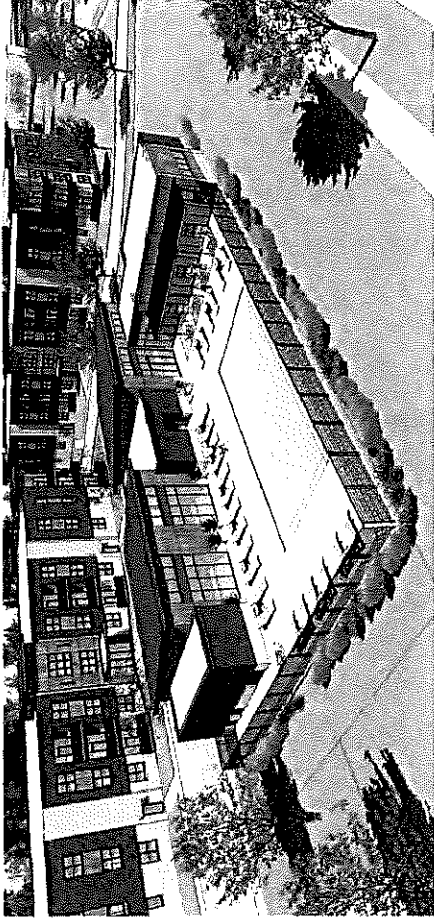
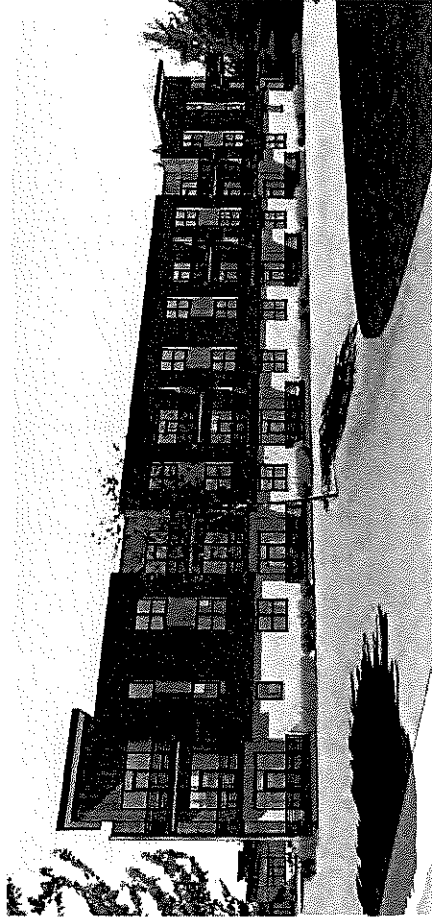




LOOKING NORTHEAST TOWARDS CLUB HOUSE



LOOKING NORTHWEST TOWARDS APARTMENTS



LOOKING WEST TOWARDS APARTMENTS



LOOKING SOUTHWEST TOWARDS CLUBHOUSE

*LANDSCAPING SHOWN IN THE RENDERINGS DOES NOT
MATCH THAT SHOWN IN THE LANDSCAPE PLANS

A100

7333 South 27th Street Multi-Family Development

Perspectives

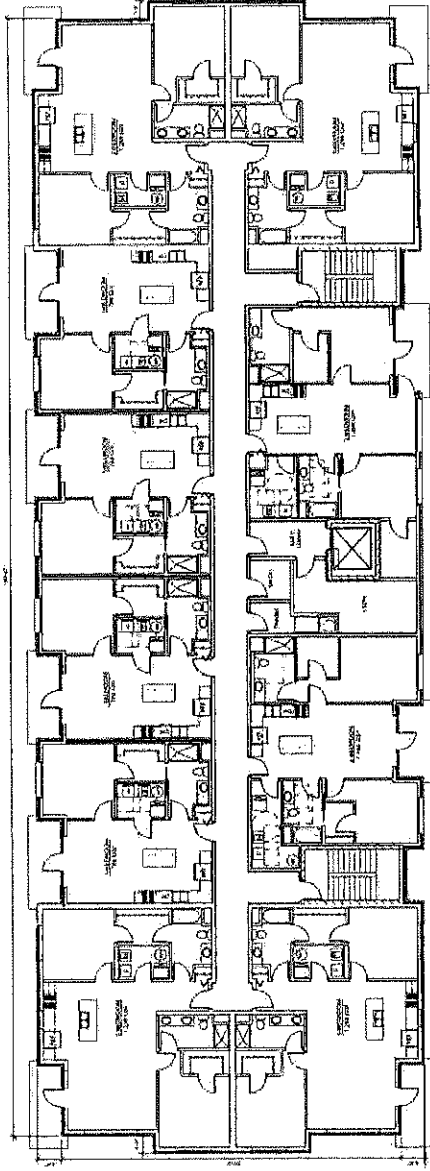
ZILBER LTD. **ewa**

APPENDIX A: ARCHITECT'S

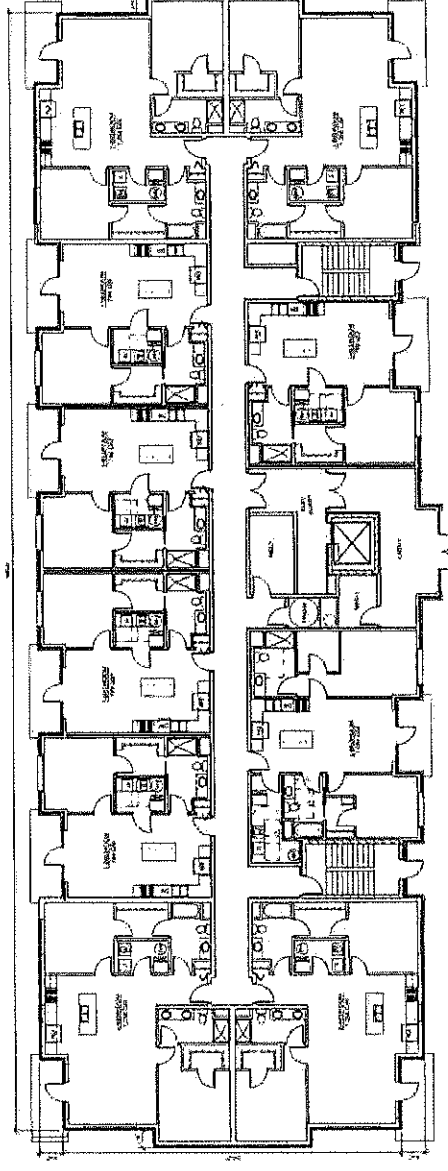
REVISIONS

1.000000

1.000000



SECOND & THIRD FLOOR PLAN - 1/8" = 1'-0"



FIRST FLOOR PLAN - 1/8" = 1'-0"



A101

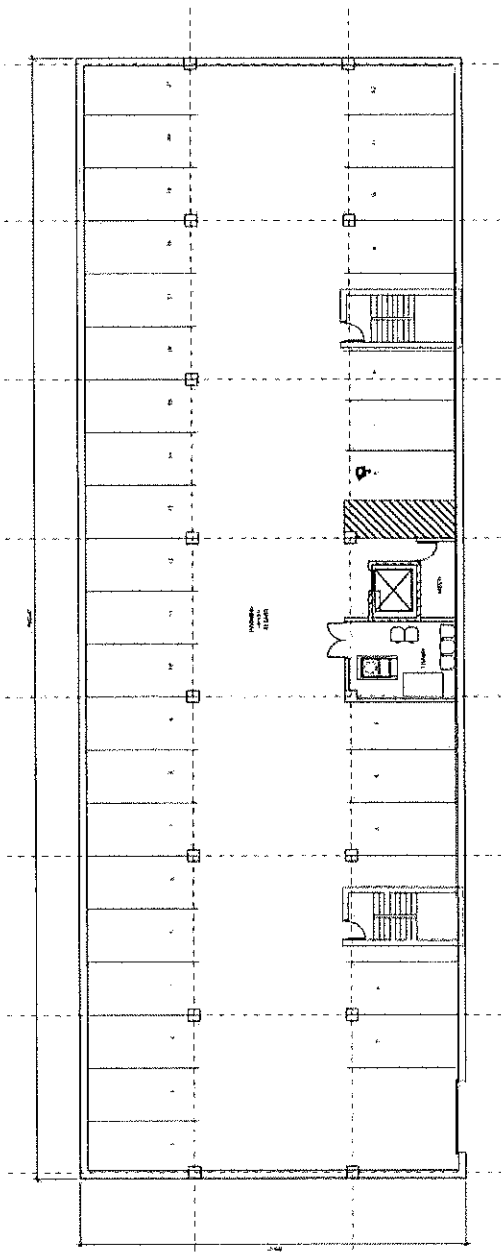
7333 South 27th Street Multi-Family Development

First, Second & Third Floor Plans

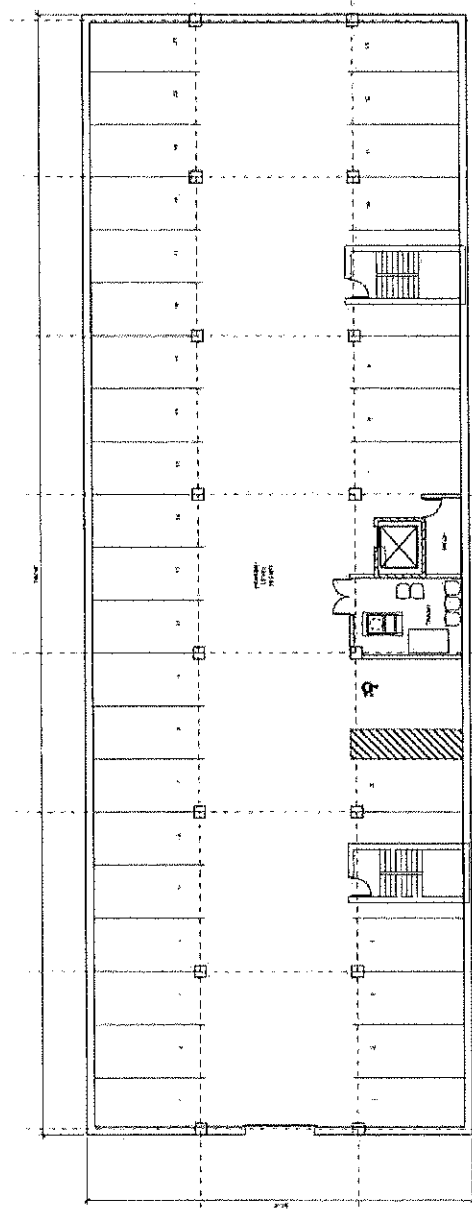
ZILBER LTD.

euo

expansion, rehab, & upgrade
ARCHITECT



PARKING PLAN 1 - 1/8" = 1'-0"



PARKING FLAM 2 - 1/8" = 1'-0"

Project Duration Requirements:

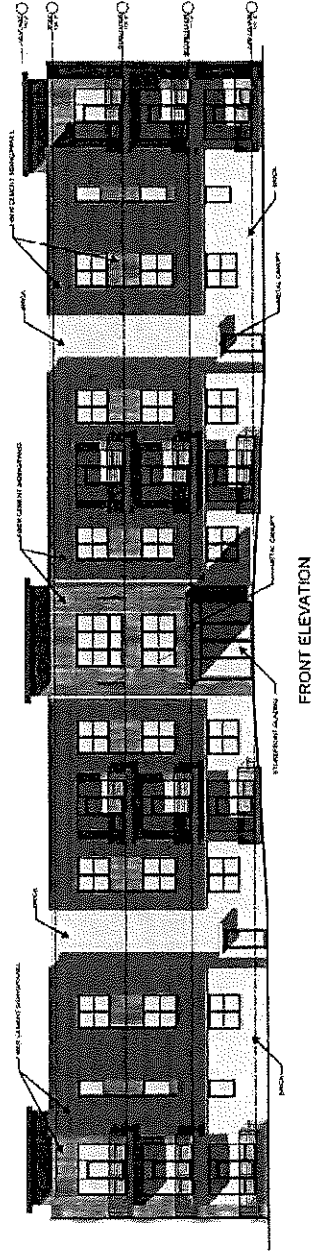
- 1 week per 1-hour team workshop
- 2 weeks per 2-hour team workshop
- 3 weeks per 3-hour team workshop

Project Duration Examples:

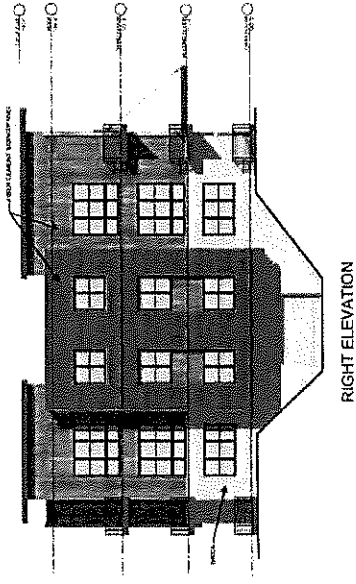
- 17 1-hour team workshops = 17 weeks
- 17 2-hour team workshops = 34 weeks
- 17 3-hour team workshops = 51 weeks

Project Duration Calculation:

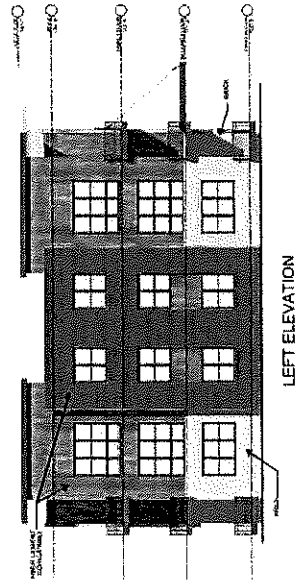
- 17 2-hour workshops = 34 weeks
- 17 3-hour workshops = 51 weeks
- 17 4-hour workshops = 68 weeks
- 17 5-hour workshops = 85 weeks
- 17 6-hour workshops = 102 weeks
- 17 7-hour workshops = 119 weeks
- 17 8-hour workshops = 136 weeks
- 17 9-hour workshops = 153 weeks
- 17 10-hour workshops = 170 weeks
- 17 11-hour workshops = 187 weeks
- 17 12-hour workshops = 204 weeks
- 17 13-hour workshops = 221 weeks
- 17 14-hour workshops = 238 weeks
- 17 15-hour workshops = 255 weeks
- 17 16-hour workshops = 272 weeks
- 17 17-hour workshops = 289 weeks
- 17 18-hour workshops = 306 weeks
- 17 19-hour workshops = 323 weeks
- 17 20-hour workshops = 340 weeks
- 17 21-hour workshops = 357 weeks
- 17 22-hour workshops = 374 weeks
- 17 23-hour workshops = 391 weeks
- 17 24-hour workshops = 408 weeks
- 17 25-hour workshops = 425 weeks
- 17 26-hour workshops = 442 weeks
- 17 27-hour workshops = 459 weeks
- 17 28-hour workshops = 476 weeks
- 17 29-hour workshops = 493 weeks
- 17 30-hour workshops = 510 weeks
- 17 31-hour workshops = 527 weeks
- 17 32-hour workshops = 544 weeks
- 17 33-hour workshops = 561 weeks
- 17 34-hour workshops = 578 weeks
- 17 35-hour workshops = 595 weeks
- 17 36-hour workshops = 612 weeks
- 17 37-hour workshops = 629 weeks
- 17 38-hour workshops = 646 weeks
- 17 39-hour workshops = 663 weeks
- 17 40-hour workshops = 680 weeks
- 17 41-hour workshops = 697 weeks
- 17 42-hour workshops = 714 weeks
- 17 43-hour workshops = 731 weeks
- 17 44-hour workshops = 748 weeks
- 17 45-hour workshops = 765 weeks
- 17 46-hour workshops = 782 weeks
- 17 47-hour workshops = 799 weeks
- 17 48-hour workshops = 816 weeks
- 17 49-hour workshops = 833 weeks
- 17 50-hour workshops = 850 weeks
- 17 51-hour workshops = 867 weeks
- 17 52-hour workshops = 884 weeks
- 17 53-hour workshops = 901 weeks
- 17 54-hour workshops = 918 weeks
- 17 55-hour workshops = 935 weeks
- 17 56-hour workshops = 952 weeks
- 17 57-hour workshops = 969 weeks
- 17 58-hour workshops = 986 weeks
- 17 59-hour workshops = 1003 weeks
- 17 60-hour workshops = 1020 weeks
- 17 61-hour workshops = 1037 weeks
- 17 62-hour workshops = 1054 weeks
- 17 63-hour workshops = 1071 weeks
- 17 64-hour workshops = 1088 weeks
- 17 65-hour workshops = 1105 weeks
- 17 66-hour workshops = 1122 weeks
- 17 67-hour workshops = 1139 weeks
- 17 68-hour workshops = 1156 weeks
- 17 69-hour workshops = 1173 weeks
- 17 70-hour workshops = 1190 weeks
- 17 71-hour workshops = 1207 weeks
- 17 72-hour workshops = 1224 weeks
- 17 73-hour workshops = 1241 weeks
- 17 74-hour workshops = 1258 weeks
- 17 75-hour workshops = 1275 weeks
- 17 76-hour workshops = 1292 weeks
- 17 77-hour workshops = 1309 weeks
- 17 78-hour workshops = 1326 weeks
- 17 79-hour workshops = 1343 weeks
- 17 80-hour workshops = 1360 weeks
- 17 81-hour workshops = 1377 weeks
- 17 82-hour workshops = 1394 weeks
- 17 83-hour workshops = 1411 weeks
- 17 84-hour workshops = 1428 weeks
- 17 85-hour workshops = 1445 weeks
- 17 86-hour workshops = 1462 weeks
- 17 87-hour workshops = 1479 weeks
- 17 88-hour workshops = 1496 weeks
- 17 89-hour workshops = 1513 weeks
- 17 90-hour workshops = 1530 weeks
- 17 91-hour workshops = 1547 weeks
- 17 92-hour workshops = 1564 weeks
- 17 93-hour workshops = 1581 weeks
- 17 94-hour workshops = 1598 weeks
- 17 95-hour workshops = 1615 weeks
- 17 96-hour workshops = 1632 weeks
- 17 97-hour workshops = 1649 weeks
- 17 98-hour workshops = 1666 weeks
- 17 99-hour workshops = 1683 weeks
- 17 100-hour workshops = 1700 weeks
- 17 101-hour workshops = 1717 weeks
- 17 102-hour workshops = 1734 weeks
- 17 103-hour workshops = 1751 weeks
- 17 104-hour workshops = 1768 weeks
- 17 105-hour workshops = 1785 weeks
- 17 106-hour workshops = 1802 weeks
- 17 107-hour workshops = 1819 weeks
- 17 108-hour workshops = 1836 weeks
- 17 109-hour workshops = 1853 weeks
- 17 110-hour workshops = 1870 weeks
- 17 111-hour workshops = 1887 weeks
- 17 112-hour workshops = 1904 weeks
- 17 113-hour workshops = 1921 weeks
- 17 114-hour workshops = 1938 weeks
- 17 115-hour workshops = 1955 weeks
- 17 116-hour workshops = 1972 weeks
- 17 117-hour workshops = 1989 weeks
- 17 118-hour workshops = 2006 weeks
- 17 119-hour workshops = 2023 weeks
- 17 120-hour workshops = 2040 weeks
- 17 121-hour workshops = 2057 weeks
- 17 122-hour workshops = 2074 weeks
- 17 123-hour workshops = 2091 weeks
- 17 124-hour workshops = 2108 weeks
- 17 125-hour workshops = 2125 weeks
- 17 126-hour workshops = 2142 weeks
- 17 127-hour workshops = 2159 weeks
- 17 128-hour workshops = 2176 weeks
- 17 129-hour workshops = 2193 weeks
- 17 130-hour workshops = 2210 weeks
- 17 131-hour workshops = 2227 weeks
- 17 132-hour workshops = 2244 weeks
- 17 133-hour workshops = 2261 weeks
- 17 134-hour workshops = 2278 weeks
- 17 135-hour workshops = 2295 weeks
- 17 136-hour workshops = 2312 weeks
- 17 137-hour workshops = 2329 weeks
- 17 138-hour workshops = 2346 weeks
- 17 139-hour workshops = 2363 weeks
- 17 140-hour workshops = 2380 weeks
- 17 141-hour workshops = 2397 weeks
- 17 142-hour workshops = 2414 weeks
- 17 143-hour workshops = 2431 weeks
- 17 144-hour workshops = 2448 weeks
- 17 145-hour workshops = 2465 weeks
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- 17 149-hour workshops = 2533 weeks
- 17 150-hour workshops = 2550 weeks
- 17 151-hour workshops = 2567 weeks
- 17 152-hour workshops = 2584 weeks
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- 17 157-hour workshops = 2669 weeks
- 17 158-hour workshops = 2686 weeks
- 17 159-hour workshops = 2703 weeks
- 17 160-hour workshops = 2720 weeks
- 17 161-hour workshops = 2737 weeks
- 17 162-hour workshops = 2754 weeks
- 17 163-hour workshops = 2771 weeks
- 17 164-hour workshops = 2788 weeks
- 17 165-hour workshops = 2805 weeks
- 17 166-hour workshops = 2822 weeks
- 17 167-hour workshops = 2839 weeks
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- 17 173-hour workshops = 2941 weeks
- 17 174-hour workshops = 2958 weeks
- 17 175-hour workshops = 2975 weeks
- 17 176-hour workshops = 2992 weeks
- 17 177-hour workshops = 3009 weeks
- 17 178-hour workshops = 3026 weeks
- 17 179-hour workshops = 3043 weeks
- 17 180-hour workshops = 3060 weeks
- 17 181-hour workshops = 3077 weeks
- 17 182-hour workshops = 3094 weeks
- 17 183-hour workshops = 3111 weeks
- 17 184-hour workshops = 3128 weeks
- 17 185-hour workshops = 3145 weeks
- 17 186-hour workshops = 3162 weeks
- 17 187-hour workshops = 3179 weeks
- 17 188-hour workshops = 3196 weeks
- 17 189-hour workshops = 3213 weeks
- 17 190-hour workshops = 3230 weeks
- 17 191-hour workshops = 3247 weeks
- 17 192-hour workshops = 3264 weeks
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- 17 194-hour workshops = 3298 weeks
- 17 195-hour workshops = 3315 weeks
- 17 196-hour workshops = 3332 weeks
- 17 197-hour workshops = 3349



