






**NUOVA S.S. 341 "GALLARATESE" - TRATTO DA SAMARATE A CONFINE
CON LA PROVINCIA DI NOVARA - TRATTO NORD**

**STRALCIO FUNZIONALE DAL KM 6+500 (SVINCOLO S.S. 336 NORD)
AL KM 8+844 (SVINCOLO AUTOSTRADA A8)
"BRETELLA DI GALLARATE"**

PROGETTO ESECUTIVO

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	Ing. Renato Vaira (Ordine degli Ingg. di Torino e Provincia n° 4863 W)	 Società designata: GA&M Prof. Ing. Matteo Ranieri Ordine degli Ingg. di Bari e provincia n° 1137	SETAC Srl Servizi & Engineering Trasporti Ambiente Costruzioni Prof. Ing. Luigi Monterisi Ordine degli Ingg. di Bari e provincia n° 1771	ARKE' INGEGNERIA S.r.l. Via Impalpore, Trapani n° 70126 Pn Ing. Gioacchino Angarano Ordine degli Ingg. di Bari e provincia n° 5970

VISTO: IL RESPONSABILE DEL PROCEDIMENTO Dott. Ing. Giancarlo LUONGO	RESPONSABILE INTEGRAZIONE DELLE PRESTAZIONI SPECIALISTICHE  Ing. Renato DEL PRETE	IL PROGETTISTA FIRMATARIO DELLA PRESTAZIONE  Ing. Valerio BAJETTI	GEOLOGO  Prof. Ing. Geol. Luigi MONTERISI	COORDINATORE DELLA SICUREZZA IN FASE DI PROGETTAZIONE  Ing. Gaetano RANIERI
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<h1>MB02</h1>	<h2>M - IMPIANTI</h2> <h3>MA - IMPIANTI SVINCOLO</h3> <h4>RELAZIONE DI CALCOLO ILLIMUNOTECNICO</h4>
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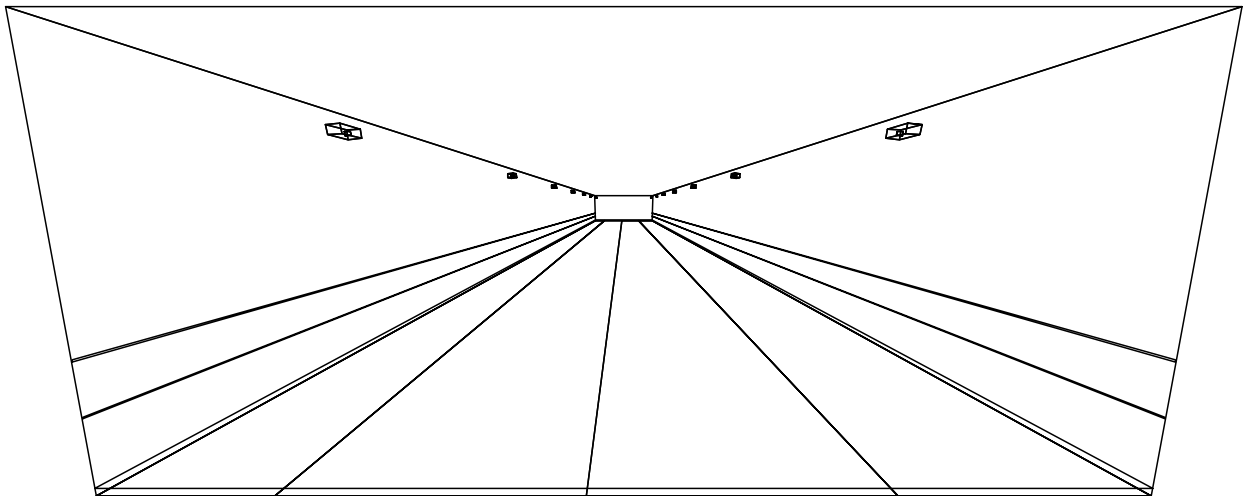
CODICE PROGETTO PROGETTO LIV. PROG. N. PROG. MI533 E 1801	NOME FILE MB02-P00IM00IMP02_A.dwg	REVISIONE A	SCALA: -
CODICE ELAB.	P00IM00IMP02	A	-

C					
B					
A	EMISSIONE	MAGGIO 2021	ING. VALERIO BAJETTI	ING. VALERIO BAJETTI	ING. RENATO DEL PRETE
REV.	DESCRIZIONE	DATA	REDATTO	VERIFICATO	APPROVATO

GALLERIA 80 M. PERMANENTE

Note Installazione: ESTRUSO 100 W SAP ASIMMETRICO
Cliente: STUDIO MG
Codice Progetto: TU11094
Data: 06/04/2011

Note:
DUE FILE AFFACCIAATE
INT. 12 M.



NOME PROGETTISTA:
Indirizzo:
Tel.-Fax:

Avvertenze:

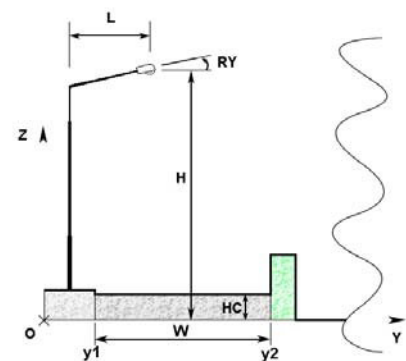
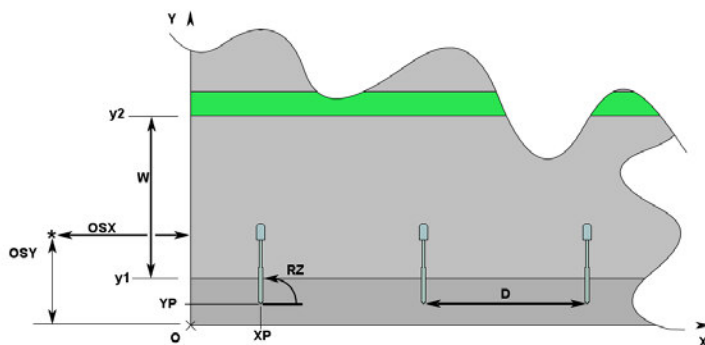
1.1 Informazioni Area

Dati Strada

Zona	Tipo Zona	Corsia	Senso di Marcia	Larghezza [m] W	y1 [m]	y2 [m]	Pt.Calc.Y (ILLUM.)	Pt.Calc.Y (LUMIN.)	h Zona [m] (HC)	Colore	Tabella R	Coeff.Rifl. Fattore q0
Marc_A	Ciclabile/Pedonale	Marc_A_C1	--->	3.05	0.00	3.05	3	3	0.00	RGB=219,54,36		40.00
Carregg_A	Carrabile			7.50	3.05	10.55	5		0.00	RGB=126,126,126	C2	7.01
		Carregg_A_C1	--->	3.75	3.05	6.80		3				
		Carregg_A_C2	--->	3.75	6.80	10.55		3				
Marc_B	Ciclabile/Pedonale	Marc_B_C1	--->	2.15	10.55	12.70	3	3	0.00	RGB=219,54,36		40.00

Dati di installazione (File di Apparecchi)

Nome Filo	1° Palo x [m] (XP)	1° Palo y [m] (YP)	Altez.App. [m] (H)	Num. Pali	Interd. [m] (D)	Sbraccio [m] (L)	Incl.App. ° (RY)	Rot.Sbraccio ° (RZ)	Incl.Laterale ° (RX)	Fatt.Manut. [%]	Codice Apparecchio	Flusso lm	Rifer.
Fila A	4.00	0.50	5.00	7	12.00	0.00	0	180	-5	80.00	ESTRUSO1-AHPST100W10500		A
Fila B	4.00	12.20	5.00	7	12.00	0.00	0	0	-5	80.00	ESTRUSO1-AHPST100W10500		A



1.2 Calcolo Energetico (Suolo)

Area	600.00 m ²
Illuminamento Medio	75.55 lx
Potenza Specifica	2.33 W/m ²
Potenza Specifica Illuminotecnica	3.09 W/(m ² * 100lx)
Efficienza Energetica	32.38 (m ² *lx)/W
Potenza Totale Utilizzata	1400.00 W

1.3 Parametri di Qualità dell'Impianto

Riepilogo Risultati

Zona	Osservatore	Corsia	Ti	UI	LAv	Uo
Carregg_A			Ti=0.56	0.61	3.20	0.71
	1) (x=-60.00 y=4.92)m	Carregg_A_C1		0.72	3.21	0.74
	2) (x=-60.00 y=8.68)m	Carregg_A_C2		0.61 *	3.20 *	0.71 *
	(x=-5.63 y=4.92)m		Ti=0.50			
	(x=-5.63 y=8.68)m		Ti=0.56 *			
Lv=0.03						

