709 710; 1045 703 722 729 696;
1046 722 700 687 729; 1047 697 688 730 724; 1048 724 730 701 704;
1049 709 706 731 713; 1050 713 731 688 697; 1051 707 708 717 732;
1052 732 717 694 691; 1053 691 694 720 733; 1054 733 720 703 702;
1057 734 735 736 737; 1058 738 739 740 741; 1059 742 743 744 745;
1060 746 747 748 749; 1061 750 751 752 753; 1062 751 741 754 752;
1063 753 752 755 254; 1064 752 754 756 755; 1065 736 757 758 759;
1066 757 750 753 758; 1067 759 758 760 761; 1068 758 753 254 760;
1069 761 760 762 763; 1070 760 254 764 762; 1071 763 762 765 747;
1072 762 764 766 765; 1073 254 755 767 764; 1074 755 756 768 767;
1075 764 767 769 766; 1076 767 768 742 769; 1077 766 769 770 771;
1078 769 742 745 770; 1079 735 772 757 736; 1080 772 773 750 757;
1081 773 774 751 750; 1082 774 738 741 751; 1083 747 765 775 748;
1084 765 766 771 775; 1085 756 776 777 768; 1086 768 777 743 742;
1087 741 740 778 754; 1088 754 778 776 756; 1089 737 736 759 779;
1090 779 759 761 780; 1091 780 761 763 781; 1092 781 763 747 746;
1093 782 783 784 785; 1094 786 787 788 789; 1095 790 791 792 793;
1096 794 795 796 797; 1097 798 799 800 801; 1098 799 789 802 800;
1099 801 800 803 253; 1100 800 802 804 803; 1101 784 805 806 807;
1102 805 798 801 806; 1103 807 806 808 809; 1104 806 801 253 808;
1105 809 808 810 811; 1106 808 253 812 810; 1107 811 810 813 795;
1108 810 812 814 813; 1109 253 803 815 812; 1110 803 804 816 815;
1111 812 815 817 814; 1112 815 816 790 817; 1113 814 817 818 819;
1114 817 790 793 818; 1115 783 820 805 784; 1116 820 821 798 805;
1117 821 822 799 798; 1118 822 786 789 799; 1119 795 813 823 796;
1120 813 814 819 823; 1121 804 824 825 816; 1122 816 825 791 790;
1123 789 788 826 802; 1124 802 826 824 804; 1125 785 784 807 827;
1126 827 807 809 828; 1127 828 809 811 829; 1128 829 811 795 794;
START GROUP DEFINITION
MEMBER
_COLUMN_K_STR 44 TO 49 51 TO 57 60 61 64 65 68 TO 72 75 80 TO 85 87 TO 93 -
96 97 100 101 104 TO 110 112 TO 135 139 172 277 278 283 284 286 287 -
289 TO 292 294 TO 296 298 TO 301 303 TO 306 308 327 TO 330 333 TO 340 347 -
348 TO 351 356 TO 360 373 TO 378 381 TO 384 408 TO 425 459 TO 464 474 475 -
490 556 TO 558 564 TO 566 573 577 578 580 597 598 603 604
_COLUMN_K_2 9 TO 28 36 38 39 48 52 TO 57 60 61 64 65 72 75 84 88 TO 93 96 -
97 100 101 105 107 113 TO 117 121 TO 123 125 126 128 129 131 TO 136 -
138 TO 140 278 281 284 287 289 TO 308 329 330 333 TO 340 348 TO 351 -
357 TO 360 373 TO 376 381 TO 384 408 TO 415 417 418 420 TO 425 459 TO 464 -
522 TO 526 557 558 565 566 579 TO 581 594 TO 598
_COLUMNS 1 2 4 TO 7 13 TO 16 44 TO 47 52 TO 55 80 TO 83 88 TO 91 104 TO 107 -
112 114 118 119 121 122 124 126 TO 128 130 132 136 138 139 141 143 144 146 -
148 TO 154 156 TO 159 163 164 189 190 193 194 201 202 208 209 227 229 241 -
242 TO 244 247 TO 250 261 263 265 267 283 TO 285 324 422 TO 425 434 435 440 -
441 TO 442 469 470 478 489 490 514 TO 517 577 579 580 596 TO 598
_BRACING 21 TO 28 30 31 60 61 64 65 96 97 100 101 116 117 134 135 178 TO 183 -
205 206 255 286 TO 288 323 325 366 TO 378 381 TO 386 390 TO 407 416 TO 421 -
436 TO 439 465 TO 468 471 TO 475 479 482 491 492 539 TO 570 572 574 576 578 -
582 TO 595
_TRSV_BEAMS 3 29 32 34 TO 36 38 39 68 TO 72 75 108 120 123 145 155 162 169 -
170 TO 174 186 191 192 195 200 203 204 207 210 228 230 239 240 245 246 251 -
252 262 264 266 268 277 TO 282 291 292 296 298 301 303 306 308 311 313 316 -

318 TO 320 327 TO 346 451 TO 464 476 480 481 485 TO 487 523 TO 525 573 574 -
581
_LONG_BEAMS 9 TO 12 17 TO 20 48 49 51 56 57 84 85 87 92 93 109 110 113 115 -
125 129 131 133 160 161 165 TO 168 175 TO 177 184 185 187 188 211 TO 226 -
231 TO 238 253 TO 260 269 TO 276 289 290 293 TO 295 297 299 300 302 304 305 -
307 309 310 312 314 315 317 321 322 326 347 TO 364 408 TO 415 426 TO 433 -
443 TO 450 477 483 484 493 522 526 571 572 575 599 TO 601
_BEAMS_CHANGED 36 68 69 72 108 455 456 459 460
JOINT
_DISPLACEMENT 9 14 18 24 29 38 43 76 77 140 TO 145 149 150 152 TO 167 173 -
174 TO 190 232 TO 234
FLOOR
_FLR_105600 32 483 TO 487
_FLR_111000 34 70 160 TO 162 165 167 TO 174 476 477 480 481
_FLR_113600 39 51 71 87 271 272 275 TO 277 280 289 290 293 TO 295 297 299 -
300 302 304 305 307 309 310 312 314 315 317 319 TO 322 326 TO 328 -
345 TO 364 522 TO 525
_FLR_107800 572 TO 575
END GROUP DEFINITION
*
*
*
ELEMENT PROPERTY
605 608 633 636 TO 896 902 905 919 924 926 TO 1005 1007 1010 1019 -
1022 TO 1054 1057 TO 1128 THICKNESS 0.7
DEFINE MATERIAL START
ISOTROPIC CONCRETE
* fck = C30/37 N/mm²
E 3.28366e+07
POISSON 0.2
DENSITY 25
ALPHA 1e-05
DAMP 0.05
*
ISOTROPIC STEEL
* S275J0 fy=275 N/mm²
E 2.1e+08
POISSON 0.3
DENSITY 78.5
ALPHA 1.2e-05
DAMP 0.03
*
ISOTROPIC RIGID
E 2e+08
DENSITY 1e-20
ALPHA 1.2e-06
DAMP 0.3
G 5e+08
*
ISOTROPIC CONCZEROWGHT
* CONCRETE FOR FOUND SLAB, TO EXCLUDE IT FROM DYNAMIC MASS
E 3.28366e+07
POISSON 0.2

DENSITY 1e-05
ALPHA 1e-05
DAMP 0.05
G 1.375e+07
*
END DEFINE MATERIAL
MEMBER PROPERTY EUROPEAN
9 10 17 18 38 48 56 70 84 92 120 123 155 172 322 483 TO 485 487 TABLE ST HE180A
32 36 68 69 72 108 140 455 456 459 460 486 581 TABLE ST HE220A
169 170 173 174 189 190 193 194 201 202 208 209 227 229 241 TO 244 261 263 -
265 267 286 TO 288 292 298 303 308 313 318 323 325 347 TO 364 390 TO 407 -
416 TO 425 434 TO 439 442 465 TO 470 479 491 TO 493 526 -
578 TABLE ST HE120A
34 480 523 525 TABLE ST HE200A
11 12 19 20 113 115 125 129 131 133 247 TO 252 269 270 273 TO 277 280 293 -
297 302 307 312 317 319 TO 321 326 345 346 514 TO 517 522 571 573 TO 574 -
575 TABLE ST HE160A
4 TO 7 13 TO 16 44 TO 47 52 TO 55 80 TO 83 88 TO 91 104 TO 107 112 114 118 -
119 121 122 124 126 TO 128 130 132 136 138 139 141 143 144 146 148 TO 154 -
156 TO 159 283 TO 285 324 440 441 478 489 490 577 579 580 596 TO 597 -
598 TABLE ST HE280A
35 39 51 71 75 87 145 271 272 289 290 294 295 299 300 304 305 309 310 314 -
315 327 TO 332 524 TABLE ST HE240A
278 279 281 282 TABLE ST HE200A
MEMBER PROPERTY
205 206 PRIS YD 0.1
MEMBER PROPERTY EUROPEAN
599 TO 601 TABLE ST HE100A
MEMBER PROPERTY
602 TO 604 897 TO 901 1006 1055 1056 PRIS YD 0.7 ZD 0.7
MEMBER PROPERTY EUROPEAN
539 TO 570 TABLE ST HE120A
30 31 TABLE ST HE220A
160 TO 168 171 291 296 301 306 311 316 333 TO 344 476 477 481 TABLE ST HE140A
22 TO 24 26 TO 28 61 65 97 101 116 117 134 135 582 TO 589 TABLE ST HE120A
175 TO 177 482 TABLE ST HE100A
178 TO 183 366 TO 378 381 TO 386 471 TO 475 576 590 TO 595 TABLE ST L70X70X7
186 191 192 195 200 203 207 210 228 230 239 240 245 246 262 264 266 268 451 -
452 TO 454 457 458 461 TO 464 TABLE ST HE140A
21 25 49 57 60 64 85 93 96 100 109 110 184 185 187 188 211 TO 226 231 TO 238 -
253 TO 260 408 TO 415 426 TO 433 443 TO 450 572 TABLE ST HE160A
1 TO 3 29 204 TABLE ST HE260A
CONSTANTS
BETA 90 MEMB 1 2 189 190 193 194 201 202 208 209 227 229 241 TO 244 261 263 -
265 267 422 TO 425 434 435
BETA 45 MEMB 178 TO 183 366 TO 378 381 TO 386 471 TO 475 576 590 TO 595
MATERIAL STEEL MEMB 1 TO 7 9 TO 32 34 TO 36 38 39 44 TO 49 51 TO 57 60 61 -
64 65 68 TO 72 75 80 TO 85 87 TO 93 96 97 100 101 104 TO 110 112 TO 136 138 -
139 TO 141 143 TO 146 148 TO 195 200 TO 204 207 TO 364 366 TO 378 381 TO 386 -
390 TO 487 489 TO 493 514 TO 517 522 TO 526 539 TO 601
MATERIAL RIGID MEMB 205 206
MATERIAL CONCRETE MEMB 602 TO 605 608 633 636 TO 902 905 919 924 926 TO 1007 -
1010 1019 1022 TO 1128

ROTTERDAM SITE DEVELOPMENT
NESTE

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*
MEMBER RELEASE
3 9 TO 12 21 TO 28 30 31 48 49 51 60 61 64 65 84 85 87 96 97 100 101 109 110 -
113 116 117 125 129 131 134 135 160 161 163 164 169 170 175 TO 183 186 189 -
190 TO 195 200 TO 203 207 TO 210 227 TO 230 239 TO 250 261 TO 279 286 TO 288 -
291 292 296 298 301 303 306 308 311 313 316 318 319 322 323 325 326 -
347 TO 364 366 TO 378 381 TO 386 390 TO 407 416 TO 429 434 TO 439 -
443 TO 446 451 TO 454 457 458 461 TO 471 474 TO 476 479 482 485 491 TO 493 -
523 526 539 TO 570 573 576 578 582 TO 595 START MY MZ
17 TO 19 21 TO 28 30 31 56 60 61 64 65 92 96 97 100 101 115 TO 117 125 129 -
133 TO 135 166 168 173 TO 183 186 189 TO 195 200 TO 204 207 TO 210 -
227 TO 230 239 TO 246 253 TO 255 261 TO 270 273 274 282 286 TO 288 292 298 -
303 TO 305 307 308 313 TO 315 318 321 TO 323 325 334 336 338 340 342 344 -
347 TO 364 366 TO 378 381 TO 386 390 TO 407 412 TO 425 430 TO 439 -
447 TO 454 457 458 461 TO 471 474 475 481 TO 484 487 491 TO 493 522 525 526 -
539 TO 570 572 TO 574 576 578 582 TO 595 END MY MZ
1 2 4 13 44 52 80 88 141 146 440 574 START MY
205 477 479 END MY MZ
206 END MY MZ
SUPPORTS
*Ref. Doc. 080871C-000-JSD-1430-004_E JDS for Piles
287 288 294 295 299 300 304 305 423 428 433 434 486 497 501 508 604 605 609 -
610 614 615 703 704 708 709 FIXED BUT MX MY MZ KFY 413000
736 741 742 747 784 789 790 795 FIXED BUT MX MY MZ KFY 375000
MEMBER FIREPROOFING
1 TO 7 9 TO 32 34 TO 36 38 39 44 TO 49 51 TO 57 60 61 64 65 68 TO 72 75 80 -
81 TO 85 87 89 TO 93 96 97 100 101 104 TO 110 112 TO 136 138 TO 141 -
143 TO 146 148 TO 195 200 TO 204 207 TO 364 366 TO 378 381 TO 386 -
390 TO 487 489 TO 493 514 TO 517 522 TO 526 539 TO 598 -
600 FIRE CFP THICK 0.015 DENSITY 18
CUT OFF MODE SHAPE 20
*
*******************************************************************************
DEFINE REFERENCE LOADS
*
LOAD R1 LOADTYPE None  TITLE SELF
*SELFWEIGHT OF STEEL ELEMENTS. COEFFICIENT 1.1 USED TO ACCOUNT FOR WEIGHT OF
*CONNECTIONS BETWEEN MEMBERS
*VERTICAL LADDER EL. 101400 TO 107800
MEMBER LOAD
85 CON GY -0.7 0.34
85 CON GY -0.7 0.828
*VERTICAL LADDER EL. 107800 TO 113600
572 CON GY -0.65 0.257
572 CON GY -0.65 0.743
571 CON GY -0.65 0
571 CON GY -0.65 0.54
*SELFWEIGHT DUE TO STAIR RAMPS UPN 220, STEPS AND HANDRAILS
581 CON GY -1.56 2.7
581 CON GY -1.56 1.7