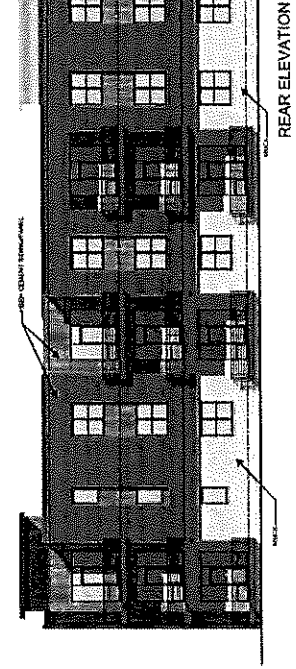
FRONT ELEVATION



RIGHT ELEVATION



LEFT ELEVATION



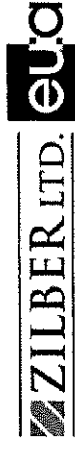
REAR ELEVATION



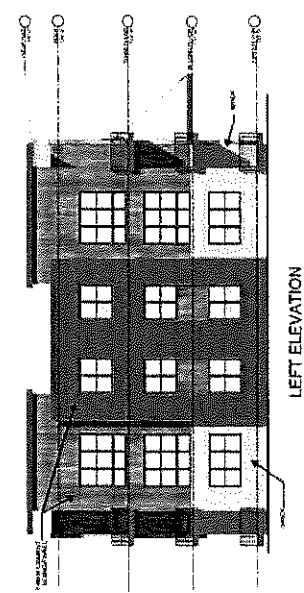
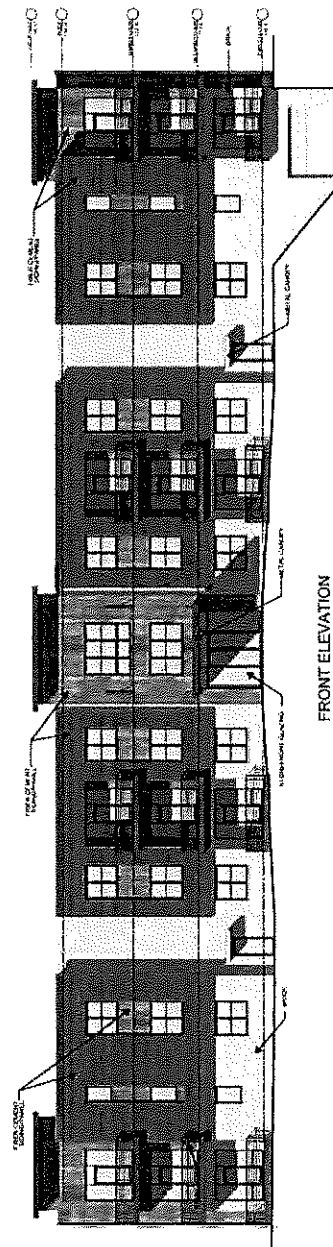
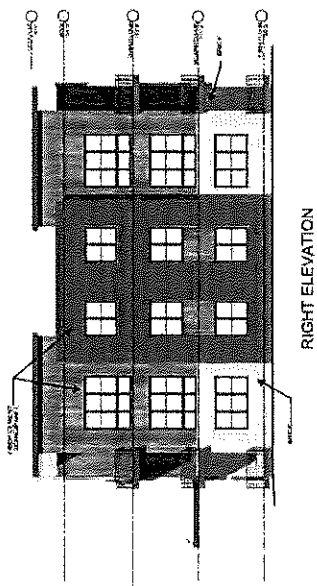
A103

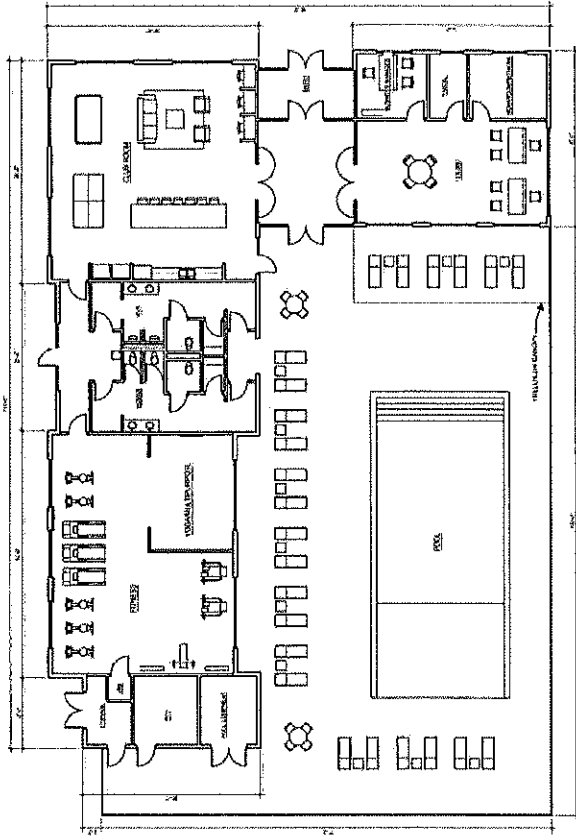
7333 South 27th Street Multi-Family Development

Elevations

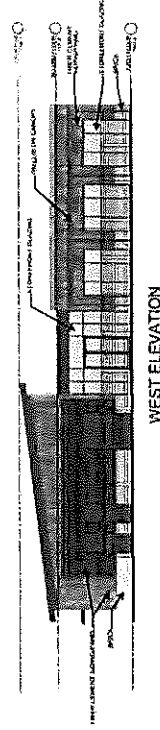
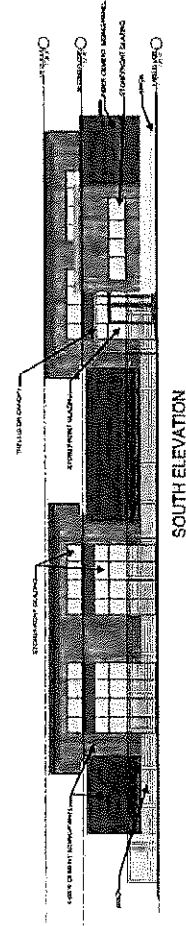
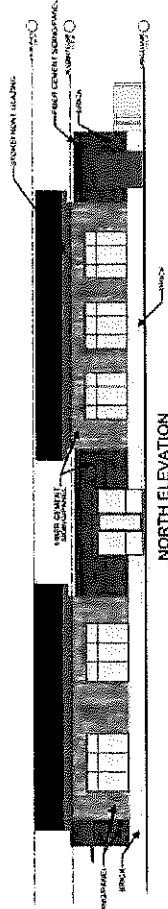
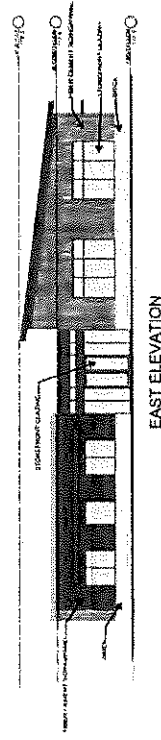


applicable to all projects
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CLUB HOUSE FLOOR PLAN - 1/8" = 1'-0"



A105

7333 South 27th Street Multi-Family Development

Club House Plans & Elevations

ZILBER LTD. **eu.a**

appleby urban architects

ARCHITECTS

PRELIMINARY



LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
 Location **Franklin, Wisconsin**

Boring No. **1**
 Surface Elevation (ft) **766.3**
 Job No. **CM17054**
 Sheet **1** of **1**

336 S Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LOI
1	15	M	12		Dark Brown Lean CLAY; Some Fine to Coarse Gravel (OL) Very Stiff to Hard, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(4.0-4.5+)				
2	17	M	20			(4.0)				
3	17	M	15			(4.5+)				
4	18	M	16			(4.0-4.5+)				
5	17	M	14		Very Stiff to Hard, Gray Lean CLAY; Trace Gravel, Some Fine Sand and Gravel Seams (CL)	(3.0)				
6	17	M	13			(3.0-4.0)				
7	17	M	24			(4.5+)				
					End of Boring at 25 ft Backfilled with Bentonite Chips					

WATER LEVEL OBSERVATIONS

While Drilling ☒ Upon Completion of Drilling 13.5'
 Time After Drilling 0.5 hr
 Depth to Water 11.2' ▼
 Depth to Cave in _____

GENERAL NOTES

Start 4/25/17 End 4/25/17
 Driller SE Chief Cory Rig 7822DT
 Logger Cory Editor AS
 Drill Method 2.25" HSA

The information on this report was prepared by the person(s) named above and is not to be used for any other purpose without the written consent of the person(s) named above.

PRELIMINARY

CGC Inc.

LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
 Location **Franklin, Wisconsin**

Boring No. **2**
 Surface Elevation (ft) **766.1**
 Job No. **CM17054**
 Sheet **1** of **1**

336 S, Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LOI
1	16	W	5	5	Dark Brown Lean CLAY (OL)					
					Brown Lean CLAY; Trace Gravel (CL)					
					Loose, Brown Fine to Coarse SAND; Little Silt, Trace Gravel (SP-SM)					
2	17	M	18	10	Hard, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(4.5+)				
3	16	M	26	15		(4.5+)				
4	0	--	19	20						
5	17	M	7	25	Stiff to Hard, Gray Lean CLAY; Trace Gravel, Some Sand and Gravel Seams (CL)	(2.0-2.5)				
6	17	M	14	30		(3.0-3.5)				
7	18	M	25	35		(4.0-4.5+)				
					End of Boring at 25 ft Backfilled with Bentonite Chips					

WATER LEVEL OBSERVATIONS

While Drilling ☒ Upon Completion of Drilling 8.1'
 Time After Drilling 1 hr
 Depth to Water 2.3' ▼
 Depth to Cave in _____

GENERAL NOTES

Start 4/25/17 End 4/25/17
 Driller SE Chief Cory Rig 7822DT
 Logger Cory Editor AS
 Drill Method 2.25" HSA

PRELIMINARY



LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
 Location **Franklin, Wisconsin**

Boring No. **3**
 Surface Elevation (ft) **774.4**
 Job No. **CM17054**
 Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE					Depth (ft)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	TYPE	Rec (in.)	Moist	N			qu (qa) (tsf)	W	LL	PL	LOI
						Dark Brown Lean CLAY (OL)					
1		16	M	11		Hard, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(4.5+)				
2		17	M	20			(4.5+)				
3		17	M	25			(4.5+)				
4		16	M	17			(4.5+)				
5		17	M	7		Stiff to Very Stiff, Gray Lean CLAY; Trace Gravel (CL)	(2.0-2.5)				
6		16	W	14		Medium Dense, Gray Silty Fine to Coarse SAND; Trace Gravel (SP)					
7		17	M	11		Stiff to Very Stiff, Gray Lean CLAY; Trace Gravel (CL)	(2.0-3.0)				
						End of Boring at 25 ft Backfilled with Bentonite Chips					

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ Upon Completion of Drilling 8.3'
 Time After Drilling 2 hrs
 Depth to Water 8.2' ☒
 Depth to Cave in

Start 4/24/17 End 4/24/17
 Driller SE Chief Cory Rig 7822DT
 Logger Cory Editor AS
 Drill Method 2.25" HSA

PRELIMINARY



LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
 Location **Franklin, Wisconsin**

Boring No. **4**
 Surface Elevation (ft) **773.0**
 Job No. **CM17054**
 Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LOI
1	16	M	19		Dark Brown Lean CLAY; Trace Organics (CL) Hard, Brown to Gray Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(4.5+)				
2	17	M	22			(4.5+)				
3	17	M	16			(4.5+)				
4	15	M/W	20		Medium Dense, Brown Silty Fine SAND; Trace Gravel (SM)					
					Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)					
5	17	M	8		Medium Stiff to Hard, Gray Lean CLAY; Trace Gravel (CL)	(1.0-1.5)				
6	18	M	21			(4.0-4.5+)				
7	18	M	10			(1.5-2.5)				
					End of Boring at 25 ft Backfilled with Bentonite Chips					

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ 8.5' Upon Completion of Drilling 14.8'
 Time After Drilling 2 hrs 4 hrs
 Depth to Water 8.7' 8.7' ☒
 Depth to Cave in

Start 4/24/17 End 4/24/17
 Driller SE Chief Cory Rig 7822DT
 Logger Cory Editor AS
 Drill Method 2.25" HSA

PRELIMINARY



LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
 Location **Franklin, Wisconsin**

Boring No. **5**
 Surface Elevation (ft) **770.6**
 Job No. **CM17054**
 Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LOI
1	14	M	11		Gray Lean CLAY; Some Fine to Coarse Gravel (CL)					
2	12	M	19		Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)					
3	15	M	16		Brown to Gray Clayey Fine to Coarse SAND; Trace Gravel (SC)	(4.5+)				
4	17	M	11		Very Stiff to Hard, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(3.0-4.5+)				
5	16	M	12		Stiff to Very Stiff, Brown to Gray Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(1.5-2.0)				
6	17	M	8		Stiff to Hard, Gray Lean CLAY; Trace Gravel (CL)	(3.0-4.5+)				
7	16	M	9			(1.75-2.25)				
						(2.0-2.75)				
					End of Boring at 25 ft Backfilled with Bentonite Chips					

WATER LEVEL OBSERVATIONS

While Drilling ☒ Upon Completion of Drilling **NW**
 Time After Drilling **2 hrs**
 Depth to Water **NW**
 Depth to Cave in

GENERAL NOTES

Start **4/24/17** End **4/24/17**
 Driller **SE** Chief **Cory** Rig **7822DT**
 Logger **Cory** Editor **AS**
 Drill Method **2.25" HSA**

PRELIMINARY



LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
 Location **Franklin, Wisconsin**

Boring No. **6**
 Surface Elevation (ft) **770.7**
 Job No. **CM17054**
 Sheet **1 of 1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE					Depth (ft)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	TYPE	Rec (in.)	Moist	N			qu (qa) (tsf)	W	LL	PL	LOI
1		16	M	17		Gray Lean CLAY; Some Fine to Coarse Gravel (CL) Very Stiff to Hard, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(4.5+)				
2		17	M	22			(4.5+)				
3		17	M	21			(4.5+)				
4		15	M	19			(4.5+)				
5		17	M	11		Stiff to Very Stiff, Gray Lean CLAY; Trace Gravel (CL)	(2.0-3.5)				
6		17	M	11			(2.5-3.0)				
7		18	M	8			(1.5)				
End of Boring at 25 ft Backfilled with Bentonite Chips											

