

MAITRE D'OUVRAGE:

Caen la Mer Habitat
1 Place Jean Nouzille
14000 Caen

ENTREPRISE GENERALE:

BOUYGUES BATIMENT GRAND OUEST
Allée du Grand Clos – 14320 Saint-André-sur-Orne
T.: 02 78 96 08 23
Fax: 02 31 52 96 53

23 LOGEMENTS

59, Avenue de la Libération – Caen



MAITRE D'OEUVRE		
MILLET CHILOU & ASSOCIES Architecte	8, Rue du Blanc 14000 Caen Tél.: 02 31 74 42 62 / Fax: 02 32 74 84 34 Email: accueil@mca-architectes.com	
BOULARD BET Fluides & Thermique	4, Longue vue des architectes 14111 Louvigny Tél.: 02 31 23 61 56 Email: etudes@boulard14.com	
BADER BET Fluides Electricité	4, Longue vue des architectes 14111 Louvigny Tél.: 09 53 20 89 49 / Fax: 09 58 20 89 49	
IBATEC-BETON BET STRUCTURE	15, Rue Karl Probst 14000 Caen Tél.: 02 31 35 24 25 / Fax: 02 31 35 24 29 Email: mehdi@ibatec-beton.fr	

CONTROLE		
VERITAS Bureau de contrôle	4, Place de Boston – BP62 14203 Hérouville-St-Clair Cedex Tél : 02 31 94 91 21	
DEKRA SPS	4, rue Alfred Kastler 14000 Caen Tél : 02 31 35 27 00	
BUREAU D'ETUDES EXE		
3, Rue du Thiers 61300 L'Aigle Tél. : 02 33 24 40 38 Fax : 02 33 34 45 48		

PLANCHER HAUT SOUS-SOL : ARMATURES LONGRINES & DALLES

Date	08/08/17				Échelle	-
Phase	Lot	Nature	Emetteur	Niveau	N°	Indice
EXE	02	DET	SEM	SSO	0203	A

DATE	INDICE	OBJET DE LA MODIFICATION
21/07/17	0	Première diffusion
08/08/17	A	Mise à jour suite aux remarques de BBGO

CAEN HABITAT

1, place Jean Nouzille - 14052 CAEN



MILLET - CHILOU & ASSOCIÉS

SARL d'Architecture

Siège social : 8, rue du Blanc 14000 CAEN
SIRET 502 658 263 00012 RCS CAEN APB 71112

Tel 02.31.74.42.62 Fax 02.31.74.84.34
E.mail : accueil@mca-architectes.com

Entreprise :



BOUYGUES BÂTIMENT
Allée du Grand Clos
14320 ST ANDRE SUR ORNE
Tel : 02.31.78.96.20 - Fax : 02.31.52.96.53

Construction de 23 logements

59, Avenue de la Libération - 14000 CAEN

LONGRINES - DALLES

ARMATURES

COUPES
VUE EN PLAN

Plan :

A
2.03

Ind.	Date	Modifications	Date :
A	07/07/17	M à J suite remarques ent. Bouygues	21/07/17
			Format :
			A4
			Affaire :
			17042
			Suivi par :
			LEFAUCHEUX Quentin

3, rue du Thiers
61300 L'AIGLE

Tél: 02 33 24 40 38
Fax: 02 33 34 45 48
e-mail: contact@bet-semo.fr

Béton=0.43 m³
Acier=87.9 kg d=204.5 kg/m³
Fi=11.8 mm Cof=4.8 m²

Eb=3.5 cm	$\frac{33}{33}$
Eh=3.5 cm	
El=3.5 cm	

02 33 21 40 30
contact@el-semo.fr

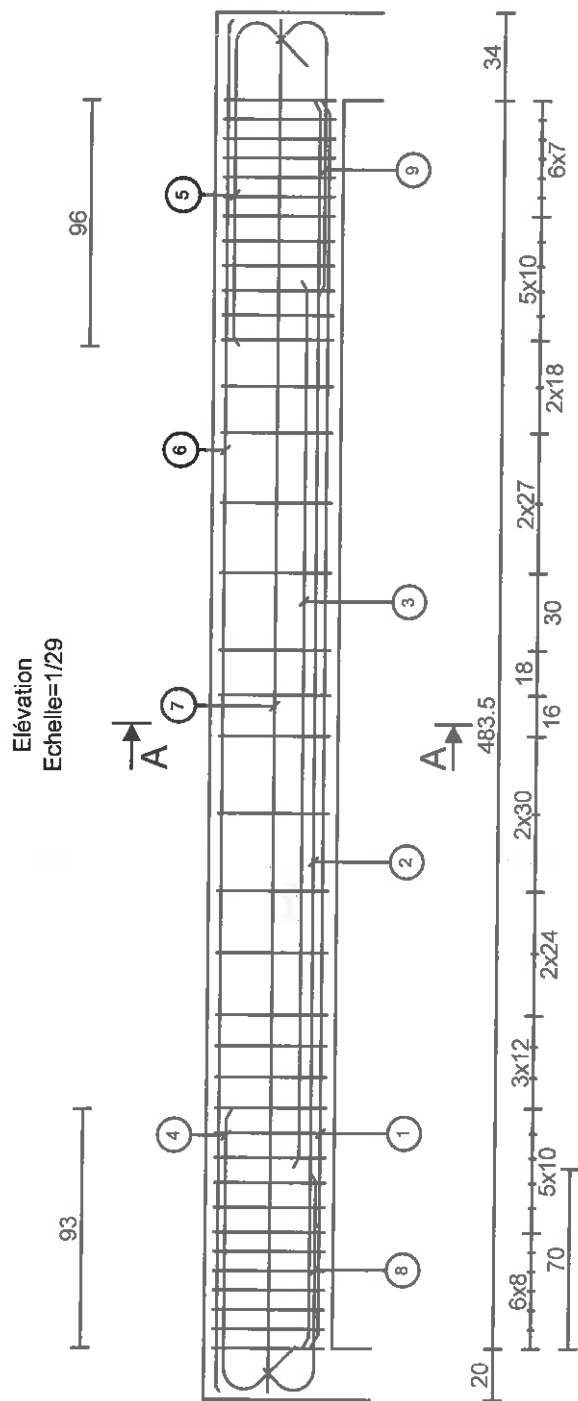
Date 03/05/17 - 7 étages -

Section: 20 x 50ht

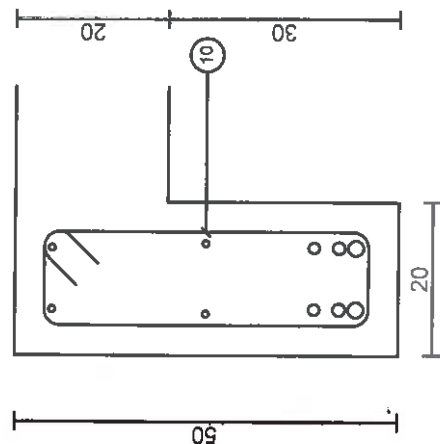
Classe d'exposition: XC2











June 27, 1977

Classe d'exposition: XC2



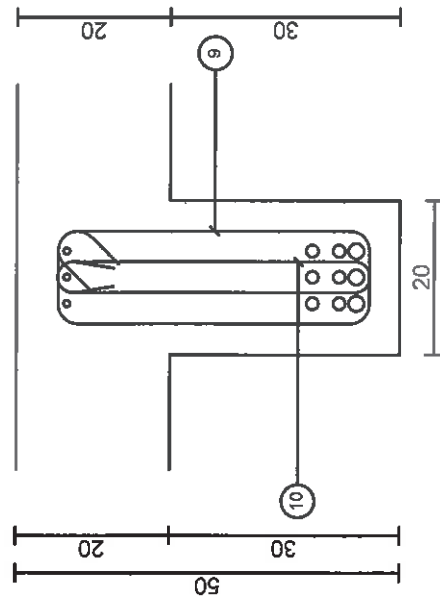
Coupe A-A
Echelle=1/10













Barre		Lg	Forme
1	2HA20	483	
2	2HA16	483	
3	2HA14	344	
4	2HA14	139	
5	2HA14	156	
6	2HA8	532	
7	2HA8	532	
8	2HA16	104	
9	2HA16	125	
10	37HA8	122	
Barre		Lg/Poids	
HA8		66.3/28.1	
HA14		12.8/15.4	
HA16		14.3/22.5	
HA20		9.7/23.8	