Norma:

CEN 13201

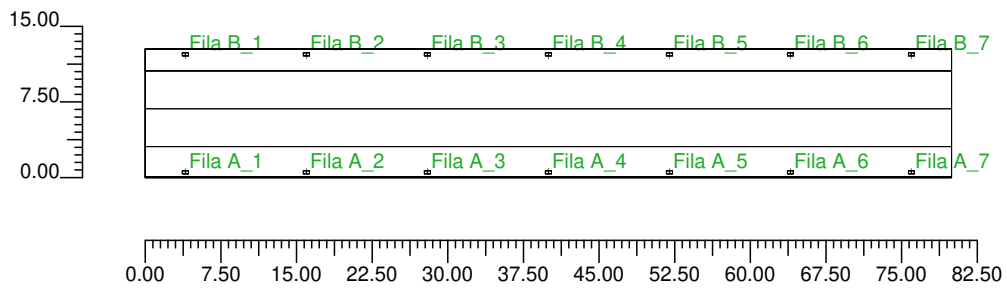
Inquinamento Luminoso

Rapporto Medio - Rn -

0.02 %

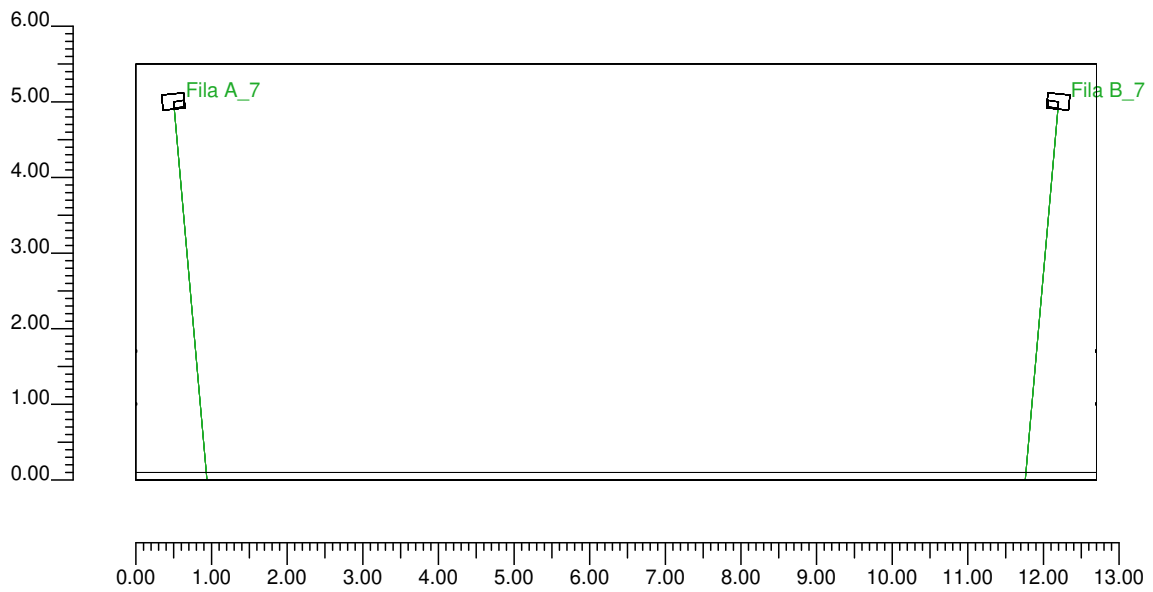
2.1 Vista 2D in Pianta

Scala 1/750



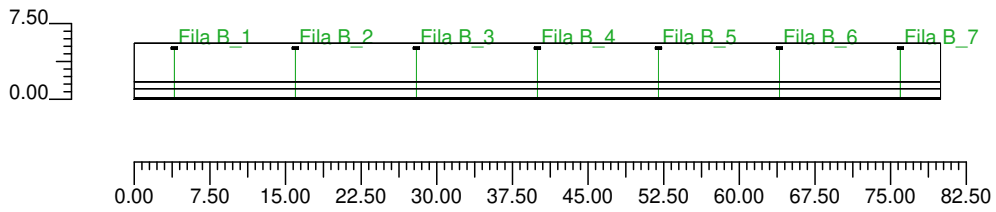
2.2 Vista Laterale

Scala 1/100



2.3 Vista Frontale

Scala 1/750



3.1 Informazioni Apparecchi/Rilievi

Rifer.	Linea	Nome Apparecchio (Nome Rilievo)	Codice Apparecchio (Codice Rilievo)	Apparecchi N.	Rif.Lamp.	Lampade N.
A	GRECHI Estruso	ESTRUSO1 ASIMM. 100W HPST/SAP (GG38 100W HPST/SAPT)	ESTRUSO1-AHPST100W (010100GG38HPST)	-	LMP-A	1

3.2 Informazioni Lampade

Rif.Lamp.	Tipo	Codice	Flusso lm	Potenza W	Colore K	N.
LMP-A	ST 100	SONTPLUS100	10500	100	1950	-

3.3 Tabella Riepilogativa Apparecchi

Rifer.	App.	On	Posizione Apparecchi X[m] Y[m] Z[m]	Rotazione Apparecchi X° Y° Z°	Codice Apparecchio	Coeff. Mant.	Codice Lampada	Flusso lm
A	1	X	4.00;0.50;5.00	0.0;-5.0;90.0	ESTRUSO1-AHPST100W	0.80	SONTPLUS100	1*10500
	2	X	16.00;0.50;5.00	0.0;-5.0;90.0		0.80		
	3	X	28.00;0.50;5.00	0.0;-5.0;90.0		0.80		
	4	X	40.00;0.50;5.00	0.0;-5.0;90.0		0.80		
	5	X	52.00;0.50;5.00	0.0;-5.0;90.0		0.80		
	6	X	64.00;0.50;5.00	0.0;-5.0;90.0		0.80		
	7	X	76.00;0.50;5.00	0.0;-5.0;90.0		0.80		
	8	X	4.00;12.20;5.00	0.0;-5.0;-90.0		0.80		
	9	X	16.00;12.20;5.00	0.0;-5.0;-90.0		0.80		
	10	X	28.00;12.20;5.00	0.0;-5.0;-90.0		0.80		
	11	X	40.00;12.20;5.00	0.0;-5.0;-90.0		0.80		
	12	X	52.00;12.20;5.00	0.0;-5.0;-90.0		0.80		
	13	X	64.00;12.20;5.00	0.0;-5.0;-90.0		0.80		
	14	X	76.00;12.20;5.00	0.0;-5.0;-90.0		0.80		

3.4 Tabella Riepilogativa Puntamenti

Struttura	Fila	Colonna	Rifer. 2D	On	Posizione Apparecchi X[m] Y[m] Z[m]	Rotazione Apparecchi X° Y° Z°	Puntamenti X[m] Y[m] Z[m]	R.Asse °	Coeff. Mant.	Rifer.
			Fila A_1	X	4.00;0.50;5.00	0.0;-5.0;90.0	4.00;0.94;0.00	0	0.80	A
			Fila A_2	X	16.00;0.50;5.00	0.0;-5.0;90.0	16.00;0.94;0.00	0	0.80	A
			Fila A_3	X	28.00;0.50;5.00	0.0;-5.0;90.0	28.00;0.94;0.00	0	0.80	A
			Fila A_4	X	40.00;0.50;5.00	0.0;-5.0;90.0	40.00;0.94;0.00	0	0.80	A
			Fila A_5	X	52.00;0.50;5.00	0.0;-5.0;90.0	52.00;0.94;0.00	0	0.80	A
			Fila A_6	X	64.00;0.50;5.00	0.0;-5.0;90.0	64.00;0.94;0.00	0	0.80	A
			Fila A_7	X	76.00;0.50;5.00	0.0;-5.0;90.0	76.00;0.94;0.00	0	0.80	A
			Fila B_1	X	4.00;12.20;5.00	0.0;-5.0;-90.0	4.00;11.76;0.00	0	0.80	A
			Fila B_2	X	16.00;12.20;5.00	0.0;-5.0;-90.0	16.00;11.76;0.00	0	0.80	A
			Fila B_3	X	28.00;12.20;5.00	0.0;-5.0;-90.0	28.00;11.76;0.00	0	0.80	A
			Fila B_4	X	40.00;12.20;5.00	0.0;-5.0;-90.0	40.00;11.76;0.00	0	0.80	A
			Fila B_5	X	52.00;12.20;5.00	0.0;-5.0;-90.0	52.00;11.76;0.00	0	0.80	A
			Fila B_6	X	64.00;12.20;5.00	0.0;-5.0;-90.0	64.00;11.76;0.00	0	0.80	A
			Fila B_7	X	76.00;12.20;5.00	0.0;-5.0;-90.0	76.00;11.76;0.00	0	0.80	A