140 581 CON GY -3.03 0.3
140 581 CON GY -3.03 1.3
32 34 CON GY -2.16 0.3
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32 34 CON GY -2.16 1.3
480 486 525 CON GY -2.16 1.2
480 486 525 CON GY -2.16 0.2
140 CON GY -3.03 2.7
140 CON GY -3.03 1.7
SELFWEIGHT Y -1.1 LIST 1 TO 7 9 TO 32 34 TO 36 38 39 44 TO 49 51 TO 57 60 -
61 64 65 68 TO 72 75 80 TO 85 87 TO 93 96 97 100 101 104 TO 110 112 TO 136 -
138 TO 141 143 TO 146 148 TO 195 200 TO 204 207 TO 364 366 TO 378 -
381 TO 386 390 TO 487 489 TO 493 514 TO 517 522 TO 526 539 TO 595
SELFWEIGHT Y -1 LIST 602 TO 605 608 633 636 TO 902 905 919 924 926 TO 1007 -
1010 1019 1022 TO 1128
*
********************************************************************************
LOAD R2 LOADTYPE None  TITLE DEAD HANDRAIL
*DEAD LOAD OF HANDRAILS
MEMBER LOAD
51 70 71 140 160 TO 162 165 167 168 171 172 272 275 276 289 293 294 297 299 -
302 307 309 312 314 317 319 TO 321 326 TO 328 345 346 476 477 481 -
483 TO 485 487 524 526 574 575 581 UNI GY -0.3
********************************************************************************
LOAD R3 LOADTYPE None  TITLE DEAD GRATING
*DEAD LOAD OF GRATINGS
ONEWAY LOAD
_FLR_105600 ONE -0.5 GY
_FLR_107800 ONE -0.5 GY TOWARDS 574
_FLR_111000 ONE -0.5 GY
_FLR_113600 ONE -0.5 GY
*
********************************************************************************
LOAD R4 LOADTYPE None  TITLE LIVE
*LIVE LOAD ON GRATINGS
ONEWAY LOAD
_FLR_105600 ONE -5 GY
_FLR_111000 ONE -5 GY
_FLR_113600 ONE -5 GY
_FLR_107800 ONE -5 GY TOWARDS 574
*LIVE LOAD ON STAIR RAMPS
MEMBER LOAD
581 CON GY -5.58 2.7
581 CON GY -5.58 1.7
140 581 CON GY -8.83 0.3
140 581 CON GY -8.83 1.3
32 34 CON GY -5 0.3
32 34 CON GY -5 1.3
480 486 525 CON GY -5 1.2
480 486 525 CON GY -5 0.2
140 CON GY -8.83 2.7
140 CON GY -8.83 1.7
*
********************************************************************************
LOAD R5 LOADTYPE None  TITLE SL
*SNOW LOAD ON GRATINGS
ONEWAY LOAD
```

ROTTERDAM SITE DEVELOPMENT
NESTE

_FLR_105600 ONE -0.84 GY
_FLR_111000 ONE -0.84 GY
_FLR_113600 ONE -0.84 GY
_FLR_107800 ONE -0.84 GY TOWARDS 574
*SNOW LOAD ON STAIR RAMPS
MEMBER LOAD
581 CON GY -0.94 2.7
581 CON GY -0.94 1.7
140 581 CON GY -1.48 0.3
140 581 CON GY -1.48 1.3
32 34 CON GY -0.84 0.3
32 34 CON GY -0.84 1.3
480 486 525 CON GY -0.84 1.2
480 486 525 CON GY -0.84 0.2
140 CON GY -1.48 2.7
140 CON GY -1.48 1.7
*
****
LOAD R6 LOADTYPE None TITLE SLACC (SNOW ACCIDENTAL)
*SNOW LOAD ACCIDENTAL - NOT APPLICABLE IN THE NETHERLANDS
*NONE
*
****
LOAD R7 LOADTYPE None TITLE EE (EMPTY LOAD)
*CABLE TRAY
MEMBER LOAD
426 599 TO 601 CON GY -1.06 0.3
108 186 192 200 207 230 245 246 264 268 460 462 463 CON GY -1.06 2.6
*PIPING LOAD
14"-HO80007-0-3B2NB-ET25-H
446 CON GY -2.88 1.4
108 186 192 200 207 230 245 246 264 268 455 458 460 462 463 CON GY -2.88 0.94
12"-HO80008-0-3B2NB-ET25-H
430 CON GY -2.5 1.1
108 186 192 200 207 230 245 246 264 268 458 460 462 463 CON GY -2.5 1.88
*4"-P20755-0-1M1N-NT-N/4"-P20744-0-1M1N-NT-N;
*6"-DF20754-0-1B2N-NT-N/6"-DF20140-0-1B2N-NT-N/6"-DF20755-0-1B2N-NT-N/6"-DF20141-0-1B2N-NT-N
123 273 CON GY -0.77 0.6
87 347 CON GY -0.77 0.83
290 295 300 348 TO 350 CON GY -0.77 0.5
*2"-ES20546-0-1B2NB-NT-H/2"-DF20143-0-1B2N-NT-N elev.113.600
*also assumed for other similar lines in the final level of the structure
346 CON GY -0.37 0.6
317 CON GY -0.37 0.78
355 CON GY -0.37 0.7
314 CON GY -0.37 0.88
314 CON GY -0.37 0.635
272 CON GY -0.37 0.66
329 331 CON GY -0.37 0.47
330 332 CON GY -0.37 0.8
317 CON GY -0.37 0.44
276 CON GY -0.37 0.47

ROTTERDAM SITE DEVELOPMENT
NESTE

*Pipe Bundle 1a Elev. 109.300
450 UNI GY -6 0.275 1.275
*Pipe Bundle 1b Elev. 109.300
108 186 192 200 207 230 245 246 264 268 453 455 458 460 462 -
463 UNI GY -3.4 0.18 0.78
*Pipe Bundle 2 Elev. 107.800 (modeled+additional bundle)
69 191 195 203 210 228 239 240 262 266 452 456 457 459 461 464 UNI GY -3.02
*Pipe Bundle 3 Elev. 112.300 (modeled)
120 123 155 251 252 UNI GY -9.24 1.4 3
****
LOAD R8 LOADTYPE None TITLE EER (ERECTION LOAD)
*CABLE TRAY
MEMBER LOAD
426 599 TO 601 CON GY -1.06 0.3
108 186 192 200 207 230 245 246 264 268 460 462 463 CON GY -1.06 2.6
*PIPING LOAD
14"-HO80007-0-3B2NB-ET25-H
446 CON GY -2.88 1.4
108 186 192 200 207 230 245 246 264 268 455 458 460 462 463 CON GY -2.88 0.94
12"-HO80008-0-3B2NB-ET25-H
430 CON GY -2.5 1.1
108 186 192 200 207 230 245 246 264 268 458 460 462 463 CON GY -2.5 1.88
*4"-P20755-0-1M1N-NT-N/4"-P20744-0-1M1N-NT-N;
*6"-DF20754-0-1B2N-NT-N/6"-DF20140-0-1B2N-NT-N/6"-DF20755-0-1B2N-NT-N/6"-DF20141-0-1B2N-NT-N
123 273 CON GY -0.77 0.6
87 347 CON GY -0.77 0.83
290 295 300 348 TO 350 CON GY -0.77 0.5
*2"-ES20546-0-1B2NB-NT-H/2"-DF20143-0-1B2N-NT-N elev.113.600
*also assumed for other similar lines in the final level of the structure
346 CON GY -0.37 0.6
317 CON GY -0.37 0.78
355 CON GY -0.37 0.7
314 CON GY -0.37 0.88
314 CON GY -0.37 0.635
272 CON GY -0.37 0.66
329 331 CON GY -0.37 0.47
330 332 CON GY -0.37 0.8
317 CON GY -0.37 0.44
276 CON GY -0.37 0.47
*Pipe Bundle 1a Elev. 109.300
450 UNI GY -6 0.275 1.275
*Pipe Bundle 1b Elev. 109.300
108 186 192 200 207 230 245 246 264 268 453 455 458 460 462 -
463 UNI GY -3.4 0.18 0.78
*Pipe Bundle 2 Elev. 107.800 (modeled+additional bundle)
69 191 195 203 210 228 239 240 262 266 452 456 457 459 461 464 UNI GY -3.02
Pipe Bundle 3 Elev. 112.300 (modeled) Lines: 8"-DF20143-0-1B2N-NT-N; 6"-P80045-0-1B2N-ET60-H
*Additional pipes considered in order to take into account the presence of pipes for half the length of the beams
120 123 155 251 252 UNI GY -9.24 1.4 3
*ADDITIONAL PIPES 12" EL 108500
****

ROTTERDAM SITE DEVELOPMENT
NESTE

LOAD R9 LOADTYPE None TITLE EO (OPERATING LOAD)
*CABLE TRAY
MEMBER LOAD
426 599 TO 601 CON GY -2.11 0.3
108 186 192 200 207 230 245 246 264 268 460 462 463 CON GY -2.11 2.6
*PIPING LOAD
14"-HO80007-0-3B2NB-ET25-H
446 CON GY -5.41 1.4
108 186 192 200 207 230 245 246 264 268 455 458 460 462 463 CON GY -5.41 0.94
12"-HO80008-0-3B2NB-ET25-H
430 CON GY -4.8 1.1
108 186 192 200 207 230 245 246 264 268 458 460 462 463 CON GY -4.8 1.88
*4"-P20755-0-1M1N-NT-N/4"-P20744-0-1M1N-NT-N;
*6"-DF20754-0-1B2N-NT-N/6"-DF20140-0-1B2N-NT-N/6"-DF20755-0-1B2N-NT-N/6"-DF20141-0-1B2N-NT-N
123 273 CON GY -1.36 0.6
87 347 CON GY -1.36 0.83
290 295 300 348 TO 350 CON GY -1.36 0.5
*2"-ES20546-0-1B2NB-NT-H/2"-DF20143-0-1B2N-NT-N elev.113.600
*also assumed for other similar lines in the final level of the structure
346 CON GY -0.54 0.6
317 CON GY -0.54 0.78
355 CON GY -0.54 0.7
314 CON GY -0.54 0.88
314 CON GY -0.54 0.635
272 CON GY -0.54 0.66
329 331 CON GY -0.54 0.47
330 332 CON GY -0.54 0.8
317 CON GY -0.54 0.44
276 CON GY -0.54 0.47
*Pipe Bundle 1a Elev. 109.300
450 UNI GY -9.2 0.275 1.275
*Pipe Bundle 1b Elev. 109.300
108 186 192 200 207 230 245 246 264 268 453 455 458 460 462 -
463 UNI GY -5.2 0.18 0.78
*Pipe Bundle 2 Elev. 107.800 (modeled+additional bundle)
69 191 195 203 210 228 239 240 262 266 452 456 457 459 461 464 UNI GY -4.63
Pipe Bundle 3 Elev. 112.300 (modeled) Lines: 8"-DF20143-0-1B2N-NT-N; 6"-P80045-0-1B2N-ET60-H
*Additional pipes considered in order to take into account the presence of pipes for half the length of the beams
120 123 155 251 252 UNI GY -14.17 1.4 3
****
LOAD R10 LOADTYPE None TITLE ET (TEST LOAD)
*CABLE TRAY
MEMBER LOAD
426 599 TO 601 CON GY -2.11 0.3
108 186 192 200 207 230 245 246 264 268 460 462 463 CON GY -2.11 2.6
*PIPING LOAD
14"-HO80007-0-3B2NB-ET25-H
446 CON GY -5.86 1.4
108 186 192 200 207 230 245 246 264 268 455 458 460 462 463 CON GY -5.86 0.94
12"-HO80008-0-3B2NB-ET25-H
430 CON GY -5.2 1.1

ROTTERDAM SITE DEVELOPMENT
NESTE

108 186 192 200 207 230 245 246 264 268 458 460 462 463 CON GY -5.2 1.88
*4"-P20755-0-1M1N-NT-N/4"-P20744-0-1M1N-NT-N;
*6"-DF20754-0-1B2N-NT-N/6"-DF20140-0-1B2N-NT-N/6"-DF20755-0-1B2N-NT-N/6"-DF20141-0-1B2N-NT-N
123 273 CON GY -1.45 0.6
87 347 CON GY -1.45 0.83
290 295 300 348 TO 350 CON GY -1.45 0.5
*2"-ES20546-0-1B2NB-NT-H/2"-DF20143-0-1B2N-NT-N elev.113.600
*also assumed for other similar lines in the final level of the structure
346 CON GY -0.56 0.6
317 CON GY -0.56 0.78
355 CON GY -0.56 0.7
314 CON GY -0.56 0.88
314 CON GY -0.56 0.635
272 CON GY -0.56 0.66
329 331 CON GY -0.56 0.47
330 332 CON GY -0.56 0.8
317 CON GY -0.56 0.44
276 CON GY -0.56 0.47
*Pipe Bundle 1a Elev. 109.300
450 UNI GY -10 0.275 1.275
*Pipe Bundle 1b Elev. 109.300
108 186 192 200 207 230 245 246 264 268 453 455 458 460 462 -
463 UNI GY -5.65 0.18 0.78
*Pipe Bundle 2 Elev. 107.800 (modeled+additional bundle)
69 191 195 203 210 228 239 240 262 266 452 456 457 459 461 464 UNI GY -5.03
Pipe Bundle 3 Elev. 112.300 (modeled) Lines: 8"-DF20143-0-1B2N-NT-N; 6"-P80045-0-1B2N-ET60-H
*Additional pipes considered in order to take into account the presence of pipes for half the length of the beams
120 123 155 251 252 UNI GY -15.4 1.4 3
*ADDITIONAL PIPES 12" EL 108500
****
LOAD R11 LOADTYPE None TITLE TLSX (THERMAL ANCHOR FORCE X)
**ANCHOR LOADS DUE TO EXPANSION/CONTRACTION OF EQUIPMENT OR PIPES - X DIRECTION
**PIPING LOAD (5% WEIGHT OF PIPE IN OPERATION)
14"-HO80007-0-3B2NB-ET25-H
MEMBER LOAD
446 CON GX 0.271 1.4
108 186 192 200 207 230 245 246 264 268 455 458 460 462 463 CON GX 0.271 0.94
12"-HO80008-0-3B2NB-ET25-H
430 CON GX 0.24 1.1
108 186 192 200 207 230 245 246 264 268 458 460 462 463 CON GX 0.24 1.88
*4"-P20755-0-1M1N-NT-N/4"-P20744-0-1M1N-NT-N;
*6"-DF20754-0-1B2N-NT-N/6"-DF20140-0-1B2N-NT-N/6"-DF20755-0-1B2N-NT-N/6"-DF20141-0-1B2N-NT-N
123 273 CON GX 0.068 0.6
87 347 CON GX 0.068 0.83
290 295 300 348 TO 350 CON GX 0.068 0.5
*2"-ES20546-0-1B2NB-NT-H/2"-DF20143-0-1B2N-NT-N elev.113.600
*also assumed for other similar lines in the final level of the structure
346 CON GX 0.027 0.6
