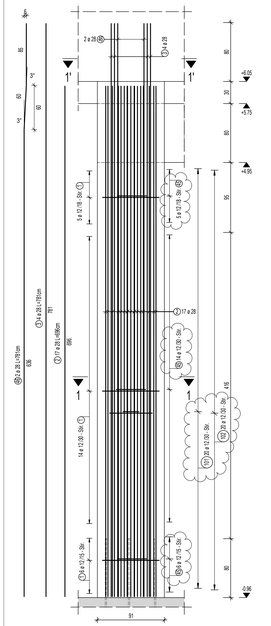
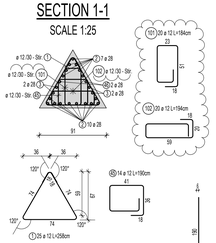
COLUMN POS. NEGS09
AXIS N.e/ N.10-N.11
a = 91 cm, C50/60, Cv=3.5cm
SCALE 1:25



SECTION 1-1
SCALE 1:25



SECTION 1'-1'
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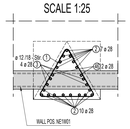
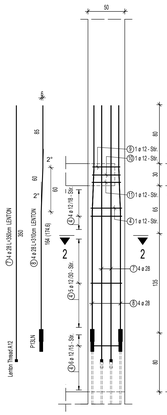
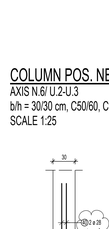


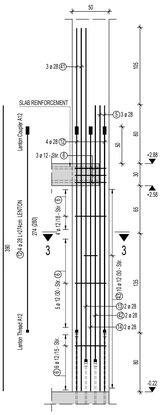
COLUMN POS. NEGS10
AXIS N.e/ N.10
b/h = 35/50 cm, C50/60, Cv=3.5cm
SCALE 1:25



SECTION 2-2
SCALE 1:25

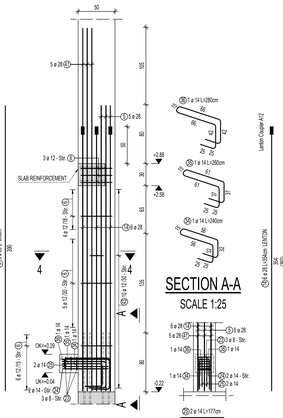


COLUMN POS. NEGS11
AXIS N.e/ N.8
b/h = 30/50 cm, C50/60, Cv=3.5cm
SCALE 1:25



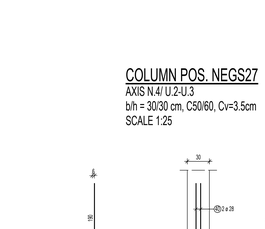
SECTION 3-3
SCALE 1:25

COLUMN POS. NEGS12
AXIS N.e/ N.6
b/h = 30/50 cm, C50/60, Cv=3.5cm
SCALE 1:25

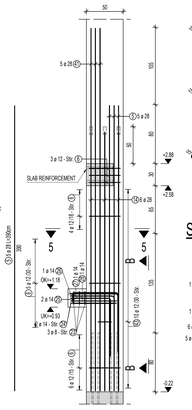


SECTION A-A
SCALE 1:25

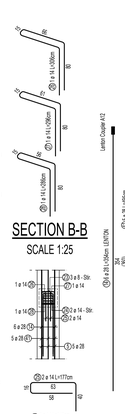
SECTION 4-4
SCALE 1:25



COLUMN POS. NEGS13
AXIS N.e/ N.5
b/h = 30/50 cm, C50/60, Cv=3.5cm
SCALE 1:25

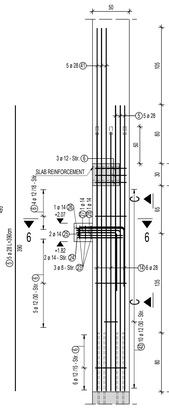


SECTION B-B
SCALE 1:25

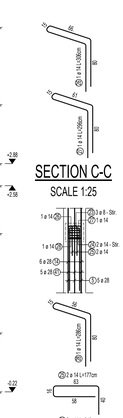


SECTION 5-5
SCALE 1:25

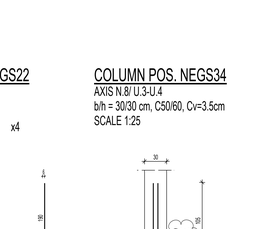
COLUMN POS. NEGS14
AXIS N.e/ N.4
b/h = 30/50 cm, C50/60, Cv=3.5cm
SCALE 1:25