4.1 Valori delle Luminanze su: MANTO STRADALE Oss. 1(x=-60.00;y=4.92;z=1.50)m

O (x:20.81 y:3.05 z:0.00)	Risultati	Medio	Minimo	Massimo	Min/Medio	Min/Max	Medio/Max
DX:2.96 DY:1.25	Luminanza (L)	3.16 cd/m ²	2.40 cd/m ²	4.43 cd/m ²	0.76	0.54	0.71

Tipo Calcolo

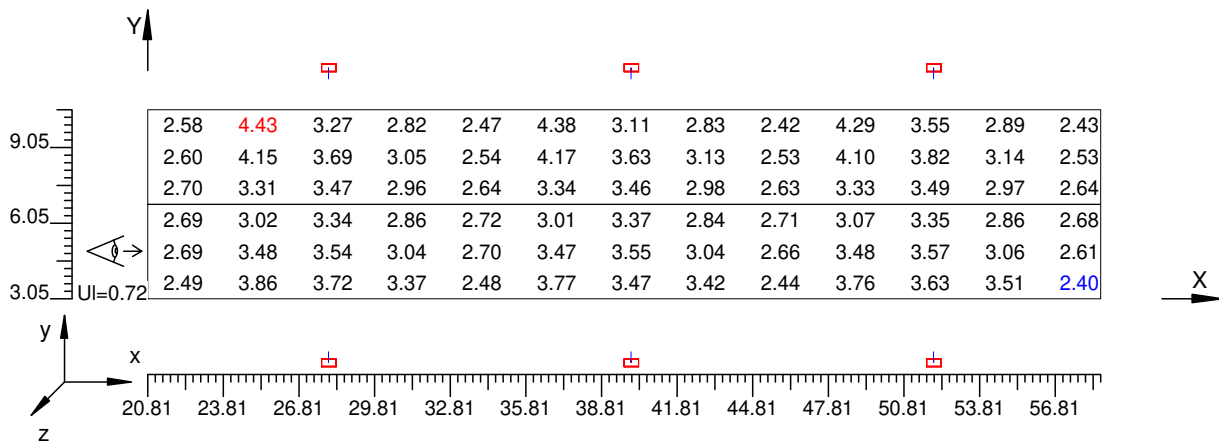
Dir.+Indir.(1 Interriflessioni) + Arredi

Nome Corsia	Largh. Corsia [m] W	y1 [m]	y2 [m]	Pt.Calc.Y	Tabella R	Coeff.Rifl. Fattore q0	Osservatore x Assoluto [m]	Osservatore y Assoluto [m]	Luminanza Velante [cd/m ²]	Incremento di Soglia [%]	Uniformità Longitudinale
Carregg_A_C1	3.75	3.05	6.80	3	C2	7.01	-60.00	4.92	0.03	0.50	0.72
Carregg_A_C2	3.75	6.80	10.55	3	C2	7.01	-60.00	4.92	0.03	---	---

Norma:

CEN 13201

Scala 1/300



4.2 Valori delle Luminanze su: Parete 1 (x=-60.00;y=4.93;z=1.50)m ---> (x=30.00;y=4.93;z=0.00)m

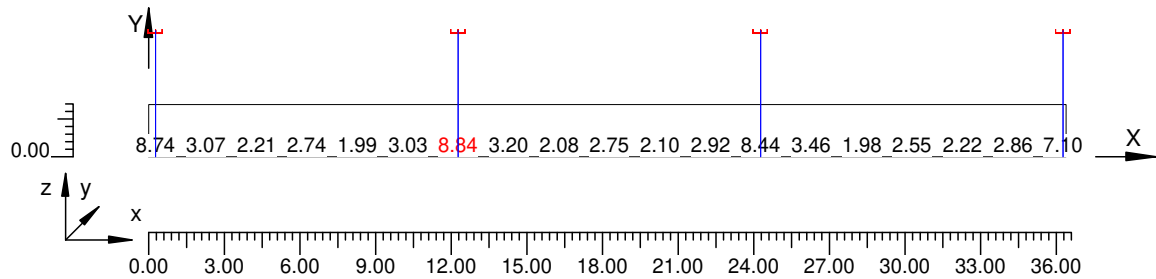
O (x:27.72 y:12.70 z:0.00)	Risultati	Medio	Minimo	Massimo	Min/Medio	Min/Max	Medio/Max
DX:1.00 DY:0.92	Luminanza (L)	3.37 cd/m ²	1.56 cd/m ²	8.84 cd/m ²	0.46	0.18	0.38

Tipo Calcolo

Dir.+Indir.(1 Interriflessioni) + Arredi

Scala 1/300

Non tutti i punti di calcolo sono visibili



4.3 Valori delle Luminanze su: Parete 2 (x=-60.00;y=4.93;z=1.50)m ---> (x=30.00;y=4.93;z=0.00)m

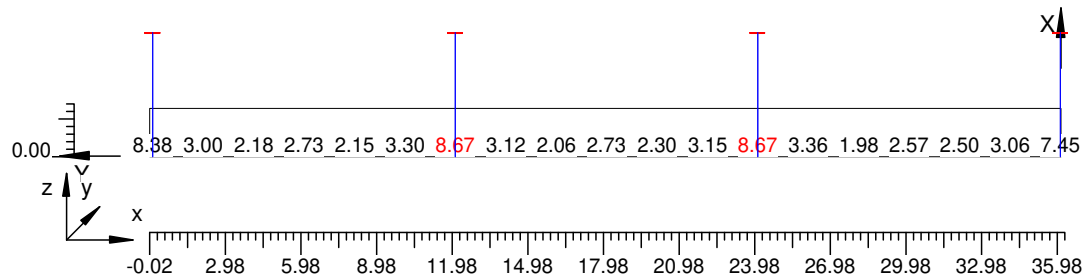
O (x:64.02 y:0.00 z:0.00)	Risultati	Medio	Minimo	Massimo	Min/Medio	Min/Max	Medio/Max
DX:0.92 DY:1.00	Luminanza (L)	3.46 cd/m ²	1.64 cd/m ²	8.67 cd/m ²	0.47	0.19	0.40

Tipo Calcolo

Dir.+Indir.(1 Interriflessioni) + Arredi

Scala 1/300

Non tutti i punti di calcolo sono visibili

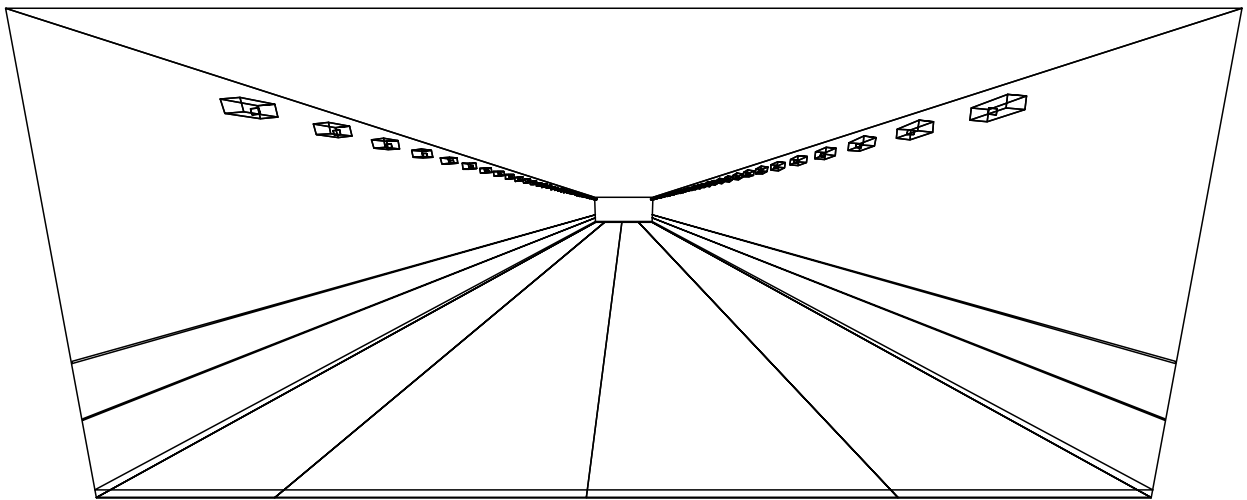


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4.2 Valori delle Luminanze su: Parete 1 ($x=-60.00;y=4.93;z=1.50$)m ---> ($x=30.00;y=4.93;z=0.00$)m	9
4.3 Valori delle Luminanze su: Parete 2 ($x=-60.00;y=4.93;z=1.50$)m ---> ($x=30.00;y=4.93;z=0.00$)m	10