Section : 20 x 50ht

fck= 25 MPa	fyk= 500 MPa	Classe de ductilité A	Classe d'exposition: XC2
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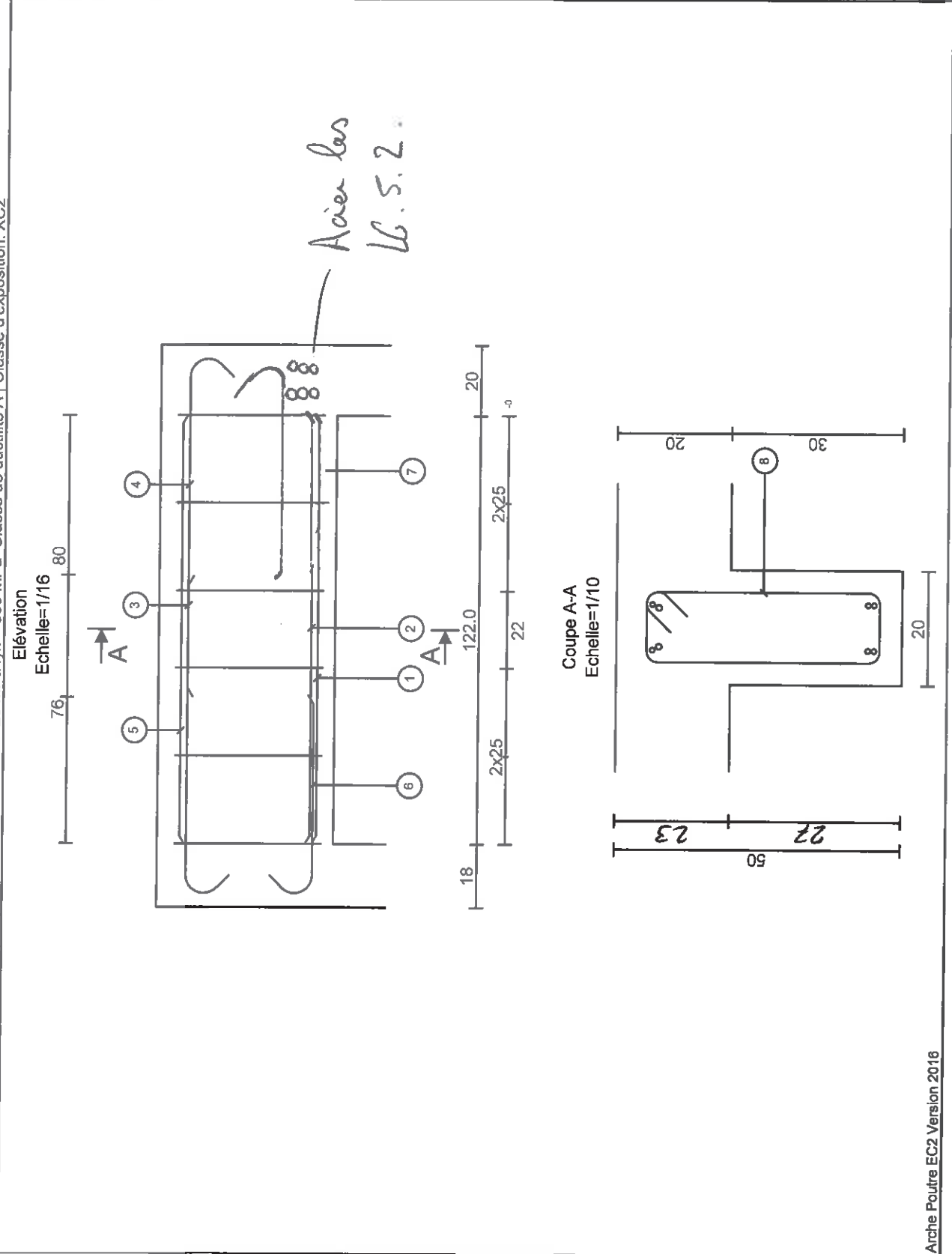


Barre		Lg	Forme
1	3HA20	481	
2	3HA16	481	
3	3HA16	441	
4	3HA16	177	
5	3HA16	180	
6	3HA8	481	
7	3HA16	125	
8	3HA16	133	
9	28HA10	119	
10	28HA8	103	
Barre		Lg/Poids	43.2/17.1 33.2/20.5 46.1/72.7 14.4/35.6

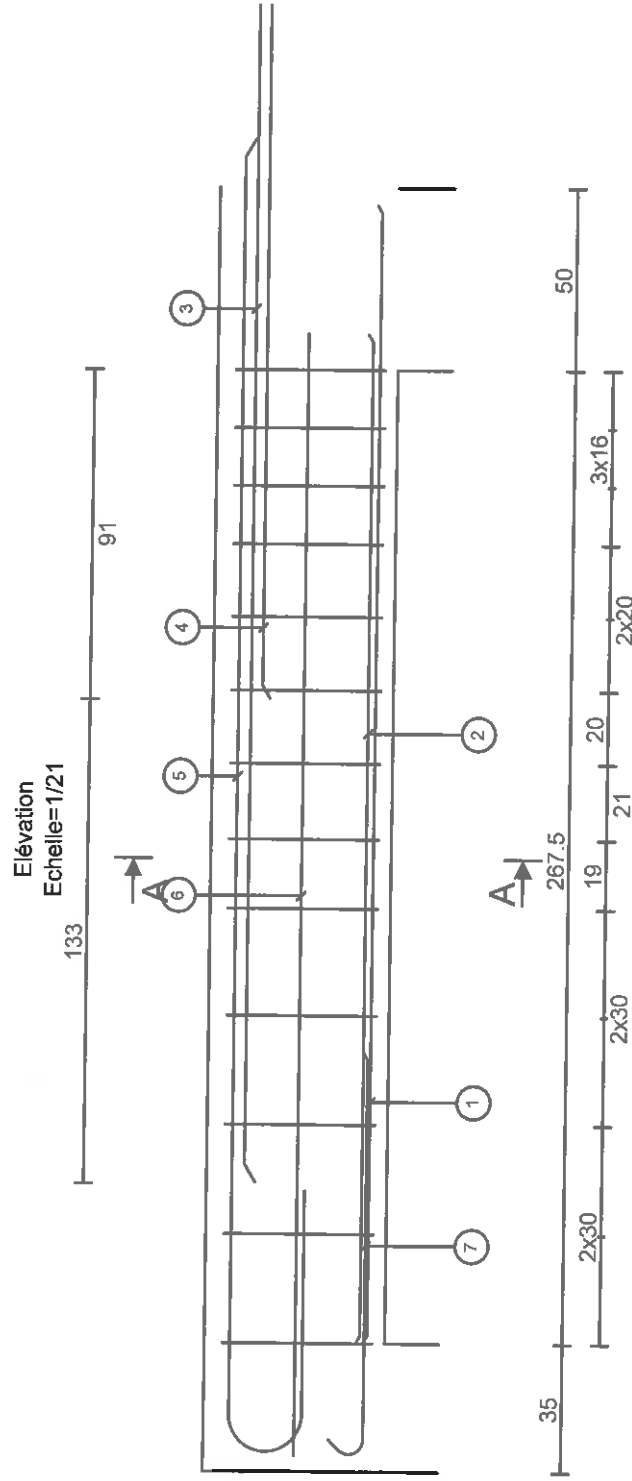
- Date 03/05/17 - 7 étages -
 Section : 20 x 50ht

fck= 25 MPa fyk= 500 MPa Classe de ductilité A | Classe d'exposition: XC2

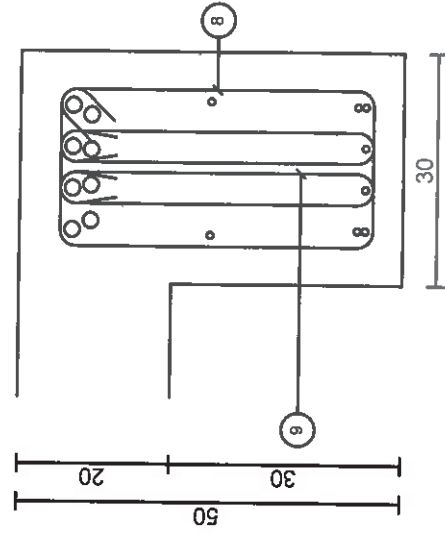
Barre	Lg	Forme
1 2HA8	122	122
2 2HA8	122	122
3 2HA10	102	122
4 2HA10	108	135° 10 97
5 2HA8	122	122
6 2HA10	68	135° 10 57
7 2HA10	70	135° 10 59
8 6HA8	119	13



Section : 30 x 30 cm			
fck = 25 MPa	fyk = 500 MPa	Classe de ductilité A	Classe d'exposition: XC2



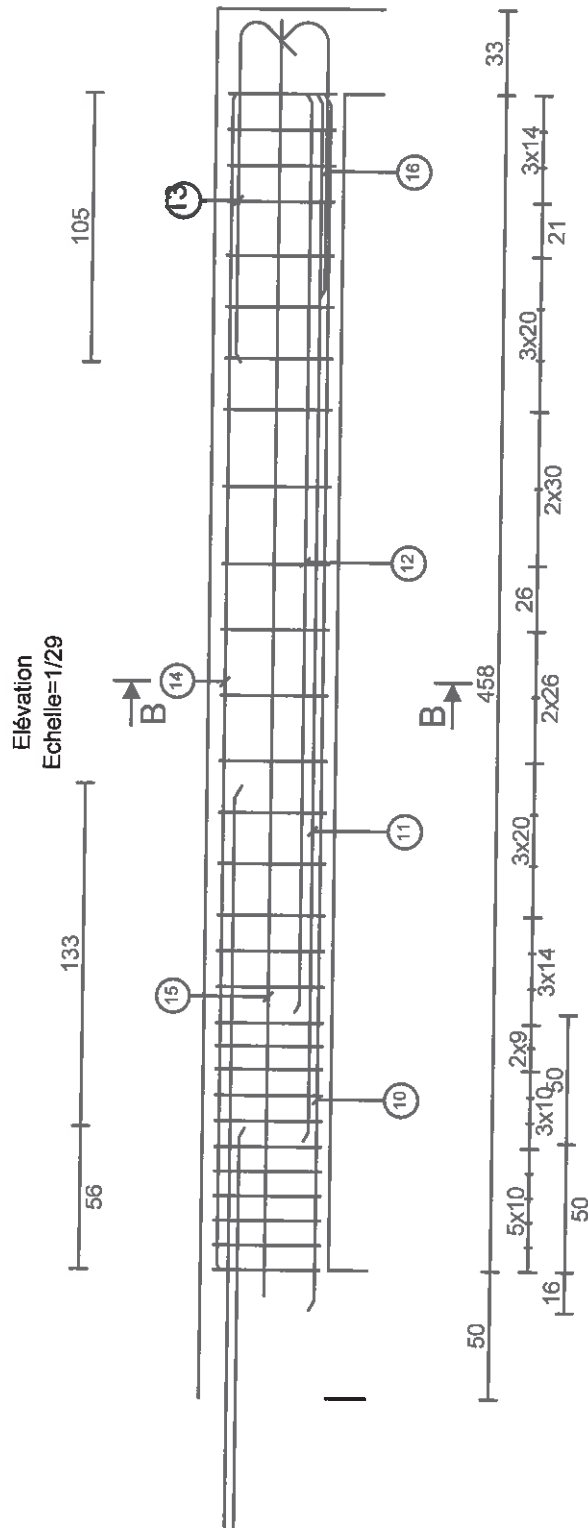
Coupe A-A
Echelle=1/10



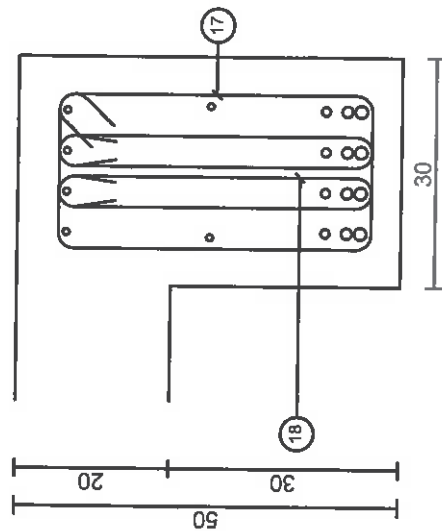
Barre		Lg	Forme
1	4HA8	313	313
2	2HA8	278	278
3	4HA20	463	463
4	4HA14	196	196
5	4HA20	444	72 200 382 180
6	2HA8	308	308
7	4HA8	120	8 135 111
8	13HA8	135	41 21
9	26HA8	103	42
Barre		Lg/Poids	
HA8 HA14 HA20		73.3/28.9 7.9/6.5 36.3/69.4	