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

Upon Completion of Drilling **NW**
3 hrs
NW

Start **4/24/17** End **4/24/17**
 Driller **SE** Chief **Cory** Rig **7822DT**
 Logger **Cory** Editor **AS**
 Drill Method **2.25" HSA**



LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
Location **Franklin, Wisconsin**

Boring No. **7**
Surface Elevation (ft) **773.6**
Job No. **CM17054**
Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000. FAX (414) 443-2099

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LOI
					Gray Lean CLAY; Some Gravel (CL) Very Stiff to Hard, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)					
1	16	M	18			(4.5+)				
2	17	M	23			(4.5+)				
3	16	M	17			(4.5+)				
4	15	M	10		Very Stiff, Gray Lean CLAY; Trace Gravel (CL)	(2.0-2.5)				
5	17	M	12			(2.5-3.5)				
End of Boring at 15 ft Backfilled with Bentonite Chips										

WATER LEVEL OBSERVATIONS

While Drilling ∇
Time After Drilling
Depth to Water
Depth to Cave in

Upon Completion of Drilling NW
1 hr
NW

GENERAL NOTES

Start 4/24/17 End 4/24/17
Driller SE Chief Cory Rig 7822DT
Logger Cory Editor AS
Drill Method 2.25" HSA

PRELIMINARY



LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
 Location **Franklin, Wisconsin**

Boring No. **8**
 Surface Elevation (ft) **769.9**
 Job No. **CM17054**
 Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (Ft)		qu (qa) (tsf)	W	LL	PL	LOI
					Gray SILT; Some Gravel (ML)					
1	16	M	7		Very Stiff to Hard, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel, Some Fine to Coarse Sand Seams (CL)	(3.0-4.5+)				
2	17	M	23			(4.5+)				
3	17	M	26			(4.5+)				
4	16	M	27			(4.0)				
				5						
				10						
5	17	W	25		Medium Dense, Gray Clayey Fine to Coarse SAND; Trace Gravel (SC)					
					Stiff to Very Stiff, Gray Lean CLAY; Trace Gravel (CL)					
				15						
6	12	M	13			(1.5-2.0)				
				20						
					Medium Dense, Gray Clayey Fine to Coarse SAND; Trace Gravel (SC)					
7	16	W	11							
				25						
					End of Boring at 25 ft Backfilled with Bentonite Chips					
				30						

WATER LEVEL OBSERVATIONS

While Drilling ☒ 13.9' Upon Completion of Drilling 13.7'
 Time After Drilling 2 hrs
 Depth to Water 13.6' ▼
 Depth to Cave in

GENERAL NOTES

Start 4/25/17 End 4/25/17
 Driller SE Chief Cory Rig 7822DT
 Logger Cory Editor AS
 Drill Method 2.25" HSA

PRELIMINARY



LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
 Location **Franklin, Wisconsin**

Boring No. **9**
 Surface Elevation (ft) **772.8**
 Job No. **CM17054**
 Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE					Depth (ft)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N				qu (qa) (tsf)	W	LL	PL	LOI
						FILL: Brown Lean Clay, Trace Gravel					
1	13	M	4			Brown Organic Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (OL) (BURIED TOPSOIL)					
2	16	M	7			Stiff to Very Stiff, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel, Some Organic Inclusions (CL)	(2.0)				
3	16	M	16			Stiff to Hard, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(4.5+)				
4	16	M	19				(3.5-4.0)				
5	17	M	16			Stiff to Very Stiff, Brown to Gray Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(1.5-2.5)				
6	16	M	11			Stiff to Very Stiff, Gray Lean CLAY; Trace Gravel (CL)	(2.0-2.75)				
7	18	M	14				(2.0-2.5)				
						End of Boring at 25 ft Backfilled with Bentonite Chips					

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ Upon Completion of Drilling NW
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

Start **4/19/17** End **4/19/17**
 Driller **SE** Chief **Cory** Rig **7822DT**
 Logger **Cory** Editor **AS**
 Drill Method **2.25" HSA**

PRELIMINARY



LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
 Location **Franklin, Wisconsin**

Boring No. **10**
 Surface Elevation (ft) **769.8**
 Job No. **CM17054**
 Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	TYPE	Rec (in.)	Moist	II		qu (qa) (tsf)	W	LL	PL	LOI
1		16	M	9	Brown Silty Fine SAND; Some Cobbles and Fine to Coarse Gravel (SM)	(2.5-3.0)				
2		17	M	20	Dark Brown Sandy CLAY; Trace Gravel (CL) Very Stiff, Dark Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(4.5+)				
3		16	M	18	Very Stiff to Hard, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(4.0-4.5+)				
4		17	M	27		(4.5+)				
5		17	M	20	Very Stiff to Hard, Gray Lean CLAY; Trace Gravel (CL)	(4.0-4.5+)				
6		16	M	9		(2.25-3.0)				
7		17	M	9		(2.5)				
					End of Boring at 25 ft Backfilled with Bentonite Chips					

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ Upon Completion of Drilling NW
 Time After Drilling 0.5 hr
 Depth to Water NW
 Depth to Cave in _____

Start 4/24/17 End 4/24/17
 Driller SE Chief Cory Rig 7822DT
 Logger Cory Editor AS
 Drill Method 2.25" HSA

PRELIMINARY



LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
 Location **Franklin, Wisconsin**

Boring No. **11**
 Surface Elevation (ft) **768.0**
 Job No. **CM17054**
 Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	TYPE	Rec (in.)	Moist	N		qu (qa) (tsf)	W	LL	PL	LOI
1		15	M	11	FILL: Brown Silty Fine Sand and Gravel Very Stiff to Hard, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(4.0-4.5+)				
2		16	M	21		(4.5+)				
3		17	M	25		(4.5+)				
4		17	M	15		(4.0-4.5+)				
					1" dry fine sand seam at 7 ft					
5		16	M	18	Very Stiff to Hard, Gray Lean CLAY; Trace Gravel (CL)	(4.0-4.5)				
6		13	M	11		(2.75-3.0)				
7		17	M	12		(2.5-3.75)				
					End of Boring at 25 ft Backfilled with Bentonite Chips					

WATER LEVEL OBSERVATIONS

While Drilling ☒ 0.3' Upon Completion of Drilling NW
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

GENERAL NOTES

Start **4/21/17** End **4/21/17**
 Driller **SE** Chief **Cory** Rig **7822DT**
 Logger **Cory** Editor **AS**
 Drill Method **2.25" HSA**

PRELIMINARY



LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
 Location **Franklin, Wisconsin**

Boring No. **12**
 Surface Elevation (ft) **767.5**
 Job No. **CM17054**
 Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LOI
1	15	M	16		Gray Lean CLAY; Some Fine to Coarse Gravel (CL)	(4.5+)				
2	16	M	18		Hard, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(4.5+)				
3	16	M	20			(4.5+)				
4	16	M	17		Stiff to Very Stiff, Gray Lean CLAY; Trace Gravel (CL)	(3.25-3.75)				
5	17	M	10			(2.5-3.5)				
6	16	M	9			(2.0-2.5)				
7	5	M	11		Medium Stiff to Stiff, Gray Lean CLAY; Trace Gravel (CL)	(1.0)				
					End of Boring at 25 ft Backfilled with Bentonite Chips					

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ Upon Completion of Drilling NW
 Time After Drilling 2 hrs
 Depth to Water NW
 Depth to Cave in

Start 4/20/17 End 4/20/17
 Driller SE Chief Cory Rig 7822DT
 Logger Cory Editor AS
 Drill Method 2.25" HSA

LOG OF TEST BORING



Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
Location **Franklin, Wisconsin**

Boring No. **13**
Surface Elevation (ft) **766.9**
Job No. **CM17054**
Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LOI
					Gray Lean CLAY; Trace Organic Inclusions (CL)					
1	16	M	14		Hard, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(4.5+)				
2	17	M	22			(4.5+)				
3	17	M	20			(4.5+)				
4	18	M	27			(4.5+)				
					Very Stiff to Hard, Gray Lean CLAY; Trace Gravel (CL)					
5	16	M	13			(4.0-4.5+)				
6	17	M	16			(2.5-3.0)				
7	18	M	11			(2.75-3.0)				
					End of Boring at 25 ft Backfilled with Bentonite Chips					

WATER LEVEL OBSERVATIONS

While Drilling	☒	Upon Completion of Drilling	NW
Time After Drilling			1 hr
Depth to Water			NW
Depth to Cave in			

GENERAL NOTES

Start 4/20/17 End 4/20/17
Driller SE Chief Cory Rig 7822DT
Logger Cory Editor AS
Drill Method 2.25" HSA

PRELIMINARY



LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
 Location **Franklin, Wisconsin**

Boring No. **14**
 Surface Elevation (ft) **764.0**
 Job No. **CM17054**
 Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		q _u (qa) (tsf)	W	LL	PL	LOI
1	16	M	10		Gray Fine Sandy SILT; Trace Gravel (ML) Very Stiff to Hard, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(3.0-4.5+)				
2	10	M	20			(4.5+)				
3	16	M	24			(4.0-4.5+)				
4	17	M	19			(3.0-4.0)				
				10	Very Stiff, Gray Lean CLAY; Trace Gravel (CL)					
5	16	M	12			(2.5-3.0)				
				15	End of Boring at 15 ft Backfilled with Bentonite Chips					
				20						
				25						
				30						

WATER LEVEL OBSERVATIONS

While Drilling ☒ Upon Completion of Drilling ☐
 Time After Drilling 0.5 hr
 Depth to Water NW ☒
 Depth to Cave in _____

GENERAL NOTES

Start **4/21/17** End **4/21/17**
 Driller **SE** Chief **Cory** Rig **7822DT**
 Logger **Cory** Editor **AS**
 Drill Method **2.25" HSA**

PRELIMINARY



LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
 Location **Franklin, Wisconsin**

Boring No. **15**
 Surface Elevation (ft) **761.0**
 Job No. **CM17054**
 Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES					
No.	TYPE	Rec (in.)	Moist	N		Depth (ft)	qu (qa) (tsf)	W	LL	PL	LOI
						FILL: Gray Silty Fine Sand and Gravel (Base Course)	(2.0-2.75)				
1		12	M	9		FILL: Very Stiff, Brown Mottled Lean Clay, Little Fine to Coarse Sand, Trace Gravel					
2		16	M	7		Black Lean CLAY; Some Fine to Coarse Sand (OL)	(2.5-3.5)				
					5	Very Stiff to Hard, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel, Trace Organic Inclusions (CL)					
3		17	M	20			(3.5-4.5+)				
4		17	M	20			(4.5+)				
					10						
5		15	M	13		Very Stiff, Gray Lean CLAY; Trace Gravel, Some Fine to Coarse Sand Seams (CL)	(3.0-3.5)				
					15	End of Boring at 15 ft Backfilled with Bentonite Chips					
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ☒ Upon Completion of Drilling NW
 Time After Drilling 1 hr
 Depth to Water NW
 Depth to Cave in

GENERAL NOTES

Start **4/21/17** End **4/21/17**
 Driller **SE** Chief **Cory** Rig **7822DT**
 Logger **Cory** Editor **AS**
 Drill Method **2.25" HSA**

PRELIMINARY



LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
 Location **Franklin, Wisconsin**

Boring No. **16**
 Surface Elevation (ft) **761.2**
 Job No. **CM17054**
 Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES					
No.	Typical Disturbance (in.)	Rec (in.)	Moist	N		Depth (ft)	qu (qa) (tsf)	W	LL	PL	LOI
						FILL: Gray Silty Fine to Coarse Sand and Gravel (Base Course) Very Stiff to Hard, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)					
1		13	M	13			(4.0-4.5+)				
2		16	M	17			(4.5+)				
3		17	M	31			(4.5+)				
4		16	M	13			(2.5-3.5)				
						Very Stiff, Gray Lean CLAY; Trace Gravel (CL)					
5		17	M	11			(2.5-3.0)				
End of Boring at 15 ft Backfilled with Bentonite Chips											

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ Upon Completion of Drilling NW
 Time After Drilling 0.5 hr
 Depth to Water NW ☒
 Depth to Cave in

Start **4/21/17** End **4/21/17**
 Driller **SE** Chief **Cory** Rig **7822DT**
 Logger **Cory** Editor **AS**
 Drill Method **2.25" HSA**

PRELIMINARY



LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
 Location **Franklin, Wisconsin**

Boring No. **17**
 Surface Elevation (ft) **761.7**
 Job No. **CM17054**
 Sheet **1** of **1**

336 S Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LOI
					FILL: Brown Fine Sand and Gravel (Base Course)					
1	12	M	8	0	Very Stiff, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(2.5-2.75)				
2	16	M	19	5		(4.5+)				
3	17	M	24	10		(4.5+)				
4	16	M	28	15		(4.0-4.5+)				
					Soft to Stiff, Gray Lean CLAY; Trace Gravel (CL)					
5	18	M	8	15	End of Boring at 15 ft Backfilled with Bentonite Chips	(0.5-1.5)				

WATER LEVEL OBSERVATIONS

While Drilling ☒ 1.0' Upon Completion of Drilling NW
 Time After Drilling 1 hr
 Depth to Water NW
 Depth to Cave in

GENERAL NOTES

Start 4/20/17 End 4/20/17
 Driller SE Chief Cory Rig 7822DT
 Logger Cory Editor AS
 Drill Method 2.25" HSA

PRELIMINARY



LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
 Location **Franklin, Wisconsin**

Boring No. **18**
 Surface Elevation (ft) **763.2**
 Job No. **CM17054**
 Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE					VISUAL CLASSIFICATION and Remarks		SOIL PROPERTIES				
No.	TYPE	Rec (in.)	Moist	N			Depth (ft)	qu (qa) (tsf)	W	LL	PL
						Dark Brown to Gray Lean CLAY; Trace Organic Inclusions (CL) Very Stiff to Hard, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)					
1		16	M	11			(4.0-4.5+)				
2		15	M	23			(3.5-4.5+)				
3		17	M	25			(4.5+)				
4		16	M	18			(4.5+)				
						Very Stiff to Hard, Gray Lean CLAY; Trace Gravel (CL)					
5		18	M	13			(4.0-4.5+)				
End of Boring at 15 ft Backfilled with Bentonite Chips											

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ Upon Completion of Drilling NW
 Time After Drilling 1 hr
 Depth to Water NW
 Depth to Cave in

Start **4/20/17** End **4/20/17**
 Driller **SE** Chief **Cory** Rig **7822DT**
 Logger **Cory** Editor **AS**
 Drill Method **2.25" HSA**

PRELIMINARY



LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
 Location **Franklin, Wisconsin**

Boring No. **19**
 Surface Elevation (ft) **762.1**
 Job No. **CM17054**
 Sheet **1 of 1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LOI
					Dark Brown Lean CLAY (OL)					
1	15	M	8		Very Stiff to Hard, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(2.5-3.5)				
2	16	M	18			(4.5+)				
3	15	M	22			(4.5+)				
4	16	M	27			(4.0-4.5+)				
					Very Stiff, Gray Lean CLAY; Trace Gravel (CL)					
5	17	M	8			(2.5)				
					End of Boring at 15 ft Backfilled with Bentonite Chips					

WATER LEVEL OBSERVATIONS

While Drilling ☒ Upon Completion of Drilling NW
 Time After Drilling _____ 1.5 hr
 Depth to Water _____ NW ▼
 Depth to Cave in _____

GENERAL NOTES

Start 4/20/17 End 4/20/17
 Driller SE Chief Cory Rig 7822DT
 Logger Cory Editor AS
 Drill Method 2.25" HSA

PRELIMINARY



LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
 Location **Franklin, Wisconsin**

Boring No. **20**
 Surface Elevation (ft) **770.2**
 Job No. **CM17054**
 Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Typ P	Rec (in.)	Moist	N		qu (qa) (tsf)	W	LL	PL	LOI
					ASPHALT PAVEMENT					
1		16	M	6	FILL: Brown Fine Sand and Gravel (Base Course). Hard, Gray Mottled Lean CLAY; Trace Gravel (CL)	(4.5+)				
2		17	M	17		(4.5+)				
3		16	M	25	Very Stiff to Hard, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(4.5+)				
4		17	M	14		(4.0-4.5+)				
5		17	M	15	Very Stiff to Hard, Gray Lean CLAY; Trace Gravel (CL)	(3.0-4.5+)				
					End of Boring at 15 ft Backfilled with Bentonite Chips					

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ Upon Completion of Drilling _____
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

Start **4/19/17** End **4/19/17**
 Driller **SE** Chief **Cory** Rig **7822DT**
 Logger **Cory** Editor **AS**
 Drill Method **2.25" HSA**

PRELIMINARY



LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
 Location **Franklin, Wisconsin**

Boring No. **21**
 Surface Elevation (ft) **769.2**
 Job No. **CM17054**
 Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		q _u (qa) (tsf)	W	LL	PL	LOI
					ASPHALT					
1	7	M	5		FILL: Brown to Gray Fine to Coarse Sand and Gravel (Base Course)					
2	15	M	17		Loose, Brown to Gray Fine to Coarse SAND and GRAVEL; Trace Clay (SP/GP) (POSSIBLE FILL)	(4.0-4.5+)				
3	15	M	16		Very Stiff to Hard, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(4.0-4.5+)				
4	15	M	19			(4.5+)				
					Very Stiff, Gray Lean CLAY; Trace Gravel (CL)					
5	17	M	18			(2.5-3.0)				
					End of Boring at 15 ft Backfilled with Bentonite Chips					

WATER LEVEL OBSERVATIONS

While Drilling ☒ Upon Completion of Drilling NW
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

GENERAL NOTES

Start **4/19/17** End **4/19/17**
 Driller **SE** Chief **Cory** Rig **7822DT**
 Logger **Cory** Editor **AS**
 Drill Method **2.25" HSA**

PRELIMINARY



LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
 Location **Franklin, Wisconsin**