GALLERIA 80 M. RINFORZO

Note Installazione: ESTRUSO ASIMMETRICO
Cliente: STUDIO MG
Codice Progetto: TU11095
Data: 06/04/2011

Note:



NOME PROGETTISTA:
Indirizzo:
Tel.-Fax:

Avvertenze:

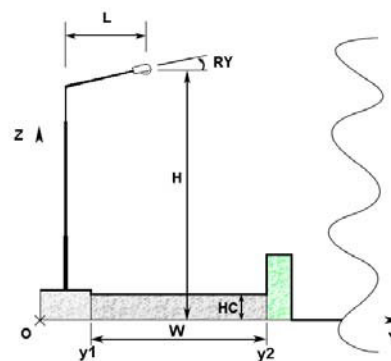
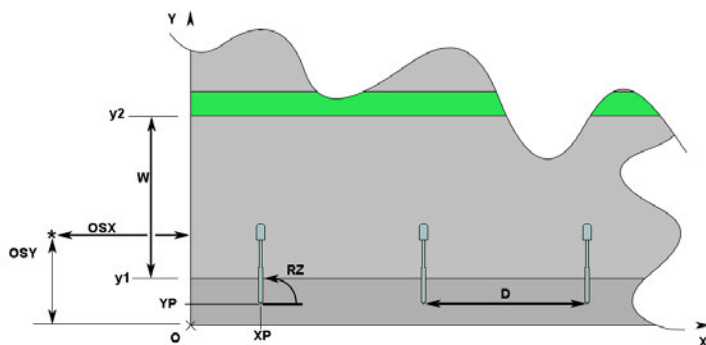
1.1 Informazioni Area

Dati Strada

Zona	Tipo Zona	Corsia	Senso di Marcia	Larghezza [m] W	y1 [m]	y2 [m]	Pt.Calc.Y (ILLUM.)	Pt.Calc.Y (LUMIN.)	h Zona [m] (HC)	Colore	Tabella R	Coeff.Rifl. Fattore q0
Marc_A	Ciclabile/Pedonale	Marc_A_C1	--->	3.05	0.00	3.05	3	3	0.00	RGB=219,54,36		40.00
Carregg_A	Carrabile			7.50	3.05	10.55	5		0.00	RGB=126,126,126	C2	7.01
		Carregg_A_C1	--->	3.75	3.05	6.80		3				
		Carregg_A_C2	<---	3.75	6.80	10.55		3				
Marc_B	Ciclabile/Pedonale	Marc_B_C1	--->	2.15	10.55	12.70	3	3	0.00	RGB=219,54,36		40.00

Dati di installazione (File di Apparecchi)

Nome Fila	1° Palo x [m] (XP)	1° Palo y [m] (YP)	Altez.App. [m] (H)	Num. Pali	Interd. [m] (D)	Sbraccio [m] (L)	Incl.App. ° (RY)	Rot.Sbraccio ° (RZ)	Incl.Laterale ° (RX)	Fatt.Manut. [%]	Codice Apparecchio	Flusso lm	Rifer.
Fila A	2.00	0.50	5.00	45	1.70	0.00	5	180	-5	80.00	ESTRUSO1-AHPST400W55500		A
Fila b	2.00	12.20	5.00	45	1.70	0.00	5	0	-5	80.00	ESTRUSO1-AHPST400W55500		A



1.2 Calcolo Energetico (Suolo)

Area	600.00 m2
Illuminamento Medio	2713.59 lx
Potenza Specifica	60.00 W/m2
Potenza Specifica Illuminotecnica	2.21 W/(m2 * 100lx)
Efficienza Energetica	45.23 (m2*lx)/W
Potenza Totale Utilizzata	36000.00 W

1.3 Parametri di Qualità dell'Impianto

Riepilogo Risultati

Zona	Osservatore	Corsia	Ti	UI	LAv	Uo
Carregg_A			Ti=0.69	0.38	114.52	0.28
	1) (x=-60.00 y=4.92)m	Carregg_A_C1		0.38 *	114.52 *	0.28 *
	2) (x=140.00 y=8.68)m	Carregg_A_C2		0.45	114.73	0.44
	(x=-7.63 y=4.92)m		Ti=0.69 *			
	(x=79.77 y=8.68)m		Ti=0.64			
Lv=0.56						

Norma:

CEN 13201

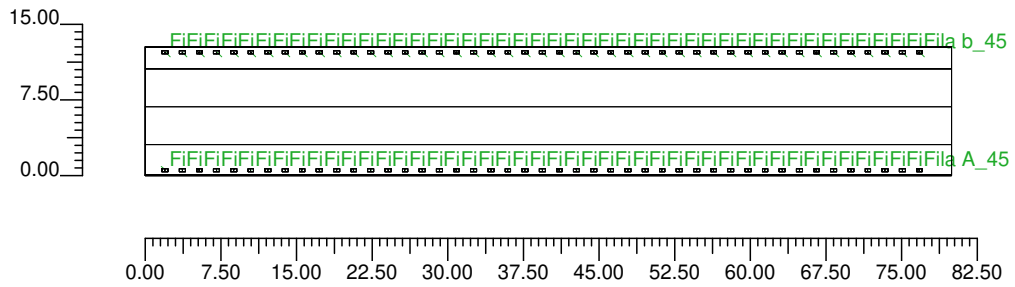
Inquinamento Luminoso

Rapporto Medio - Rn -

0.01 %

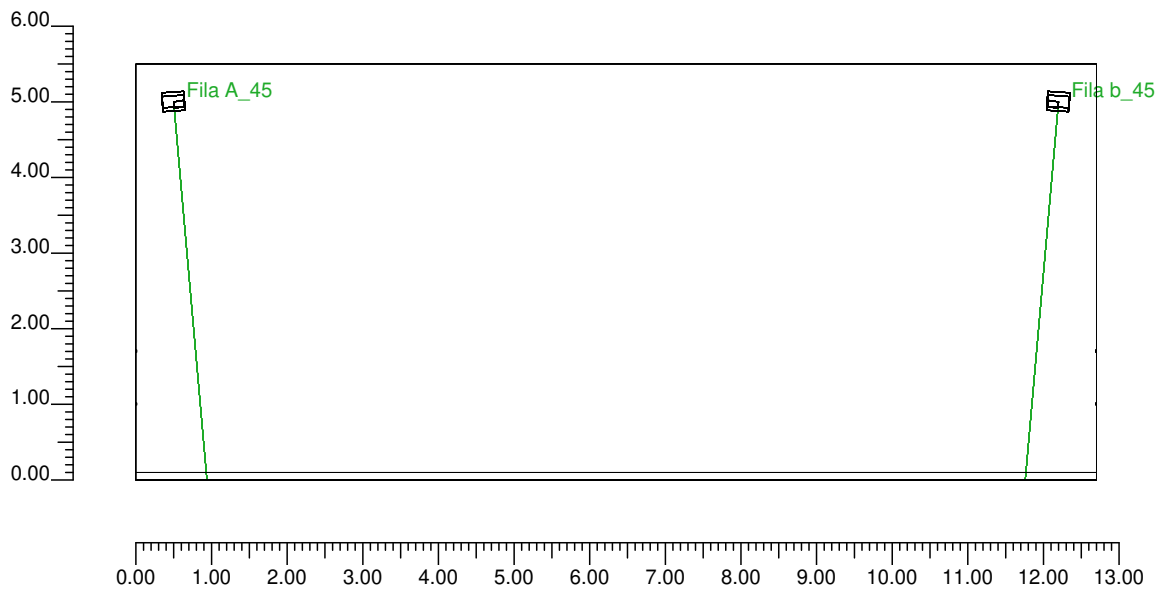
2.1 Vista 2D in Pianta

Scala 1/750



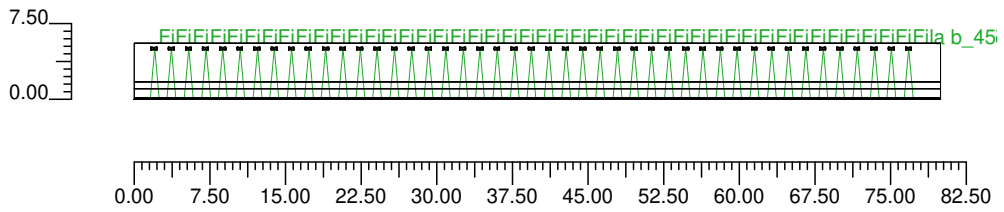
2.2 Vista Laterale

Scala 1/100



2.3 Vista Frontale

Scala 1/750



3.1 Informazioni Apparecchi/Rilievi

Rifer.	Linea	Nome Apparecchio (Nome Rilievo)	Codice Apparecchio (Codice Rilievo)	Apparecchi N.	Rif.Lamp.	Lampade N.
A	GRECHI Estruso	ESTRUSO1 ASIMM. 400W HPST/SAP (ESTRUSO1 400W HPST/SAPT)	ESTRUSO1-AHPST400W (010400ESTRUSO1HPST)	-	LMP-A	1