- Date 03/05/17 - 7 étages -
Section : 30 x 50ht

Section : 30 x 30 cm			
$f_{ck} = 25 \text{ MPa}$	$f_{yk} = 500 \text{ MPa}$	Classe de ductilité A	Classe d'exposition: XC2



Coupe B-B
Echelle=1/10



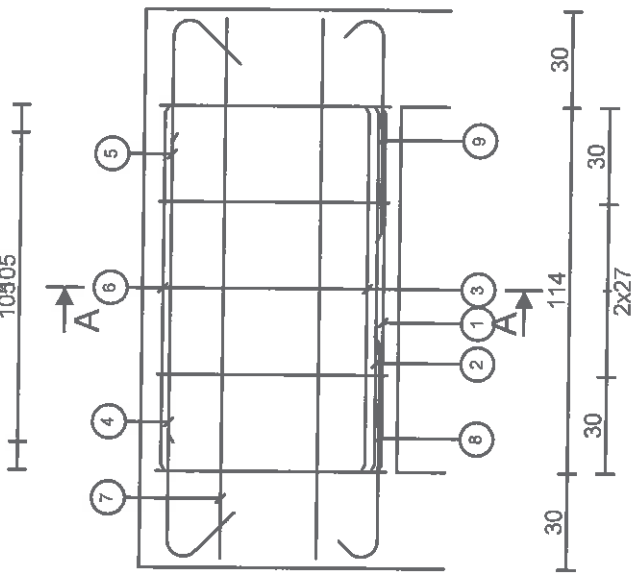
Barre		Lg	Forme
10	4HA16	474	
11	4HA14	408	
12	4HA12	358	
13	4HA12	156	
14	4HA8	458	
15	2HA8	497	
16	4HA14	126	
17	29HA8	135	
18	58HA8	103	
Barre		Lg/Poids	
HA8	127.0/50.1		
HA12	20.6/18.3		
HA14	21.3/25.8		
HA16	19.0/29.9		

- Date 03/05/17 - 7 étages -
 Section : 15 x 80ht

fck= 25 MPa fyk= 500 MPa Classe de ductilité A | Classe d'exposition: XC2

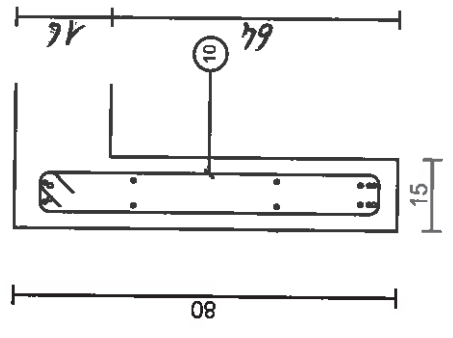
Elévation

Echelle=1/23
 10305



Coupe A-A

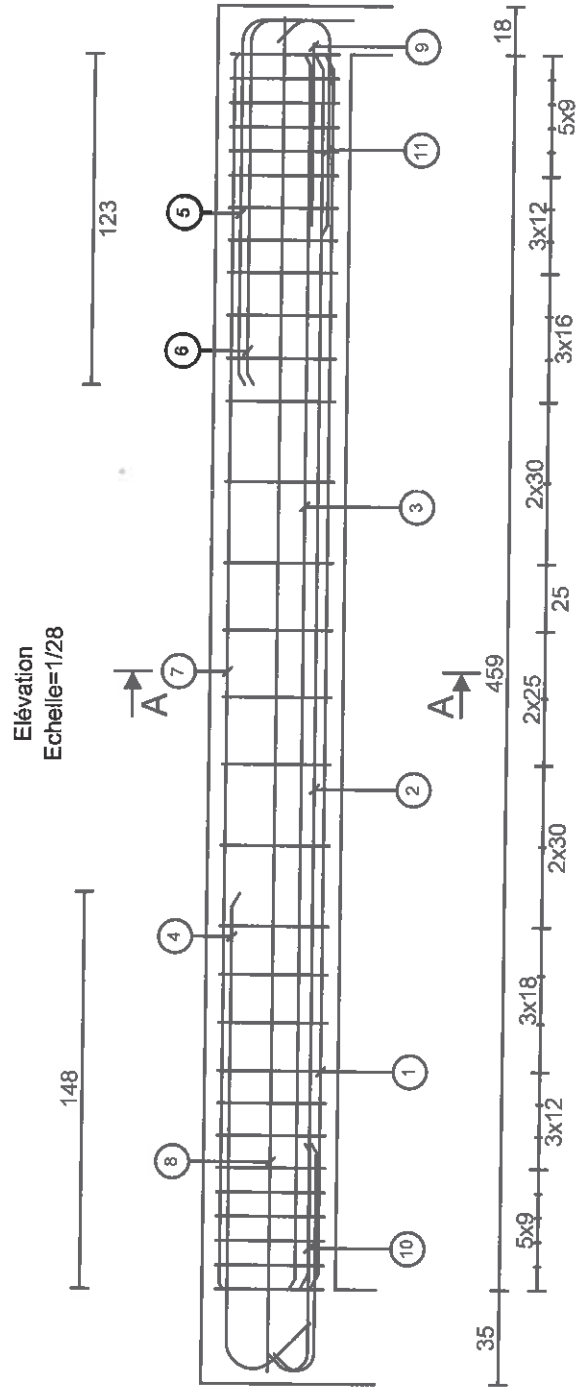
Echelle=1/16



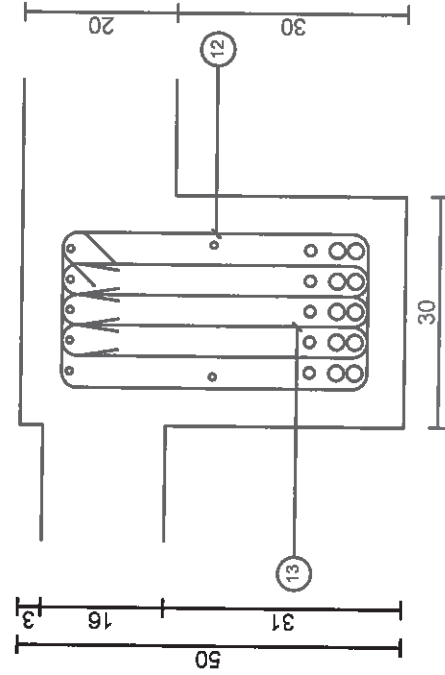
	Barre	Lg	Forme
1	2HA8	114	114
2	2HA8	114	114
3	2HA8	114	114
4	2HA10	156	114
5	2HA10	156	132
6	2HA8	114	114
7	4HA8	168	168
8	2HA10	81	135
9	2HA10	81	135
10	5HA8	171	9
Barre		Lg/Poids	
HA8		24.4/9.8	
HA10		9.5/5.8	














- Date 03/05/17 - 7 étages -
Section: 30 x 50ht

Section: 30 x 50 cm	
$f_{ck} = 25 \text{ MPa}$	$f_{yk} = 500 \text{ MPa}$
Classe de ductilité A	
Classe d'exposition: XC2	