Boring No. **22**
 Surface Elevation (ft) **768.1**
 Job No. **CM17054**
 Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LOI
					ASPHALT					
1	12	M	17		FILL: Brown Fine to Coarse Sand and Gravel (Base Course)	(1.5)				
2	14	M	5		Dark Brown to Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel, Trace Organics (CL)	(1.25-1.75)				
3	16	M	10		Very Stiff, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(3.25-3.5)				
4	17	M	21		Very Stiff to Hard, Gray Lean CLAY; Trace Gravel (CL)	(4.5+)				
5	17	M	17			(2.5-3.0)				
					End of Boring at 15 ft Backfilled with Bentonite Chips					

WATER LEVEL OBSERVATIONS

While Drilling ☒ Upon Completion of Drilling NW
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

GENERAL NOTES

Start 4/19/17 End 4/19/17
 Driller SE Chief Cory Rig 7822DT
 Logger Cory Editor AS
 Drill Method 2.25" HSA

PRELIMINARY



LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
 Location **Franklin, Wisconsin**

Boring No. **P1**
 Surface Elevation (ft) **760.5**
 Job No. **CM17054**
 Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000. FAX (414) 443-2099

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LOI
1	6	M	8		Dark Brown Mottled Lean CLAY; Some Gravel (OL)					
2	16	M	10		Very Stiff to Hard, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(3.0-4.0)				
3	17	M	17			(4.5+)				
4	17	M	20			(4.5+)				
5	17	M	16		Very Stiff to Hard, Gray Lean CLAY; Trace Gravel (CL)	(4.0-4.5+)				
					End of Boring at 15 ft Backfilled with Bentonite Chips					

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ NW Upon Completion of Drilling NW
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

Start **4/25/17** End **4/25/17**
 Driller **SE** Chief **Cory** Rig **7822DT**
 Logger **Cory** Editor **AS**
 Drill Method **2.25" HSA**

PRELIMINARY



LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
 Location **Franklin, Wisconsin**

Boring No. **P2**
 Surface Elevation (ft) **760.2**
 Job No. **CM17054**
 Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LOI
1	16	M	10		Dark Brown Lean CLAY (OL) Very Stiff to Hard, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(3.0-4.0)				
2	17	M	22			(4.5+)				
3	17	M	22			(4.5+)				
4	17	M	21		Very Stiff to Hard, Gray Lean CLAY; Trace Gravel (CL)	(4.5+)				
5	16	M	15			(4.0)				
					End of Boring at 15 ft Backfilled with Bentonite Chips					

WATER LEVEL OBSERVATIONS

While Drilling ☒ Upon Completion of Drilling NW
 Time After Drilling 1 hr
 Depth to Water NW
 Depth to Cave in

GENERAL NOTES

Start **4/19/17** End **4/19/17**
 Driller **SE** Chief **Cory** Rig **7822DT**
 Logger **Cory** Editor **AS**
 Drill Method **2.25" HSA**

PRELIMINARY



LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
 Location **Franklin, Wisconsin**

Boring No. **P3**
 Surface Elevation (ft) **765.3**
 Job No. **CM17054**
 Sheet **1** of **1**

336 S Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LOI
1	16	M	17		Brown Fine to Coarse Sandy SILT (ML) Very Stiff to Hard, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(4.5+)				
2	15	M	25			(4.5+)				
3	17	M	15			(3.0-4.5+)				
4	16	M	14		Stiff to Hard, Gray Lean CLAY; Trace Gravel (CL)	(4.0-4.5+)				
5	17	M	12			(1.75-2.25)				
					End of Boring at 15 ft Backfilled with Bentonite Chips					

WATER LEVEL OBSERVATIONS

While Drilling ☒ Upon Completion of Drilling NW
 Time After Drilling _____ 1 hr
 Depth to Water _____ NW ▼
 Depth to Cave in _____

GENERAL NOTES

Start 4/20/17 End 4/20/17
 Driller SE Chief Cory Rig 7822DT
 Logger Cory Editor AS
 Drill Method 2.25" HSA

PRELIMINARY



LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
 Location **Franklin, Wisconsin**

Boring No. **P4**
 Surface Elevation (ft) **765.1**
 Job No. **CM17054**
 Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE					VISUAL CLASSIFICATION and Remarks		SOIL PROPERTIES					
No.	Sample	Rec (in.)	Moist	N			Depth (ft)	qu (qa) (tsf)	w	LL	PL	LOT
							FILL: Gray Fine to Coarse Sand and Gravel					
1		10	M	10			Hard, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(4.5+)				
2		16	M	21				(4.5+)				
3		17	M	27				(4.5+)				
4		16	M	17				(4.5+)				
5		17	M	14			Very Stiff, Gray Lean CLAY; Trace Gravel (CL)	(3.0-3.5)				
End of Boring at 15 ft Backfilled with Bentonite Chips												

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ _____ Time After Drilling _____ Depth to Water _____ Depth to Cave in _____	Upon Completion of Drilling <u>NW</u> Start <u>4/20/17</u> End <u>4/20/17</u> Driller <u>SE</u> Chief <u>Cory</u> Rig <u>7822DT</u> Logger <u>Cory</u> Editor <u>AS</u> Drill Method <u>2.25" HSA</u>
---	---

PRELIMINARY



LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
 Location **Franklin, Wisconsin**

Boring No. **R1**
 Surface Elevation (ft) **769.9**
 Job No. **CM17054**
 Sheet **1** of **1**

336 S Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		q _u (qa) (tsf)	W	LL	PL	LOI
1	16	M	8	4	Dark Brown Lean CLAY (OL) Very Stiff to Hard, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(4.0)				
2	17	M	22	5		(4.5+)				
3	17	M	25	6		(4.5+)				
4	16	W	23	10	Medium Dense, Brown Silty Fine SAND; Trace Gravel (SM)					
				11	Medium Dense, Gray Fine Sandy SILT; Trace Gravel (ML)					
5	16	M	29	15	Hard, Gray Lean CLAY; Little Fine Sand, Trace Gravel (CL)	(4.5+)				
				15	End of Boring at 15 ft Backfilled with Bentonite Chips					
				20						
				25						
				30						

WATER LEVEL OBSERVATIONS

While Drilling ∇ **8.5'** Upon Completion of Drilling **1/2 hr** **4 hrs**
 Time After Drilling **8.5'** **8.4'** ∇
 Depth to Water
 Depth to Cave in

GENERAL NOTES

Start **4/19/17** End **4/19/17**
 Driller **SE** Chief **Cory** Rig **7822DT**
 Logger **Cory** Editor **AS**
 Drill Method **2.25" HSA**

PRELIMINARY



LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
 Location **Franklin, Wisconsin**

Boring No. **R2**
 Surface Elevation (ft) **767.8**
 Job No. **CM17054**
 Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LOI
1	15	M	14		Gray Mottled Lean CLAY; Trace Organic Inclusions (CL) Very Stiff to Hard, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(4.0-4.5+)				
2	17	M	22			(4.5+)				
3	16	M	28			(4.5+)				
4	17	M	18		Very Stiff to Hard, Gray Lean CLAY; Trace Gravel (CL)	(4.0-4.5+)				
5	16	M	10			(2.5-3.5)				
					End of Boring at 15 ft Backfilled with Bentonite Chips					

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ Upon Completion of Drilling NW
 Time After Drilling 1 hr
 Depth to Water NW ☒
 Depth to Cave in

Start **4/20/17** End **4/20/17**
 Driller **SE** Chief **Cory** Rig **7822DT**
 Logger **Cory** Editor **AS**
 Drill Method **2.25" HSA**

PRELIMINARY



LOG OF TEST BORING

Project **Franklin Multi-Family Apartments**
7273 & 7333 S. 27th Street
 Location **Franklin, Wisconsin**

Boring No. **R3**
 Surface Elevation (ft) **764.3**
 Job No. **CM17054**
 Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

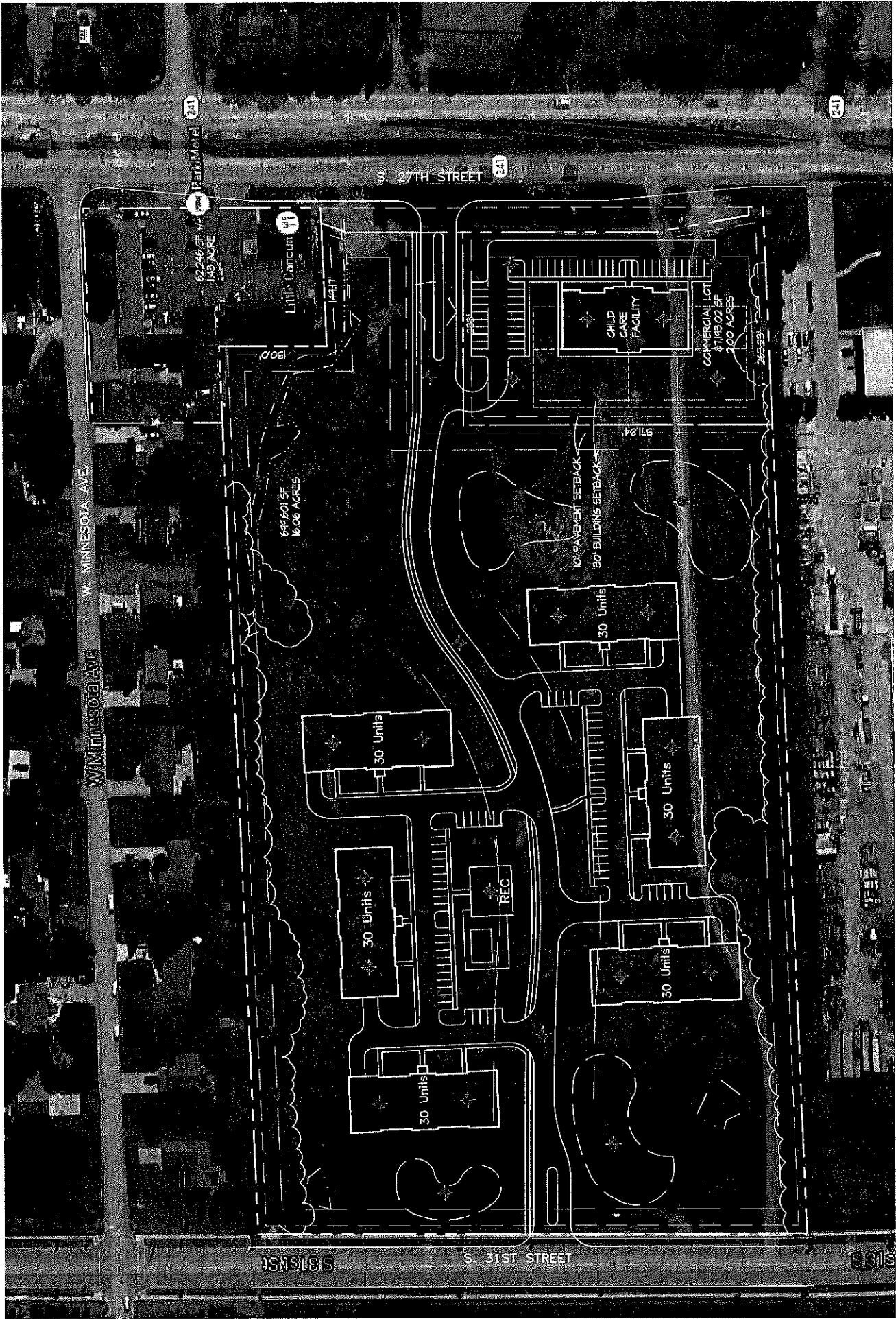
SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		q _u (qa) (tsf)	W	LL	PL	LOI
					FILL: Brown Fine to Coarse Sand and Gravel					
1	10	M	11	3.0	Very Stiff to Hard, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(3.0-4.0)				
2	14	M	14	4.5	Very Stiff, Dark Brown to Black Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(2.5-3.0)				
3	15	M	7	6.0	Stiff to Hard, Brown Mottled Lean CLAY; Little Fine to Coarse Sand, Trace Gravel (CL)	(1.5-2.0)				
4	16	M	12	7.5		(4.0-4.5+)				
				10.0						
					Very Stiff, Gray Lean CLAY; Trace Gravel (CL)					
5	17	M	14	12.0		(3.0-3.5)				
				15.0	End of Boring at 15 ft Backfilled with Bentonite Chips					
				20.0						
				25.0						
				30.0						

WATER LEVEL OBSERVATIONS

While Drilling ∇ **3.5'** Upon Completion of Drilling _____
 Time After Drilling _____ **1 hr** _____
 Depth to Water _____ **13.2'** ∇ _____
 Depth to Cave in _____

GENERAL NOTES

Start **4/21/17** End **4/21/17**
 Driller **SE** Chief **Cory** Rig **7822DT**
 Logger **Cory** Editor **AS**
 Drill Method **2.25" HSA**



W. MINNESOTA AVE.

S. 27TH STREET

S. 31ST STREET

15151515

5315

August 25, 2017



Attn: Zilber Ltd.
710 N. Plankinton Avenue, Suite 1000
Milwaukee, WI 53188

Re: **Wetland Fill Alternatives Analysis
Proposed Multi-Family Development
7333 South 27th Street, City of Franklin, WI**

Project Description:

7333 South 27th Street (STH "241") is an 18-acre undeveloped parcel of land in the City of Franklin. The parcel is currently zoned B-4 (South 27th Street Mixed Use Commercial District). The parcel is proposed for development consisting of a fully improved public street between South 31st Street and South 27th Street, multi-family residential adjacent to South 31st Street and future commercial adjacent to South 27th Street. The parcel contains four wetland areas, which were delineated by R.A. Smith National in October of 2015.

WisDOT requirements mandate one point of access to STH "241" from the undeveloped parcel, widening of the southbound STH "241" pavement for creation of a deceleration/turning lane and minimum travel distances from West Minnesota Avenue (to the north of the development parcel) and the Platt Construction commercial driveway (to the south of the development parcel). To meet these requirements, portions of two wetland areas must be permanently filled. The proposed permanent wetland fill associated with the public street improvements at a new intersection with STH "241" is 2,391 square feet. The proposed permanent wetland fill associated with modifications to STH "241" is 139 square feet. The proposed wetland fills are shown on the enclosed plans.

Project Alternatives:

The following is a description of the alternatives that were evaluated and a summary of their implications to the intersection design and proposed wetland impacts.

Alternative #1 (Preferred):

Connect the proposed public street to South 27th Street (STH "241") at least 450 feet south of West Minnesota Avenue and nearly equidistant from the existing commercial driveway for Platt Construction. The proposed public street provides the grid pattern and multi-modal connectivity between South 31st Street and South 27th Street promoted in the South 27th Street Corridor Plan. The proposed connection location is the only allowable access point. South 27th Street is a State Highway with a posted speed limit of 40 MPH. Minimum travel distances between highway access locations are controlled by WisDOT to provide proper means for safe ingress/egress of vehicles traveling to/from the highway and local streets.

The current design (preferred) employs the following to minimize wetland impacts:

1. The public street is proposed at the smallest width permissible, which is 24' of asphalt with 31" curb and gutter on both sides.
2. The public street is proposed at the lowest elevation practicable, minimizing the amount of fill needed.

Alternative #2:

Do not connect to South 27th Street (STH "241") to avoid wetland impacts. This alternative would avoid the proposed permanent wetland fill of 2,530 square feet. This alternative is not acceptable as it does not provide vehicular connectivity between South 31st Street and South 27th Street.

Alternative #3:

Do not install public sidewalk and begin fill slopes near the back of curb to reduce wetland impacts. This alternative would reduce the proposed permanent wetland fill by approximately 254 square feet. The 27th Street Corridor Plan promotes sidewalks on public roads and choices for people to walk, bike or ride transit. Pedestrian connectivity is a critical component of development on this parcel; therefore, this alternative is not acceptable.

Summary:

The proposed development has been designed with respect to goals, principles and requirements of the City of Franklin Unified Development Ordinance, Comprehensive Master Plan and 27th Street Corridor Plan. The current design is the most practicable and viable alternative, utilizing a 24' wide public street section to minimize permanent wetland fill, while complying with travel distance requirements mandated by WisDOT.

Construction for the 7333 South 27th Street proposed multi-family development is anticipated to commence in early October 2017. The permanent wetland fill is anticipated to occur by or before November 2017 and initial mass grading for the development is anticipated to be completed by or before December 2017. The overall site work is scheduled to be substantially completed by November 2018.

All land disturbing activities will be conducted in accordance with City, State and Federal requirements as set forth in the Erosion Control Plan. Erosion and sedimentation controls, during and after construction, will be implemented to reduce total suspended solids (TSS) carried in runoff from the project site.

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Multi-Family Development

7333 South 27th Street
City of Franklin, Milwaukee County, Wisconsin

Site Intensity Calculations

Prepared By:



12660 W. NORTH AVENUE, BROOKFIELD, WI 53005

T: 262.790.1480 F: 262.790.1481

email: CHITCH@trioeng.com

Submittal Date:
August 25, 2017

Franklin

AUG 28 2017

City Development

Table 15-3.0502

**WORKSHEET FOR THE CALCULATION OF BASE SITE AREA
FOR BOTH RESIDENTIAL AND NONRESIDENTIAL DEVELOPMENT**

NORTH MULTI-FAMILY PARCEL

STEP 1:	Indicate the total gross site area (in acres) as determined by an actual on-site boundary survey of the property.	7.818 Acres
STEP 2:	Subtract (-) land which constitutes any existing dedicated public street rights-of-way, land located within the ultimate road rights-of-way of existing roads, the rights-of-way of major utilities, and any dedicated public park and/or school site area.	- 0.000 Acres
STEP 3:	Subtract (-) land which, as a part of a previously approved development or land division, was reserved for open space.	- 0.000 Acres
STEP 4:	In the case of "Site Intensity and Capacity Calculations" for a proposed residential use, subtract (-) the land proposed for nonresidential uses; or In the case of "Site Intensity and Capacity Calculations" for a proposed nonresidential use, subtract (-) the land proposed for residential uses.	- 0.000 Acres
STEP 5:	Equals "Base Site Area"	= 7.818 Acres

Table 15-3.0503

WORKSHEET FOR THE CALCULATION OF RESOURCE PROTECTION LAND

NORTH MULTI-FAMILY PARCEL

Natural Resource Feature	Protection Standard Based Upon Zoning District Type (circle applicable standard from Table 15-4.0100 for the type of zoning district in which the parcel is located)					Acres of Land in Resource Feature
	Agricultural District	Residential District	Non- Residential District			
Steep Slopes:						
10-19%	0	0.6	0.4	X 0.00 =	0.0	
20-30%	0.65	0.75	0.7	X 0.00 =	0.0	
+30%	0.9	0.85	0.8	X 0.00 =	0.0	
				Only includes areas outside of other more restrictive Natural Resource zones		= 0.0
Woodlands & Forests:						
Mature	0.7	0.7	0.7	X 0.00 =	0.0	
Young	0.5	0.5	0.5	X 0.00 =	0.0	
Lakes & Ponds	1	1	1	N/A		Included in Floodplain
Streams	1	1	1	N/A		
Shore Buffer	1	1	1	N/A		
Floodplains/Floodlands	1	1	1	X 0.0 =	0.0	
Wetland Buffers	1	1	1	X 0.783 =	0.783	
Wetland & Shoreland Wetlands (1)	1	1	1	X 0.172 =	0.172	
TOTAL RESOURCE PROTECTION LAND (Total of Acres of Land in Resource Feature to be Protected)						0.955 Acres

(1) Assured delineation conducted by R.A. Smith National on October 8, 2015.