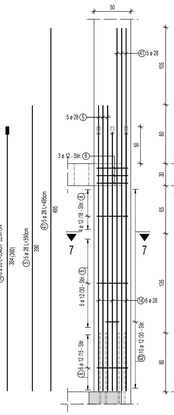
SECTION C-C
SCALE 1:25



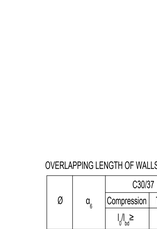
SECTION 6-6
SCALE 1:25



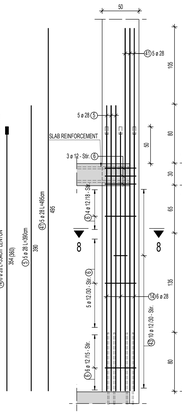
COLUMN POS. NEGS15
AXIS N.e/ N.d
b/h = 30/50 cm, C50/60, Cv=3.5cm
SCALE 1:25



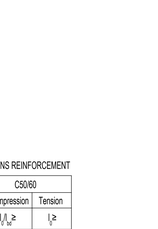
SECTION 7-7
SCALE 1:25



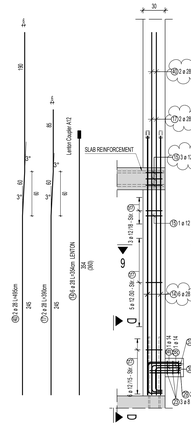
COLUMN POS. NEGS16
AXIS U2-U3/ N.d
b/h = 30/50 cm, C50/60, Cv=3.5cm
SCALE 1:25



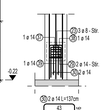
SECTION 8-8
SCALE 1:25



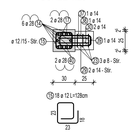
COLUMN POS. NEGS25
AXIS N.6/ U.2-U.3
b/h = 30/30 cm, C50/60, Cv=3.5cm
SCALE 1:25



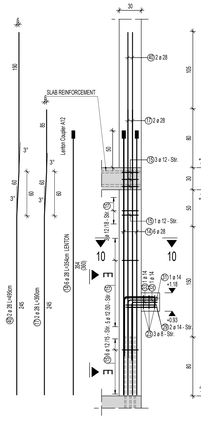
SECTION D-D
SCALE 1:25



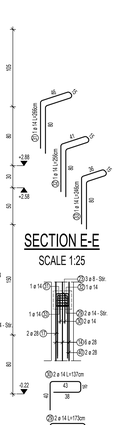
SECTION 9-9
SCALE 1:25



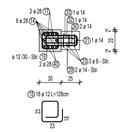
COLUMN POS. NEGS26
AXIS N.5/ U.2-U.3
b/h = 30/30 cm, C50/60, Cv=3.5cm
SCALE 1:25



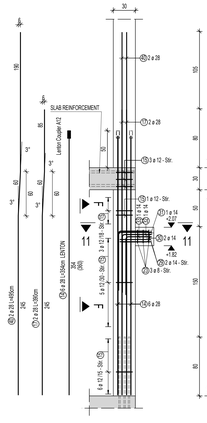
SECTION E-E
SCALE 1:25



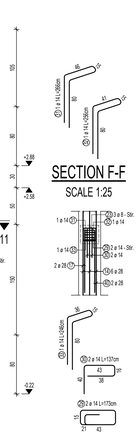
SECTION 10-10
SCALE 1:25



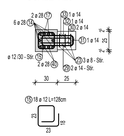
COLUMN POS. NEGS27
AXIS N.4/ U.2-U.3
b/h = 30/30 cm, C50/60, Cv=3.5cm
SCALE 1:25