317 CON GX 0.027 0.78
355 CON GX 0.027 0.7

314 CON GX 0.027 0.88
314 CON GX 0.027 0.635
272 CON GX 0.027 0.66
329 331 CON GX 0.027 0.47
330 332 CON GX 0.027 0.8
317 CON GX 0.027 0.44
276 CON GX 0.027 0.47
*Pipe Bundle 1a Elev. 109.300
450 UNI GX 0.46 0.275 1.275
*Pipe Bundle 1b Elev. 109.300
108 186 192 200 207 230 245 246 264 268 453 455 458 460 462 -
463 UNI GX 0.26 0.18 0.78
*Pipe Bundle 2 Elev. 107.800 (modeled+additional bundle)
69 191 195 203 210 228 239 240 262 266 452 456 457 459 461 464 UNI GX 0.23
Pipe Bundle 3 Elev. 112.300 (modeled) Lines: 8"-DF20143-0-1B2N-NT-N; 6"-P80045-0-1B2N-ET60-H
120 123 155 251 252 UNI GX 0.71 1.4 3
****
LOAD R12 LOADTYPE None TITLE TLSZ (THERMAL ANCHOR FORCE Z)
**ANCHOR LOADS DUE TO EXPANSION/CONTRACTION OF EQUIPMENT OR PIPES - Z DIRECTION
**PIPING LOAD (10% WEIGHT OF PIPE IN OPERATION)
14"-HO80007-0-3B2NB-ET25-H
MEMBER LOAD
446 CON GZ 0.541 1.4
108 186 192 200 207 230 245 246 264 268 455 458 460 462 463 CON GZ 0.541 0.94
12"-HO80008-0-3B2NB-ET25-H
430 CON GZ 0.48 1.1
108 186 192 200 207 230 245 246 264 268 458 460 462 463 CON GZ 0.48 1.88
*4"-P20755-0-1M1N-NT-N/4"-P20744-0-1M1N-NT-N;
*6"-DF20754-0-1B2N-NT-N/6"-DF20140-0-1B2N-NT-N/6"-DF20755-0-1B2N-NT-N/6"-DF20141-0-1B2N-NT-N
123 273 CON GZ 0.136 0.6
87 347 CON GZ 0.136 0.83
290 295 300 348 TO 350 CON GZ 0.136 0.5
*2"-ES20546-0-1B2NB-NT-H/2"-DF20143-0-1B2N-NT-N elev.113.600
*also assumed for other similar lines in the final level of the structure
346 CON GZ 0.054 0.6
317 CON GZ 0.054 0.78
355 CON GZ 0.054 0.7
314 CON GZ 0.054 0.88
314 CON GZ 0.054 0.635
272 CON GZ 0.054 0.66
329 331 CON GZ 0.054 0.47
330 332 CON GZ 0.054 0.8
317 CON GZ 0.054 0.44
276 CON GZ 0.054 0.47
*Pipe Bundle 1a Elev. 109.300
450 UNI GZ 0.92 0.275 1.275
*Pipe Bundle 1b Elev. 109.300
108 186 192 200 207 230 245 246 264 268 453 455 458 460 462 -
463 UNI GZ 0.52 0.18 0.78
*Pipe Bundle 2 Elev. 107.800 (modeled+additional bundle)
69 191 195 203 210 228 239 240 262 266 452 456 457 459 461 464 UNI GZ 0.463
Pipe Bundle 3 Elev. 112.300 (modeled) Lines: 8"-DF20143-0-1B2N-NT-N; 6"-P80045-0-1B2N-ET60-H

120 123 155 251 252 UNI GZ 1.42 1.4 3
****
LOAD R13 LOADTYPE None TITLE TLFX (FRICTION FORCE X)
*local
**FRICTION LOADS DUE TO EXPANSION/CONTRACTION OF EQUIPMENT OR PIPES - X DIRECTION
**PIPING LOAD (FF=b*m*Wop b=1 for local design, b=0.5 for global design, m=friction coeff. 0.35 steel to steel, Wop Weight in Operating
*GLOBAL FRICTION
14"-HO80007-0-3B2NB-ET25-H
MEMBER LOAD
446 CON GX 0.47 1.4
108 186 192 200 207 230 245 246 264 268 455 458 460 462 463 CON GX 0.47 0.94
12"-HO80008-0-3B2NB-ET25-H
430 CON GX 0.42 1.1
108 186 192 200 207 230 245 246 264 268 458 460 462 463 CON GX 0.42 1.88
*4"-P20755-0-1M1N-NT-N/4"-P20744-0-1M1N-NT-N;
*6"-DF20754-0-1B2N-NT-N/6"-DF20140-0-1B2N-NT-N/6"-DF20755-0-1B2N-NT-N/6"-DF20141-0-1B2N-NT-N
123 273 CON GX 0.03 0.6
87 347 CON GX 0.03 0.83
290 295 300 348 TO 350 CON GX 0.068 0.5
*2"-ES20546-0-1B2NB-NT-H/2"-DF20143-0-1B2N-NT-N elev.113.600
*also assumed for other similar lines in the final level of the structure
346 CON GX 0.01 0.6
317 CON GX 0.01 0.78
355 CON GX 0.01 0.7
314 CON GX 0.01 0.88
314 CON GX 0.01 0.635
272 CON GX 0.01 0.66
329 331 CON GX 0.01 0.47
330 332 CON GX 0.01 0.8
317 CON GX 0.01 0.44
276 CON GX 0.01 0.47
*Pipe Bundle 1a Elev. 109.300
450 UNI GX 0.23 0.275 1.275
*Pipe Bundle 1b Elev. 109.300
108 186 192 200 207 230 245 246 264 268 453 455 458 460 462 -
463 UNI GX 0.13 0.18 0.78
*Pipe Bundle 2 Elev. 107.800 (modeled+additional bundle)
69 191 195 203 210 228 239 240 262 266 452 456 457 459 461 464 UNI GX 0.116
Pipe Bundle 3 Elev. 112.300 (modeled) Lines: 8"-DF20143-0-1B2N-NT-N; 6"-P80045-0-1B2N-ET60-H
120 123 155 251 252 UNI GX 0.36 1.4 3
****
LOAD R14 LOADTYPE None TITLE TLFZ (FRICTION FORCE Z)
**FRICTION LOADS DUE TO EXPANSION/CONTRACTION OF EQUIPMENT OR PIPES - Z DIRECTION
**PIPING LOAD (FF=b*m*Wop b=1 for local design, b=0.5 for global design, m=friction coeff. 0.35 steel to steel, Wop Weight in Operating
*GLOBAL FRICTION
14"-HO80007-0-3B2NB-ET25-H
MEMBER LOAD
446 CON GZ 0.541 1.4
108 186 192 200 207 230 245 246 264 268 455 458 460 462 463 CON GZ 0.95 0.94
12"-HO80008-0-3B2NB-ET25-H

430 CON GZ 0.84 1.1
108 186 192 200 207 230 245 246 264 268 458 460 462 463 CON GZ 0.84 1.88
*4"-P20755-0-1M1N-NT-N/4"-P20744-0-1M1N-NT-N;
*6"-DF20754-0-1B2N-NT-N/6"-DF20140-0-1B2N-NT-N/6"-DF20755-0-1B2N-NT-N/6"-DF20141-0-1B2N-NT-N
123 273 CON GZ 0.07 0.6
87 347 CON GZ 0.07 0.83
290 295 300 348 TO 350 CON GZ 0.07 0.5
*2"-ES20546-0-1B2NB-NT-H/2"-DF20143-0-1B2N-NT-N elev.113.600
*also assumed for other similar lines in the final level of the structure
346 CON GZ 0.03 0.6
317 CON GZ 0.03 0.78
355 CON GZ 0.03 0.7
314 CON GZ 0.03 0.88
314 CON GZ 0.03 0.635
272 CON GZ 0.03 0.66
329 331 CON GZ 0.03 0.47
330 332 CON GZ 0.03 0.8
317 CON GZ 0.03 0.44
276 CON GZ 0.03 0.47
*Pipe Bundle 1a Elev. 109.300
450 UNI GZ 0.46 0.275 1.275
*Pipe Bundle 1b Elev. 109.300
108 186 192 200 207 230 245 246 264 268 453 455 458 460 462 -
463 UNI GZ 0.26 0.18 0.78
*Pipe Bundle 2 Elev. 107.800 (modeled+additional bundle)
69 191 195 203 210 228 239 240 262 266 452 456 457 459 461 464 UNI GZ 0.23
Pipe Bundle 3 Elev. 112.300 (modeled) Lines: 8"-DF20143-0-1B2N-NT-N; 6"-P80045-0-1B2N-ET60-H
120 123 155 251 252 UNI GZ 0.71 1.4 3
****
LOAD R15 LOADTYPE Temperature TITLE TLT (STRUCTURE THERMAL LOAD)
TEMPERATURE LOAD
1 TO 7 9 TO 32 34 TO 36 38 39 44 TO 49 51 TO 57 60 61 64 65 68 TO 72 75 80 -
81 TO 85 87 89 TO 93 96 97 100 101 104 TO 110 112 TO 136 138 TO 141 -
143 TO 146 148 TO 195 200 TO 204 207 TO 364 366 TO 378 381 TO 386 -
390 TO 487 489 TO 493 514 TO 517 522 TO 526 539 TO 578 581 TO 593 TEMP 31
*TEMPERATURE LOADS ON EXPOSED STRUCTURES
*
****
LOAD R16 LOADTYPE None TITLE WLX (WIND LOAD X)
**WIND LOADS - X DIRECTION
*CABLE TRAY
MEMBER LOAD
426 599 TO 601 CON GX 0.63 0.3
108 186 192 200 207 230 245 246 264 268 460 462 463 CON GX 0.63 2.6
**PIPING
Main pipe 14"-HO80007-0-3B2NB-ET25-H elev. 110.000
108 186 192 200 207 230 245 246 264 268 446 450 453 455 458 460 462 -
463 UNI GX 1.1
Main pipe 12"-HO80008-0-3B2NB-ET25-H elev. 110.000
430 CON GX 2.88 1.25
458 CON GX 2.88 1.835
*Main pipe 2"-P20754-0-3M1NJ-ET10-C

456 457 CON GX 1.03 2.08
446 CON GX 1.03 0.73
*Main pipe 2"-HO56026-0-3B2NB-ET25-H elev. 107.800
*(the presence of pipes along the entire width of the piperack was considered)
69 191 195 203 210 228 239 240 262 266 452 456 457 459 461 464 UNI GX 0.48
6"-P20761-0-1B2N-ET60-H elev. 112.300
120 123 155 251 252 CON GX 2.71 2.2
Additional Pipes based on 6"-P20761-0-1B2N-ET60-H elev. 112.300
*in order to take into account the presence of pipes for half the length of the beams
120 123 155 251 252 CON GX 2.71 1.8
120 123 155 251 252 CON GX 2.71 1.4
*8"-DF20143-0-1B2N-NT-N elev. 112.300
120 123 155 251 252 CON GX 1.7 2.6
*4"-P20755-0-1M1N-NT-N/4"-P20744-0-1M1N-NT-N;
*6"-DF20754-0-1B2N-NT-N/6"-DF20140-0-1B2N-NT-N/6"-DF20755-0-1B2N-NT-N/6"-DF20141-0-1B2N-NT-N
123 273 CON GX 1.04 0.6
87 347 CON GX 1.04 0.83
290 295 300 348 TO 350 CON GX 1.04 0.5
*2"-ES20546-0-1B2NB-NT-H/2"-DF20143-0-1B2N-NT-N elev.113.600
*also assumed for other similar lines in the final level of the structure
346 CON GX 0.18 0.6
317 CON GX 0.18 0.78
355 CON GX 0.18 0.7
314 CON GX 0.18 0.88
314 CON GX 0.18 0.635
272 CON GX 0.18 0.66
329 331 CON GX 0.18 0.47
330 332 CON GX 0.18 0.8
317 CON GX 0.18 0.44
276 CON GX 0.18 0.47
*
****
LOAD R17 LOADTYPE None TITLE WLZ (WIND LOAD Z)
*WIND LOADS - Z DIRECTION
*CABLE TRAY
MEMBER LOAD
426 599 TO 601 CON GZ 0.31 0.3
108 186 192 200 207 230 245 246 264 268 460 462 463 CON GZ 0.31 2.6
*PIPING
Main pipe 14"-HO80007-0-3B2NB-ET25-H elev. 110.000
108 186 192 200 207 230 245 246 264 268 446 450 453 455 458 460 462 -
463 UNI GZ 0.54
Main pipe 12"-HO80008-0-3B2NB-ET25-H elev. 110.000
430 CON GZ 4.1 1.25
458 CON GZ 4.1 1.835
*Main pipe 2"-P20754-0-3M1NJ-ET10-C
456 457 CON GZ 1.15 2.08
446 CON GZ 1.15 0.73
*Main pipe 2"-HO56026-0-3B2NB-ET25-H elev. 107.800
*(the presence of pipes along the entire width of the piperack was considered)
69 191 195 203 210 228 239 240 262 266 452 456 457 459 461 464 UNI GZ 0.33
6"-P20761-0-1B2N-ET60-H elev. 112.300

120 123 155 251 252 CON GZ 0.38 2.2
2 additional Pipes based on 6"-P20761-0-1B2N-ET60-H elev. 112.300
*in order to take into account the presence of pipes for half the length of the beams
120 123 155 251 252 CON GZ 0.38 1.8
120 123 155 251 252 CON GZ 0.38 1.4
*4"-P20755-0-1M1N-NT-N/4"-P20744-0-1M1N-NT-N;
*6"-DF20754-0-1B2N-NT-N/6"-DF20140-0-1B2N-NT-N/6"-DF20755-0-1B2N-NT-N/6"-DF20141-0-1B2N-NT-N
123 273 CON GZ 1.02 0.6
87 347 CON GZ 1.02 0.83
290 295 300 348 TO 350 CON GZ 1.02 0.5
*2"-ES20546-0-1B2NB-NT-H/2"-DF20143-0-1B2N-NT-N elev.113.600
*also assumed for other similar lines in the final level of the structure
346 CON GZ 0.19 0.6
317 CON GZ 0.19 0.78
355 CON GZ 0.19 0.7
314 CON GZ 0.19 0.88
314 CON GZ 0.19 0.635
272 CON GZ 0.19 0.66
329 331 CON GZ 0.19 0.47
330 332 CON GZ 0.19 0.8
317 CON GZ 0.19 0.44
276 CON GZ 0.19 0.47
*
****
LOAD R18 LOADTYPE Mass TITLE MODAL MASS
SELFWEIGHT X 1.1 LIST 1 TO 7 9 TO 32 34 TO 36 38 39 44 TO 49 51 TO 57 60 61 -
64 65 68 TO 72 75 80 TO 85 87 TO 93 96 97 100 101 104 TO 110 112 TO 136 138 -
139 TO 141 143 TO 146 148 TO 195 200 TO 204 207 TO 364 366 TO 378 381 TO 386 -
390 TO 487 489 TO 493 514 TO 517 522 TO 526 539 TO 595
SELFWEIGHT Y 1.1 LIST 1 TO 7 9 TO 32 34 TO 36 38 39 44 TO 49 51 TO 57 60 61 -
64 65 68 TO 72 75 80 TO 85 87 TO 93 96 97 100 101 104 TO 110 112 TO 136 138 -
139 TO 141 143 TO 146 148 TO 195 200 TO 204 207 TO 364 366 TO 378 381 TO 386 -
390 TO 487 489 TO 493 514 TO 517 522 TO 526 539 TO 595