Note: In conducting the calculations in Table 15-3.0503, if two or more natural resource features are present on the same area of land, only the most restrictive resource protection standard shall be used. For example, if floodplain and young woodlands occupy the same space on a parcel of land, the resource protection standard would be 1.0 which represents the higher of the two standards.

Table 15-3.0504
WORKSHEET FOR THE CALCULATION OF SITE INTENSITY AND
CAPACITY FOR RESIDENTIAL DEVELOPMENT

NORTH MULTI-FAMILY PARCEL

STEP 1:	CALCULATE MINIMAL REQUIRED ON-SITE OPEN SPACE Take Base Site Area (from Step 5 in Table 15-3.0502): 7.818 Multiply by Minimum Open Space Ratio (OSR) 0.25 (see specific residential zoning district OSR standard): Equals MINIMUM REQUIRED ON-SITE OPEN SPACE	1.955 Acres
STEP 2:	CALCULATE NET BUILDABLE SITE AREA: Take Base Site Area (from Step 5 in Table 15-3.0502): 7.818 Subtract Total Resource Protection Land from Table 15-3.0503) or Minimum Required On-Site Open Space (from Step 1 above), whichever is greater: 1.955 Equals NET BUILDABLE SITE AREA	5.863 Acres
STEP 3:	CALCULATE MAXIMUM NET DENSITY YIELD OF SITE: Take Net Buildable Site Area (from Step 2 above): 5.863 Multiply by Maximum Net Density (ND) X 8.0 (see specific residential zoning district ND standard): Equals MAXIMUM NET DENSITY YIELD OF SITE	47 D.U.s
STEP 4:	CALCULATE MAXIMUM GROSS DENSITY YIELD OF SITE: Take Base Site Area (from Step 5 in Table 15-3.0502): 7.818 Multiply by Maximum Gross Density (GD) X 8.0 (see specific residential zoning district GD standard): Equals MAXIMUM GROSS DENSITY YIELD OF SITE	63 D.U.s
STEP 5:	DETERMINE MAXIMUM PERMITTED D.U.s OF SITE: Take the lowest of Maximum Net Density Yield of Site (from Step 3 above) or Maximum Gross Density Yield of Site (from Step 4 above):	47 D.U.s

Table 15-3.0502

**WORKSHEET FOR THE CALCULATION OF BASE SITE AREA
FOR BOTH RESIDENTIAL AND NONRESIDENTIAL DEVELOPMENT**

SOUTH MULTI-FAMILY PARCEL

STEP 1:	Indicate the total gross site area (in acres) as determined by an actual on-site boundary survey of the property.	6.465 Acres
STEP 2:	Subtract (-) land which constitutes any existing dedicated public street rights-of-way, land located within the ultimate road rights-of-way of existing roads, the rights-of-way of major utilities, and any dedicated public park and/or school site area.	- 0.000 Acres
STEP 3:	Subtract (-) land which, as a part of a previously approved development or land division, was reserved for open space.	- 0.000 Acres
STEP 4:	In the case of "Site Intensity and Capacity Calculations" for a proposed residential use, subtract (-) the land proposed for nonresidential uses; or In the case of "Site Intensity and Capacity Calculations" for a proposed nonresidential use, subtract (-) the land proposed for residential uses.	- 0.000 Acres
STEP 5:	Equals "Base Site Area"	= 6.465 Acres

Table 15-3.0503

WORKSHEET FOR THE CALCULATION OF RESOURCE PROTECTION LAND

SOUTH MULTI-FAMILY PARCEL

Natural Resource Feature	Protection Standard Based Upon Zoning District Type (circle applicable standard from Table 15-4.0100 for the type of zoning district in which the parcel is located)				Acres of Land in Resource Feature
	Agricultural District	Residential District	Non- Residential District		
	Steep Slopes:				
10-19%	0	0.6	0.4	X 0.00 =	0.0
20-30%	0.65	0.75	0.7	X 0.00 =	0.0
+30%	0.9	0.85	0.8	X 0.00 =	0.0
				Only includes areas outside of other more restrictive Natural Resource zones	= 0.0
Woodlands & Forests:					
Mature	0.7	0.7	0.7	X 0.00 =	0.0
Young	0.5	0.5	0.5	X 0.00 =	0.0
Lakes & Ponds	1	1	1	N/A	Included in Floodplain
Streams	1	1	1	N/A	
Shore Buffer	1	1	1	N/A	
Floodplains/Floodlands	1	1	1	X 0.0 =	0.0
Wetland Buffers	1	1	1	X 0.205 =	0.205
Wetland & Shoreland Wetlands (1)	1	1	1	X 0.052 =	0.052
TOTAL RESOURCE PROTECTION LAND (Total of Acres of Land in Resource Feature to be Protected)					0.257 Acres

(1) Assured delineation conducted by R.A. Smith National on October 8, 2015.

Note: In conducting the calculations in Table 15-3.0503, if two or more natural resource features are present on the same area of land, only the most restrictive resource protection standard shall be used. For example, if floodplain and young woodlands occupy the same space on a parcel of land, the resource protection standard would be 1.0 which represents the higher of the two standards.

Table 15-3.0504

**WORKSHEET FOR THE CALCULATION OF SITE INTENSITY AND
CAPACITY FOR RESIDENTIAL DEVELOPMENT**

SOUTH MULTI-FAMILY PARCEL

STEP 1:	CALCULATE MINIMAL REQUIRED ON-SITE OPEN SPACE Take Base Site Area (from Step 5 in Table 15-3.0502): 6.465 Multiply by Minimum Open Space Ratio (OSR) (see specific residential zoning district OSR standard): 0.25 Equals MINIMUM REQUIRED ON-SITE OPEN SPACE	1.616 Acres
STEP 2:	CALCULATE NET BUILDABLE SITE AREA: Take Base Site Area (from Step 5 in Table 15-3.0502): 6.465 Subtract Total Resource Protection Land from Table 15-3.0503 or Minimum Required On-Site Open Space (from Step 1 above), whichever is greater: 1.616 Equals NET BUILDABLE SITE AREA	4.849 Acres
STEP 3:	CALCULATE MAXIMUM NET DENSITY YIELD OF SITE: Take Net Buildable Site Area (from Step 2 above): 4.849 Multiply by Maximum Net Density (ND) (see specific residential zoning district ND standard): X 8.0 Equals MAXIMUM NET DENSITY YIELD OF SITE	39 D.U.s
STEP 4:	CALCULATE MAXIMUM GROSS DENSITY YIELD OF SITE: Take Base Site Area (from Step 5 in Table 15-3.0502): 6.465 Multiply by Maximum Gross Density (GD) (see specific residential zoning district GD standard): X 8.0 Equals MAXIMUM GROSS DENSITY YIELD OF SITE	52 D.U.s
STEP 5:	DETERMINE MAXIMUM PERMITTED D.U.s OF SITE: Take the lowest of Maximum Net Density Yield of Site (from Step 3 above) or Maximum Gross Density Yield of Site (from Step 4 above):	39 D.U.s

Multi-Family Development

7333 South 27th Street
City of Franklin, Milwaukee County, Wisconsin

Stormwater Calculations

Prepared By:



12660 W. NORTH AVENUE, BROOKFIELD, WI 53005

t: 262.790.1480 f: 262.790.1481

email: CHITCH@trioeng.com

Submittal Date:
August 25, 2017

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	1.071	2	726	2,061	-----	-----	-----	OS-1
2	SCS Runoff	0.457	2	726	880	-----	-----	-----	OS-2
4	Combine	1.528	2	726	2,941	1, 2,	-----	-----	OFFSITE
6	SCS Runoff	2.371	2	744	10,669	-----	-----	-----	E-1
7	SCS Runoff	4.852	2	744	21,835	-----	-----	-----	E-2
9	Combine	7.565	2	744	35,445	4, 6, 7,	-----	-----	PRE-DEVELOPMENT
11	SCS Runoff	1.559	2	726	2,922	-----	-----	-----	UD-1
12	SCS Runoff	2.934	2	734	8,470	-----	-----	-----	UD-2
14	Combine	3.753	2	728	11,392	11, 12,	-----	-----	UNDETAINED
16	SCS Runoff	5.503	2	732	14,349	-----	-----	-----	P-1
17	SCS Runoff	3.588	2	732	9,355	-----	-----	-----	P-2
18	SCS Runoff	6.864	2	730	17,741	-----	-----	-----	P-3
19	SCS Runoff	0.763	2	740	3,008	-----	-----	-----	P-4
21	Combine	21.08	2	730	58,786	4, 14, 16, 17, 18, 19,	-----	-----	POST-DEVELOPMENT (BEFORE)
23	Reservoir	0.204	2	906	14,293	16	756.96	9,524	POND 1
24	Reservoir	0.132	2	906	9,273	17	762.49	6,247	POND 2
25	Reservoir	0.200	2	910	17,573	18	761.93	12,558	POND 3
27	Combine	5.803	2	728	58,480	4, 14, 19, 23, 24, 25,	-----	-----	POST-DEVELOPMENT (AFTER)
L:\LOBBYSWPDOCS\DOCUMENT\620\16036\11287\Storm Water Management\11287.dwg					Printed by: KTW/21/2017-07-24.gpw				

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	1.381	2	726	2,622	-----	-----	-----	OS-1
2	SCS Runoff	0.589	2	726	1,119	-----	-----	-----	OS-2
4	Combine	1.970	2	726	3,741	1, 2,	-----	-----	OFFSITE
6	SCS Runoff	3.298	2	742	14,090	-----	-----	-----	E-1
7	SCS Runoff	6.750	2	742	28,836	-----	-----	-----	E-2
9	Combine	10.51	2	742	46,667	4, 6, 7,	-----	-----	PRE-DEVELOPMENT
11	SCS Runoff	1.909	2	726	3,581	-----	-----	-----	UD-1
12	SCS Runoff	3.788	2	734	10,773	-----	-----	-----	UD-2
14	Combine	4.815	2	728	14,354	11, 12,	-----	-----	UNDETAINED
16	SCS Runoff	6.901	2	732	17,900	-----	-----	-----	P-1
17	SCS Runoff	4.499	2	732	11,671	-----	-----	-----	P-2
18	SCS Runoff	8.443	2	730	21,737	-----	-----	-----	P-3
19	SCS Runoff	1.029	2	740	3,909	-----	-----	-----	P-4
21	Combine	26.54	2	730	73,312	4, 14, 16, 17, 18, 19,	-----	-----	POST-DEVELOPMENT (BEFORE)
23	Reservoir	0.232	2	908	17,844	16	757.19	12,224	POND 1
24	Reservoir	0.155	2	908	11,573	17	762.62	7,965	POND 2
25	Reservoir	0.226	2	912	21,533	18	762.14	15,701	POND 3
27	Combine	7.515	2	728	72,954	4, 14, 19, 23, 24, 25,	-----	-----	POST-DEVELOPMENT (AFTER)

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	2,588	2	726	4,852	-----	-----	-----	OS-1
2	SCS Runoff	1,105	2	726	2,071	-----	-----	-----	OS-2
4	Combine	3,693	2	726	6,923	1, 2,	-----	-----	OFFSITE
6	SCS Runoff	7,161	2	742	28,287	-----	-----	-----	E-1
7	SCS Runoff	14,66	2	742	57,890	-----	-----	-----	E-2
9	Combine	22.61	2	742	93,100	4, 6, 7,	-----	-----	PRE-DEVELOPMENT
11	SCS Runoff	3,210	2	726	6,090	-----	-----	-----	UD-1
12	SCS Runoff	7,159	2	732	19,938	-----	-----	-----	UD-2
14	Combine	8,942	2	728	26,028	11, 12,	-----	-----	UNDETAINED
16	SCS Runoff	12.33	2	730	31,716	-----	-----	-----	P-1
17	SCS Runoff	8.042	2	730	20,678	-----	-----	-----	P-2
18	SCS Runoff	14.33	2	730	36,967	-----	-----	-----	P-3
19	SCS Runoff	2.100	2	740	7,585	-----	-----	-----	P-4
21	Combine	47.39	2	730	129,897	4, 14, 16, 17, 18, 19,	-----	-----	POST-DEVELOPMENT (BEFORE)
23	Reservoir	0.318	2	912	31,627	16	758.08	23,116	POND 1
24	Reservoir	0.225	2	910	20,516	17	763.13	14,928	POND 2
25	Reservoir	0.303	2	918	36,580	18	762.91	28,024	POND 3
27	Combine	14.14	2	728	129,259	4, 14, 19, 23, 24, 25,	-----	-----	POST-DEVELOPMENT (AFTER)

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	5.355	2	726	10,194	----	----	----	OS-1
2	SCS Runoff	2.286	2	726	4,351	----	----	----	OS-2
4	Combine	7.641	2	726	14,544	1, 2,	----	----	OFFSITE
6	SCS Runoff	16.67	2	742	64,115	----	----	----	E-1
7	SCS Runoff	34.11	2	742	131,212	----	----	----	E-2
9	Combine	52.30	2	742	209,871	4, 6, 7,	----	----	PRE-DEVELOPMENT
11	SCS Runoff	6.022	2	726	11,782	----	----	----	UD-1
12	SCS Runoff	15.03	2	732	41,888	----	----	----	UD-2
14	Combine	18.42	2	728	53,670	11, 12,	----	----	UNDETAINED
16	SCS Runoff	24.54	2	730	63,884	----	----	----	P-1
17	SCS Runoff	16.00	2	730	41,651	----	----	----	P-2
18	SCS Runoff	27.15	2	730	71,521	----	----	----	P-3
19	SCS Runoff	4.665	2	738	16,660	----	----	----	P-4
21	Combine	94.14	2	730	261,930	4, 14, 16, 17, 18, 19,	----	----	POST-DEVELOPMENT (BEFORE)
23	Reservoir	5.038	2	754	63,744	16	758.92	35,320	POND 1
24	Reservoir	2.988	2	754	41,406	17	763.71	24,002	POND 2
25	Reservoir	4.706	2	756	71,069	18	763.60	40,750	POND 3
27	Combine	29.32	2	728	261,094	4, 14, 19, 23, 24, 25,	----	----	POST-DEVELOPMENT (AFTER)

L:\LOBBYSWP\DOCS\DOCUMENT\6201603\0128P Storm Water Management Plan, BTW/Enr/2017-07-24.gpw

6/20/2017 10:28:29 AM

6/20/2017 10:28:29 AM

Hydraflow Rainfall Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Friday, 07 / 21 / 2017

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	22.8367	5.6000	0.7338	-----
2	25.4674	5.2000	0.7159	-----
3	0.0000	0.0000	0.0000	-----
5	30.5439	4.9000	0.7023	-----
10	33.5363	4.6000	0.6850	-----
25	36.2566	4.0000	0.6589	-----
50	35.2584	3.1000	0.6226	-----
100	34.0002	2.2000	0.5870	-----

File name: WAUKESHA ATLAS 14 IDF.IDF

$$\text{Intensity} = B / (T_c + D)^E$$

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	4.04	3.04	2.48	2.11	1.85	1.66	1.51	1.38	1.28	1.20	1.12	1.06
2	4.83	3.63	2.96	2.53	2.22	1.99	1.81	1.66	1.54	1.44	1.36	1.28
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	6.11	4.58	3.74	3.19	2.81	2.52	2.29	2.11	1.96	1.83	1.72	1.63
10	7.12	5.35	4.37	3.74	3.29	2.96	2.70	2.49	2.31	2.17	2.04	1.93
25	8.52	6.37	5.21	4.47	3.94	3.55	3.24	3.00	2.79	2.62	2.47	2.34
50	9.59	7.11	5.81	4.99	4.42	3.99	3.66	3.39	3.16	2.97	2.81	2.67
100	10.67	7.83	6.40	5.51	4.89	4.43	4.07	3.78	3.54	3.34	3.16	3.01

Tc = time in minutes. Values may exceed 60.

low UPDATED ATLAS 14\STATIONS\MILWAUKEE MITCHELL AP\MILWAUKEE MITCHELL AP ATLAS 14 Precip.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SCS 6-Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	2.35	2.65	0.00	0.00	3.72	0.00	0.00	5.97





TRIO
710 N PLANKINTON AVENUE, SUITE 1000
MILWAUKEE, WI 53203
TEL: 414.224.1000
WWW.TRIOENGINEERING.COM

PROJECT:
KM MULTIFAMILY
PUBLIC INFRASTRUCTURE
CITY OF FRANKLIN, WISCONSIN
BY: KM DEVELOPMENT CORP.
710 N PLANKINTON AVENUE, SUITE 1000
MILWAUKEE, WI 53203