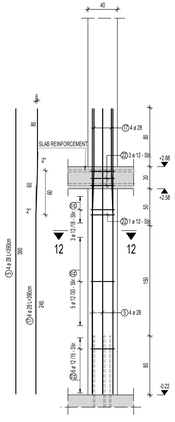
SECTION F-F
SCALE 1:25



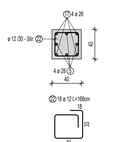
SECTION 11-11
SCALE 1:25



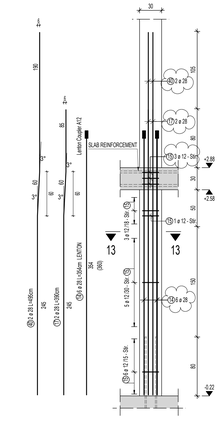
COLUMN POS. NEGS21, POS. NEGS22 POS. NEGS23, POS. NEGS24
AXIS N.4-N.8/ U.3-U.4
b/h = 40/40 cm, C50/60, Cv=3.5cm x4
SCALE 1:25



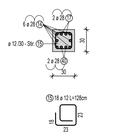
SECTION 12-12
SCALE 1:25



COLUMN POS. NEGS34
AXIS N.8/ U.3-U.4
b/h = 30/30 cm, C50/60, Cv=3.5cm
SCALE 1:25



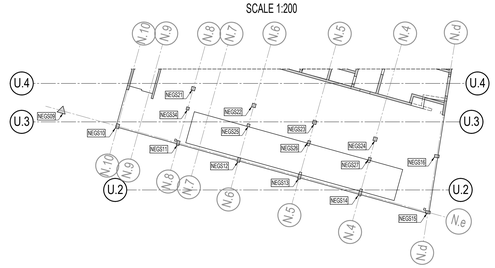
SECTION 13-13
SCALE 1:25



OVERLAPPING LENGTH OF WALLS AND COLUMNS REINFORCEMENT

Ø	α_s	C30/37 Compression $l_0/l_{0,min}\geq$	C30/37 Tension $l_0\geq$	C50/60 Compression $l_0/l_{0,min}\geq$	C50/60 Tension $l_0\geq$
[mm]	[-]	[cm]	[cm]	[cm]	[cm]
8	1,4	30	40	20	30
10		40	50	25	35
12		45	60	35	45
14		55	75	40	55
16	2,0	60	120	45	65
20		75	145	55	105
25		90	180	65	130
28		100	200	75	145

OVERVIEW PLAN
SCALE 1:200



Minimum values of the bending roll diameter Dmin for bending bars once — BS EN 1992-1-1 Tab. 8.1 BS a)

	Hooks, angled hooks, Loops (D_{min})	Inclined bars or other bent bars (D_{min})
	Bar Diameter ø	Minimum values of the concrete cover perpendicular to the curvature plane
	< 20 mm	≥ 20 mm	> 100 mm > 7 ø	> 50 mm > 3 ø	≤ 50 mm ≤ 3 ø
Normal concrete	4 ø	7 ø	10 ø	15 ø *	20 ø

* If the value "D_{min} = 15 x ø" applied, it should be shown in bending steel list.

Minimum values of the bending roll diameter Dmin for welded bent reinforcement and mesh bent after welding — BS EN 1992-1-1 Tab. 8.1 BS b)

	Predominantly stationary effects		Predominantly non-stationary effects	
	Welding outside the bending area	Welding inside the bending area	Welding on the outer side of the bend	Welding on the inner side of the bend
for a < 4 ø	20 ø	20 ø	100 ø	500 ø
for a ≥ 4 ø	Value on Table 8.1 BS a)			