SELFWEIGHT Z 1.1 LIST 1 TO 7 9 TO 32 34 TO 36 38 39 44 TO 49 51 TO 57 60 61 -
64 65 68 TO 72 75 80 TO 85 87 TO 93 96 97 100 101 104 TO 110 112 TO 136 138 -
139 TO 141 143 TO 146 148 TO 195 200 TO 204 207 TO 364 366 TO 378 381 TO 386 -
390 TO 487 489 TO 493 514 TO 517 522 TO 526 539 TO 595
*SELFWEIGHT
****
*DEAD LOAD OF HANDRAILS
*DEAD LOAD STAIR: HANDRAILS+STEPS+UPN
*
****
*DEAD LOAD OF GRATINGS
END DEFINE REFERENCE LOADS
*
****
DEFINE WIND LOAD
TYPE 1 WIND STRUCTURAL
* WIND PRESSURE ALONG HEIGHT
INT 0.776423 0.776423 0.776423 0.776423 0.776423 0.927483 1.02115 1.08999 -
1.14474 1.19036 1.22955 1.26395 1.29465 1.32239 1.34771 1.37102 1.39262 -

```
1.41275 1.43161 1.44936 1.46612 1.482 1.4971 1.51149 1.52523 1.53838 1.551 -
1.56313 1.5748 1.58605 1.59691 1.6074 1.61756 1.62741 1.63695 1.64622 -
1.65522 1.66398 1.67251 1.68081 1.6889 1.6968 1.7045 1.71203 1.71939 1.72658 -
1.73361 1.7405 1.74725 1.75385 1.76033 1.76668 1.77291 1.77903 1.78503 -
1.79093 1.79672 1.80241 1.808 1.81351 1.81892 1.82425 1.82949 1.83465 HEIG -
0.1 0.25 0.5 0.75 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 -
23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 -
48 49 50 51 52 53 54 55 56 57 58 59 60
*
*********************************************************************************
*LOAD CONDITIONS
*
LOAD 100 LOADTYPE Dead  TITLE DL (DEAD LOAD)
REFERENCE LOAD
R1 1.0 R2 1.0 R3 1.0
*********************************************************************************
LOAD 110 LOADTYPE Dead  TITLE EE (EMPTY LOAD)
REFERENCE LOAD
R7 1.0
*********************************************************************************
LOAD 111 LOADTYPE Dead  TITLE EER (ERECTION LOAD)
REFERENCE LOAD
R8 1.0
*********************************************************************************
LOAD 115 LOADTYPE Dead  TITLE EO (OPERATING LOAD)
REFERENCE LOAD
R9 1.0
*********************************************************************************
LOAD 120 LOADTYPE Dead  TITLE ET (TEST LOAD)
REFERENCE LOAD
R10 1.0
*********************************************************************************
LOAD 125 LOADTYPE Snow  TITLE SL (SNOW LOAD)
REFERENCE LOAD
R5 1.0
*********************************************************************************
LOAD 126 LOADTYPE Snow  TITLE SLACC (SNOW LOAD ACCIDENTAL)
*REFERENCE LOAD
*R6 1.0
*********************************************************************************
LOAD 130 LOADTYPE Live  TITLE LL (LIVE LOAD)
REFERENCE LOAD
R4 1.0
*********************************************************************************
LOAD 140 LOADTYPE Dead  TITLE TLSX (THERMAL ANCHOR FORCE X)
REFERENCE LOAD
R11 1.0
*********************************************************************************
LOAD 141 LOADTYPE Dead  TITLE TLSZ (THERMAL ANCHOR FORCE Z)
REFERENCE LOAD
R12 1.0
*********************************************************************************
LOAD 145 LOADTYPE Accidental  TITLE TLFX (FRICTION FORCE X)
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REFERENCE LOAD
R13 1.0
*******************************************************************************
LOAD 146 LOADTYPE Accidental  TITLE TLFZ (FRICTION FORCE Z)
REFERENCE LOAD
R14 1.0
*******************************************************************************
LOAD 150 LOADTYPE Temperature  TITLE TLT (STRUCTURE THERMAL LOAD)
REFERENCE LOAD
R15 1.0
*******************************************************************************
*
LOAD 160 LOADTYPE Wind  TITLE WLX (WIND LOAD +X)
REFERENCE LOAD
R16 1.0
WIND LOAD X 2 TYPE 1 XR -0.1 10 YR 1.4 7.6 ZR -1 1 OPEN
WIND LOAD X 2 TYPE 1 XR 1.9 2.1 YR 1.4 20 ZR 10 16 OPEN
WIND LOAD X 2 TYPE 1 XR 4.9 5.1 YR 1.4 20 ZR -10 25 OPEN
WIND LOAD X 2 TYPE 1 XR 7.9 8.1 YR 1.4 20 ZR -5 25 OPEN
*WIND FORCES ON STRUCTUREAL ELEMENTS
*ALIGN. STAIR
*
*******************************************************************************
LOAD 161 LOADTYPE Wind  TITLE WLZ (WIND LOAD +Z)
REFERENCE LOAD
*WIND LOAD ON EQUIPMENTS
R17 1.0
*WIND FORCES ON STRUCTUREAL ELEMENTS
WIND LOAD Z 2 TYPE 1 XR -5 20 YR 0 20 ZR -1 0.5 OPEN
WIND LOAD Z 2 TYPE 1 XR 5 8 YR 7.8 9.3 ZR -2.8 -2.7 OPEN
WIND LOAD Z 2 TYPE 1 XR 5 8 YR 7.8 9.3 ZR -1.4 -1.3 OPEN
WIND LOAD Z 2 TYPE 1 XR 5 8 YR 7.8 9.3 ZR 1.5 1.6 OPEN
WIND LOAD Z 2 TYPE 1 XR 5 8 YR 7.8 9.3 ZR 3 3.2 OPEN
WIND LOAD Z 2 TYPE 1 XR 5 8 YR 7.8 15 ZR 4.6 4.7 OPEN
WIND LOAD Z 2 TYPE 1 XR 5 8 YR 7.8 9.3 ZR 6.1 6.3 OPEN
WIND LOAD Z 2 TYPE 1 XR 5 8 YR 7.8 15 ZR 7.7 7.8 OPEN
WIND LOAD Z 2 TYPE 1 XR 5 8 YR 7.8 9.3 ZR 9.3 9.4 OPEN
WIND LOAD Z 2 TYPE 1 XR 2 10 YR 1.4 20 ZR 10.9 11 OPEN
WIND LOAD Z 2 TYPE 1 XR 5 8 YR 7.8 9.3 ZR 12.55 12.65 OPEN
WIND LOAD Z 2 TYPE 1 XR 5 8 YR 7.8 9.3 ZR 14.2 14.4 OPEN
WIND LOAD Z 2 TYPE 1 XR 2 10 YR 1.4 20 ZR 15.9 16 OPEN
WIND LOAD Z 2 TYPE 1 XR 5 8 YR 7.8 9.3 ZR 17.9 18 OPEN
WIND LOAD Z 2 TYPE 1 XR 4 10 YR 1.4 20 ZR 19.9 20 OPEN
WIND LOAD Z 2 TYPE 1 XR 5 8 YR 7.8 9.3 ZR 21.2 21.6 OPEN
WIND LOAD Z 2 TYPE 1 XR 4 9 YR 1.4 15 ZR 23 23.2 OPEN
*
*******************************************************************************
LOAD 162 LOADTYPE Wind  TITLE WLX50% (WIND LOAD X PARTIAL)
REPEAT LOAD
160 0.5
*50% WIND FORCES ALONG X, WITH COEFF. 0.5
*WIND FORCES ON STRUCTUREAL ELEMENTS
*
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LOAD 163 LOADTYPE Wind  TITLE WLZ50% (WIND LOAD Z PARTIAL)
REPEAT LOAD
161 0.5
*50% WIND FORCES ALONG Z, WITH COEFF. 0.5
*WIND FORCES ON STRUCTUREAL ELEMENTS
*******************************************************************************
LOAD 164 LOADTYPE Wind  TITLE WL-X (WIND LOAD -X)
*LC 164 CORRESPONDS TO WIND ALONG (-X), WHICH FOR BUILDINGS IS DIFFERENT FROM
*-WINDX DUE TO THE DIFFERENCE IN THE WINDWARD AND LEEWARD SHAPE COEFFICIENTS
*IN THE BUILDING PORTION OF THE STRUCTURE: IN THE COMBINATIONS, "-WINDX"
*IS NOT "-160" BUT "+164 = +WIND(-X)" -
*NOT USED FOR OPEN FRAME PROCESS STRUCTURES
*******************************************************************************
LOAD 165 LOADTYPE Wind  TITLE WL-Z (WIND LOAD -Z)
*LC 165 CORRESPONDS TO WIND ALONG (-Z), WHICH FOR BUILDINGS IS DIFFERENT FROM
*-WINDZ DUE TO THE DIFFERENCE IN THE WINDWARD AND LEEWARD SHAPE COEFFICIENTS
*IN THE BUILDING PORTION OF THE STRUCTURE: IN THE COMBINATIONS, "-WINDZ"
*IS NOT "-161" BUT "+165 = +WIND(-Z)" -
*NOT USED FOR OPEN FRAME PROCESS STRUCTURES
*******************************************************************************
LOAD 170 LOADTYPE None  TITLE ELX (EARTHQUAKE LOAD X)
*EARTHQUAKE LOAD NOT APPLICABLE IN THE NETHERLANDS
*******************************************************************************
LOAD 171 LOADTYPE None  TITLE ELZ (EARTHQUAKE LOAD Z)
*EARTHQUAKE LOAD NOT APPLICABLE IN THE NETHERLANDS
*******************************************************************************
LOAD 172 LOADTYPE None  TITLE ELEX (EARTHQUAKE LOAD X EMPTY)
*EARTHQUAKE LOAD NOT APPLICABLE IN THE NETHERLANDS
*******************************************************************************
LOAD 173 LOADTYPE None  TITLE ELEZ (EARTHQUAKE LOAD Z EMPTY)
*EARTHQUAKE LOAD NOT APPLICABLE IN THE NETHERLANDS
*******************************************************************************
LOAD 174 LOADTYPE None  TITLE RAYLEIGH-X
*EARTHQUAKE LOAD NOT APPLICABLE IN THE NETHERLANDS
*******************************************************************************
LOAD 175 LOADTYPE None  TITLE RAYLEIGH-Z
*EARTHQUAKE LOAD NOT APPLICABLE IN THE NETHERLANDS
*******************************************************************************
LOAD 176 LOADTYPE None  TITLE ELOVERTICAL
*EARTHQUAKE LOAD NOT APPLICABLE IN THE NETHERLANDS
*******************************************************************************
LOAD 177 LOADTYPE None  TITLE ELEVERTICAL
*EARTHQUAKE LOAD NOT APPLICABLE IN THE NETHERLANDS
*******************************************************************************
LOAD 180 LOADTYPE Accidental  TITLE ML (MAINTANANCE LOAD/BUNDLE PULL)
*MONORAIL: VALVE
*MASS OF THE VALVE preliminary value 2000 kg -> on the safe side assumed 2500 kg
*
*******************************************************************************
LOAD 185 LOADTYPE Accidental  TITLE IL (IMPACT LOAD)
*
*******************************************************************************
```

ROTTERDAM SITE DEVELOPMENT
NESTE

```
LOAD 190 LOADTYPE Dead  TITLE VLX (VIBRATION LOAD)
*
*********************************************************************************
LOAD 191 LOADTYPE Dead  TITLE VLZ (VIBRATION LOAD)
*
*********************************************************************************
LOAD 192 LOADTYPE Dead  TITLE VLY (VIBRATION LOAD)
*
*********************************************************************************
LOAD 195 LOADTYPE Accidental  TITLE BL (BLAST LOAD)
*
*********************************************************************************
LOAD 200 LOADTYPE Accidental  TITLE CL (CONSTRUCTION LOAD)
*
*********************************************************************************
LOAD 205 LOADTYPE Fluids  TITLE FL (FLUID LOAD)
*
*********************************************************************************
LOAD 210 LOADTYPE Soil  TITLE HL (EARTH LOAD)
ELEMENT LOAD
605 608 633 636 TO 896 902 905 919 924 926 TO 1005 1007 1010 1019 -
1022 TO 1054 PR GY -22.93
1057 TO 1128 PR GY -20.9
*
*********************************************************************************
LOAD 215 LOADTYPE None  TITLE DS (DIFFERENTIAL SETTLEMET LOAD)
LOAD 216 LOADTYPE None  TITLE MODAL
MODAL CALCULATION REQUESTED
*
*********************************************************************************
*
*
*
*LOAD COMBINATIONS ARE DEFINED ACCORDING TO THE COMBINATION PARAMETERS PSI ***
*REPORTED IN THE DUTCH NATIONAL ANNEX TO EN1990 (EUROCODE) ********************