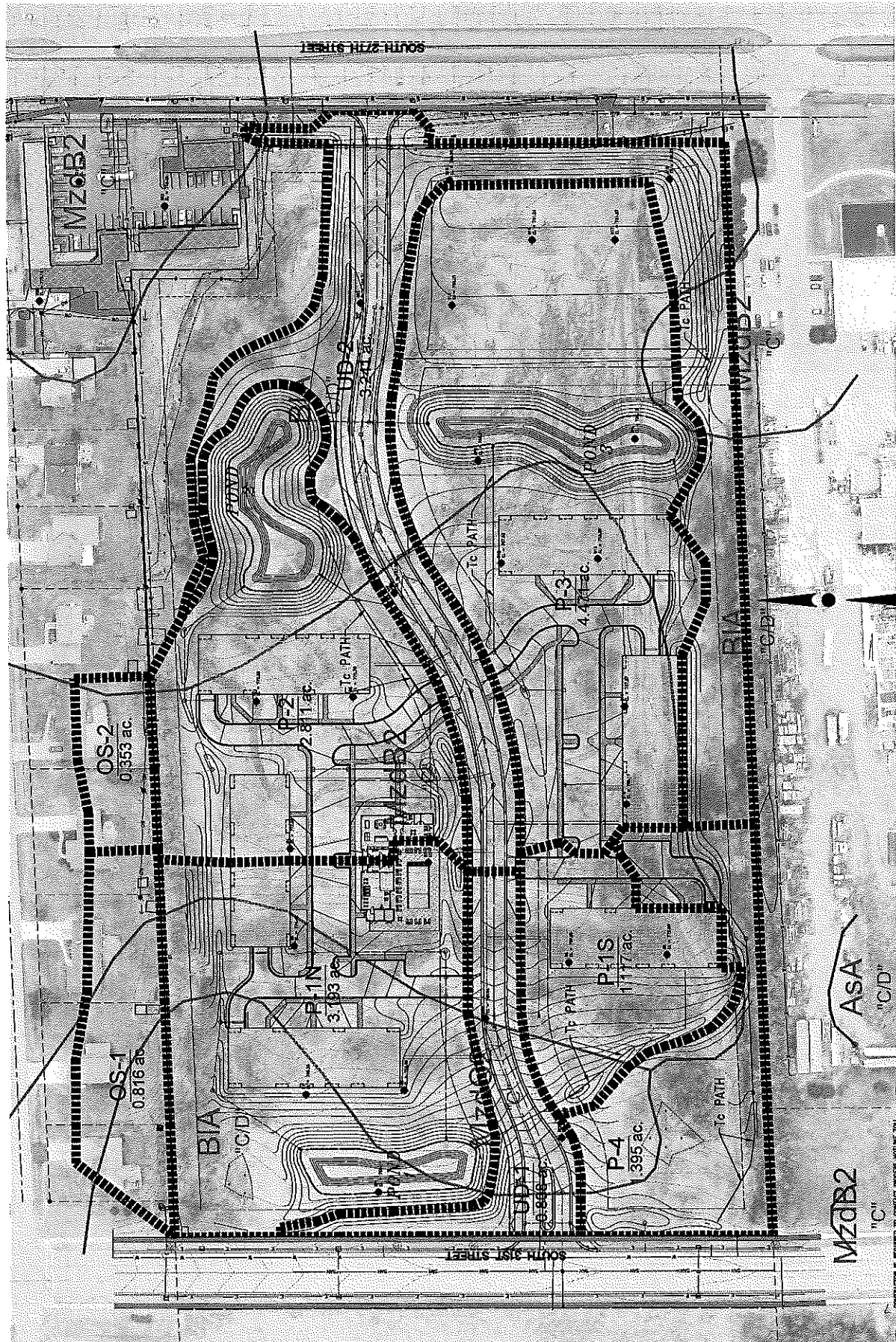
REVISION HISTORY	
DATE	DESCRIPTION
7/24/2017	INITIAL SUBMITTAL

DATE:
JULY 24, 2017

JOB NUMBER:
16030

DESCRIPTION:
PROPOSED
SWMP
DRAINAGE AREAS

SHEET
SWMP 2



CONTRACTOR IS REQUIRED TO CONTACT ENGINEER WITHIN TWO WEEKS TO OBTAIN LOCATION OF ANY EXISTING UTILITIES PRIOR TO EXISTING UNDERGROUND UTILITY INFORMATION WAS OBTAINED FROM AVAILABLE RECORDS. THE ENGINEER MAKES NO GUARANTEE AS TO THE ACCURACY OF THE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH OF ALL UTILITIES. ANY UTILITIES NOT SHOWN ON THE PLANS SHALL BE ASSUMED AS A CAUTION OF THE CONTRACTOR. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN LOCATION OF UTILITIES IN THE FIELD AND LOCATIONS SHOWN ON THE PLANS.

CALL DIGGER HOTLINE 1-800-345-4811

PS Series

Crown-Weld® Square Straight Steel Poles

Y2P, Y4P Poles

Product Description

Non-tapered square steel poles are supplied with a welded base with cover, four galvanized anchor bolts, masonite mounting template and pole cap (except tenon mount). Each anchor bolt is provided with two washers and two nuts. Steel pole base has slotted holes. Per National Electrical Code requirements, pole is standard with a 2" x 6" hand hole, located 18" above the bottom of pole base. A #10-32 stainless-steel weld stud with grounding lug is located inside the pole, opposite the hand hole. A hand hole cover is supplied but shipped separately. In addition, 4" x 27' and 4" x 30' poles include an internal 5/16" steel reinforced sleeve welded inside the bottom 24" of the pole, as well as a reinforcement welded around the hand hole for added strength. The hand hole location on reinforced poles is 12" above the bottom of the pole base.

CONSTRUCTION & MATERIALS

- Square, non tapered pole of structural steel tubing (ASTM A 500) with a minimum yield of 46,00 p.s.i.
- Welded to a formed carbon steel base plate with a minimum yield strength of 36,000 p.s.i.
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion

REGULATORY & VOLUNTARY QUALIFICATIONS

- National Electrical Code Requirements
- UL Listed in US for electrical ground bonding
- CSA Certified in Canada for ground bonding and structural strength

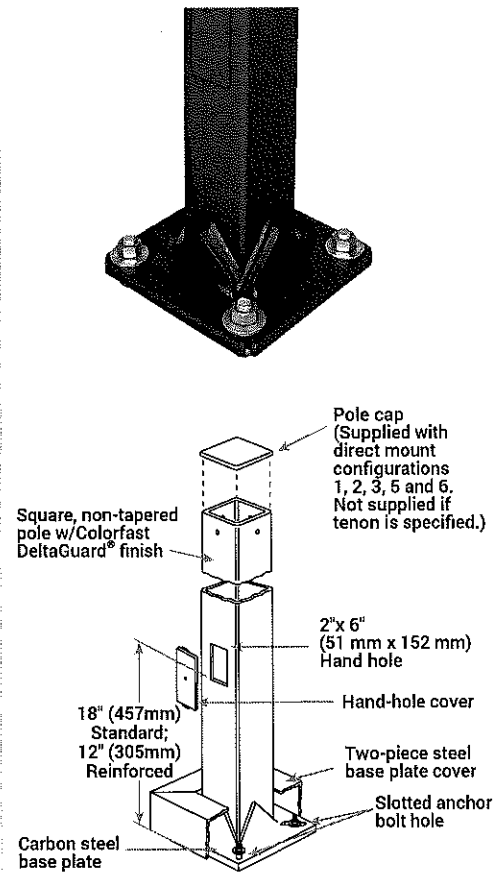
LIMITED WARRANTY*

- 7 years on pole/7 years on Colorfast DeltaGuard® finish

*See <http://lighting.cree.com/warranty> for warranty terms

Accessories

Field-Installed	
GFI Outlet Accessory - 120V	REC-GFIWH
REC-GFIBZ	- White Finish
- Bronze Finish	REC-GFISV
REC-GFIBK	- Silver Finish
- Black Finish	



Ordering Information

Example: PS3S10C1BK

PS4S12C				1	XX
Product				Mounting Configuration	Color Options
PS3S10C 10' x 3" x 0.125"	PS4S15C 15' x 4" x 0.125"	PS4S25C 25' x 4" x 0.125"	PS4S30H 30' x 4" x 0.188"	1 Single ¹	BK Black
PS3S15C 15' x 3" x 0.125"	PS4S17C 17' x 4" x 0.125"	PS4S25S 25' x 4" x 0.188"	PS5S25S 25' x 5" x 0.188"	2 Twin @ 180°	BZ Bronze
PS3S20C 20' x 3" x 0.125"	PS4S20C 20' x 4" x 0.125"	PS4S27R 27' x 4" x 0.125"	PS5S30S 30' x 5" x 0.188"	3 Twin @ 90° ¹	SV Silver
PS4S10C 10' x 4" x 0.125"	PS4S22C 22' x 4" x 0.125"	PS4S30R 30' x 4" x 0.125"	PS6S30S 30' x 6" x 0.188"	5 Triple ¹	WH White
PS4S12C 12' x 4" x 0.125"	PS4S22S 22' x 4" x 0.188"			6 Quad ¹	
				T Tenon ²	

¹ Direct mount pole configuration. N/A for Cree Edge® High Output luminaires

² Order tenon separately. Refer to Bracket and Tenons spec sheet for additional information



US: www.cree.com/lighting

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Rev. Date: V1 12/14/2015

Canada: www.cree.com/canada



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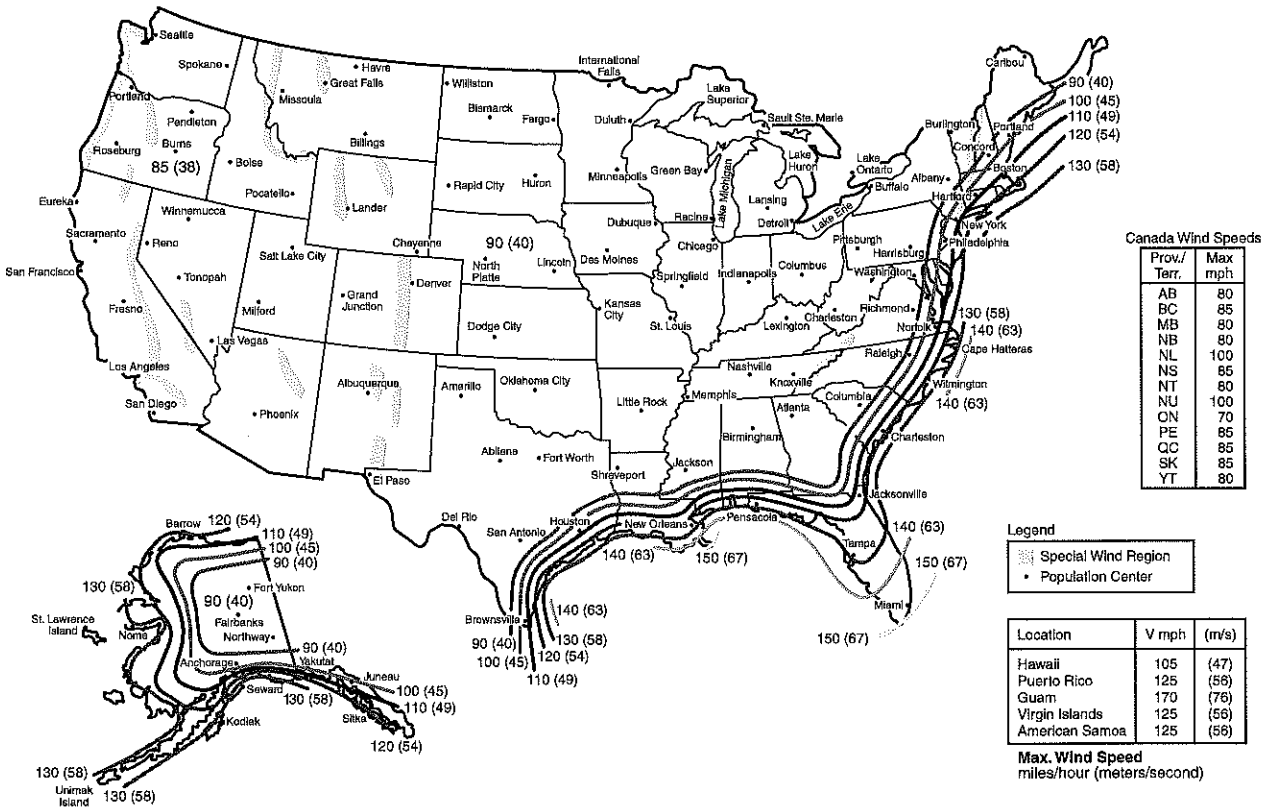
PS Series Crown-Weld® Square Straight Steel Poles

EPA & Weight

Product	Height x Width x Wall	Base Plate	Bolt Circle/Range (in)	Anchor Bolt Size	Pole EPA Rating – Base Wind Velocity (MPH)								Maximum Luminaire Weight	Approx. Shipping Weight
					70	80	90	100	110	120	130	140		
PS3S10C	10' x 3" x 0.125"	10" Sq. x 0.50" Thick	10/9.3-11	3/4"-10x18" + 3"	31.4	23.6	18.2	14.3	11.5	9.3	7.0	6.3	250 lbs. (114kg)	58 lbs. (26kg)
PS3S15C	15' x 3" x 0.125"	10" Sq. x 0.75" Thick	10/9.3-11	3/4"-10x18" + 3"	18.5	13.4	9.9	7.4	5.5	4.1	3.0	2.2	250 lbs. (114kg)	82 lbs. (37kg)
PS3S20C	20' x 3" x 0.125"	10" Sq. x 0.75" Thick	10/9.3-11	3/4"-10x18" + 3"	11.5	7.8	5.2	3.3	2.0	0.9	0.1	0.0	250 lbs. (114kg)	119 lbs. (54kg)
PS4S10C	10' x 4" x 0.125"	10" Sq. x 0.75" Thick	10/9.3-11	3/4"-10x18" + 3"	59.9	45.2	35.1	27.9	22.6	18.5	15.4	12.9	350 lbs. (159kg)	78 lbs. (35kg)
PS4S12C	12' x 4" x 0.125"	10" Sq. x 0.75" Thick	10/9.3-11	3/4"-10x18" + 3"	48.4	36.2	27.9	21.9	17.5	14.2	11.6	9.5	350 lbs. (159kg)	99 lbs. (45kg)
PS4S15C	15' x 4" x 0.125"	10" Sq. x 0.75" Thick	10/9.3-11	3/4"-10x30" + 3"	36.5	26.9	20.3	15.6	12.1	9.5	7.4	5.8	350 lbs. (159kg)	119 lbs. (54kg)
PS4S17C	17' x 4" x 0.125"	10" Sq. x 0.75" Thick	10/9.3-11	3/4"-10x30" + 3"	30.7	22.3	16.6	12.5	9.41	7.1	5.3	3.9	350 lbs. (159kg)	131 lbs. (59kg)
PS4S20C	20' x 4" x 0.125"	10" Sq. x 0.75" Thick	10/9.3-11	3/4"-10x30" + 3"	24.0	16.9	12.1	8.7	6.1	4.2	2.7	1.5	350 lbs. (159kg)	150 lbs. (68kg)
PS4S22C	22' x 4" x 0.125"	10" Sq. x 0.75" Thick	10/9.3-11	3/4"-10x30" + 3"	20.4	14.0	9.7	6.6	4.3	2.5	1.2	0.1	310 lbs. (141kg)	163 lbs. (74kg)
PS4S22S	22' x 4" x 0.188"	10" Sq. x 0.75" Thick	10/9.3-11	3/4"-10x30" + 3"	31.1	22.3	16.2	11.8	8.5	6.2	4.3	2.8	350 lbs. (159kg)	207 lbs. (94kg)
PS4S25C	25' x 4" x 0.125"	10" Sq. x 0.75" Thick	10/9.3-11	3/4"-10x30" + 3"	15.9	10.4	6.6	3.9	1.9	0.4	0.0	0.0	350 lbs. (159kg)	182 lbs. (83kg)
PS4S25S	25' x 4" x 0.188"	10" Sq. x 0.75" Thick	10/9.3-11	3/4"-10x30" + 3"	25.3	17.6	12.3	8.5	5.7	3.6	1.9	0.5	350 lbs. (159kg)	252 lbs. (114kg)
PS4S27R	27' x 4" x 0.125"	10" Sq. x 0.75" Thick	10/9.3-11	3/4"-10x30" + 3"	22.0	14.9	10.0	6.6	4.0	2.0	0.0	0.0	280 lbs. (127kg)	232 lbs. (105kg)
PS4S30R	30' x 4" x 0.125"	10" Sq. x 0.75" Thick	10/9.3-11	3/4"-10x30" + 3"	17.7	11.4	7.1	4.0	1.7	0.0	0.0	0.0	315 lbs. (143kg)	301 lbs. (137kg)
PS4S30H	30' x 4" x 0.188"	10" Sq. x 0.75" Thick	10/9.3-11	3/4"-10x30" + 3"	19.5	12.5	7.8	4.4	1.9	0.0	0.0	0.0	340 lbs. (155kg)	337 lbs. (153kg)
PS5S25S	25' x 5" x 0.188"	10" Sq. x 0.75" Thick	10/9.7-11.3	1"-8x36" + 4"	43.9	31.4	22.8	16.6	12.1	8.7	6.0	3.8	450 lbs. (204kg)	320 lbs. (145kg)
PS5S30S	30' x 5" x 0.188"	10" Sq. x 0.75" Thick	10/9.7-11.3	1"-8x36" + 4"	32.2	21.9	14.9	9.9	6.2	3.4	1.2	0.0	375 lbs. (170kg)	379 lbs. (172kg)
PS6S30S	30' x 6" x 0.188"	12" Sq. x 1.0" Thick	11.5/11.3-12.8	1"-8x36" + 4"	50.8	35.7	25.3	17.9	12.4	8.2	4.9	2.4	525 lbs. (238kg)	457 lbs. (207kg)

NOTE: Hanging signs, banners and flags on poles changes the EPA rating and increases vibration. The EPA ratings data provided does not allow for this added stress which could result in pole or luminaire failure

This map indicates approximate maximum wind zones throughout the U.S. Base wind velocities are established using a 50-year recurring mean. The EPA rating of the pole must be equal to or greater than that of the luminaire(s), taking into consideration the wind conditions at the job site.