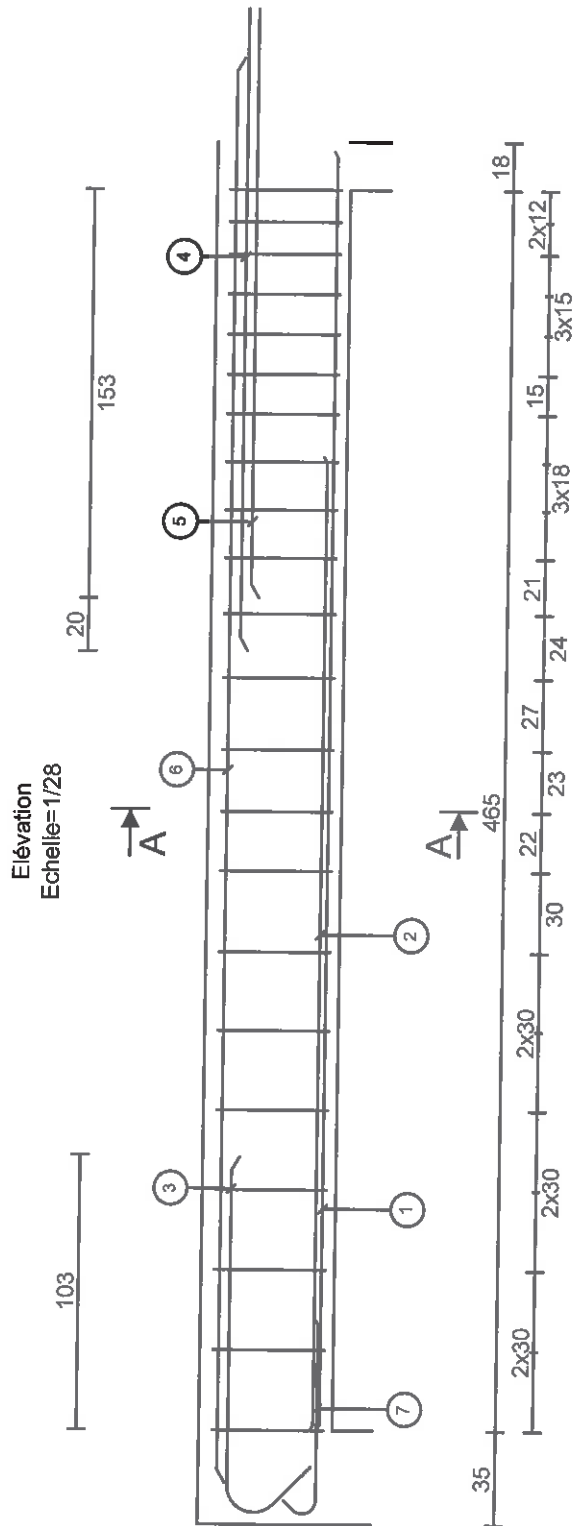


Coupe A-A
Echelle=1/10

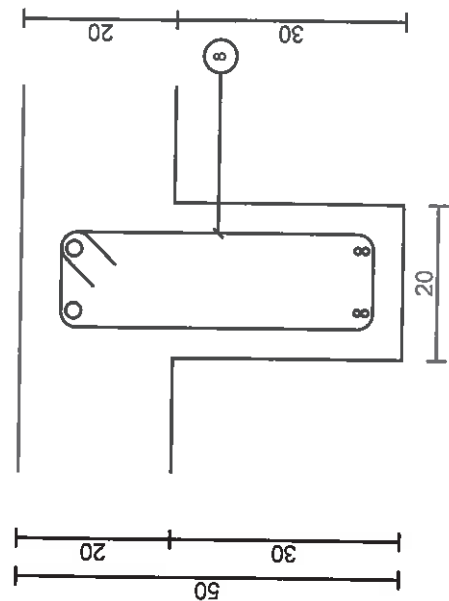










Barre		Lg	Forme
1	5HA20	459	 459
2	5HA20	459	 459
3	5HA14	459	 459
4	5HA20	211	 211
5	5HA16	170	 170
6	5HA16	170	 170
7	5HA8	459	 459
8	2HA8	503	 503
9	1HA16	147	 147
10	10HA12	99	 99
11	5HA16	99	 99
12	30HA8	133	 133
13	90HA8	101	 101
Barre		Lg/Poids	
HA8		163.6/64.6	
HA12		9.9/8.8	
HA14		22.9/27.7	
HA16		23.5/37.0	
HA20		56.4/139.2	

fck=	25 MPa	f _{yk} =	500 MPa	Classe de ductilité A	Classe d'exposition: XC2
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Coupe A-A
Echelle=1/10



Barre		Lg	Forme
1	2HA8	480	
2	2HA8	365	
3	1HA20	167	
4	2HA20	350	
5	2HA20	290	
6	2HA20	535	
7	2HA10	85	
8	22HA8	119	
Barre		Lg/Poids	
HA8		43.0/17.0	
HA10		1.7/1.1	
HA20		25.2/62.0	

Béton=0.22 m³
Acier=99.3 kg d=456.3 kg/m³
Fi=14.5 mm Cof=2.7 m²

$$\begin{aligned} E_b &= 3.5 \text{ cm} \\ E_h &= 5.0 \text{ cm} \\ E_l &= 3.5 \text{ cm} \end{aligned}$$

55

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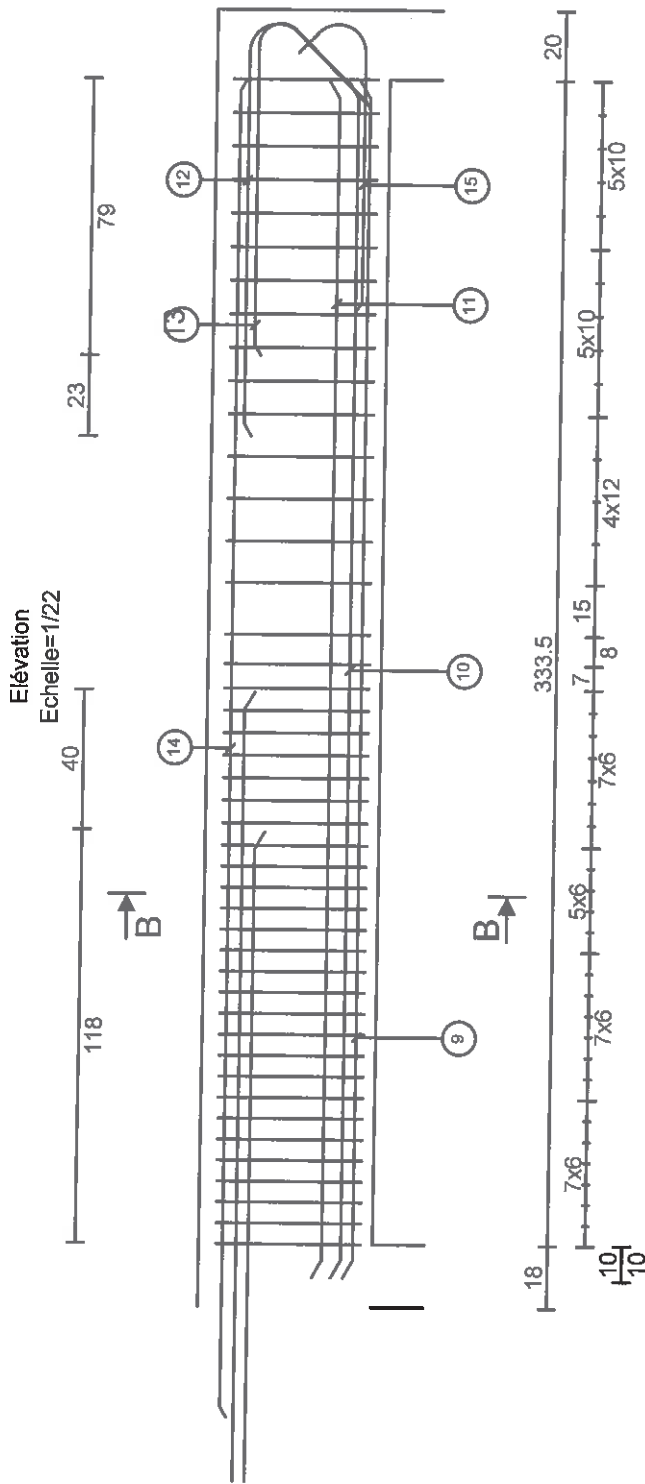
L'ANGLE

1

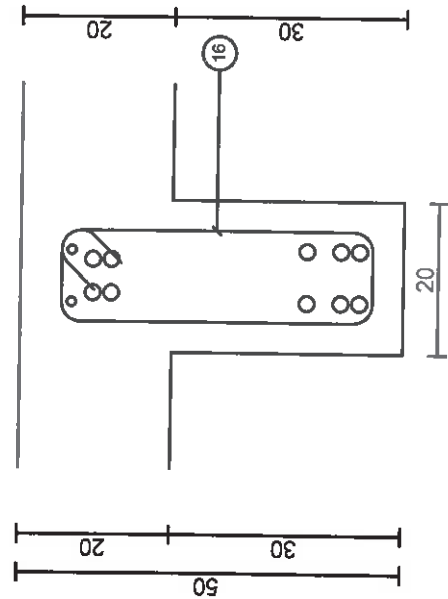
- Date 03/05/17 - 7 étages -
Section : 20 x 50ht









1406 X 07 : 110113ac

section : 20 x 50ht	fck= 25 MPa	fyk= 500 MPa	Classe de ductilité A	Classe d'exposition: XC2
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Coupe B-B
Echelle=1/10



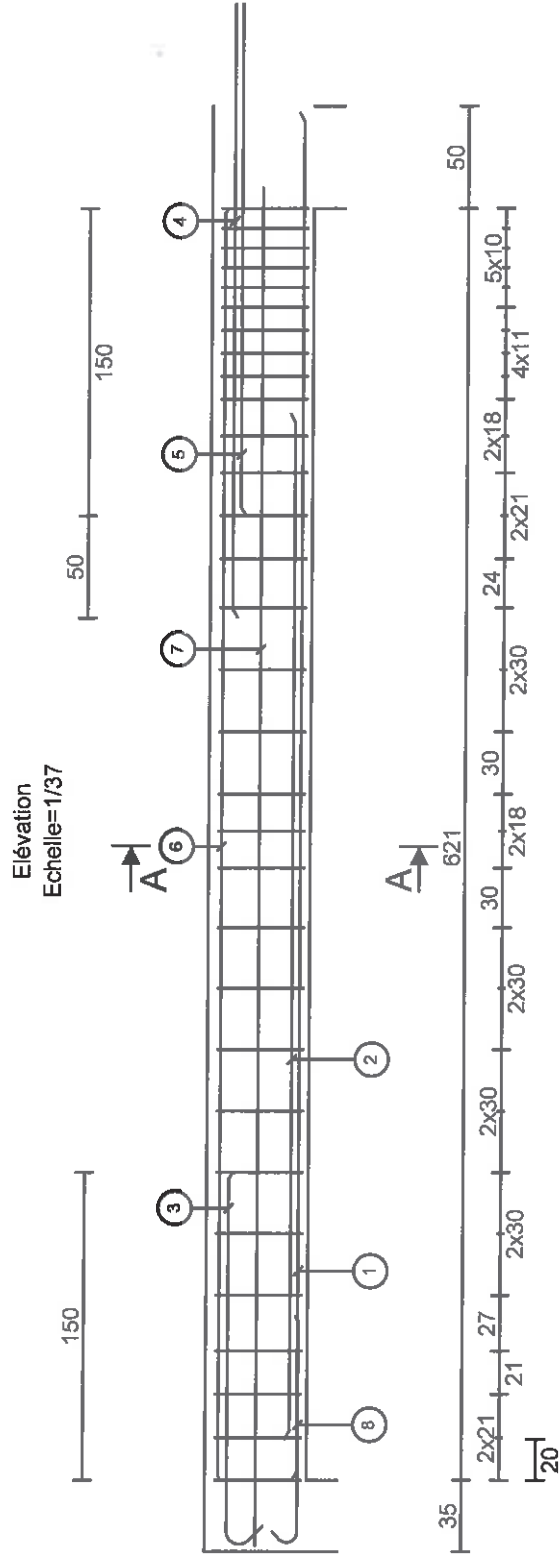
Barre		Lg	Forme
9	2HA20	343	
10	2HA20	343	
11	2HA20	343	
12	2HA14	159	
13	2HA12	134	
14	2HA12	383	
15	2HA16	102	
16	44HA10	119	
Barre		Lg/Poids	
HA10		52,2/32,2	
HA12		10,3/9,2	
HA14		3,2/3,8	
HA16		2,0/3,2	
HA20		20,6/50,8	