*USE OF COEFFICIENT KFI FOR UNFAVOURABLE LOADS IS CONSIDERED, FOR CC3 ********
*
*
*********************************************************************************
********************************************** COMBINATION SLS - CHARACTERISTIC**
*********************************************************************************
*
*********************************************************************************
********************************** EMPTY & CONSTRUCTION SLS ********************
*********************************************************************************
*
* SLS E&C - VERTICAL (PERMANENT) ***********************************************
LOAD COMB 300 DL+EE+HL
100 1.0 110 1.0 210 1.0
*
* SLS E&C - THERMAL AMBIENTAL **************************************************
LOAD COMB 301 DE+EE+HL+TLT
100 1.0 110 1.0 210 1.0 150 1.0
```

```
LOAD COMB 302 DL+EE+HL-TLT
100 1.0 110 1.0 210 1.0 150 -1.0
*
* SLS E&C - WIND (OVERTURNING) ************************************************
LOAD COMB 303 DL+EE+HL+WLX
100 1.0 110 1.0 210 1.1 160 1.0
LOAD COMB 304 DL+EE+HL-WLX
100 1.0 110 1.0 210 1.0 160 -1.0
LOAD COMB 305 DL+EE+HL+WLZ
100 1.0 110 1.0 210 1.0 161 1.0
LOAD COMB 306 DL+EE+HL-WLZ
100 1.0 110 1.0 210 1.0 161 -1.0
*
* SLS E&C - CONSTRUCTION ******************************************************
LOAD COMB 307 DL+EE+HL+CL
100 1.0 110 1.0 210 1.0 200 1.0
*
* SLS E&C - CONSTRUCTION (NO INSTANTANEOUS ACTIONS) ***************************
LOAD COMB 308 DE+EE+HL+0.6TLT+CL
100 1.0 110 1.0 210 1.0 150 0.6 200 1.0
LOAD COMB 309 DE+EE+HL-0.6TLT+CL
100 1.0 110 1.0 210 1.0 150 -0.6 200 1.0
*
* SLS E&C - WIND ***************************************************************
LOAD COMB 310 DL+EE+HL+WLX+0.7CL
100 1.0 110 1.0 210 1.0 160 1.0 200 0.7
LOAD COMB 311 DL+EE+HL-WLX+0.7CL
100 1.0 110 1.0 210 1.0 160 -1.0 200 0.7
LOAD COMB 312 DL+EE+HL+WLZ+0.7CL
100 1.0 110 1.0 210 1.0 161 1.0 200 0.7
LOAD COMB 313 DL+EE+HL-WLZ+0.7CL
100 1.0 110 1.0 210 1.0 161 -1.0 200 0.7
*
* SLS E&C - SNOW ***************************************************************
LOAD COMB 314 DL+EE+HL+0.7CL+SL
100 1.0 110 1.0 210 1.0 200 0.7 125 1.0
*
*
*
*******************************************************************************
********************************************** OPERATING SLS ***************
*******************************************************************************
*
* SLS OPE - VERTICAL (PERMANENT) ***********************************************
LOAD COMB 400 DL+EO+VL+HL
100 1.0 115 1.0 210 1.0 190 1.0 191 1.0 192 1.0
*
* SLS OPE - THERMAL AMBIENTAL **************************************************
LOAD COMB 401 DL+EO+TLSX+TLSZ+VL+HL+LL+TLT+0.6TLFX+0.6TLFZ
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 1.0 145 0.6 146 0.6
LOAD COMB 402 DL+EO+TLSX+TLSZ+VL+HL+LL-TLT+0.6TLFX+0.6TLFZ
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
```

```
150 -1.0 145 0.6 146 0.6
LOAD COMB 403 DL+EO+TLSX+TLSZ+VL+HL+LL-TLT-0.6TLFX-0.6FLFZ
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 -1.0 145 -0.6 146 -0.6
LOAD COMB 404 DL+EO-TLSX-TLSZ+VL+HL+LL+TLT+0.6TLFX+0.6TLFZ
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 1.0 145 0.6 146 0.6
LOAD COMB 405 DL+EO-TLSX-TLSZ+VL+HL+LL-TLT+0.6TLFX+0.6TLFZ
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 -1.0 145 0.6 146 0.6
LOAD COMB 406 DL+EO-TLSX+TLSZ+VL+HL+LL-TLT-0.6TLFX-0.6TLFZ
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 -1.0 145 -0.6 146 -0.6
*
* SLS OPE - THERMAL PIPES ****************************************************
LOAD COMB 407 DL+EO+TLSX+TLSZ+VL+HL+LL+0.6TLT+TLFX+TLFZ
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 0.6 145 1.0 146 1.0
LOAD COMB 408 DL+EO+TLSX+TLSZ+VL+HL+LL-0.6TLT+TLFX+TLFZ
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 -0.6 145 1.0 146 1.0
LOAD COMB 409 DL+EO+TLSX+TLSZ+VL+HL+LL-0.6TLT-TLFX-TLFZ
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 -0.6 145 -1.0 146 -1.0
LOAD COMB 410 DL+EO-TLSX-TLSZ+VL+HL+LL+0.6TLT+TLFX+TLFZ
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 0.6 145 1.0 146 1.0
LOAD COMB 411 DL+EO-TLSX-TLSZ+VL+HL+LL-0.6TLT+TLFX+TLFZ
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 -0.6 145 1.0 146 1.0
LOAD COMB 412 DL+EO-TLSX-TLSZ+VL+HL+LL-0.6TLT-TLFX-TLFZ
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 -0.6 145 -1.0 146 -1.0
*
* SLS OPE - WIND (OVERTURNING) ***********************************************
LOAD COMB 413 DL+EO+TLSX+TLSZ+VL+HL+WLX
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 160 1.0
LOAD COMB 414 DL+EO-TLSX-TLSZ+VL+HL-WLX
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 160 -1.0
LOAD COMB 415 DL+EO+TLSX+TLSZ+VL+HL+WLZ
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 161 1.0
LOAD COMB 416 DL+EO-TLSX-TLSZ+VL+HL-WLZ
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 161 -1.0
*
* SLS OPE - LIVE *************************************************************
LOAD COMB 417 DL+EO+TLSX+TLSZ+VL+HL+LL+0.6IL
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
185 0.6
LOAD COMB 418 DL+EO-TLSX-TLSZ+VL+HL+LL+0.6IL
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
185 0.6
*
* SLS OPE - LIVE (NO INSTANTANEOUS ACTIONS) **********************************
```

ROTTERDAM SITE DEVELOPMENT
NESTE

```
LOAD COMB 419 DL+EO+TLSX+TLSZ+VL+HL+LL+0.6TLT+0.6TLFX+0.6TLFZ
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 0.6 145 0.6 146 0.6
LOAD COMB 420 DL+EO+TLSX+TLSZ+VL+HL+LL-0.6TLT+0.6TLFX+0.6TLFZ
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 -0.6 145 0.6 146 0.6
LOAD COMB 421 DL+EO+TLSX+TLSZ+VL+HL+LL-0.6TLT-0.6TLFX-0.6TLFZ
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 -0.6 145 -0.6 146 -0.6
LOAD COMB 422 DL+EO-TLSX-TLSZ+VL+HL+LL+0.6TLT+0.6TLFX+0.6TLFZ
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 0.6 145 0.6 146 0.6
LOAD COMB 423 DL+EO-TLSX-TLSZ+VL+HL+LL-0.6TLT+0.6TLFX+0.6TLFZ
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 -0.6 145 0.6 146 0.6
LOAD COMB 424 DL+EO-TLSX-TLSZ+VL+HL+LL-0.6TLT-0.6TLFX-0.6TLFZ
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
150 -0.6 145 -0.6 146 -0.6
*
* SLS OPE - WIND ******************************************************************
LOAD COMB 425 DL+EO+TLSX+TLSZ+VL+HL+LL+WLX+0.6IL
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
160 1.0 185 0.6
LOAD COMB 426 DL+EO-TLSX-TLSZ+VL+HL+LL-WLX+0.6IL
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
160 -1.0 185 0.6
LOAD COMB 427 DL+EO+TLSX+TLSZ+VL+HL+LL+WLZ+0.6IL
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
161 1.0 185 0.6
LOAD COMB 428 DL+EO-TLSX-TLSZ+VL+HL+LL-WLZ+0.6IL
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
161 -1.0 185 0.6
*
* SLS OPE - SNOW ******************************************************************
LOAD COMB 429 DL+EO+TLSX+TLSZ+VL+HL+LL+0.6IL+SL
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
185 0.6 125 1.0
LOAD COMB 430 DL+EO-TLSX-TLSZ+VL+HL+VL+LL+0.6IL+SL
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
185 0.6 125 1.0
*
* SLS OPE - IMPACT ****************************************************************
LOAD COMB 431 DL+EO+TLSX+TLSZ+VL+HL+LL+IL
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
185 1.0
LOAD COMB 432 DL+EO-TLSX-TLSZ+VL+HL+LL+IL
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 1.0 -
185 1.0
*
*
*
********************************************************************************
********************************************** TEST SLS ********************
```

ROTTERDAM SITE DEVELOPMENT
NESTE

```
*****************************************************************************
*
* SLS TEST - VERTICAL (PERMANENT) ***********************************************
LOAD COMB 500 DL+ET+HL
100 1.0 120 1.0 210 1.0
*
* SLS TEST - WIND-REDUCED VALUE (OVERTURNING) ***********************************
LOAD COMB 501 DL+ET+HL+WLX50%
100 1.0 120 1.0 210 1.0 162 1.0
LOAD COMB 502 DL+ET+HL-WLX50%
100 1.0 120 1.0 210 1.0 162 -1.0
LOAD COMB 503 DL+ET+HL+WLZ50%
100 1.0 120 1.0 210 1.0 163 1.0
LOAD COMB 504 DL+ET+HL-WLZ50%
100 1.0 120 1.0 210 1.0 163 -1.0
*
* SLS TEST - LIVE ***************************************************************
LOAD COMB 505 DL+ET+HL+LL+0.6IL
100 1.0 120 1.0 210 1.0 130 1.0 185 0.6
*
* SLS TEST - WIND-REDUCED VALUE *************************************************
LOAD COMB 506 DL+ET+HL+LL+WLX50%+0.6IL
100 1.0 120 1.0 210 1.0 130 1.0 162 1.0 185 0.6
LOAD COMB 507 DL+ET+HL+LL-WLX50%+0.6IL
100 1.0 120 1.0 210 1.0 130 1.0 162 -1.0 185 0.6
LOAD COMB 508 DL+ET+HL+LL+WLZ50%+0.6IL
100 1.0 120 1.0 210 1.0 130 1.0 163 1.0 185 0.6
LOAD COMB 509 DL+ET+HL+LL-WLZ50%+0.6IL
100 1.0 120 1.0 210 1.0 130 1.0 163 -1.0 185 0.6
*
* SLS TEST - SNOW ***************************************************************
LOAD COMB 510 DL+ET+HL+LL+0.6IL+SL
100 1.0 120 1.0 210 1.0 130 1.0 185 0.6 125 1.0
*
* SLS TEST - IMPACT *************************************************************
LOAD COMB 511 DL+ET+HL+LL+IL
100 1.0 120 1.0 210 1.0 130 1.0 185 1.0
*
*
*
*****************************************************************************
************************************************ MAINTENANCE SLS *************
*****************************************************************************
*
* SLS MAINTENANCE - MAINTENANCE (OVERTURNING) ***********************************
*
*
* SLS MAINTENANCE - MAINTENANCE *************************************************
LOAD COMB 550 DL+EE+HL+LL+ML+BL+0.6IL
100 1.0 110 1.0 210 1.0 130 1.0 180 1.0 195 1.0 185 0.6
*
*
*
```

ROTTERDAM SITE DEVELOPMENT
NESTE

```
*******************************************************************************
********************************* QUASI-PERMANENT SLS ************************
*******************************************************************************
LOAD COMB 600 DL+EO+TLSX+TLSZ+VL+HL+0.8LL