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T (800) 473-1234 F (800) 890-7507

OSQ Series

OSQ™ LED Area/Flood Luminaire – Medium

Product Description

The OSQ™ Area/Flood luminaire blends extreme optical control, advanced thermal management and modern, clean aesthetics. Built to last, the housing is rugged cast aluminum with an integral, weathertight LED driver compartment. Versatile mounting configurations offer simple installation. Its slim, low-profile design minimizes wind load requirements and blends seamlessly into the site providing even, quality illumination. The 'B' Input power designator is a suitable upgrade for HID applications up to 250 Watt, and the 'K' Input power designator is a suitable upgrade for HID applications up to 400 Watt.

Applications: Parking lots, walkways, campuses, car dealerships, office complexes, and internal roadways

Performance Summary

NanoOptic® Precision Delivery Grid™ optic

Made in the U.S.A. of U.S. and imported parts

Initial Delivered Lumens: Up to 17,291

Efficacy: Up to 136 LPW

CRI: Minimum 70 CRI (4000K & 5700K; 3000K asymmetric optics); 80 CRI (3000K symmetric optics)

CCT: 3000K (+/- 300K), 4000K (+/- 300K), 5700K (+/- 500K)

Limited Warranty*: 10 years on luminaire/10 years on Colorfast DeltaGuard® finish

* See <http://lighting.cree.com/warranty> for warranty terms

Accessories

Field-Installed	
Backlight Shield OSQ-BLSMF - Front facing optics OSQ-BLSMR - Rotated optics	Hand-Held Remote XA-SENSREM - For successful implementation of the programmable multi-level option, a minimum of one hand-held remote is required

Ordering Information

Fully assembled luminaire is composed of two components that must be ordered separately:

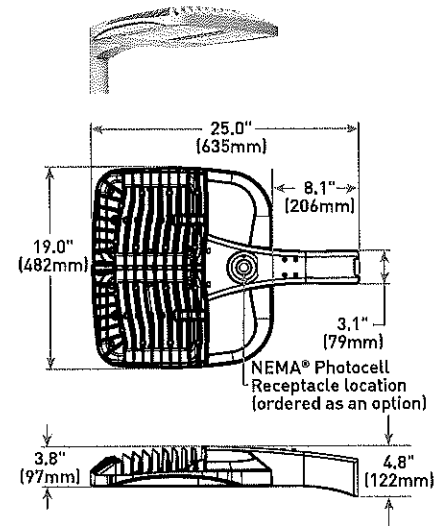
Example: **Mount:** OSQ-AASV + **Luminaire:** OSQ-A-NM-2ME-B-40K-UL-SV

Mount (Luminaire must be ordered separately)			
OSQ-			
OSQ-AA Adjustable Arm		Color Options:	SV Silver
OSQ-DA Direct Arm			BK Black
			BZ Bronze
			SV Silver
			WH White

Luminaire (Mount must be ordered separately)									
OSQ	A	DA	2ME	B	40K	UL			
Product	Version	Mounting	Optic	Input Power Designator	CCT	Voltage	Color Options	Options	
OSQ	A	NM No Mount	Asymmetric	B 86W K 130W	30K 3000K 40K 4000K 57K 5700K	UL Universal 120-277V UH Universal 347-480V	BK Black BZ Bronze SV Silver WH White	DIM 0-10V Dimming - Control by others - Refer to Dimming spec sheet for details - Can't exceed wattage of specified input power designator	PML2 Programmable Multi-Level, 10-30' Mounting Height - Refer to PML spec sheet for details - Available with UL voltage only - Intended for downlight applications at 0° tilt
			Symmetric						
			2ME* Type II Medium 3ME* Type III Medium					F Fuse - When code dictates fusing, use time delay fuse	Q9 Field Adjustable Output - Refer to Field Adjustable Output spec sheet for details
			5ME Type V Medium 5SH Type V Short WSN Wide Sign 15D 15° Flood					ML Multi-Level - Refer to ML spec sheet for details - High: 100%, Low: 30% - Available with UL voltage only - Intended for downlight applications at 0° tilt	R NEMA® Photocell Receptacle - Intended for downlight applications with maximum 45° tilt - 3-pin receptacle per ANSI C136.10 - Photocell and shorting cap by others
								PML Programmable Multi-Level, 20-40' Mounting Height - Refer to PML spec sheet for details - Available with UL voltage only - Intended for downlight applications at 0° tilt	RL Rotate Left - LED and optic are rotated to the left RR Rotate Right - LED and optic are rotated to the right

* Available with Backlight Shield when ordered with field-installed accessory (see table above)

DA Mount



Weight

26.5 lbs. (12kg)



Rev. Date: V11 09/27/2016



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Canada: www.cree.com/canada

T (800) 473-1234 F (800) 890-7507

OSQ™ LED Area/Flood Luminaire – Medium

Product Specifications

CONSTRUCTION & MATERIALS

- Slim, low profile design minimizes wind load requirements
- Luminaire housing is rugged die cast aluminum with an integral, weathertight LED driver compartment and high performance heat sink
- Convenient interlocking mounting method on direct arm mount. Mounting adaptor is rugged die cast aluminum and mounts to 3-6" (76-152mm) square or round pole, secured by two 5/16-18 UNC bolts spaced on 2" (51mm) centers
- Mounting for the adjustable arm mount adaptor is rugged die cast aluminum and mounts to 2" (51mm) IP, 2.375" (60mm) O.D. tenon
- Adjustable arm mount can be adjusted 180° in 2.5° increments
- Designed for uplight and downlight applications
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Silver, bronze, black, and white are available
- **Weight:** 26.5 lbs. (12kg)

ELECTRICAL SYSTEM

- **Input Voltage:** 120-277V or 347-480V, 50/60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral 10kV surge suppression protection standard
- When code dictates fusing, a slow blow fuse or type C/D breaker should be used to address inrush current
- **10V Source Current:** 0.15mA

REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for wet locations
- Enclosure rated IP66 per IEC 60529 when ordered without R option
- Consult factory for CE Certified products
- Certified to ANSI C136.31-2001, 3G bridge and overpass vibration standards
- 10kV surge suppression protection tested in accordance with IEEE/ANSI C62.41.2
- Meets FCC Part 15, Subpart B, Class A standards for conducted and radiated emissions
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Meets Buy American requirements within ARRA
- DLC and DLC Premium qualified versions available. Some exceptions apply. Please refer to www.designlights.org/QPL for most current information
- RoHS compliant. Consult factory for additional details
- Dark Sky Friendly, IDA Approved when ordered with 30K CCT. Please refer to <http://darksky.org/tsa/tsa-products/> for most current information

Electrical Data*							
Input Power Designator	System Watts 120-480V	Total Current [A]					
		120V	208V	240V	277V	347V	480V
B	86	0.73	0.43	0.37	0.32	0.25	0.19
K	130	1.09	0.65	0.56	0.49	0.38	0.28

* Electrical data at 25°C (77°F). Actual wattage may differ by +/- 10% when operating between 120-480V +/-10%

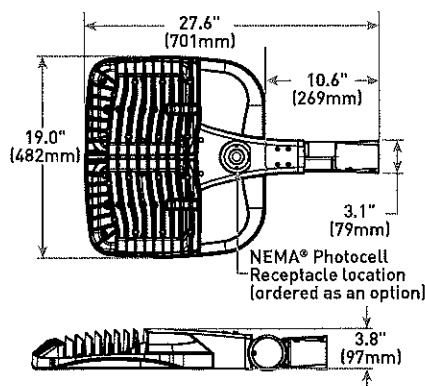
Recommended OSQ Series Lumen Maintenance Factors (LMF) ¹						
Ambient	Optic	Initial LMF	25K hr Projected ² LMF	50K hr Projected ² LMF	75K hr Projected ² LMF	100K hr Calculated ³ LMF
5°C (41°F)	Asymmetric	1.04	0.99	0.93	0.89	0.84
	Symmetric	1.05	1.00	0.96 ³	0.92 ³	0.88 ³
10°C (50°F)	Asymmetric	1.03	0.98	0.93	0.88	0.83
	Symmetric	1.04	0.99	0.95 ³	0.91 ³	0.87 ³
15°C (59°F)	Asymmetric	1.02	0.97	0.92	0.87	0.82
	Symmetric	1.02	0.98	0.94 ³	0.90 ³	0.87 ³
20°C (68°F)	Asymmetric	1.01	0.96	0.91	0.86	0.82
	Symmetric	1.01	0.96	0.92 ³	0.88 ³	0.85 ³
25°C (77°F)	Asymmetric	1.00	0.95	0.90	0.85	0.81
	Symmetric	1.00	0.95	0.91 ³	0.88 ³	0.84 ³

¹ Lumen maintenance values at 25°C (77°F) are calculated per TM-21 based on LM-80 data and in-situ luminaire testing

² In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing (DUT) i.e. the packaged LED chip

³ In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing (DUT) i.e. the packaged LED chip

AA Mount



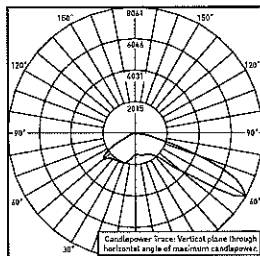
Weight
26.5 lbs. (12kg)

OSQ™ LED Area/Flood Luminaire – Medium

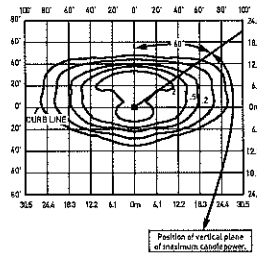
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: <http://lighting.cree.com/products/outdoor/area/osq-series>

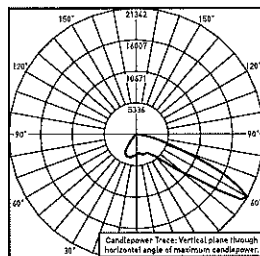
2ME



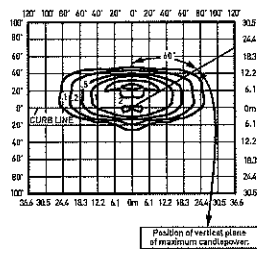
RESTL Test Report #: PL08877-001
OSQ-A-**-2ME-B-40K-UL
Initial Delivered Lumens: 10,381



OSQ-A-**-2ME-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 11,424
Initial FC at grade

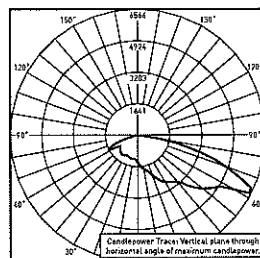


CESTL Test Report #: PL07700-001A
OSQ-A-**-2ME-B-40K-UL w/OSQ-BLSLF
Initial Delivered Lumens: 22,822

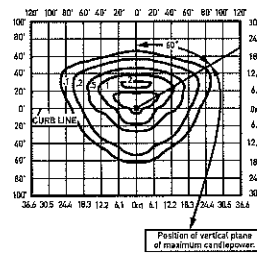


OSQ-A-**-2ME-B-40K-UL w/OSQ-BLSLF
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 8,779
Initial FC at grade

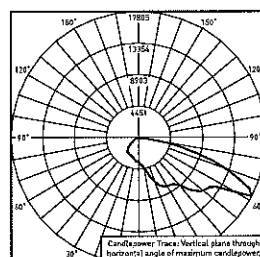
3ME



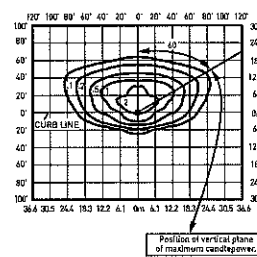
RESTL Test Report #: PL08876-001A
OSQ-A-**-3ME-B-40K-UL
Initial Delivered Lumens: 10,421



OSQ-A-**-3ME-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 11,424
Initial FC at grade



CESTL Test Report #: PL07699-001A
OSQ-A-**-3ME-B-40K-UL w/OSQ-BLSLF
Initial Delivered Lumens: 23,601



OSQ-A-**-3ME-B-40K-UL w/OSQ-BLSLF
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 9,019
Initial FC at grade

Type II Medium Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	10,738	B2 U0 G2	11,424	B2 U0 G2	11,648	B2 U0 G2
K	16,022	B3 U0 G3	16,959	B3 U0 G3	17,291	B3 U0 G3

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens.

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

Type II Medium w/BLS Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	8,251	B2 U0 G2	8,779	B2 U0 G2	8,950	B2 U0 G2
K	12,312	B2 U0 G2	13,032	B2 U0 G2	13,286	B2 U0 G2

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens.

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

Type III Medium Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	10,738	B3 U0 G3	11,424	B3 U0 G3	11,648	B3 U0 G3
K	16,022	B3 U0 G3	16,959	B3 U0 G3	17,291	B3 U0 G3

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens.

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

Type III Medium w/BLS Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	8,477	B1 U0 G2	9,019	B1 U0 G2	9,196	B1 U0 G2
K	12,649	B2 U0 G2	13,389	B2 U0 G2	13,650	B2 U0 G2

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens.

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

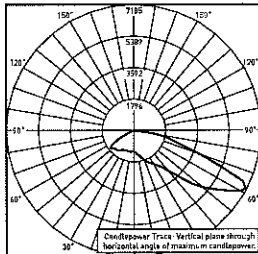


OSQ™ LED Area/Flood Luminaire – Medium

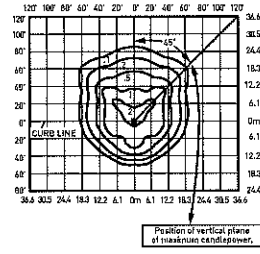
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: <http://lighting.cree.com/products/outdoor/area/osq-series>

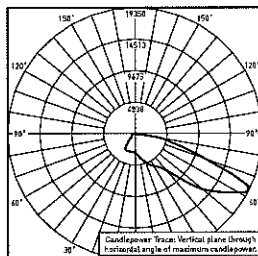
4ME



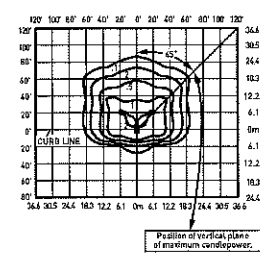
RESEL Test Report #: PL08878-001A
OSQ-A-4ME-B-30K-UL
Initial Delivered Lumens: 10,230
Initial FC at grade



OSQ-A-4ME-B-40K-UL
Mounting Height: 25' (7.6m) A.F.O.
Initial Delivered Lumens: 11,424
Initial FC at grade

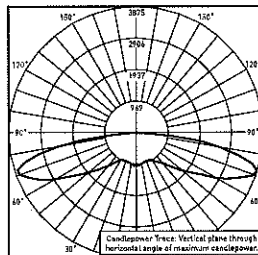


CESTL Test Report #: PL07692-001A
OSQ-A-4ME-U-57K-UL w/OSQ-BLSLF
Initial Delivered Lumens: 22,793
Initial FC at grade

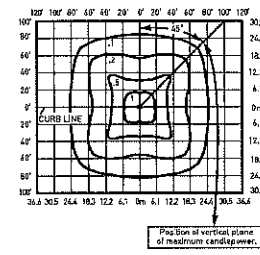


OSQ-A-4ME-B-40K-UL w/OSQ-BLSMF
Mounting Height: 25' (7.6m) A.F.O.
Initial Delivered Lumens: 8,779
Initial FC at grade

5ME

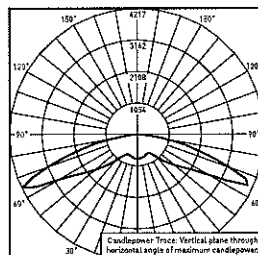


CESTL Test Report #: PL08101-001C
OSQ-A-5ME-B-30K-UL
Initial Delivered Lumens: 9,304
Initial FC at grade

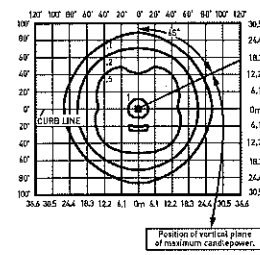


OSQ-A-5ME-B-40K-UL
Mounting Height: 25' (7.6m) A.F.O.
Initial Delivered Lumens: 10,867
Initial FC at grade

5SH



CESTL Test Report #: PL08102-001B
OSQ-A-5SH-B-30K-UL
Initial Delivered Lumens: 9,935
Initial FC at grade



OSQ-A-5SH-B-40K-UL
Mounting Height: 25' (7.6m) A.F.O.
Initial Delivered Lumens: 11,478
Initial FC at grade

Type IV Medium Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	10,738	B2 U0 G2	11,424	B2 U0 G2	11,648	B2 U0 G2
K	16,022	B3 U0 G3	16,959	B3 U0 G3	17,291	B3 U0 G3

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

Type IV Medium w/BLS Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	8,251	B1 U0 G2	8,779	B1 U0 G2	8,950	B1 U0 G2
K	12,312	B2 U0 G2	13,032	B2 U0 G2	13,286	B2 U0 G2

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

Type V Medium Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	9,387	B3 U0 G3	10,867	B4 U0 G4	11,056	B4 U0 G4
K	13,819	B4 U0 G4	15,999	B4 U0 G5	16,277	B4 U0 G5

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

Type V Short Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	9,914	B4 U0 G3	11,478	B4 U0 G3	11,678	B4 U0 G3
K	14,595	B4 U0 G3	16,897	B4 U0 G3	17,191	B4 U0 G3

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

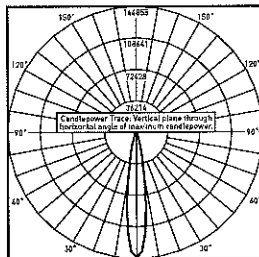


OSQ™ LED Area/Flood Luminaire – Medium

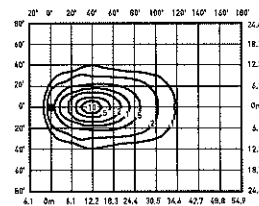
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: <http://lighting.cree.com/products/outdoor/area/osq-series>

15D



CESTL Test Report #: PL07689-001A
OSQ-A-**-15D-U-30K-UL
Initial Delivered Lumens: 23,254



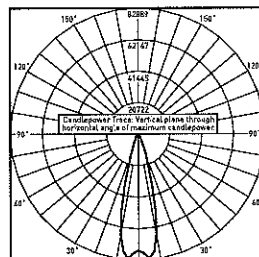
OSQ-A-**-15D-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 11,478
Initial FC at grade