6300 L'ANGLE

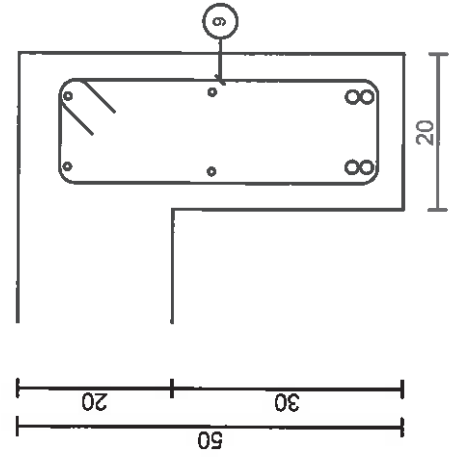
- Date 03/05/17 - 7 étages -










Section: 20 x 50ht

fck=	25 MPa	f _{yk} =	500 MPa	Classe de ductilité	A	Coupe feu	R 30	Classe d'exposition:	XC1
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Coupe A-A
Echelle=1/10



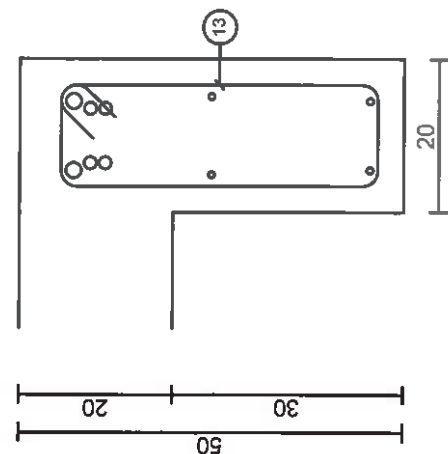
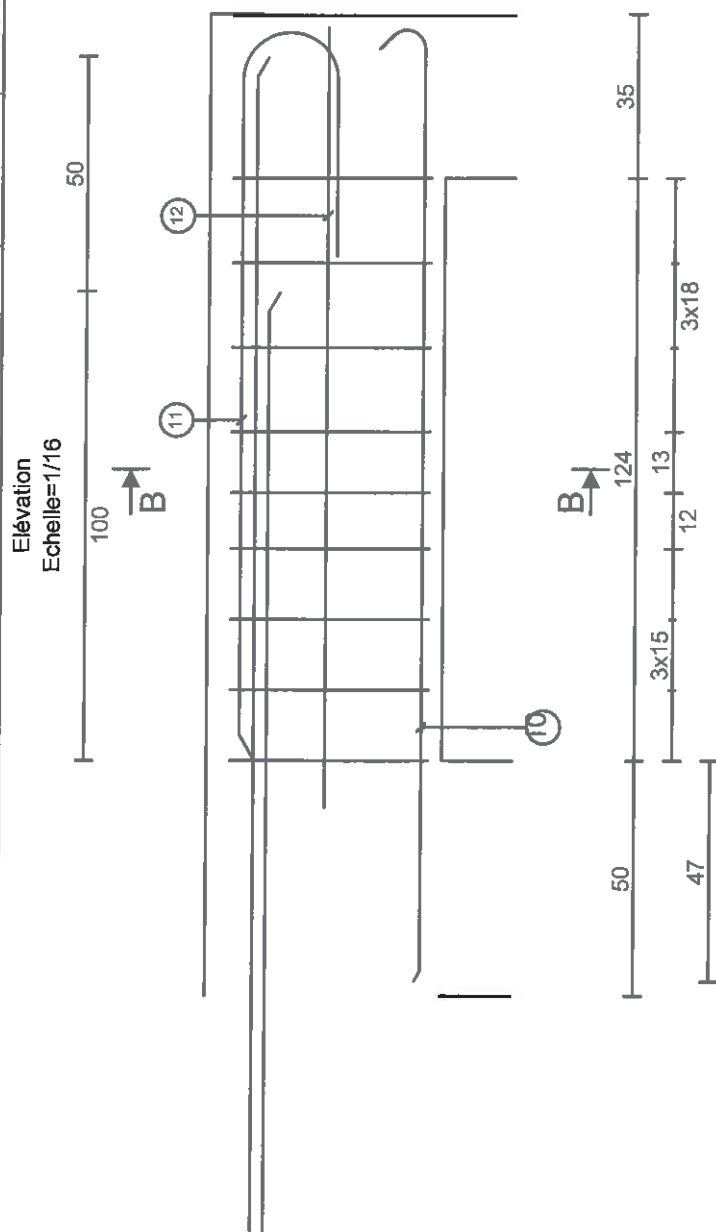
Barre		Lg	Forme
1	2HA16	668	
2	2HA16	501	
3	2HA12	200	
4	2HA18	400	
5	2HA16	300	
6	2HA8	621	
7	2HA8	663	
8	3HA10	122	
9	31HA8	122	
Barre		Lg/Poids	
HA8		63.4/25.0	
HA10		3.7/2.3	
HA12		4.0/3.5	
HA16		37.4/59.0	

Date 03/05/17 - 7 étages -

Section: 20 x 50ht

Section: 20 x 50ht

fyk= 25 MPa	fyk= 500 MPa	Classe de ductilité A	Coupe feu R 30	Classe d'exposition: XC1
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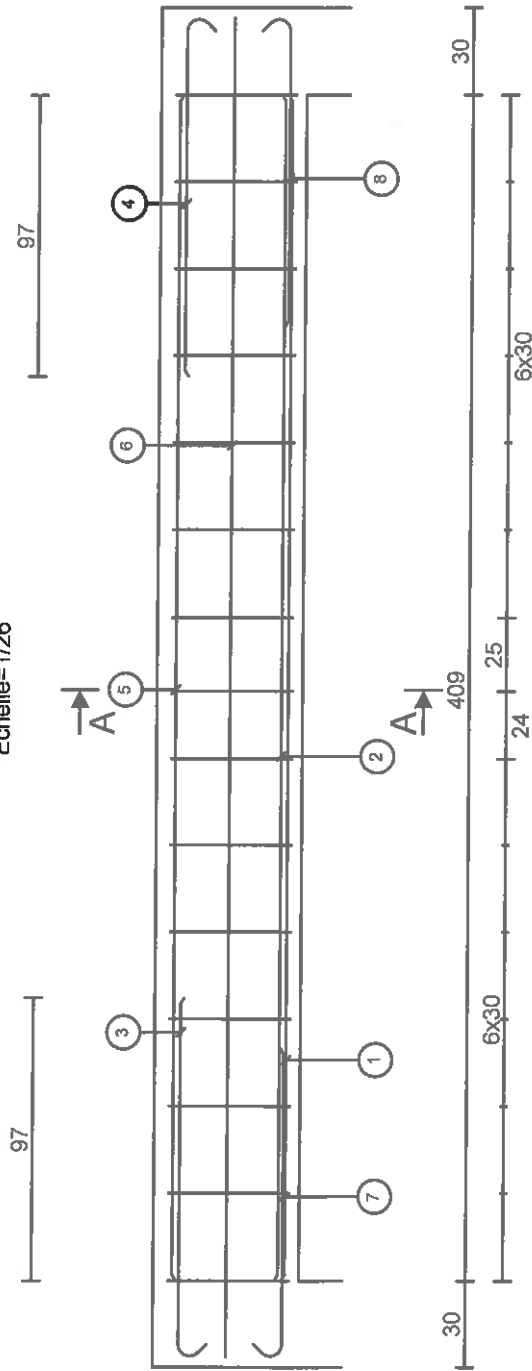
[illegible]

- Date 03/05/17 - 7 étages -

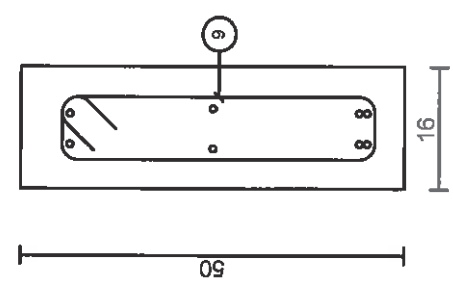
Section : 16 x 50ht

fck= 25 MPa fyk= 500 MPa Classe de ductilité A | Classe d'exposition: XC2

Elévation
 Echelle=1/26



Coupe A-A
 Echelle=1/10



Barre	Lg	Forme
1	2HA8	409
2	2HA8	409
3	2HA8	133
4	2HA8	133
5	2HA8	409
6	2HA8	462
7	2HA8	116
8	2HA8	116
9	15HA8	111