100 1.0 115 1.0 140 1.0 141 1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 0.8
LOAD COMB 601 DL+EO-TLSX-TLSZ+VL+HL+0.8LL
100 1.0 115 1.0 140 -1.0 141 -1.0 190 1.0 191 1.0 192 1.0 210 1.0 130 0.8
*
*
*
*
*******************************************************************************
************************************************ COMBINATION ULS - STR/GEO ***
*******************************************************************************
*
*******************************************************************************
****************************** EMPTY & CONSTRUCTION ULS - STR/GEO ************
*******************************************************************************
*
* ULS STR/GEO E&C - VERTICAL (PERMANENT) ************************************
LOAD COMB 1000 1.5(DL+EE)+1.0HL
100 1.5 110 1.5 210 1.0
*
LOAD COMB 1001 1.3(DL+EE)+1.0HL
100 1.3 110 1.3 210 1.0
*
* ULS STR/GEO E&C - THERMAL AMBIENTAL ***************************************
LOAD COMB 1002 0.9(DE+EE)+HL+1.65(0.6TLT)
100 0.9 110 0.9 210 1.0 150 1.0
LOAD COMB 1003 0.9(DL+EE)+HL-1.65(0.6TLT)
100 0.9 110 0.9 210 1.0 150 -1.0
*
LOAD COMB 1004 0.9(DL+EE)+HL+1.65TLT
100 0.9 110 0.9 210 1.0 150 1.65
LOAD COMB 1005 0.9(DL+EE)+HL-1.65TLT
100 0.9 110 0.9 210 1.0 150 -1.65
*
*
* ULS STR/GEO E&C - WIND (OVERTURNING) **************************************
LOAD COMB 1006 0.9(DL+EE)+HL+1.65WLX
100 0.9 110 0.9 210 1.1 160 1.65
LOAD COMB 1007 0.9(DL+EE)+HL-1.65WLX
100 0.9 110 0.9 210 1.0 160 -1.65
LOAD COMB 1008 0.9(DL+EE)+HL+1.65WLZ
100 0.9 110 0.9 210 1.0 161 1.65
LOAD COMB 1009 0.9(DL+EE)+HL-1.65WLZ
100 0.9 110 0.9 210 1.0 161 -1.65
*
* ULS STR/GEO E&C - CONSTRUCTION ********************************************
LOAD COMB 1010 1.5(DL+EE)+1.0HL+1.65(0.7CL)
100 1.5 110 1.5 210 1.0 200 1.15
*
LOAD COMB 1011 1.3(DL+EE)+1.0HL+1.65CL
```

```
100 1.3 110 1.3 210 1.0 200 1.65
*
* ULS STR/GEO E&C - CONSTRUCTION (NO INSTANTANEOUS ACTIONS) ******************
LOAD COMB 1012 1.5(DE+EE)+1.0HL+1.65(0.6TLT+0.7CL)
100 1.5 110 1.5 210 1.0 150 1.0 200 1.15
LOAD COMB 1013 1.5(DE+EE)+1.0HL+1.65(-0.6TLT+0.7CL)
100 1.5 110 1.5 210 1.0 150 -1.0 200 1.15
*
LOAD COMB 1014 1.3(DE+EE)+1.0HL+1.65(0.6TLT+CL)
100 1.3 110 1.3 210 1.0 150 1.0 200 1.65
LOAD COMB 1015 1.3(DE+EE)+1.0HL+1.65(-0.6TLT+CL)
100 1.3 110 1.3 210 1.0 150 -1.0 200 1.65
*
*
* ULS STR/GEO E&C - WIND ***********************************************************
LOAD COMB 1016 1.3(DL+EE)+1.0HL+1.65(WLX+0.7CL)
100 1.3 110 1.3 210 1.0 160 1.65 200 1.15
LOAD COMB 1017 1.3(DL+EE)+1.0HL+1.65(-WLX+0.7CL)
100 1.3 110 1.3 210 1.0 160 -1.65 200 1.15
LOAD COMB 1018 1.3(DL+EE)+1.0HL+1.65(WLZ+0.7CL)
100 1.3 110 1.3 210 1.0 161 1.65 200 1.15
LOAD COMB 1019 1.3(DL+EE)+1.0HL+1.65(-WLZ+0.7CL)
100 1.3 110 1.3 210 1.0 161 -1.65 200 1.15
*
* ULS STR/GEO E&C - SNOW ***********************************************************
LOAD COMB 1020 1.3(DL+EE)+1.0HL+1.65(0.7CL+SL)
100 1.3 110 1.3 210 1.0 200 1.15 125 1.65
*
*
*
*
*******************************************************************************
********************************************** OPERATING ULS STR/GEO ******
*******************************************************************************
*
*
* ULS STR/GEO OPE - VERTICAL (PERMANENT) ***************************************
LOAD COMB 1100 1.5(DL+EO+VL)+1.0HL
100 1.5 115 1.5 190 1.5 191 1.5 192 1.5 210 1.0
LOAD COMB 1101 1.3(DL+EO+VL)+1.0HL
100 1.3 115 1.3 190 1.3 191 1.3 192 1.3 210 1.0
*
* ULS STR/GEO OPE - THERMAL AMBIENTAL ******************************************
LOAD COMB 1102 0.9(DL+EO)+1.5(TLSX+TLSZ)+0.9VL+HL+1.65(LL+0.6TLT+0.6TLFX+0.6TLFZ)
100 0.9 115 0.9 140 1.5 141 1.5 190 0.9 191 0.9 192 0.9 210 1.0 130 1.65 -
150 1.0 145 1.0 146 1.0
LOAD COMB 1103 0.9(DL+EO)+1.5(TLSX+TLSZ)+0.9VL+HL+1.65(LL-0.6TLT+0.6TLFX+0.6TLFZ)
100 0.9 115 0.9 140 1.5 141 1.5 190 0.9 191 0.9 192 0.9 210 1.0 130 1.65 -
150 -1.0 145 1.0 146 1.0
LOAD COMB 1104 0.9(DL+EO)+1.5(TLSX+TLSZ)+0.9VL+HL+1.65(LL-0.6TLT-0.6TLFX-0.6FLFZ)
100 0.9 115 0.9 140 1.5 141 1.5 190 0.9 191 0.9 192 0.9 210 1.0 130 1.65 -
150 -1.0 145 -1.0 146 -1.0
LOAD COMB 1105 0.9(DL+EO)+1.5(-TLSX-TLSZ)+0.9VL+HL+1.65(LL+0.6TLT+0.6TLFX+0.6TLFZ)
```

100 0.9 115 0.9 140 -1.5 141 -1.5 190 0.9 191 0.9 192 0.9 210 1.0 130 1.65 -
150 1.0 145 1.0 146 1.0
LOAD COMB 1106 0.9(DL+EO)+1.5(-TLSX-TLSZ)+0.9VL+HL+1.65(LL-0.6TLT+0.6TLFX+0.6TLFZ)
100 0.9 115 0.9 140 -1.5 141 -1.5 190 0.9 191 0.9 192 0.9 210 1.0 130 1.65 -
150 -1.0 145 1.0 146 1.0
LOAD COMB 1107 0.9(DL+EO)+1.5(-TLSX-TLSZ)+0.9VL+HL+1.65(LL-0.6TLT-0.6TLFX-0.6TLFZ)
100 0.9 115 0.9 140 -1.5 141 -1.5 190 0.9 191 0.9 192 0.9 210 1.0 130 1.65 -
150 -1.0 145 -1.0 146 -1.0
*
LOAD COMB 1108 0.9(DL+EO)+1.3(TLSX+TLSZ)+0.9VL+HL+1.65(LL+TLT+0.6TLFX+0.6TLFZ)
100 0.9 115 0.9 140 1.3 141 1.3 190 0.9 191 0.9 192 0.9 210 1.0 130 1.65 -
150 1.65 145 1.0 146 1.0
LOAD COMB 1109 0.9(DL+EO)+1.3(TLSX+TLSZ)+0.9VL+HL+1.65(LL-TLT+0.6TLFX+0.6TLFZ)
100 0.9 115 0.9 140 1.3 141 1.3 190 0.9 191 0.9 192 0.9 210 1.0 130 1.65 -
150 -1.65 145 1.0 146 1.0
LOAD COMB 1110 0.9(DL+EO)+1.3(TLSX+TLSZ)+0.9VL+HL+1.65(LL-TLT-0.6TLFX-0.6FLFZ)
100 0.9 115 0.9 140 1.3 141 1.3 190 0.9 191 0.9 192 0.9 210 1.0 130 1.65 -
150 -1.65 145 -1.0 146 -1.0
LOAD COMB 1111 0.9(DL+EO)+1.3(-TLSX-TLSZ)+0.9VL+HL+1.65(LL+TLT+0.6TLFX+0.6TLFZ)
100 0.9 115 0.9 140 -1.3 141 -1.3 190 0.9 191 0.9 192 0.9 210 1.0 130 1.65 -
150 1.65 145 1.0 146 1.0
LOAD COMB 1112 0.9(DL+EO)+1.3(-TLSX-TLSZ)+0.9VL+HL+1.65(LL-TLT+0.6TLFX+0.6TLFZ)
100 0.9 115 0.9 140 -1.3 141 -1.3 190 0.9 191 0.9 192 0.9 210 1.0 130 1.65 -
150 -1.65 145 1.0 146 1.0
LOAD COMB 1113 0.9(DL+EO)+1.3(-TLSX-TLSZ)+0.9VL+HL+1.65(LL-TLT-0.6TLFX-0.6TLFZ)
100 0.9 115 0.9 140 -1.3 141 -1.3 190 0.9 191 0.9 192 0.9 210 1.0 130 1.65 -
150 -1.65 145 -1.0 146 -1.0
*
*
* ULS STR/GEO OPE - THERMAL PIPES **********
LOAD COMB 1114 1.5(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL+0.6TLT+0.6TLFX+0.6TLFZ)
100 1.5 115 1.5 140 1.5 141 1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
150 1.0 145 1.0 146 1.0
LOAD COMB 1115 1.5(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL-0.6TLT+0.6TLFX+0.6TLFZ)
100 1.5 115 1.5 140 1.5 141 1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
150 -1.0 145 1.0 146 1.0
LOAD COMB 1116 1.5(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL-0.6TLT-0.6TLFX-0.6TLFZ)
100 1.5 115 1.5 140 1.5 141 1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
150 -1.0 145 -1.0 146 -1.0
LOAD COMB 1117 1.5(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL+0.6TLT+0.6TLFX+0.6TLFZ)
100 1.5 115 1.5 140 -1.5 141 -1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
150 1.0 145 1.0 146 1.0
LOAD COMB 1118 1.5(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL-0.6TLT+0.6TLFX+0.6TLFZ)
100 1.5 115 1.5 140 -1.5 141 -1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
150 -1.0 145 1.0 146 1.0
LOAD COMB 1119 1.5(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL-0.6TLT-0.6TLFX-0.6TLFZ)
100 1.5 115 1.5 140 -1.5 141 -1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
150 -1.0 145 -1.0 146 -1.0
*
LOAD COMB 1120 1.3(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL+0.6TLT+TLFX+TLFZ)
100 1.3 115 1.3 140 1.3 141 1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
150 1.0 145 1.65 146 1.65
LOAD COMB 1121 1.3(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL-0.6TLT+TLFX+TLFZ)

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100 1.3 115 1.3 140 1.3 141 1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
150 -1.0 145 1.65 146 1.65
LOAD COMB 1122 1.3(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL-0.6TLT-TLFX-TLFZ)
100 1.3 115 1.3 140 1.3 141 1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
150 -1.0 145 -1.65 146 -1.65
LOAD COMB 1123 1.3(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL+0.6TLT+TLFX+TLFZ)
100 1.3 115 1.3 140 -1.3 141 -1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
150 1.0 145 1.65 146 1.65
LOAD COMB 1124 1.3(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL-0.6TLT+TLFX+TLFZ)
100 1.3 115 1.3 140 -1.3 141 -1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
150 -1.0 145 1.65 146 1.65
LOAD COMB 1125 1.3(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL-0.6TLT-TLFX-TLFZ)
100 1.3 115 1.3 140 -1.3 141 -1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
150 -1.0 145 -1.65 146 -1.65
*
*
* ULS STR/GEO OPE - WIND (OVERTURNING) **
LOAD COMB 1126 0.9(DL+EO+TLSX+TLSZ+VL)+HL+1.65WLX
100 0.9 115 0.9 140 0.9 141 0.9 190 0.9 191 0.9 192 0.9 210 1.0 160 1.65
LOAD COMB 1127 0.9(DL+EO-TLSX-TLSZ+VL)+HL-1.65WLX
100 0.9 115 0.9 140 -0.9 141 -0.9 190 0.9 191 0.9 192 0.9 210 1.0 160 -1.65
LOAD COMB 1128 0.9(DL+EO+TLSX+TLSZ+VL)+HL+1.65WLZ
100 0.9 115 0.9 140 0.9 141 0.9 190 0.9 191 0.9 192 0.9 210 1.0 161 1.65
LOAD COMB 1129 0.9(DL+EO-TLSX-TLSZ+VL)+HL-1.65WLZ
100 0.9 115 0.9 140 -0.9 141 -0.9 190 0.9 191 0.9 192 0.9 210 1.0 161 -1.65
*
* ULS STR/GEO OPE - LIVE ***
LOAD COMB 1130 1.5(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL+0.6IL)
100 1.5 115 1.5 140 1.5 141 1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
185 1.0
LOAD COMB 1131 1.5(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL+0.6IL)
100 1.5 115 1.5 140 -1.5 141 -1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
185 1.0
*
LOAD COMB 1132 1.3(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL+0.6IL)
100 1.3 115 1.3 140 1.3 141 1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
185 1.0
LOAD COMB 1133 1.3(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL+0.6IL)
100 1.3 115 1.3 140 -1.3 141 -1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