Component	Alignment	Concrete	Exposure Classes	c_{nom} To [mm]	Δc_{dev} [mm]	c_{nom} [mm]	Waterproofing
Roofing	Top	C30/37	XC3	20	15	35	WO
	Bottom		XC1	10	10	20	WO
Slab above floors	Top/Bottom	C30/37	XC1	10	10	20	WO
	Bottom (Parking)			10	10	20	WO
Slab above underground parking	Top (Soil)	C30/37	XC2	20	15	35	WO [1]
	Top		XC1	10	10	20	WO
	Bottom (Parking)		XC3, XF1	20	15	35	WF
Stairs	Top/Bottom	C20/25	XC1	10	10	20	WO
Walls / Columns	Inside	C30/37 (WP) C50/60	XC1	10	10	20	WO
	Outside		XC1	10	10	20	WO
	Outside, Soil		XC2, XF1	20	15	35	WF
	Parking		XC3, XF2	20	15	35	WF
Bottom plate under basement	Top	C30/37-C35/45 WP	XC1	10	10	20	WO
	Bottom (Soil)		XC2, XA1, XF1	15-20	15	30-35	WF
Bottom plate under parking	Top (Parking)	C30/37-C35/45 WP	XC3, XD1, XF1	40	15	55	WF
	Bottom (Soil)		XC2, XA1, XF1	15-20	15	30-35	WF
Ramps	Top	C35/45	XC3, XD3, XF2	40	15	55	WF
	Bottom		XC3, XF1	20	15	35	WF
Elevator pits	Inside, Top	C30/37 WP	XC1	10	10	20	WO
	Outside, Bottom		XC2, XA1, XF1	20	15	35	WF
Steel grade	B 500 A						

[1] Waterproofing in accordance with DBV leaflet "Car parks and underground car parks" from 2018, with maintenance plan and Repair of cracks and defects. Locally occurring cracks must be permanently closed by suitable measures
[2] Black waterproofing in accordance with BS 8500-1/BS8102 and DBV leaflet as specified by the architect
[3] For XC2+XC3, reduce by 5mm due to 2 strength classes above C20/25. Observe bond strength

A coefficient of friction of μ=0.60 was used to determine the crack-width-limiting reinforcement of the floor slab and a concrete with slow strength development was assumed (= β_{cc}(t) factor 0.85), which reaches around 70% of the tensile strength after 7 days (f_{ctm}(t) =0.85 x 0.70f_{ctm} for slow hardening).
The average strength development of the concrete is assumed for the other components (f_{ctm}(t) ≥ 0.70f_{ctm} for normal hardening).

General notes:
- All construction joints must be rough in accordance with BS EN 1992-1-1, Section 6.2.5 (unless otherwise specified)
- All dimensions of the reinforcing steel are external dimensions
- U-kinds must always be offset (unless otherwise specified)
- The specified concrete covers must be observed. The reinforcement must be installed in such a way that its position is secured (see BS EN 13670 in conjunction with BS 1054-3 Chapter 2.6.5 or DBV leaflet on concrete cover and reinforcement)
- The reinforcement is installed according to layers and not according to item numbers

Abbreviation
V.S. - Vertical starter
H.S. - Horizontal starter
Top. - Top layer
Bot. - Bottom layer
Add. - Additional reinforcement
Stir. - Stirrup
M.S. - Mounting spacer
C.J. - Construction joint
WS. - Waterstop
WP - Waterproof

Legend: Index cloud, Clearing cloud

Notice :
Please apply low-shrinkage, slow-hardening for Waterproof (WP) concrete in construction

MATERIALS/COMPONENT
Reinforced Concrete
Unreinforced Concrete
Prefabricated elements
Masonry
Non-load bearing walls
Upper reinforced concrete components
Construction joint

Related plans:
Reinforcement plans number:

REV.	DESCRIPTION	DATE
-	First delivery	31.07.2020
1	Approval with comments	20.08.2020

Project	Stage	Phase	Type	Level	Component	Plan number	Index	Status
HMO	TWP	7	BW	EG	N1	431	1	F

EXECUTION PLANNING

Builder

General contractor

Plan author | Specialist planner

Project
HBF Münster Ostseite

Reference plan / external reference

Overview Plan

GF FFL = 59,02 m AMSL
Measured water level = 57,00 m AMSL
AMSL - Above mean sea level

Plan content	Plan author	Date	Index
REINFORCEMENT OF COLUMNS IN GROUND FLOOR - NORTH 1 COMPONENT NORTH 1		31.07.2020	1
	Scale: 1:25	Filename: HMO_TWP_7_BW_EG_N1_431_1_F	

H/W = 841 / 1400 (1.18m²) Allplan 2020