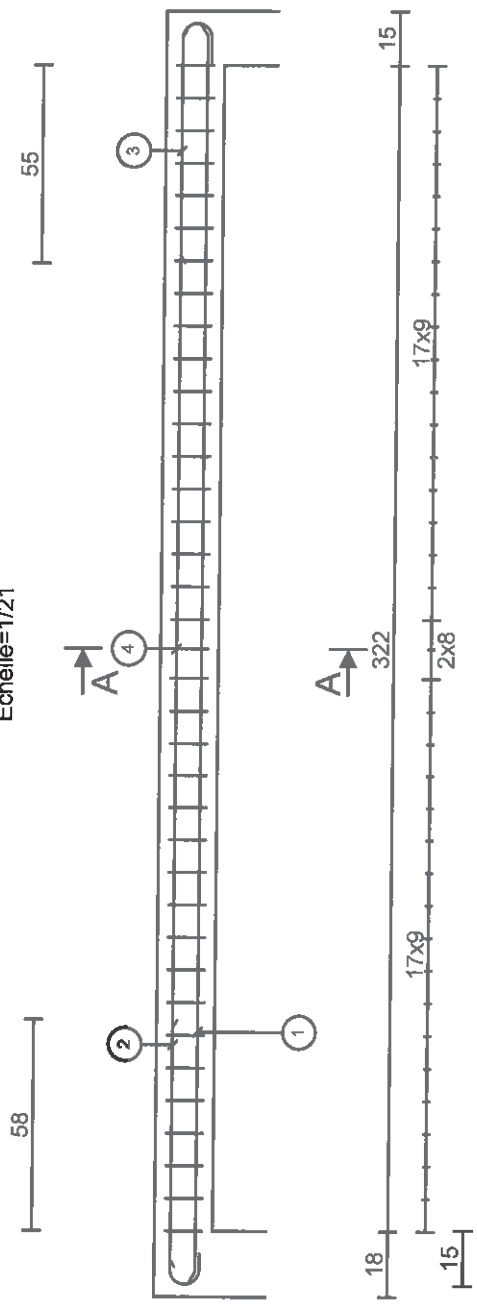
- Date 03/05/17 - 7 étages -

Section : 30 x 18ht

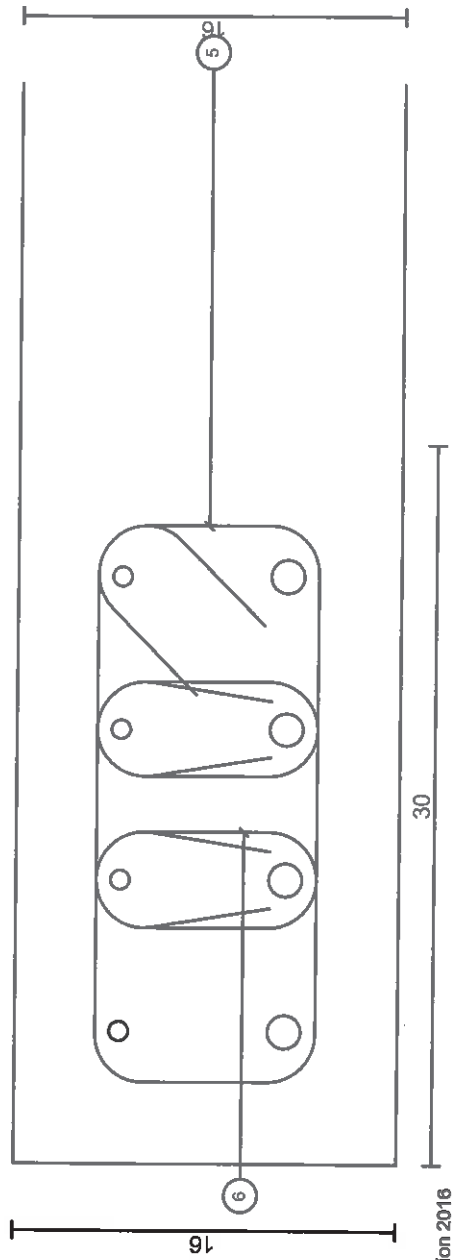
fck= 25 MPa fyk= 500 MPa Classe de ductilité A | Classe d'exposition: XC1

Barre	Lg	Forme
1	4HA14	349
2	4HA8	86
3	4HA8	82
4	4HA8	342
5	37HA8	78
6	74HA8	40

Elévation
Echelle=1/21



Coupe A-A
Echelle=1/3

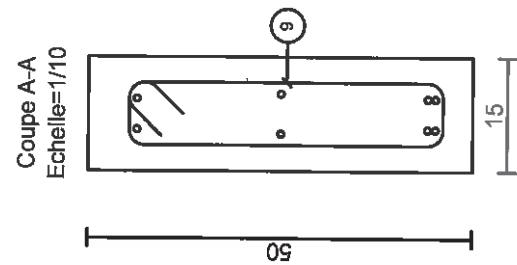
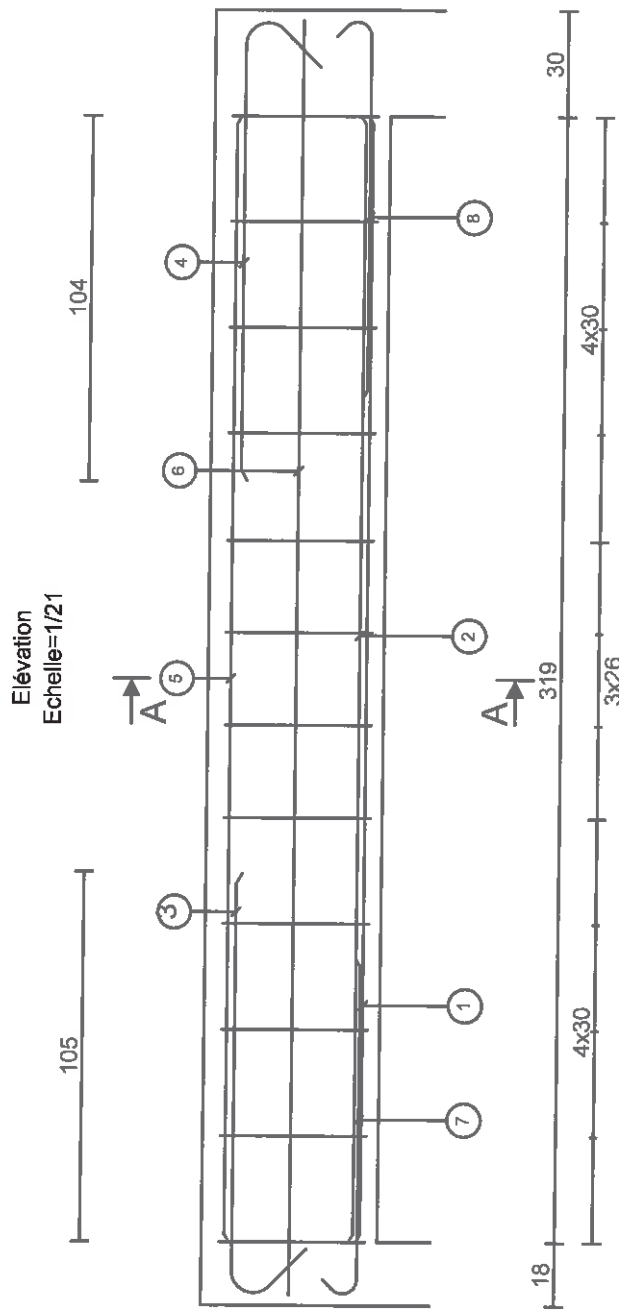











6300 L'AGÈ
contact@abel-samo.fr

- Date 03/05/17 - 7 étages -

Section: 15 x 50ht

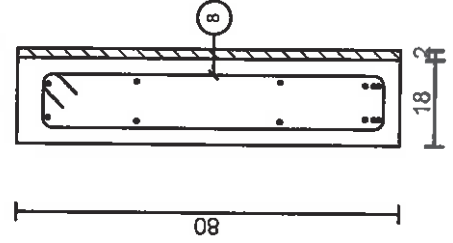
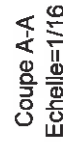
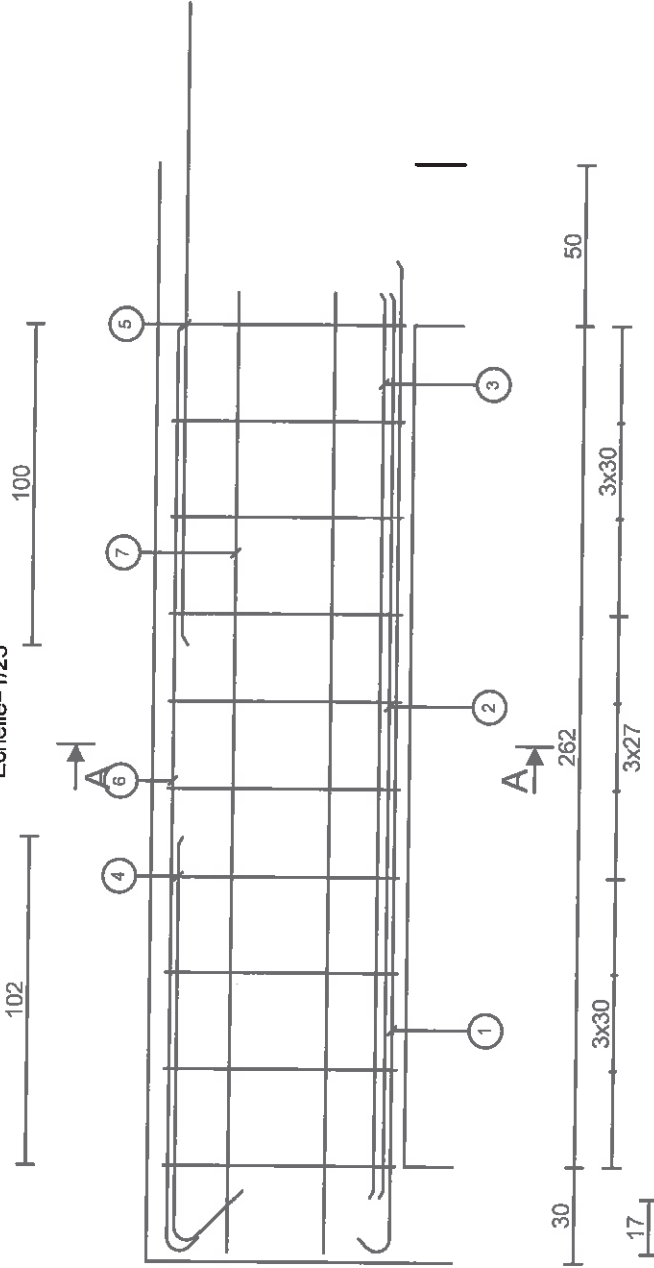
f _{ck} =	25 MPa	f _{yk} =	500 MPa		Classe de ductilité A	Classe d'exposition:	XC2
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Barre		Lg	Forme
1	2HA8	319	
2	2HA8	319	
3	2HA12	142	
4	2HA12	153	
5	2HA8	319	
6	2HA8	361	
7	2HA8	104	
8	2HA8	116	
9	12HA8	111	
Barre		Lg/Poids	
HA8 HA12		44,0/17,4 5,9/5,3	