185 1.0
*
*
* ULS STR/GEO OPE - LIVE (NO INSTANTANEOUS ACTIONS) ***************************
LOAD COMB 1134 1.5(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL+0.6TLT+0.6TLFX+0.6TLFZ)
100 1.5 115 1.5 140 1.5 141 1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
150 1.0 145 1.0 146 1.0
LOAD COMB 1135 1.5(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL-0.6TLT+0.6TLFX+0.6TLFZ)
100 1.5 115 1.5 140 1.5 141 1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
150 -1.0 145 1.0 146 1.0
LOAD COMB 1136 1.5(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL-0.6TLT-0.6TLFX-0.6TLFZ)
100 1.5 115 1.5 140 1.5 141 1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
150 -1.0 145 -1.0 146 -1.0
LOAD COMB 1137 1.5(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL+0.6TLT+0.6TLFX+0.6TLFZ)

100 1.5 115 1.5 140 -1.5 141 -1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
150 1.0 145 1.0 146 1.0
LOAD COMB 1138 1.5(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL-0.6TLT+0.6TLFX+0.6TLFZ)
100 1.5 115 1.5 140 -1.5 141 -1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
150 -1.0 145 1.0 146 1.0
LOAD COMB 1139 1.5(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL-0.6TLT-0.6TLFX-0.6TLFZ)
100 1.5 115 1.5 140 -1.5 141 -1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
150 -1.0 145 -1.0 146 -1.0
*
LOAD COMB 1140 1.3(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL+0.6TLT+0.6TLFX+0.6TLFZ)
100 1.3 115 1.3 140 1.3 141 1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
150 1.0 145 1.0 146 1.0
LOAD COMB 1141 1.3(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL-0.6TLT+0.6TLFX+0.6TLFZ)
100 1.3 115 1.3 140 1.3 141 1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
150 -1.0 145 1.0 146 1.0
LOAD COMB 1142 1.3(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL-0.6TLT-0.6TLFX-0.6TLFZ)
100 1.3 115 1.3 140 1.3 141 1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
150 -1.0 145 -1.0 146 -1.0
LOAD COMB 1143 1.3(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL+0.6TLT+0.6TLFX+0.6TLFZ)
100 1.3 115 1.3 140 -1.3 141 -1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
150 1.0 145 1.0 146 1.0
LOAD COMB 1144 1.3(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL-0.6TLT+0.6TLFX+0.6TLFZ)
100 1.3 115 1.3 140 -1.3 141 -1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
150 -1.0 145 1.0 146 1.0
LOAD COMB 1145 1.3(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL-0.6TLT-0.6TLFX-0.6TLFZ)
100 1.3 115 1.3 140 -1.3 141 -1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
150 -1.0 145 -1.0 146 -1.0
*
*
* ULS STR/GEO OPE - WIND **********
LOAD COMB 1146 1.3(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL+WLX+0.6IL)
100 1.3 115 1.3 140 1.3 141 1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
160 1.65 185 1.0
LOAD COMB 1147 1.3(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL-WLX+0.6IL)
100 1.3 115 1.3 140 -1.3 141 -1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
160 -1.65 185 1.0
LOAD COMB 1148 1.3(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL+WLZ+0.6IL)
100 1.3 115 1.3 140 1.3 141 1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
161 1.65 185 1.0
LOAD COMB 1149 1.3(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL-WLZ+0.6IL)
100 1.3 115 1.3 140 -1.3 141 -1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
161 -1.65 185 1.0
*
* ULS STR/GEO OPE - SNOW **********
LOAD COMB 1150 1.3(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL+0.6IL+SL)
100 1.3 115 1.3 140 1.3 141 1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
185 1.1 125 1.65
LOAD COMB 1151 1.3(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL+0.6IL+SL)
100 1.3 115 1.3 140 -1.3 141 -1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
185 1.1 125 1.65
*
*
* ULS STR/GEO OPE - IMPACT **********

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LOAD COMB 1152 1.5(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL+0.6IL)
100 1.5 115 1.5 140 1.5 141 1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
185 1.0
LOAD COMB 1153 1.5(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL+0.6IL)
100 1.5 115 1.5 140 -1.5 141 -1.5 190 1.5 191 1.5 192 1.5 210 1.0 130 1.65 -
185 1.0
*
LOAD COMB 1154 1.3(DL+EO+TLSX+TLSZ+VL)+1.0HL+1.65(LL+IL)
100 1.3 115 1.3 140 1.3 141 1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
185 1.65
LOAD COMB 1155 1.3(DL+EO-TLSX-TLSZ+VL)+1.0HL+1.65(LL+IL)
100 1.3 115 1.3 140 -1.3 141 -1.3 190 1.3 191 1.3 192 1.3 210 1.0 130 1.65 -
185 1.65
*
*
*
********************************************************************************
********************************************** TEST ULS STR/GEO **********
********************************************************************************
* ULS STR/GEO TEST - VERTICAL (PERMANENT) ************************************
LOAD COMB 1200 1.5(DL+ET)+1.0HL
100 1.5 120 1.5 210 1.0
*
LOAD COMB 1201 1.3(DL+ET)+1.0HL
100 1.3 120 1.3 210 1.0
*
*
* ULS STR/GEO TEST - WIND-REDUCED VALUE (OVERTURNING) ************************
LOAD COMB 1202 0.9(DL+ET)+HL+1.65WLX50%
100 0.9 120 0.9 210 1.0 162 1.65
LOAD COMB 1203 0.9(DL+ET)+HL-1.65WLX50%
100 0.9 120 0.9 210 1.0 162 -1.65
LOAD COMB 1204 0.9(DL+ET)+HL+1.65WLZ50%
100 0.9 120 0.9 210 1.0 163 1.65
LOAD COMB 1205 0.9(DL+ET)+HL-1.65WLZ50%
100 0.9 120 0.9 210 1.0 163 -1.65
*
* ULS STR/GEO TEST - LIVE ****************************************************
LOAD COMB 1206 1.5(DL+ET)+1.0HL+1.65(LL+0.6IL)
100 1.5 120 1.5 210 1.0 130 1.65 185 1.1
*
LOAD COMB 1207 1.3(DL+ET)+1.0HL+1.65(LL+0.6IL)
100 1.3 120 1.3 210 1.0 130 1.65 185 1.0
*
*
* ULS STR/GEO TEST - WIND-REDUCED VALUE **************************************
LOAD COMB 1208 1.3(DL+ET)+1.0HL+1.65(LL+WLX50%+0.6IL)
100 1.3 120 1.3 210 1.0 130 1.65 162 1.65 185 1.0
LOAD COMB 1209 1.3(DL+ET)+1.0HL+1.65(LL-WLX50%+0.6IL)
100 1.3 120 1.3 210 1.0 130 1.65 162 -1.65 185 1.0
LOAD COMB 1210 1.3(DL+ET)+1.0HL+1.65(LL+WLZ50%+0.6IL)
100 1.3 120 1.3 210 1.0 130 1.65 163 1.65 185 1.0
LOAD COMB 1211 1.3(DL+ET)+1.0HL+1.65(LL-WLZ50%+0.6IL)
```

```
100 1.3 120 1.3 210 1.0 130 1.65 163 -1.65 185 1.0
*
* ULS STR/GEO TEST - SNOW ********************************************************
LOAD COMB 1212 1.3(DL+ET)+1.0HL+1.65(LL+0.6IL+SL)
100 1.3 120 1.3 210 1.0 130 1.65 185 1.0 125 1.65
*
*
* ULS STR/GEO TEST - IMPACT *******************************************************
LOAD COMB 1213 1.5(DL+ET)+1.0HL+1.65(LL+0.6IL)
100 1.5 120 1.5 210 1.0 130 1.65 185 1.0
*
LOAD COMB 1214 1.3(DL+ET)+1.0HL+1.65(LL+IL)
100 1.3 120 1.3 210 1.0 130 1.65 185 1.65
*
*
*
*******************************************************************************
****************************************** MAINTENANCE ULS STR/GEO **********
*******************************************************************************
*
* ULS STR/GEO MAINTENANCE - MAINTENANCE (OVERTURNING) *************************
LOAD COMB 1250 0.9(DL+EE)+HL+1.65(ML+BL+0.6IL)
100 0.9 110 0.9 210 1.0 180 1.65 195 1.65 185 1.0
*
*
* ULS STR/GEO MAINTENANCE - MAINTENANCE ***************************************
LOAD COMB 1251 1.5(DL+EE)+1.0HL+1.65(LL+ML+BL+0.6IL)
100 1.5 110 1.5 210 1.0 130 1.65 180 1.65 195 1.65 185 1.0
*
LOAD COMB 1252 1.3(DL+EE)+1.0HL+1.65(LL+ML+BL+0.6IL)
100 1.3 110 1.3 210 1.0 130 1.65 180 1.65 195 1.65 185 1.0
*
*
*
*
*******************************************************************************
********************************************************* COMBINATION ULS-EQU
*******************************************************************************
*
*
*
*******************************************************************************
********************************** EMPTY & CONSTRUCTION ULS - EQU ***********
*******************************************************************************
*
* ULS EQU E&C - VERTICAL (PERMANENT) ******************************************
LOAD COMB 2000 1.1(DL+EE+HL)
100 1.1 110 1.1 210 1.1
*
* ULS EQU E&C - THERMAL AMBIENTAL **********************************************
LOAD COMB 2001 0.9(DE+EE+HL)+1.5TLT
100 0.9 110 0.9 210 0.9 150 1.5
LOAD COMB 2002 0.9(DL+EE+HL)-1.5TLT
```

```
100 0.9 110 0.9 210 0.9 150 -1.5
*
* ULS EQU E&C - WIND (OVERTURNING) ********************************************
LOAD COMB 2003 0.9(DL+EE+HL)+1.5WLX
100 0.9 110 0.9 210 0.9 160 1.5
LOAD COMB 2004 0.9(DL+EE+HL)-1.5WLX
100 0.9 110 0.9 210 0.9 160 -1.5
LOAD COMB 2005 0.9(DL+EE+HL)+1.5WLZ
100 0.9 110 0.9 210 0.9 161 1.5
LOAD COMB 2006 0.9(DL+EE+HL)-1.5WLZ
100 0.9 110 0.9 210 0.9 161 -1.5
*
* ULS EQU E&C - CONSTRUCTION ***************************************************
LOAD COMB 2007 1.1(DL+EE+HL)+1.5(CL)
100 1.1 110 1.1 210 1.1 200 1.5
*
* ULS EQU E&C - CONSTRUCTION (NO INSTANTANEOUS ACTIONS) ***********************
LOAD COMB 2008 1.1(DE+EE+HL)+1.5(0.6TLT+CL)
100 1.1 110 1.1 210 1.1 150 0.9 200 1.5
LOAD COMB 2009 1.1(DE+EE+HL)+1.5(-0.6TLT+CL)
100 1.1 110 1.1 210 1.1 150 -0.9 200 1.5
*
* ULS EQU E&C - WIND ***********************************************************
LOAD COMB 2010 1.1(DL+EE+HL)+1.5(WLX+0.7CL)
100 1.1 110 1.1 210 1.1 160 1.5 200 1.05
LOAD COMB 2011 1.1(DL+EE+HL)+1.5(-WLX+0.7CL)
100 1.1 110 1.1 210 1.1 160 -1.5 200 1.05
LOAD COMB 2012 1.1(DL+EE+HL)+1.5(WLZ+0.7CL)
100 1.1 110 1.1 210 1.1 161 1.5 200 1.05
LOAD COMB 2013 1.1(DL+EE+HL)+1.5(-WLZ+0.7CL)
100 1.1 110 1.1 210 1.1 161 -1.5 200 1.05
*
* ULS EQU E&C - SNOW ***********************************************************
LOAD COMB 2014 1.1(DL+EE+HL)+1.5(0.7CL+SL)
100 1.1 110 1.1 210 1.1 200 1.05 125 1.5
*
*
*
*