3.2 Informazioni Lampade

Rif.Lamp.	Tipo	Codice	Flusso lm	Potenza W	Colore K	N.
LMP-A	ST 400	NAV400SUPER	55500	400	2000	-

3.3 Tabella Riepilogativa Apparecchi

Rifer.	App.	On	Posizione Apparecchi X[m] Y[m] Z[m]	Rotazione Apparecchi X° Y° Z°	Codice Apparecchio	Coeff. Mant.	Codice Lampada	Flusso lm
A	1	X	2.00;0.50;5.00	5.0;-5.0;90.0	ESTRUSO1-AHPST400W	0.80	NAV400SUPER	1*55500
	2	X	3.70;0.50;5.00	5.0;-5.0;90.0		0.80		
	3	X	5.40;0.50;5.00	5.0;-5.0;90.0		0.80		
	4	X	7.10;0.50;5.00	5.0;-5.0;90.0		0.80		
	5	X	8.80;0.50;5.00	5.0;-5.0;90.0		0.80		
	6	X	10.50;0.50;5.00	5.0;-5.0;90.0		0.80		
	7	X	12.20;0.50;5.00	5.0;-5.0;90.0		0.80		
	8	X	13.90;0.50;5.00	5.0;-5.0;90.0		0.80		
	9	X	15.60;0.50;5.00	5.0;-5.0;90.0		0.80		
	10	X	17.30;0.50;5.00	5.0;-5.0;90.0		0.80		
	11	X	19.00;0.50;5.00	5.0;-5.0;90.0		0.80		
	12	X	20.70;0.50;5.00	5.0;-5.0;90.0		0.80		
	13	X	22.40;0.50;5.00	5.0;-5.0;90.0		0.80		
	14	X	24.10;0.50;5.00	5.0;-5.0;90.0		0.80		
	15	X	25.80;0.50;5.00	5.0;-5.0;90.0		0.80		
	16	X	27.50;0.50;5.00	5.0;-5.0;90.0		0.80		
	17	X	29.20;0.50;5.00	5.0;-5.0;90.0		0.80		
	18	X	30.90;0.50;5.00	5.0;-5.0;90.0		0.80		
	19	X	32.60;0.50;5.00	5.0;-5.0;90.0		0.80		
	20	X	34.30;0.50;5.00	5.0;-5.0;90.0		0.80		
	21	X	36.00;0.50;5.00	5.0;-5.0;90.0		0.80		
	22	X	37.70;0.50;5.00	5.0;-5.0;90.0		0.80		
	23	X	39.40;0.50;5.00	5.0;-5.0;90.0		0.80		
	24	X	41.10;0.50;5.00	5.0;-5.0;90.0		0.80		
	25	X	42.80;0.50;5.00	5.0;-5.0;90.0		0.80		
	26	X	44.50;0.50;5.00	5.0;-5.0;90.0		0.80		
	27	X	46.20;0.50;5.00	5.0;-5.0;90.0		0.80		
	28	X	47.90;0.50;5.00	5.0;-5.0;90.0		0.80		
	29	X	49.60;0.50;5.00	5.0;-5.0;90.0		0.80		
	30	X	51.30;0.50;5.00	5.0;-5.0;90.0		0.80		
	31	X	53.00;0.50;5.00	5.0;-5.0;90.0		0.80		
	32	X	54.70;0.50;5.00	5.0;-5.0;90.0		0.80		
	33	X	56.40;0.50;5.00	5.0;-5.0;90.0		0.80		
	34	X	58.10;0.50;5.00	5.0;-5.0;90.0		0.80		
	35	X	59.80;0.50;5.00	5.0;-5.0;90.0		0.80		
	36	X	61.50;0.50;5.00	5.0;-5.0;90.0		0.80		
	37	X	63.20;0.50;5.00	5.0;-5.0;90.0		0.80		
	38	X	64.90;0.50;5.00	5.0;-5.0;90.0		0.80		
	39	X	66.60;0.50;5.00	5.0;-5.0;90.0		0.80		
	40	X	68.30;0.50;5.00	5.0;-5.0;90.0		0.80		
	41	X	70.00;0.50;5.00	5.0;-5.0;90.0		0.80		
	42	X	71.70;0.50;5.00	5.0;-5.0;90.0		0.80		
	43	X	73.40;0.50;5.00	5.0;-5.0;90.0		0.80		

Rifer.	App.	On	Posizione Apparecchi X[m] Y[m] Z[m]	Rotazione Apparecchi X° Y° Z°	Codice Apparecchio	Coeff. Mant.	Codice Lampada	Flusso lm
A	44	X	75.10;0.50;5.00	5.0;-5.0;90.0	ESTRUSO1-AHPST400W	0.80	NAVT400SUPER	1*55500
	45	X	76.80;0.50;5.00	5.0;-5.0;90.0				
	46	X	2.00;12.20;5.00	5.0;-5.0;-90.0				
	47	X	3.70;12.20;5.00	5.0;-5.0;-90.0				
	48	X	5.40;12.20;5.00	5.0;-5.0;-90.0				
	49	X	7.10;12.20;5.00	5.0;-5.0;-90.0				
	50	X	8.80;12.20;5.00	5.0;-5.0;-90.0				
	51	X	10.50;12.20;5.00	5.0;-5.0;-90.0				
	52	X	12.20;12.20;5.00	5.0;-5.0;-90.0				
	53	X	13.90;12.20;5.00	5.0;-5.0;-90.0				
	54	X	15.60;12.20;5.00	5.0;-5.0;-90.0				
	55	X	17.30;12.20;5.00	5.0;-5.0;-90.0				
	56	X	19.00;12.20;5.00	5.0;-5.0;-90.0				
	57	X	20.70;12.20;5.00	5.0;-5.0;-90.0				
	58	X	22.40;12.20;5.00	5.0;-5.0;-90.0				
	59	X	24.10;12.20;5.00	5.0;-5.0;-90.0				
	60	X	25.80;12.20;5.00	5.0;-5.0;-90.0				
	61	X	27.50;12.20;5.00	5.0;-5.0;-90.0				
	62	X	29.20;12.20;5.00	5.0;-5.0;-90.0				
	63	X	30.90;12.20;5.00	5.0;-5.0;-90.0				
	64	X	32.60;12.20;5.00	5.0;-5.0;-90.0				
	65	X	34.30;12.20;5.00	5.0;-5.0;-90.0				
	66	X	36.00;12.20;5.00	5.0;-5.0;-90.0				
	67	X	37.70;12.20;5.00	5.0;-5.0;-90.0				
	68	X	39.40;12.20;5.00	5.0;-5.0;-90.0				
	69	X	41.10;12.20;5.00	5.0;-5.0;-90.0				
	70	X	42.80;12.20;5.00	5.0;-5.0;-90.0				
	71	X	44.50;12.20;5.00	5.0;-5.0;-90.0				
	72	X	46.20;12.20;5.00	5.0;-5.0;-90.0				
	73	X	47.90;12.20;5.00	5.0;-5.0;-90.0				
	74	X	49.60;12.20;5.00	5.0;-5.0;-90.0				
	75	X	51.30;12.20;5.00	5.0;-5.0;-90.0				
	76	X	53.00;12.20;5.00	5.0;-5.0;-90.0				
	77	X	54.70;12.20;5.00	5.0;-5.0;-90.0				
	78	X	56.40;12.20;5.00	5.0;-5.0;-90.0				
	79	X	58.10;12.20;5.00	5.0;-5.0;-90.0				
	80	X	59.80;12.20;5.00	5.0;-5.0;-90.0				
	81	X	61.50;12.20;5.00	5.0;-5.0;-90.0				
	82	X	63.20;12.20;5.00	5.0;-5.0;-90.0				
	83	X	64.90;12.20;5.00	5.0;-5.0;-90.0				
	84	X	66.60;12.20;5.00	5.0;-5.0;-90.0				
	85	X	68.30;12.20;5.00	5.0;-5.0;-90.0				
	86	X	70.00;12.20;5.00	5.0;-5.0;-90.0				
	87	X	71.70;12.20;5.00	5.0;-5.0;-90.0				
	88	X	73.40;12.20;5.00	5.0;-5.0;-90.0				
	89	X	75.10;12.20;5.00	5.0;-5.0;-90.0				
	90	X	76.80;12.20;5.00	5.0;-5.0;-90.0				