Section: 18 x 80ht

de ductilité A	Coupe feu R 30	Classe d'exposition: XC1
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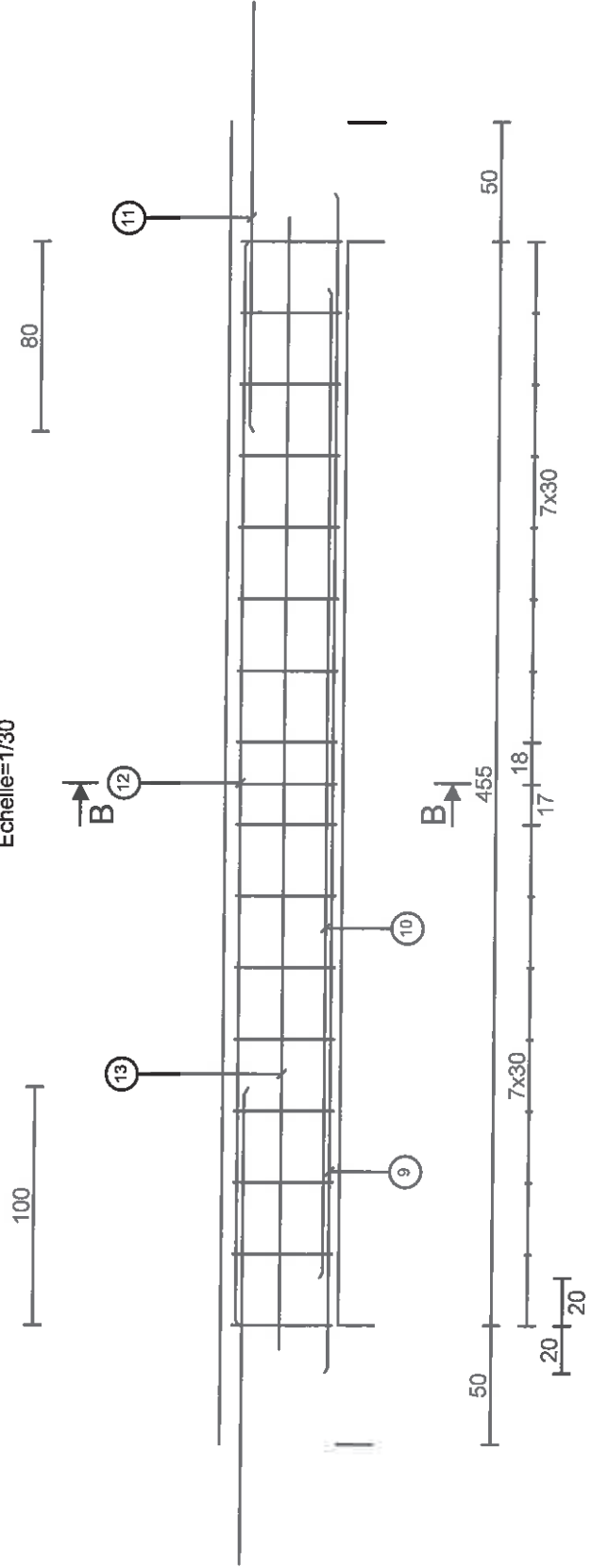


Barre		Lg	Forme
1	2HA8	318	
2	2HA8	282	
3	2HA8	282	
4	2HA8	151	
5	2HA12	250	
6	2HA8	298	
7	4HA8	299	
8	10HA8	178	
Barre		Lg/Poids	
HA8 HA12		56 3/22.2 5,0/4.4	

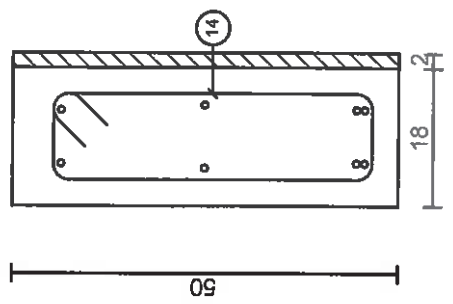
- Date 03/05/17 - 7 étages -
Section : 18 x 50ht

fck= 25 MPa fyk= 500 MPa Classe de ductilité A Coupe feu R 30 | Classe d'exposition: XC1

Elévation
Echelle=1/30



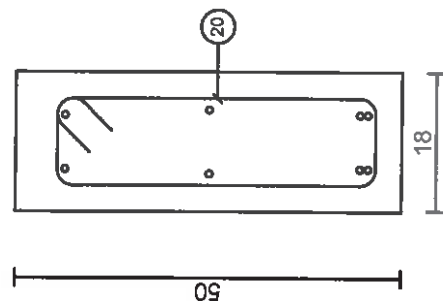
Coupe B-B
Echelle=1/10














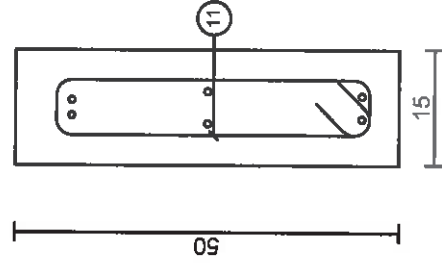
Barre	Lg	Forme
9	2HA8	495
10	2HA8	415
11	2HA10	210
12	2HA8	455
13	2HA8	475
14	17HA8	118
		12

Barre	Lg/Poids
HA8	56.8/22.4
HA10	4.2/2.6

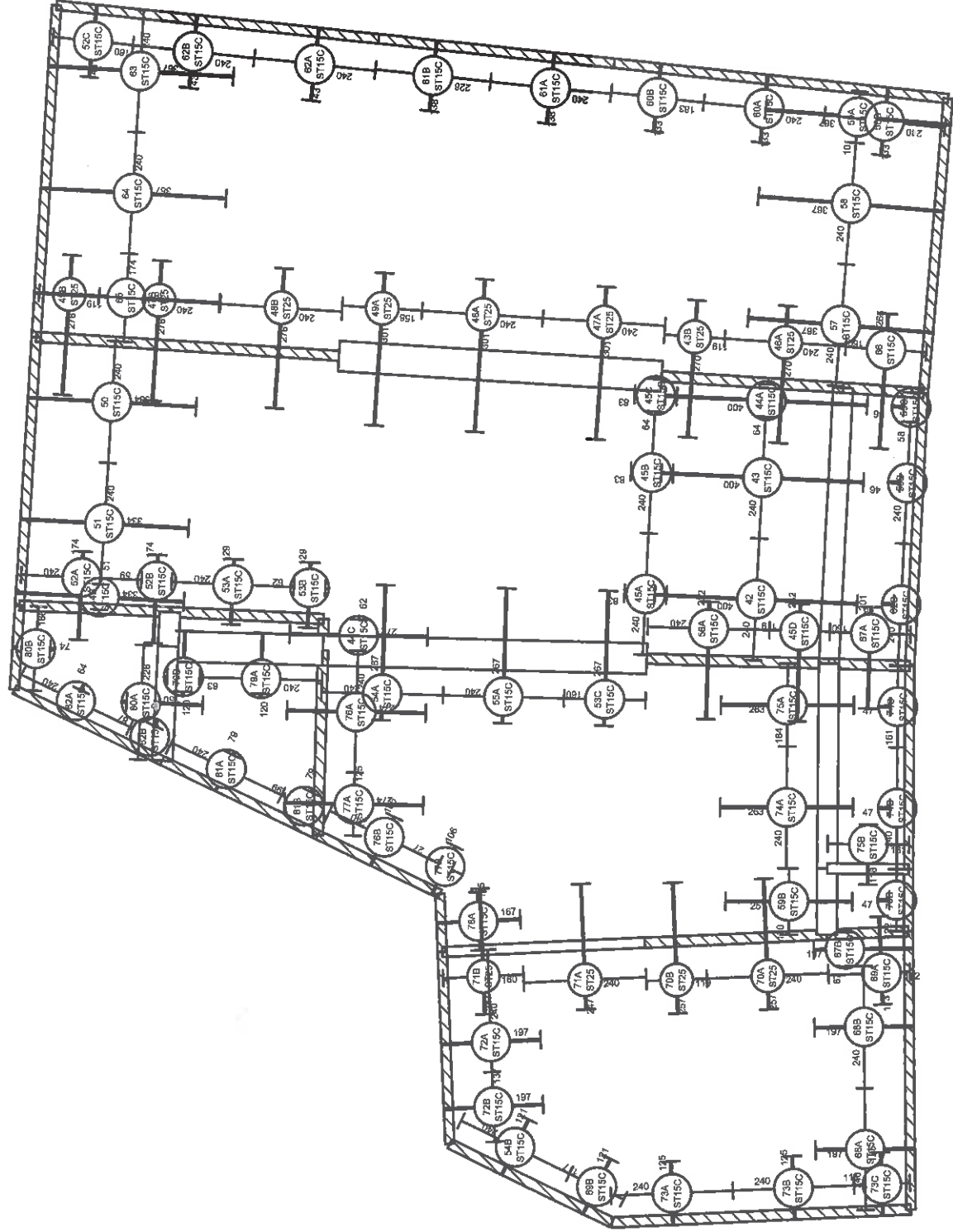
section : 6 X 500	Classe de ductilité A Coupe feu R 30	Classe d'exposition: XC1
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[illegible]

Barre		Lg	Forme
1	2HA8	335	
2	2HA8	329	
3	2HA8	118	
4	2HA8	330	
5	2HA8	367	
6	2HA8	69	
7	12HA8	109	
8	2HA8	130	
9	2HA8	185	
10	2HA8	107	
11	11HA8	109	
Barre		Lg/Poids	
HA8		64 4/24	