*******************************************************************************
********************************************** OPERATING ULS EQU **********
*******************************************************************************
*
*
* ULS EQU OPE - VERTICAL (PERMANENT) ******************************************
LOAD COMB 2100 1.1(DL+EO+HL+VL)
100 1.1 115 1.1 210 1.1 190 1.1 191 1.1 192 1.1
*
* ULS EQU OPE - THERMAL AMBIENTAL **********************************************
LOAD COMB 2101 0.9(DL+EO)+1.1(TLSX+TLSZ)+0.9(HL+VL)+1.5(LL+TLT+0.6TLFX+0.6TLFZ)
100 0.9 115 0.9 140 1.1 141 1.1 210 0.9 190 0.9 191 0.9 192 0.9 130 1.5 -
150 1.5 145 0.9 146 0.9
LOAD COMB 2102 0.9(DL+EO)+1.1(TLSX+TLSZ)+0.9(HL+VL)+1.5(LL-TLT+0.6TLFX+0.6TLFZ)
```

100 0.9 115 0.9 140 1.1 141 1.1 210 0.9 190 0.9 191 0.9 192 0.9 130 1.5 -
150 -1.5 145 0.9 146 0.9
LOAD COMB 2103 0.9(DL+EO)+1.1(TLSX+TLSZ)+0.9(HL+VL)+1.5(LL-TLT-0.6TLFX-0.6FLFZ)
100 0.9 115 0.9 140 1.1 141 1.1 210 0.9 190 0.9 191 0.9 192 0.9 130 1.5 -
150 -1.5 145 -0.9 146 -0.9
LOAD COMB 2104 0.9(DL+EO)+1.1(-TLSX-TLSZ)+0.9(HL+VL)+1.5(LL+TLT+0.6TLFX+0.6TLFZ)
100 0.9 115 0.9 140 -1.1 141 -1.1 210 0.9 190 0.9 191 0.9 192 0.9 130 1.5 -
150 1.5 145 0.9 146 0.9
LOAD COMB 2105 0.9(DL+EO)+1.1(-TLSX-TLSZ)+0.9(HL+VL)+1.5(LL-TLT+0.6TLFX+0.6TLFZ)
100 0.9 115 0.9 140 -1.1 141 -1.1 210 0.9 190 0.9 191 0.9 192 0.9 130 1.5 -
150 -1.5 145 0.9 146 0.9
LOAD COMB 2106 0.9(DL+EO)+1.1(-TLSX-TLSZ)+0.9(HL+VL)+1.5(LL-TLT-0.6TLFX-0.6TLFZ)
100 0.9 115 0.9 140 -1.1 141 -1.1 210 0.9 190 0.9 191 0.9 192 0.9 130 1.5 -
150 -1.5 145 -0.9 146 -0.9
*
* ULS EQU OPE - THERMAL PIPES **********
LOAD COMB 2107 1.1(DL+EO+TLSX+TLSZ+HL+VL)+1.5(LL+0.6TLT+TLFX+TLFZ)
100 1.1 115 1.1 140 1.1 141 1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
150 0.9 145 1.5 146 1.5
LOAD COMB 2108 1.1(DL+EO+TLSX+TLSZ+HL+VL)+1.5(LL-0.6TLT+TLFX+TLFZ)
100 1.1 115 1.1 140 1.1 141 1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
150 -0.9 145 1.5 146 1.5
LOAD COMB 2109 1.1(DL+EO+TLSX+TLSZ+HL+VL)+1.5(LL-0.6TLT-TLFX-TLFZ)
100 1.1 115 1.1 140 1.1 141 1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
150 -0.9 145 -1.5 146 -1.5
LOAD COMB 2110 1.1(DL+EO-TLSX-TLSZ+HL+VL)+1.5(LL+0.6TLT+TLFX+TLFZ)
100 1.1 115 1.1 140 -1.1 141 -1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
150 0.9 145 1.5 146 1.5
LOAD COMB 2111 1.1(DL+EO-TLSX-TLSZ+HL+VL)+1.5(LL-0.6TLT+TLFX+TLFZ)
100 1.1 115 1.1 140 -1.1 141 -1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
150 -0.9 145 1.5 146 1.5
LOAD COMB 2112 1.1(DL+EO-TLSX-TLSZ+HL+VL)+1.5(LL-0.6TLT-TLFX-TLFZ)
100 1.1 115 1.1 140 -1.1 141 -1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
150 -0.9 145 -1.5 146 -1.5
*
* ULS EQU OPE - WIND (OVERTURNING) **********
LOAD COMB 2113 0.9(DL+EO+TLSX+TLSZ+HL+VL)+1.5WLX
100 0.9 115 0.9 140 0.9 141 0.9 210 0.9 190 0.9 191 0.9 192 0.9 160 1.5
LOAD COMB 2114 0.9(DL+EO-TLSX-TLSZ+HL+VL)-1.5WLX
100 0.9 115 0.9 140 -0.9 141 -0.9 210 0.9 190 0.9 191 0.9 192 0.9 160 -1.5
LOAD COMB 2115 0.9(DL+EO+TLSX+TLSZ+HL+VL)+1.5WLZ
100 0.9 115 0.9 140 0.9 141 0.9 210 0.9 190 0.9 191 0.9 192 0.9 161 1.5
LOAD COMB 2116 0.9(DL+EO-TLSX-TLSZ+HL+VL)-1.5WLZ
100 0.9 115 0.9 140 -0.9 141 -0.9 210 0.9 190 0.9 191 0.9 192 0.9 161 -1.5
*
* ULS EQU OPE - LIVE **********
LOAD COMB 2117 1.1(DL+EO+TLSX+TLSZ+HL+VL)+1.5(LL+0.6IL)
100 1.1 115 1.1 140 1.1 141 1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
185 0.9
LOAD COMB 2118 1.1(DL+EO-TLSX-TLSZ+HL+VL)+1.5(LL+0.6IL)
100 1.1 115 1.1 140 -1.1 141 -1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
185 0.9
*

```
* ULS EQU OPE - LIVE (NO INSTANTANEOUS ACTIONS) ******************************
LOAD COMB 2119 1.1(DL+EO+TLSX+TLSZ+HL+VL)+1.5(LL+0.6TLT+0.6TLFX+0.6TLFZ)
100 1.1 115 1.1 140 1.1 141 1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
150 0.9 145 0.9 146 0.9
LOAD COMB 2120 1.1(DL+EO+TLSX+TLSZ+HL+VL)+1.5(LL-0.6TLT+0.6TLFX+0.6TLFZ)
100 1.1 115 1.1 140 1.1 141 1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
150 -0.9 145 0.9 146 0.9
LOAD COMB 2121 1.1(DL+EO+TLSX+TLSZ+HL+VL)+1.5(LL-0.6TLT-0.6TLFX-0.6TLFZ)
100 1.1 115 1.1 140 1.1 141 1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
150 -0.9 145 -0.9 146 -0.9
LOAD COMB 2122 1.1(DL+EO-TLSX-TLSZ+HL+VL)+1.5(LL+0.6TLT+0.6TLFX+0.6TLFZ)
100 1.1 115 1.1 140 -1.1 141 -1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
150 0.9 145 0.9 146 0.9
LOAD COMB 2123 1.1(DL+EO-TLSX-TLSZ+HL+VL)+1.5(LL-0.6TLT+0.6TLFX+0.6TLFZ)
100 1.1 115 1.1 140 -1.1 141 -1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
150 -0.9 145 0.9 146 0.9
LOAD COMB 2124 1.1(DL+EO-TLSX-TLSZ+HL+VL)+1.5(LL-0.6TLT-0.6TLFX-0.6TLFZ)
100 1.1 115 1.1 140 -1.1 141 -1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
150 -0.9 145 -0.9 146 -0.9
*
* ULS EQU OPE - WIND ***********************************************************
LOAD COMB 2125 1.1(DL+EO+TLSX+TLSZ+HL+VL)+1.5(LL+WLX+0.6IL)
100 1.1 115 1.1 140 1.1 141 1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
160 1.5 185 0.9
LOAD COMB 2126 1.1(DL+EO-TLSX-TLSZ+HL+VL)+1.5(LL-WLX+0.6IL)
100 1.1 115 1.1 140 -1.1 141 -1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
160 -1.5 185 0.9
LOAD COMB 2127 1.1(DL+EO+TLSX+TLSZ+HL+VL)+1.5(LL+WLZ+0.6IL)
100 1.1 115 1.1 140 1.1 141 1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
161 1.5 185 0.9
LOAD COMB 2128 1.1(DL+EO+TLSX+TLSZ+HL+VL)+1.5(LL-WLZ+0.6IL)
100 1.1 115 1.1 140 1.1 141 1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
161 -1.5 185 0.9
*
* ULS EQU OPE - SNOW ************************************************************
LOAD COMB 2129 1.1(DL+EO+TLSX+TLSZ+HL+VL)+1.5(LL+0.6IL+SL)
100 1.1 115 1.1 140 1.1 141 1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
185 0.9 125 1.5
LOAD COMB 2130 1.1(DL+EO-TLSX-TLSZ+HL+VL)+1.5(LL+0.6IL+SL)
100 1.1 115 1.1 140 -1.1 141 -1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
185 0.9 125 1.5
*
* ULS EQU OPE - IMPACT *********************************************************
LOAD COMB 2131 1.1(DL+EO+TLSX+TLSZ+HL+VL)+1.5(LL+IL)
100 1.1 115 1.1 140 1.1 141 1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
185 1.5
LOAD COMB 2132 1.1(DL+EO-TLSX-TLSZ+HL+VL)+1.5(LL+IL)
100 1.1 115 1.1 140 -1.1 141 -1.1 210 1.1 190 1.1 191 1.1 192 1.1 130 1.5 -
185 1.5
*
*
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ROTTERDAM SITE DEVELOPMENT
NESTE

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********************************************** TEST ULS EQU **************
*****************************************************************************
* ULS EQU TEST - VERTICAL (PERMANENT) ***************************************
LOAD COMB 2200 1.1(DL+ET+HL)
100 1.1 120 1.1 210 1.1
*
* ULS EQU TEST - WIND-REDUCED VALUE (OVERTURNING) ****************************
LOAD COMB 2201 0.9(DL+ET+HL)+1.5WLX50%
100 0.9 120 0.9 210 0.9 162 1.5
LOAD COMB 2202 0.9(DL+ET+HL)-1.5WLX50%
100 0.9 120 0.9 210 0.9 162 -1.5
LOAD COMB 2203 0.9(DL+ET+HL)+1.5WLZ50%
100 0.9 120 0.9 210 0.9 163 1.5
LOAD COMB 2204 0.9(DL+ET+HL)-1.5WLZ50%
100 0.9 120 0.9 210 0.9 163 -1.5
*
* ULS EQU TEST - LIVE *******************************************************
LOAD COMB 2205 1.1(DL+ET+HL)+1.5(LL+0.6IL)
100 1.1 120 1.1 210 1.1 130 1.5 185 0.9
*
* ULS EQU TEST - WIND-REDUCED VALUE *****************************************
LOAD COMB 2206 1.1(DL+ET+HL)+1.5(LL+WLX50%+0.6IL)
100 1.1 120 1.1 210 1.1 130 1.5 162 1.5 185 0.9
LOAD COMB 2207 1.1(DL+ET+HL)+1.5(LL-WLX50%+0.6IL)
100 1.1 120 1.1 210 1.1 130 1.5 162 -1.5 185 0.9
LOAD COMB 2208 1.1(DL+ET+HL)+1.5(LL+WLZ50%+0.6IL)
100 1.1 120 1.1 210 1.1 130 1.5 163 1.5 185 0.9
LOAD COMB 2209 1.1(DL+ET+HL)+1.5(LL-WLZ50%+0.6IL)
100 1.1 120 1.1 210 1.1 130 1.5 163 -1.5 185 0.9
*
* ULS EQU TEST - SNOW *******************************************************
LOAD COMB 2210 1.1(DL+ET+HL)+1.5(LL+0.6IL+SL)
100 1.1 120 1.1 210 1.1 130 1.5 185 0.9 125 1.5
*
* ULS EQU TEST - IMPACT *****************************************************
LOAD COMB 2211 1.1(DL+ET+HL)+1.5(LL+IL)
100 1.1 120 1.1 210 1.1 130 1.5 185 1.5
*
*
*
*****************************************************************************
********************************************** MAINTENANCE ULS EQU **********
*****************************************************************************
*
* ULS EQU MAINTENANCE - MAINTENANCE (OVERTURNING) ****************************
LOAD COMB 2250 0.9(DL+EE+HL)+1.5(LL+ML+BL+0.6IL)
100 0.9 110 0.9 210 0.9 130 1.5 180 1.5 195 1.5 185 0.9
*
* ULS EQU MAINTENANCE - MAINTENANCE *****************************************
LOAD COMB 2251 1.1(DL+EE+HL)+1.5(LL+ML+BL+0.6IL)
100 1.1 110 1.1 210 1.1 130 1.5 180 1.5 195 1.5 185 0.9
*
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ROTTERDAM SITE DEVELOPMENT
NESTE

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*********************************************************************************
PERFORM ANALYSIS PRINT ALL
*
*********************************************************************************
LOAD LIST 300 TO 314 400 TO 432 500 TO 511 550
PRINT STORY DRIFT
*
*********************************************************************************
*
*
*********************************************************************************
************************** ENVELOPES ***************************************
*********************************************************************************
DEFINE ENVELOPE
*ENVELOPE 1 FOR SERVICEABILITY CHECKS
300 TO 314 400 TO 432 500 TO 511 550 ENVELOPE 1 TYPE SERVICEABILITY
*ENVELOPE 2 FOR STR/GEO CHECKS
1000 TO 1020 1100 TO 1155 1200 TO 1214 1250 TO 1252 ENVELOPE 2 TYPE STRENGTH
*ENVELOPE 3 FOR EQU CHECKS
2000 TO 2014 2100 TO 2132 2200 TO 2211 2250 2251 ENVELOPE 3 TYPE STRENGTH
END DEFINE ENVELOPE
*
FINISH
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