3.4 Tabella Riepilogativa Puntamenti

Struttura	Fila	Colonna	Rifer. 2D	On	Posizione Apparecchi X[m] Y[m] Z[m]	Rotazione Apparecchi X° Y° Z°	Puntamenti X[m] Y[m] Z[m]	R.Asse °	Coeff. Mant.	Rifer.
			Fila A_1	X	2.00;0.50;5.00	5.0;-5.0;90.0	1.56;0.94;0.00	-45	0.80	A
			Fila A_2	X	3.70;0.50;5.00	5.0;-5.0;90.0	3.26;0.94;0.00	-45	0.80	A
			Fila A_3	X	5.40;0.50;5.00	5.0;-5.0;90.0	4.96;0.94;0.00	-45	0.80	A
			Fila A_4	X	7.10;0.50;5.00	5.0;-5.0;90.0	6.66;0.94;0.00	-45	0.80	A
			Fila A_5	X	8.80;0.50;5.00	5.0;-5.0;90.0	8.36;0.94;0.00	-45	0.80	A
			Fila A_6	X	10.50;0.50;5.00	5.0;-5.0;90.0	10.06;0.94;0.00	-45	0.80	A
			Fila A_7	X	12.20;0.50;5.00	5.0;-5.0;90.0	11.76;0.94;0.00	-45	0.80	A
			Fila A_8	X	13.90;0.50;5.00	5.0;-5.0;90.0	13.46;0.94;0.00	-45	0.80	A
			Fila A_9	X	15.60;0.50;5.00	5.0;-5.0;90.0	15.16;0.94;0.00	-45	0.80	A
			Fila A_10	X	17.30;0.50;5.00	5.0;-5.0;90.0	16.86;0.94;0.00	-45	0.80	A
			Fila A_11	X	19.00;0.50;5.00	5.0;-5.0;90.0	18.56;0.94;0.00	-45	0.80	A
			Fila A_12	X	20.70;0.50;5.00	5.0;-5.0;90.0	20.26;0.94;0.00	-45	0.80	A
			Fila A_13	X	22.40;0.50;5.00	5.0;-5.0;90.0	21.96;0.94;0.00	-45	0.80	A
			Fila A_14	X	24.10;0.50;5.00	5.0;-5.0;90.0	23.66;0.94;0.00	-45	0.80	A

Struttura	Fila	Colonna	Rifer. 2D	On	Posizione Apparecchi			Rotazione Apparecchi			Puntamenti			R.Asse °	Coeff. Mant.	Rifer.
					X[m]	Y[m]	Z[m]	X°	Y°	Z°	X[m]	Y[m]	Z[m]			
			Fila A_15	X	25.80	0.50	5.00	5.0	-5.0	90.0	25.36	0.94	0.00	-45	0.80	A
			Fila A_16	X	27.50	0.50	5.00	5.0	-5.0	90.0	27.06	0.94	0.00	-45	0.80	A
			Fila A_17	X	29.20	0.50	5.00	5.0	-5.0	90.0	28.76	0.94	0.00	-45	0.80	A
			Fila A_18	X	30.90	0.50	5.00	5.0	-5.0	90.0	30.46	0.94	0.00	-45	0.80	A
			Fila A_19	X	32.60	0.50	5.00	5.0	-5.0	90.0	32.16	0.94	0.00	-45	0.80	A
			Fila A_20	X	34.30	0.50	5.00	5.0	-5.0	90.0	33.86	0.94	0.00	-45	0.80	A
			Fila A_21	X	36.00	0.50	5.00	5.0	-5.0	90.0	35.56	0.94	0.00	-45	0.80	A
			Fila A_22	X	37.70	0.50	5.00	5.0	-5.0	90.0	37.26	0.94	0.00	-45	0.80	A
			Fila A_23	X	39.40	0.50	5.00	5.0	-5.0	90.0	38.96	0.94	0.00	-45	0.80	A
			Fila A_24	X	41.10	0.50	5.00	5.0	-5.0	90.0	40.66	0.94	0.00	-45	0.80	A
			Fila A_25	X	42.80	0.50	5.00	5.0	-5.0	90.0	42.36	0.94	0.00	-45	0.80	A
			Fila A_26	X	44.50	0.50	5.00	5.0	-5.0	90.0	44.06	0.94	0.00	-45	0.80	A
			Fila A_27	X	46.20	0.50	5.00	5.0	-5.0	90.0	45.76	0.94	0.00	-45	0.80	A
			Fila A_28	X	47.90	0.50	5.00	5.0	-5.0	90.0	47.46	0.94	0.00	-45	0.80	A
			Fila A_29	X	49.60	0.50	5.00	5.0	-5.0	90.0	49.16	0.94	0.00	-45	0.80	A
			Fila A_30	X	51.30	0.50	5.00	5.0	-5.0	90.0	50.86	0.94	0.00	-45	0.80	A
			Fila A_31	X	53.00	0.50	5.00	5.0	-5.0	90.0	52.56	0.94	0.00	-45	0.80	A
			Fila A_32	X	54.70	0.50	5.00	5.0	-5.0	90.0	54.26	0.94	0.00	-45	0.80	A
			Fila A_33	X	56.40	0.50	5.00	5.0	-5.0	90.0	55.96	0.94	0.00	-45	0.80	A
			Fila A_34	X	58.10	0.50	5.00	5.0	-5.0	90.0	57.66	0.94	0.00	-45	0.80	A
			Fila A_35	X	59.80	0.50	5.00	5.0	-5.0	90.0	59.36	0.94	0.00	-45	0.80	A
			Fila A_36	X	61.50	0.50	5.00	5.0	-5.0	90.0	61.06	0.94	0.00	-45	0.80	A
			Fila A_37	X	63.20	0.50	5.00	5.0	-5.0	90.0	62.76	0.94	0.00	-45	0.80	A
			Fila A_38	X	64.90	0.50	5.00	5.0	-5.0	90.0	64.46	0.94	0.00	-45	0.80	A
			Fila A_39	X	66.60	0.50	5.00	5.0	-5.0	90.0	66.16	0.94	0.00	-45	0.80	A
			Fila A_40	X	68.30	0.50	5.00	5.0	-5.0	90.0	67.86	0.94	0.00	-45	0.80	A
			Fila A_41	X	70.00	0.50	5.00	5.0	-5.0	90.0	69.56	0.94	0.00	-45	0.80	A
			Fila A_42	X	71.70	0.50	5.00	5.0	-5.0	90.0	71.26	0.94	0.00	-45	0.80	A
			Fila A_43	X	73.40	0.50	5.00	5.0	-5.0	90.0	72.96	0.94	0.00	-45	0.80	A
			Fila A_44	X	75.10	0.50	5.00	5.0	-5.0	90.0	74.66	0.94	0.00	-45	0.80	A
			Fila A_45	X	76.80	0.50	5.00	5.0	-5.0	90.0	76.36	0.94	0.00	-45	0.80	A
			Fila b_1	X	2.00	12.20	5.00	5.0	-5.0	-90.0	2.44	11.76	0.00	-45	0.80	A
			Fila b_2	X	3.70	12.20	5.00	5.0	-5.0	-90.0	4.14	11.76	0.00	-45	0.80	A
			Fila b_3	X	5.40	12.20	5.00	5.0	-5.0	-90.0	5.84	11.76	0.00	-45	0.80	A
			Fila b_4	X	7.10	12.20	5.00	5.0	-5.0	-90.0	7.54	11.76	0.00	-45	0.80	A
			Fila b_5	X	8.80	12.20	5.00	5.0	-5.0	-90.0	9.24	11.76	0.00	-45	0.80	A
			Fila b_6	X	10.50	12.20	5.00	5.0	-5.0	-90.0	10.94	11.76	0.00	-45	0.80	A
			Fila b_7	X	12.20	12.20	5.00	5.0	-5.0	-90.0	12.64	11.76	0.00	-45	0.80	A
			Fila b_8	X	13.90	12.20	5.00	5.0	-5.0	-90.0	14.34	11.76	0.00	-45	0.80	A
			Fila b_9	X	15.60	12.20	5.00	5.0	-5.0	-90.0	16.04	11.76	0.00	-45	0.80	A
			Fila b_10	X	17.30	12.20	5.00	5.0	-5.0	-90.0	17.74	11.76	0.00	-45	0.80	A
			Fila b_11	X	19.00	12.20	5.00	5.0	-5.0	-90.0	19.44	11.76	0.00	-45	0.80	A
			Fila b_12	X	20.70	12.20	5.00	5.0	-5.0	-90.0	21.14	11.76	0.00	-45	0.80	A
			Fila b_13	X	22.40	12.20	5.00	5.0	-5.0	-90.0	22.84	11.76	0.00	-45	0.80	A
			Fila b_14	X	24.10	12.20	5.00	5.0	-5.0	-90.0	24.54	11.76	0.00	-45	0.80	A
			Fila b_15	X	25.80	12.20	5.00	5.0	-5.0	-90.0	26.24	11.76	0.00	-45	0.80	A
			Fila b_16	X	27.50	12.20	5.00	5.0	-5.0	-90.0	27.94	11.76	0.00	-45	0.80	A
			Fila b_17	X	29.20	12.20	5.00	5.0	-5.0	-90.0	29.64	11.76	0.00	-45	0.80	A
			Fila b_18	X	30.90	12.20	5.00	5.0	-5.0	-90.0	31.34	11.76	0.00	-45	0.80	A
			Fila b_19	X	32.60	12.20	5.00	5.0	-5.0	-90.0	33.04	11.76	0.00	-45	0.80	A
			Fila b_20	X	34.30	12.20	5.00	5.0	-5.0	-90.0	34.74	11.76	0.00	-45	0.80	A
			Fila b_21	X	36.00	12.20	5.00	5.0	-5.0	-90.0	36.44	11.76	0.00	-45	0.80	A
			Fila b_22	X	37.70	12.20	5.00	5.0	-5.0	-90.0	38.14	11.76	0.00	-45	0.80	A
			Fila b_23	X	39.40	12.20	5.00	5.0	-5.0	-90.0	39.84	11.76	0.00	-45	0.80	A
			Fila b_24	X	41.10	12.20	5.00	5.0	-5.0	-90.0	41.54	11.76	0.00	-45	0.80	A
			Fila b_25	X	42.80	12.20	5.00	5.0	-5.0	-90.0	43.24	11.76	0.00	-45	0.80	A
			Fila b_26	X	44.50	12.20	5.00	5.0	-5.0	-90.0	44.94	11.76	0.00	-45	0.80	A
			Fila b_27	X	46.20	12.20	5.00	5.0	-5.0	-90.0	46.64	11.76	0.00	-45	0.80	A
			Fila b_28	X	47.90	12.20	5.00	5.0	-5.0	-90.0	48.34	11.76	0.00	-45	0.80	A
			Fila b_29	X	49.60	12.20	5.00	5.0	-5.0	-90.0	50.04	11.76	0.00	-45	0.80	A
			Fila b_30	X	51.30	12.20	5.00	5.0	-5.0	-90.0	51.74	11.76	0.00	-45	0.80	A
			Fila b_31	X	53.00	12.20	5.00	5.0	-5.0	-90.0	53.44	11.76	0.00	-45	0.80	A
			Fila b_32	X	54.70	12.20	5.00	5.0	-5.0	-90.0	55.14	11.76	0.00	-45	0.80	A
			Fila b_33	X	56.40	12.20	5.00	5.0	-5.0	-90.0	56.84	11.76	0.00	-45	0.80	A
			Fila b_34	X	58.10	12.20	5.00	5.0	-5.0	-90.0	58.54	11.76	0.00	-45	0.80	A
			Fila b_35	X	59.80	12.20	5.00	5.0	-5.0	-90.0	60.24	11.76	0.00	-45	0.80	A
			Fila b_36	X	61.50	12.20	5.00	5.0	-5.0	-90.0	61.94	11.76	0.00	-45	0.80	A
			Fila b_37	X	63.20	12.20	5.00	5.0	-5.0	-90.0	63.64	11.76	0.00	-45	0.80	A
			Fila b_38	X	64.90	12.20	5.00	5.0	-5.0	-90.0	65.34	11.76	0.00	-45	0.80	A
			Fila b_39	X	66.60	12.20	5.00	5.0	-5.0	-90.0	67.04	11.76	0.00	-45	0.80	A
			Fila b_40	X	68.30	12.20	5.00	5.0	-5.0	-90.0	68.74	11.76	0.00	-45	0.80	A