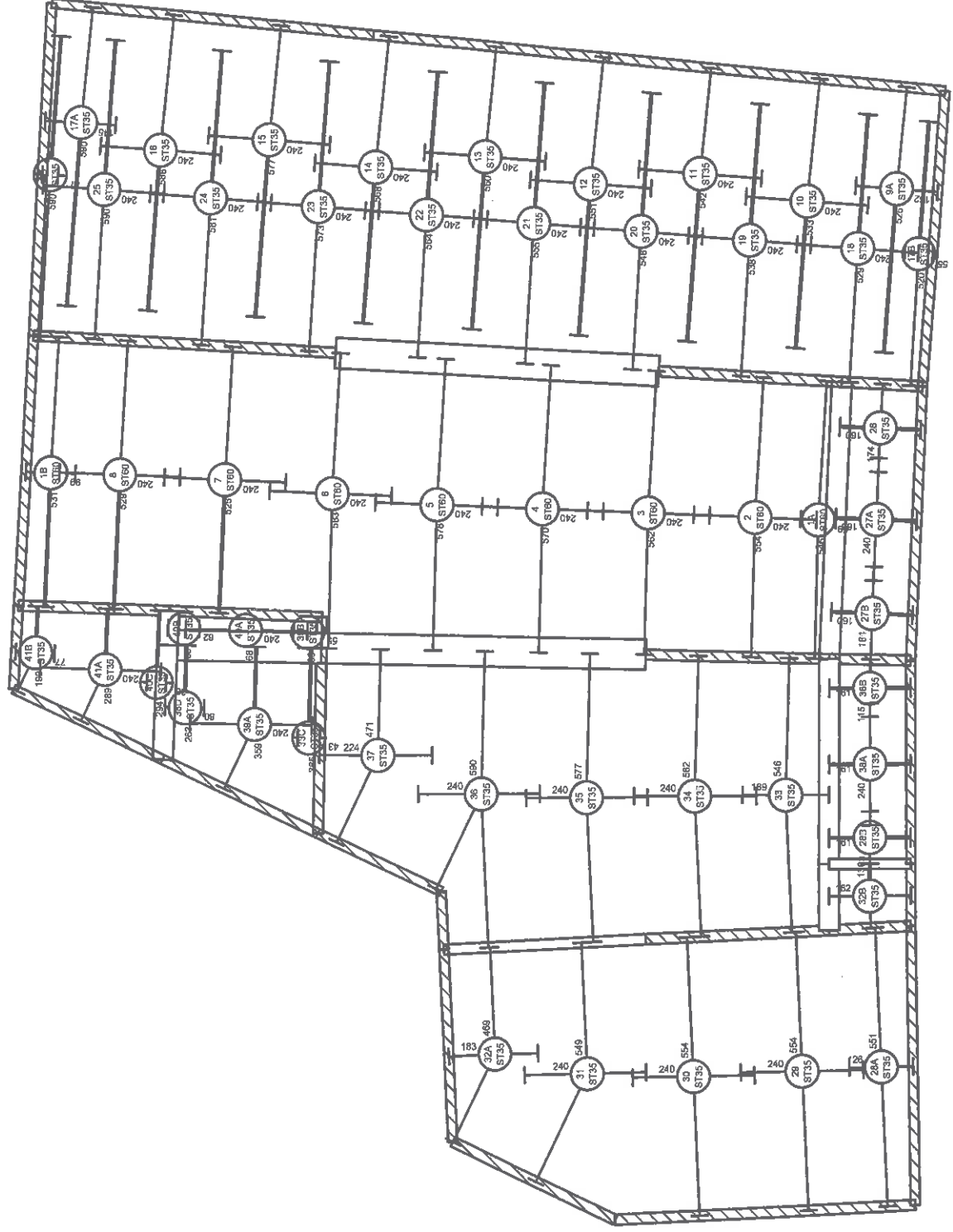


- Date 03/05/17 - 7 étages -
fck= 30 MPa fyk= 500 MPa



Bureau d'études structures Batiment et génie civil 3, rue Tisserand 43000 L'ATTE 02 33 24 40 38 contact@ebel-remo.fr			CAHIER 3.01 PH S-Sol Ech 1/8070			Elément : D 1			Béton=76.31 m3 Cof=303.0 m² TS=2933.6 kg d= 8.8 kg/m² E=3.0 cm			22000 22000					
- Date 03/05/17 - 7 étages - fck= 30 MPa fyk= 500 MPa																	
Nom	Poids	Forme	Nom	Poids	Forme	Nom	Poids	Forme	Nom	Poids	Forme	Nom	Poids	Forme			
1	1ST60	62	16	1ST35	56	31	50	45	1ST15C	16	59	1ST15C	16	73	1ST15C	16	Forme
	x 8.88 /14.40	99 69 531 546	x13.99 /14.40	x12.33 /14.40	240	x12.33 /14.40	240	x7.27 /9.60	x7.27 /9.60	240 64 119 83 83 232	x7.00 /9.60	x7.00 /9.60	130 101 251 367	x7.41 /9.60	240 240 111 125 125 125	B A C	
2	1ST60	92	17	1ST35	44	32	38	46	1ST25	29	60	1ST15C	13	74	1ST15C	18	Forme
	x13.19 /14.40	54 54 240	x11.02 /14.40	x9.51 /14.40	145 55 590 520	x9.51 /14.40	183 162 469 130	x9.70 /14.40	x9.70 /14.40	240 119 270 270	x5.65 /9.60	x5.65 /9.60	183 240 133 133	x8.17 /9.60	240 161 240 47 47 263	A	
3	1ST60	93	18	1ST35	51	33	37	47	1ST25	42	61	1ST15C	14	75	1ST15C	14	Forme
	x13.38 /14.40	56 56 240	x12.65 /14.40	x9.16 /14.40	240	x9.16 /14.40	240	x13.85 /14.40	x13.85 /14.40	240 240 276 301	x6.47 /9.60	x6.47 /9.60	240 228 138 138	x6.20 /9.60	161 164 118 263	A	
4	1ST60	95	19	1ST35	52	34	53	48	1ST25	42	62	1ST15C	18	76	1ST15C	20	Forme
	x13.57 /14.40	57 57 240	x12.86 /14.40	x13.27 /14.40	240	x13.27 /14.40	240	x13.85 /14.40	x13.85 /14.40	240 240 301 276	x7.96 /9.60	x7.96 /9.60	240 240 143 46 143	x9.13 /9.60	240 240 106 274	A	
5	1ST60	96	20	1ST35	53	35	55	49	1ST25	24	65	1ST15C	14	77	1ST15C	8	Forme
	x13.76 /14.40	58 58 240	x13.07 /14.40	x13.64 /14.40	240	x13.64 /14.40	240	x8.05 /14.40	x8.05 /14.40	158 119 301 276	x6.38 /9.60	x6.38 /9.60	174	x3.71 /9.60	125 27 274 106	A B	
6	1ST60	92	21	1ST35	53	36	54	50	2ST15C	36	66	1ST15C	9	78	1ST15C	6	Forme
	x13.22 /14.40	58 58 240	x13.28 /14.40	x9.17 /14.40	240	x9.17 /14.40	240	x8.02 /9.60	x8.02 /9.60	240	x4.24 /9.60	x4.24 /9.60	160	x2.48 /9.60	115 122 167 47	A B	
7	1ST60	87	22	1ST35	54	37	37	51	1ST15C	17	67	1ST15C	10	79	1ST15C	8	Forme
	x12.56 /14.40	59 59 240	x13.49 /14.40	x9.10 /14.40	240	x9.10 /14.40	240	x7.49 /9.60	x7.49 /9.60	59 240 160 174 174 143	x4.54 /9.60	x4.54 /9.60	160 67 201 197	x3.64 /9.60	240 63 120 120	A B	
8	1ST60	88	23	1ST35	55	38	37	52	1ST15C	17	68	1ST15C	21	80	1ST15C	10	Forme
	x12.65 /14.40	60 60 240	x13.70 /14.40	x7.64 /14.40	240	x7.64 /14.40	240	x8.16 /9.60	x8.16 /9.60	240 160 62 129 267 129	x9.46 /9.60	x9.46 /9.60	240 240 197 197	x4.63 /9.60	166 226 74 150	A	
9	1ST35	41	24	1ST35	56	39	31	53	1ST15C	18	69	1ST15C	9	81	1ST15C	6	Forme
	x10.25 /14.40	37 162 590 525	x13.91 /14.40	x3.05 /14.40	174	x3.05 /14.40	240	x9.30 /9.60	x9.30 /9.60	240 240 267 121	x4.22 /9.60	x4.22 /9.60	162 117 173 121	x2.68 /9.60	99 240 79 79	A B	
10	1ST35	51	25	1ST35	57	40	12	54	1ST15C	21	70	1ST15C	28	82	1ST15C	5	Forme
	x12.73 /14.40	53 53 240	x14.09 /14.40	x7.10 /14.40	184 240 160 160	x7.10 /14.40	240	x7.78 /9.60	x7.78 /9.60	240 240 267 46 46	x9.25 /14.40	x9.25 /14.40	119 240 257 257	x2.10 /9.60	240 87 64 64	A B	
11	1ST35	52	26	1ST35	11	41	29	55	1ST15C	17	71	1ST15C	30	83	1ST15C		Forme
	x12.94 /14.40	54 54 240	x2.76 /14.40	x3.05 /14.40	174	x3.05 /14.40	240	x8.77 /9.60	x8.77 /9.60	240 240 232 133	x9.89 /14.40	x9.89 /14.40	240 160 247 247				
12	1ST35	53	27	1ST35	27	42	43	56	1ST15C	19	72	1ST15C	17	84	1ST15C		Forme
	x13.15 /14.40	55 55 240	x6.76 /14.40	x7.10 /14.40	184 240 160 160	x7.10 /14.40	240	x8.81 /9.60	x8.81 /9.60	240 240 267 46 46	x9.89 /14.40	x9.89 /14.40	240 160 247 247				
13	1ST35	54	28	1ST35	34	43	43	57	1ST15C	78	73	1ST15C	17	85	1ST15C		Forme
	x13.36 /14.40	56 56 240	x8.54 /14.40	x9.60 /9.60	126 103 551 161	x9.60 /9.60	240	x8.81 /9.60	x8.81 /9.60	240 240 267 46 46	x9.89 /14.40	x9.89 /14.40	240 160 247 247				
14	1ST35	55	29	1ST35	106	44	13	58	1ST15C		74	1ST15C		86	1ST15C		Forme
	x13.57 /14.40	58 58 240	x13.13 /14.40	x5.93 /9.60	52 51 64 272 334 400	x5.93 /9.60	240										
15	1ST35	55	30	1ST35		45		59	1ST15C		75	1ST15C		87	1ST15C		Forme
	x13.78 /14.40	57 57 240															
ST15C		25		ST25		5		ST35		27		ST60		8		Ratio	
ST15C		25		ST25		5		ST35		27		ST60		8		Ratio	

- Date 03/05/17 - 7 étages -
fck= 30 MPa fyk= 500 MPa



Arche Dalle EC2 Version 2016

4 HA8 L=1.20m