Struttura	Fila	Colonna	Rifer. 2D	On	Posizione Apparecchi X[m] Y[m] Z[m]	Rotazione Apparecchi X° Y° Z°	Puntamenti X[m] Y[m] Z[m]	R.Asse °	Coeff. Mant.	Rifer.
			Fila b_41	X	70.00;12.20;5.00	5.0;-5.0;-90.0	70.44;11.76;0.00	-45	0.80	A
			Fila b_42	X	71.70;12.20;5.00	5.0;-5.0;-90.0	72.14;11.76;0.00	-45	0.80	A
			Fila b_43	X	73.40;12.20;5.00	5.0;-5.0;-90.0	73.84;11.76;0.00	-45	0.80	A
			Fila b_44	X	75.10;12.20;5.00	5.0;-5.0;-90.0	75.54;11.76;0.00	-45	0.80	A
			Fila b_45	X	76.80;12.20;5.00	5.0;-5.0;-90.0	77.24;11.76;0.00	-45	0.80	A

4.1 Curva Luminanza Oss. 1(x=-60.00;y=4.92;z=1.50)m

O (x:0.00 y:3.05 z:0.00)	Risultati	Medio	Minimo	Massimo	Min/Medio	Min/Max	Medio/Max
DX:2.96 DY:1.25	Luminanza (L)	115 cd/m ²	32 cd/m ²	132 cd/m ²	0.28	0.24	0.87

Tipo Calcolo

Dir.+Indir.(1 Interriflessioni) + Arredi

Nome Corsia	Largh. Corsia [m] W	y1 [m]	y2 [m]	Pt.Calc.Y	Tabella R	Coeff.Rifl. Fattore q0	Osservatore x Assoluto [m]	Osservatore y Assoluto [m]	Luminanza Velante [cd/m ²]	Incremento di Soglia [%]	Uniformità Longitudinale
Carregg_A_C1	3.75	3.05	6.80	3	C2	7.01	-60.00	4.92	0.56	0.69	0.38 *
Carregg_A_C2	3.75	6.80	10.55	3	C2	7.01	-60.00	4.92	0.56	---	---

Norma:

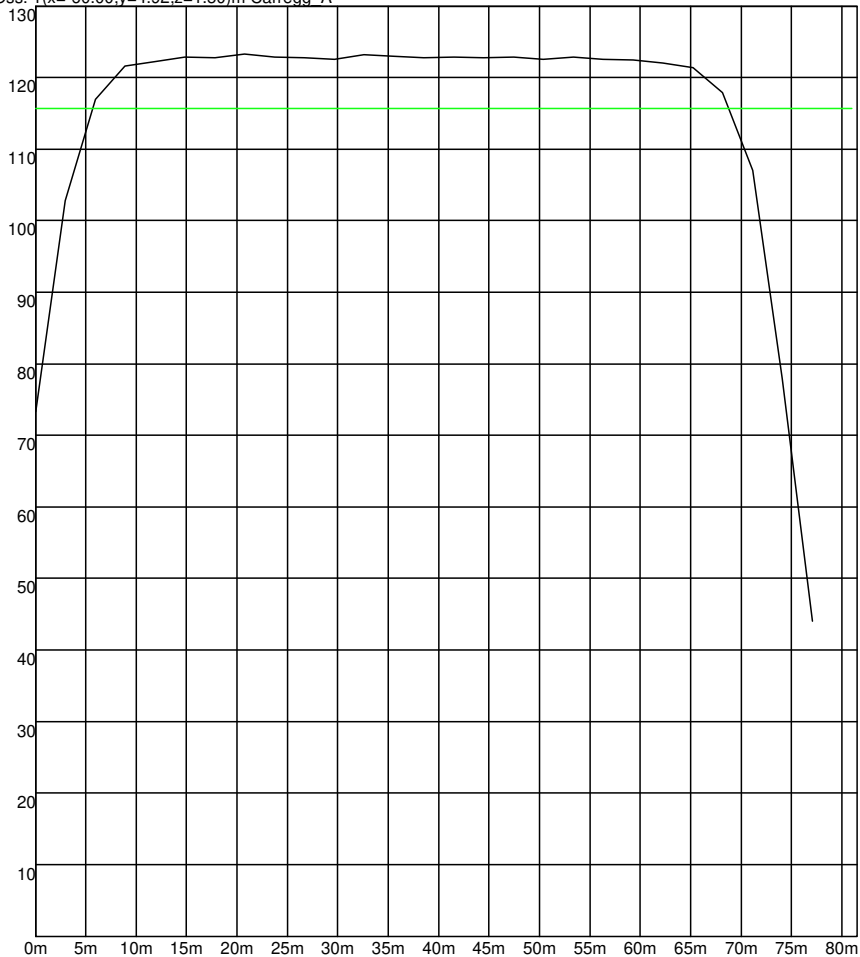
CEN 13201

Zona: Carregg_A
 Luminanza Media 113.054 cd/m² (Carregg_A_C2 Obs1)
 Uniformita' Generale 0.283 (Carregg_A_C2 Obs1)
 Uniformita' Longitudinale 0.323 (Carregg_A_C2 Obs1)

Par. 1 Luminanza Media 102.498 cd/m² (1m e 1,7m)
 Par. 1 Illum. Medio 715.568lx (1m e 1,7m)
 Par. 1 Uniformita' Generale 0.204 (1m e 1,7m)
 Par. 1 Uniformita' Longitudinale 0.182 (a 1,7m)

Par. 2 Luminanza Media 98.080 cd/m² (1m e 1,7m)
 Par. 2 Illum. Medio 684.728lx (1m e 1,7m)
 Par. 2 Uniformita' Generale 0.183 (1m e 1,7m)
 Par. 2 Uniformita' Longitudinale 0.164 (a 1,7m)

Luminanza Oss. 1(x=-60.00;y=4.92;z=1.50)m Carregg_A



4.2 Valori delle Luminanze su: MANTO STRADALE DA 0 A 80 M. Oss. 1(x=-60.00;y=4.92;z=1.50)m

O (x:12.30 y:3.05 z:0.00)	Risultati	Medio	Minimo	Massimo	Min/Medio	Min/Max	Medio/Max
DX:2.96 DY:1.25	Luminanza (L)	123 cd/m ²	108 cd/m ²	132 cd/m ²	0.88	0.82	0.93

Tipo Calcolo

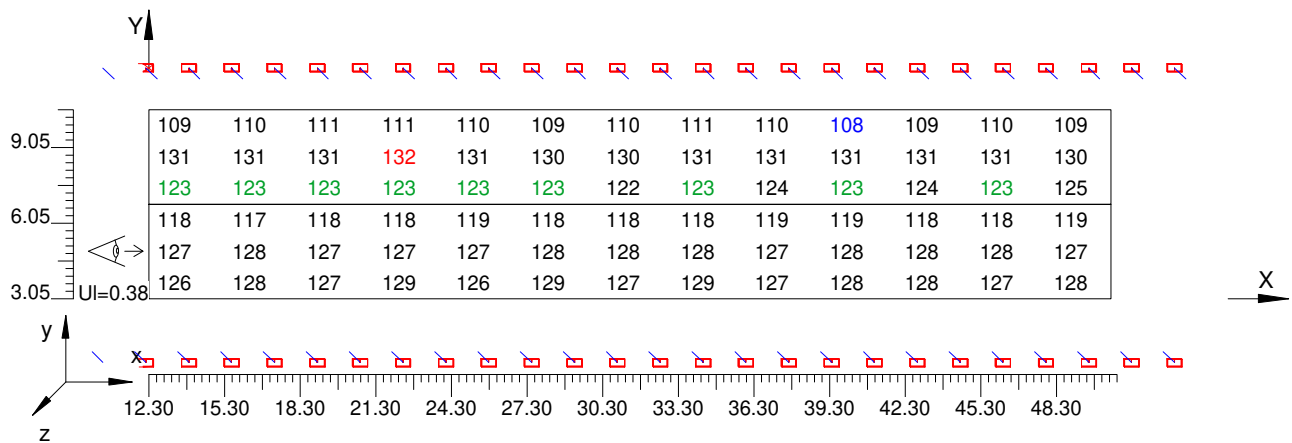
Dir.+Indir.(1 Interriflessioni) + Arredi

Nome Corsia	Largh. Corsia [m] W	y1 [m]	y2 [m]	Pt.Calc.Y	Tabella R	Coeff.Rifl. Fattore q0	Osservatore x Assoluto [m]	Osservatore y Assoluto [m]	Luminanza Velante [cd/m ²]	Incremento di Soglia [%]	Uniformità Longitudinale
Carregg_A_C1	3.75	3.05	6.80	3	C2	7.01	-60.00	4.92	0.56	0.69	0.38 *
Carregg_A_C2	3.75	6.80	10.55	3	C2	7.01	-60.00	4.92	0.56	---	---

Norma:

CEN 13201

Scala 1/300



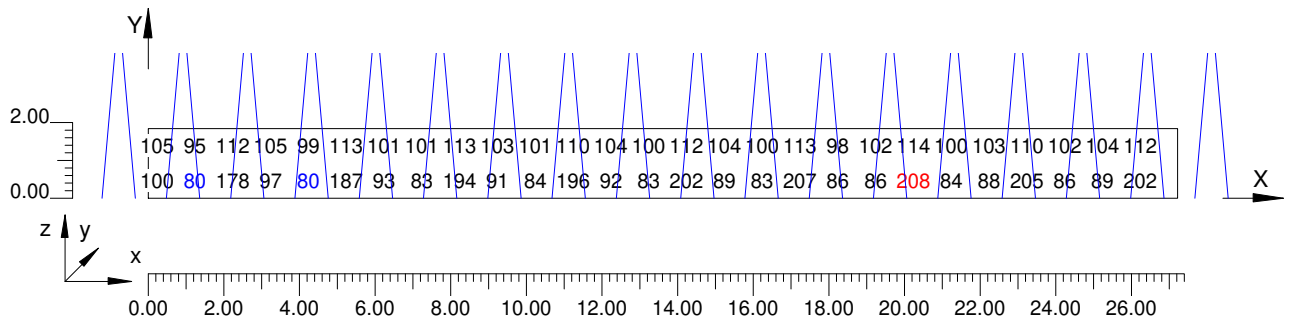
4.3 Valori delle Luminanze su: Parete 1 DA 0 A 80 M. (x=-60.00;y=4.93;z=1.50)m ---> (x=30.00;y=4.93;z=1.50)m

O (x:19.76 y:12.70 z:0.00)	Risultati	Medio	Minimo	Massimo	Min/Medio	Min/Max	Medio/Max
DX:1.00 DY:0.92	Luminanza (L)	115 cd/m ²	80 cd/m ²	208 cd/m ²	0.69	0.38	0.55

Tipo Calcolo

Dir.+Indir.(1 Interriflessioni) + Arredi

Scala 1/200



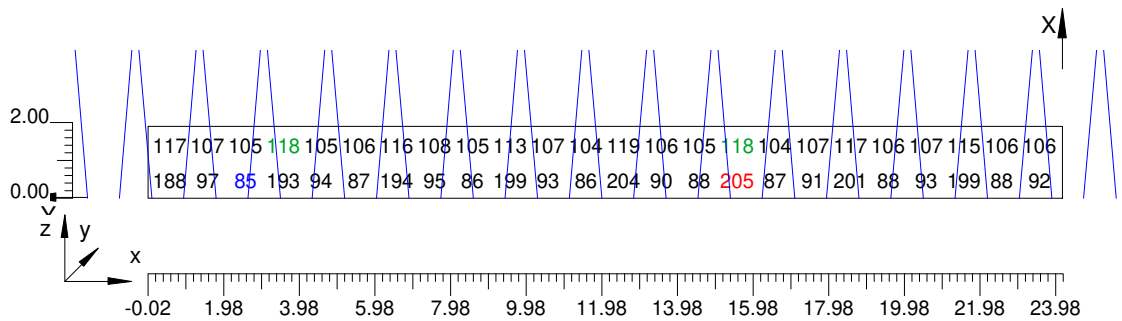
4.4 Valori delle Luminanze su: Parete 2 DA 0 A 80 M. (x=-60.00;y=4.93;z=1.50)m ---> (x=30.00;y=4.93;z=1.50)m

O (x:48.60 y:0.00 z:0.00)	Risultati	Medio	Minimo	Massimo	Min/Medio	Min/Max	Medio/Max
DX:0.92 DY:1.00	Luminanza (L)	118 cd/m ²	85 cd/m ²	205 cd/m ²	0.72	0.42	0.58

Tipo Calcolo

Dir.+Indir.(1 Interriflessioni) + Arredi

Scala 1/200



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