15° Flood Distribution

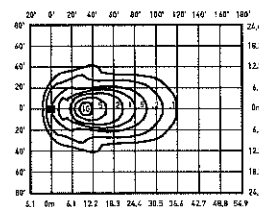
Input Power Designator	3000K	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
B	9,914	11,478	11,678
K	14,595	16,897	17,191

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

25D



CESTL Test Report #: PL07687-001A
OSQ-A-**-25D-U-30K-UL
Initial Delivered Lumens: 23,265



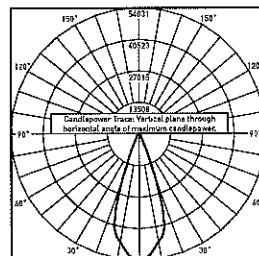
OSQ-A-**-25D-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 11,478
Initial FC at grade

25° Flood Distribution

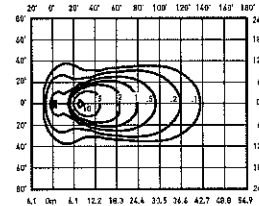
Input Power Designator	3000K	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
B	9,914	11,478	11,678
K	14,595	16,897	17,191

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

40D



CESTL Test Report #: PL07697-001A
OSQ-A-**-40D-U-30K-UL
Initial Delivered Lumens: 22,943



OSQ-A-**-40D-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 11,478
Initial FC at grade

40° Flood Distribution

Input Power Designator	3000K	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
B	9,914	11,478	11,678
K	14,595	16,897	17,191

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

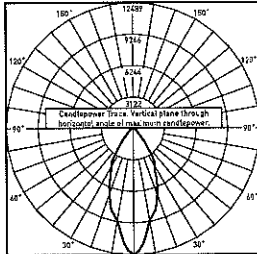


OSQ™ LED Area/Flood Luminaire – Medium

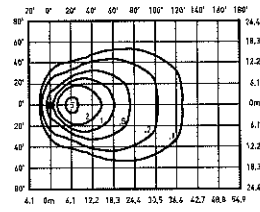
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: <http://lighting.cree.com/products/outdoor/area/osq-series>

60D



CESTL Test Report #: PL08100-001B
OSQ-A-**-60D-B-30K-UL
Initial Delivered Lumens: 10,079



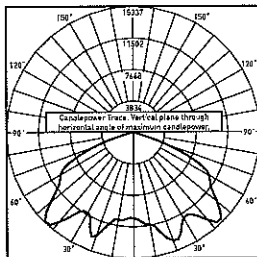
OSQ-A-**-60D-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 11,478
Initial FC at grade

60° Flood Distribution

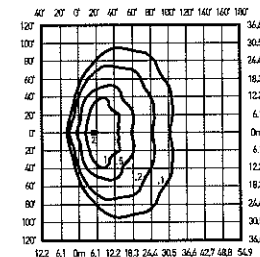
Input Power Designator	3000K	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
B	9,914	11,478	11,678
K	14,595	16,897	17,191

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

WSN



CESTL Test Report #: PL07695-001A
OSQ-A-**-WSN-B-40K-UL
Initial Delivered Lumens: 23,116



OSQ-A-**-WSN-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 11,478
Initial FC at grade

Wide Sign Distribution

Input Power Designator	3000K	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
B	9,914	11,478	11,678
K	14,595	16,897	17,191

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens



OSQ™ LED Area/Flood Luminaire – Medium

Luminaire EPA

Fixed Arm Mount – OSQ-DA Weight: 26.5 lbs. (12kg)					
Single	2 @ 180°	2 @ 90°	3 @ 90°	3 @ 120°	4 @ 90°
					
0.74	1.48	1.19	1.93	1.63	2.38

Adjustable Arm Mount – OSQ-AA Weight: 26.5 lbs. (12kg)							
Single	2 @ 180°	2 @ 90°	3 @ 90°	3 @ 120°	3 @ 180°	4 @ 180°	4 @ 90°
Tenon Configuration (0°–80° Tilt); If used with Cree tenons, please add tenon EPA with Luminaire EPA							
 PB-1A*; PT-1; PW-1A3**	 PB-2A*; PB-2R2.375; PD-2A4(180); PT-2(180); PW-2A3**	 PB-2A*; PD-2A4(90); PT-2(90)	 PB-3A*; PD-3A4(90); PT-3(90)	 PB-3A*; PT-3(120)	 PB-3A*; PB-3R2.375	 PB-4A*(180)	 PB-4A*(90); PB-4R2.375; PD-4A4(90); PT-4(90)
0° Tilt							
0.74	1.48	1.19	1.93	1.63	3.33	4.66	2.38
10° Tilt							
0.75	1.48	1.49	2.23	2.15	4.22	5.84	2.98
20° Tilt							
1.12	1.48	1.86	2.60	2.85	5.31	7.32	3.72
30° Tilt							
1.46	1.48	2.20	2.94	3.56	6.34	8.68	4.40
45° Tilt							
1.96	1.96	2.69	3.43	4.54	7.83	10.68	5.38
60° Tilt							
2.33	2.33	3.07	3.81	5.11	8.94	12.16	6.14
70° Tilt							
2.49	2.49	3.23	3.97	5.11	9.43	12.80	6.46
80° Tilt							
2.58	2.58	3.32	4.06	5.11	9.71	13.16	6.64
Tenon Configuration (90° Tilt); If used with Cree tenons, please add tenon EPA with Luminaire EPA							
PB-1A*; PT-1; PW-1A3**	PB-2A*; PB-2R2.375; PD-2A4(180); PT-2(180); PW-2A3**	PB-2A*	PB-3A*	PB-3A*; PT-3(120)	PB-3A*; PB-3R2.375	PB-4A*(180)	PB-4A*(90); PB-4R2.375
90° Tilt							
2.61	2.61	4.44	6.05	5.11	9.79	13.28	10.39

* Specify pole size: 3 [3"], 4 [4"], 5 [5"], or 6 [6"] for single, double or triple luminaire orientation or 4 [4"], 5 [5"], or 6 [6"] for quad luminaire orientation
 ** These EPA values must be multiplied by the following ratio: Fixture Mounting Height/Total Pole Height. Specify pole size: 3 [3"], 4 [4"], 5 [5"], or 6 [6"]

OSQ™ LED Area/Flood Luminaire – Medium

Tenon EPA

Part Number	EPA
PB-1A*	None
PB-2A*	0.82
PB-3A*	1.52
PB-4A*(180)	2.22
PB-4A*(90)	1.11
PB-2R2.375	0.92
PB-3R2.375	1.62
PB-4R2.375	2.32
PD Series Tenons	0.09
PT Series Tenons	0.10
PW-1A3**	0.47
PW-2A3**	0.94
WM-2	0.08
WM-4	0.25
WM-DM	None

* Specify pole size: 3 (3"), 4 (4"), 5 (5"), or 6 (6") for single, double or triple luminaire orientation or 4 (4"), 5 (5"), or 6 (6") for quad luminaire orientation
 ** These EPA values must be multiplied by the following ratio: Fixture Mounting Height/Total Pole Height. Specify pole size: 3 (3"), 4 (4"), 5 (5"), or 6 (6")

Tenons and Brackets* (must specify color)	
Square Internal Mount Vertical Tenons (Steel) - Mounts to 3-6" (76-152mm) square aluminum or steel poles PB-1A* – Single PB-4A*(90) – 90° Quad PB-2A* – 180° Twin PB-4A*(180) – 180° Quad PB-3A* – 180° Triple	Round External Mount Vertical Tenons (Steel) - Mounts to 2.375" (60mm) O.D. round aluminum or steel poles or tenons PB-2R2.375 – Twin PB-4R2.375 – Quad PB-3R2.375 – Triple
Square Internal Mount Horizontal Tenons (Aluminum) - Mounts to 4" (102mm) square aluminum or steel poles PD-2A4(90) – 90° Twin PD-3A4(90) – 90° Triple PD-2A4(180) – 180° Twin PD-4A4(90) – 90° Quad	Round External Mount Horizontal Tenons (Aluminum) - Mounts to 2.375" (60mm) O.D. round aluminum or steel poles or tenons - Mounts to square pole with PB-1A* tenon PT-1 – Single [Vertical] PT-3(90) – 90° Triple PT-2(90) – 90° Twin PT-4(90) – 90° Quad PT-2(180) – 180° Twin
Wall Mount Brackets - Mounts to wall or roof WM-2 – Horizontal for OSQ-AA mount WM-4 – L-Shape for OSQ-AA mount WM-DM – Plate for OSQ-DA mount	Mid-Pole Bracket - Mounts to square pole PW-1A3** – Single PW-2A3** – Double
	Ground Mount Post - For ground mounted flood luminaires PGM-1 - for OSQ-AA mount

* Refer to the Bracket and Tenons spec sheet for more details

Direct Mount Configurations

Compatibility with OSQ-DA Direct Mount Bracket					
Input Power Designator	2 @ 90°	2 @ 180°	3 @ 90°	3 @ 120°	4 @ 90°
3" Square					
B & K	N/A	✓	N/A	N/A	N/A
3" Round					
B & K	N/A	✓	N/A	N/A	N/A
4" Square					
B & K	✓	✓	✓	N/A	✓
4" Round					
B & K	✓	✓	✓	✓	✓
5" Square					
B & K	✓	✓	✓	N/A	✓
5" Round					
B & K	✓	✓	✓	✓	✓
6" Square					
B & K	✓	✓	✓	N/A	✓
6" Round					
B & K	✓	✓	✓	✓	✓

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US: lighting.cree.com/lighting T (800) 236-6800 F (262) 504-5415

Canada: www.cree.com/canada



T (800) 473-1234 F (800) 890-7507

OSQ Series

OSQ™ LED Area/Flood Luminaire – Medium

Product Description

The OSQ™ Area/Flood luminaire blends extreme optical control, advanced thermal management and modern, clean aesthetics. Built to last, the housing is rugged cast aluminum with an integral, weathertight LED driver compartment. Versatile mounting configurations offer simple installation. Its slim, low-profile design minimizes wind load requirements and blends seamlessly into the site providing even, quality illumination. The 'B' Input power designator is a suitable upgrade for HID applications up to 250 Watt, and the 'K' input power designator is a suitable upgrade for HID applications up to 400 Watt.

Applications: Parking lots, walkways, campuses, car dealerships, office complexes, and internal roadways

Performance Summary

NanoOptic® Precision Delivery Grid™ optic

Made in the U.S.A. of U.S. and imported parts

Initial Delivered Lumens: Up to 17,291

Efficacy: Up to 136 LPW

CRI: Minimum 70 CRI (4000K & 5700K; 3000K asymmetric optics); 80 CRI (3000K symmetric optics)

CCT: 3000K (+/- 300K), 4000K (+/- 300K), 5700K (+/- 500K)

Limited Warranty*: 10 years on luminaire/10 years on Colorfast DeltaGuard® finish

* See <http://lighting.cree.com/warranty> for warranty terms

Accessories

Field-Installed	
Backlight Shield OSQ-BLSMF - Front facing optics OSQ-BLSMR - Rotated optics	Hand-Held Remote XA-SENSREM - For successful implementation of the programmable multi-level option, a minimum of one hand-held remote is required

Ordering Information

Fully assembled luminaire is composed of two components that must be ordered separately:

Example: **Mount:** OSQ-AASV + **Luminaire:** OSQ-A-NM-2ME-B-40K-UL-SV

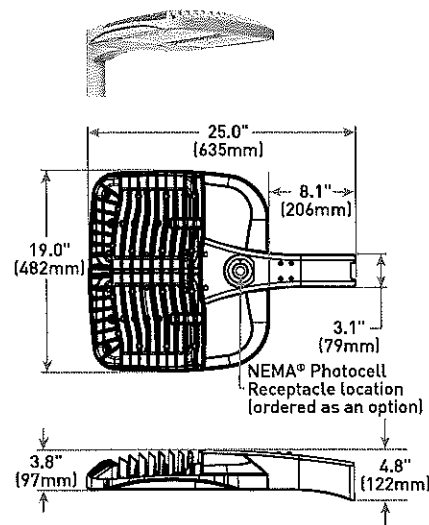
Mount (Luminaire must be ordered separately)			
OSQ-			
OSQ-AA Adjustable Arm	Color Options:	SV Silver BK Black	BZ Bronze WH White
OSQ-DA Direct Arm			

Luminaire (Mount must be ordered separately)								
OSQ	A	DA	4ME	B	40K	UL		
Product	Version	Mounting	Optic	Input Power Designator	CCT	Voltage	Color Options	Options
OSQ	A	NM No Mount	Asymmetric	B 86W K 130W	30K 3000K 40K 4000K 57K 5700K	UL Universal 120-277V UH Universal 347-480V	BK Black BZ Bronze SV Silver WH White	DIM 0-10V Dimming - Control by others - Refer to Dimming spec sheet for details - Can't exceed wattage of specified input power designator
			Symmetric					PML2 Programmable Multi-Level, 10-30' Mounting Height - Refer to PML spec sheet for details - Available with UL voltage only - Intended for downlight applications at 0° tilt
			2ME* Type II Medium 3ME* Type III Medium					F Fuse - When code dictates fusing, use time delay fuse
			5ME Type V Medium 55H Type V Short WSN Wide Sign 15D 15° Flood					D9 Field Adjustable Output - Refer to Field Adjustable Output spec sheet for details
			25D 25° Flood 40D 40° Flood 60D 60° Flood					R NEMA® Photocell Receptacle - Intended for downlight applications with maximum 45° tilt - 3-pin receptacle per ANSI C136.10 - Photocell and shorting cap by others
								ML Multi-Level - Refer to ML spec sheet for details - High: 100%, Low: 30% - Available with UL voltage only - Intended for downlight applications at 0° tilt
								PML Programmable Multi-Level, 20-40' Mounting Height - Refer to PML spec sheet for details - Available with UL voltage only - Intended for downlight applications at 0° tilt
								RL Rotate Left - LED and optic are rotated to the left
								RR Rotate Right - LED and optic are rotated to the right

* Available with Backlight Shield when ordered with field-installed accessory (see table above)

YP4

DA Mount



Weight

26.5 lbs. (12kg)



Rev. Date: V11 09/27/2016



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Canada: www.cree.com/canada

T (800) 473-1234 F (800) 890-7507

OSQ™ LED Area/Flood Luminaire – Medium

Product Specifications

CONSTRUCTION & MATERIALS

- Slim, low profile design minimizes wind load requirements
- Luminaire housing is rugged die cast aluminum with an integral, weathertight LED driver compartment and high performance heat sink
- Convenient interlocking mounting method on direct arm mount. Mounting adaptor is rugged die cast aluminum and mounts to 3-6" (76-152mm) square or round pole, secured by two 5/16-18 UNC bolts spaced on 2" (51mm) centers
- Mounting for the adjustable arm mount adaptor is rugged die cast aluminum and mounts to 2" (51mm) IP, 2.375" (60mm) O.D. tenon
- Adjustable arm mount can be adjusted 180° in 2.5° increments
- Designed for uplight and downlight applications
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Silver, bronze, black, and white are available
- **Weight:** 26.5 lbs. (12kg)

ELECTRICAL SYSTEM

- **Input Voltage:** 120-277V or 347-480V, 50/60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral 10kV surge suppression protection standard
- When code dictates fusing, a slow blow fuse or type C/D breaker should be used to address inrush current
- **10V Source Current:** 0.15mA

REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for wet locations
- Enclosure rated IP66 per IEC 60529 when ordered without R option
- Consult factory for CE Certified products
- Certified to ANSI C136.31-2001, 3G bridge and overpass vibration standards
- 10kV surge suppression protection tested in accordance with IEEE/ANSI C62.41.2
- Meets FCC Part 15, Subpart B, Class A standards for conducted and radiated emissions
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Meets Buy American requirements within ARRA
- DLC and DLC Premium qualified versions available. Some exceptions apply. Please refer to www.designlights.org/QPL for most current information
- RoHS compliant. Consult factory for additional details
- Dark Sky Friendly, IDA Approved when ordered with 30K CCT. Please refer to <http://darksky.org/fsa/fsa-products/> for most current information

Electrical Data*							
Input Power Designator	System Watts 120-480V	Total Current (A)					
		120V	208V	240V	277V	347V	480V
B	86	0.73	0.43	0.37	0.32	0.25	0.19
K	130	1.09	0.65	0.56	0.49	0.38	0.28

* Electrical data at 25°C (77°F). Actual wattage may differ by +/- 10% when operating between 120-480V +/-10%

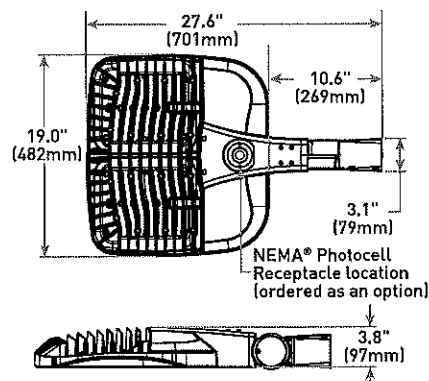
Recommended OSQ Series Lumen Maintenance Factors (LMF) ¹						
Ambient	Optic	Initial LMF	25K hr Projected ² LMF	50K hr Projected ² LMF	75K hr Projected ² LMF	100K hr Calculated ³ LMF
5°C (41°F)	Asymmetric	1.04	0.99	0.93	0.89	0.84
	Symmetric	1.05	1.00	0.96 ³	0.92 ³	0.88 ³
10°C (50°F)	Asymmetric	1.03	0.98	0.93	0.88	0.83
	Symmetric	1.04	0.99	0.95 ³	0.91 ³	0.87 ³
15°C (59°F)	Asymmetric	1.02	0.97	0.92	0.87	0.82
	Symmetric	1.02	0.98	0.94 ³	0.90 ³	0.87 ³
20°C (68°F)	Asymmetric	1.01	0.96	0.91	0.86	0.82
	Symmetric	1.01	0.96	0.92 ³	0.88 ³	0.85 ³
25°C (77°F)	Asymmetric	1.00	0.95	0.90	0.85	0.81
	Symmetric	1.00	0.95	0.91 ³	0.88 ³	0.84 ³

¹ Lumen maintenance values at 25°C (77°F) are calculated per TM-21 based on LM-80 data and in-situ luminaire testing

² In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing (DUT) i.e. the packaged LED chip

³ In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing (DUT) i.e. the packaged LED chip

AA Mount



Weight

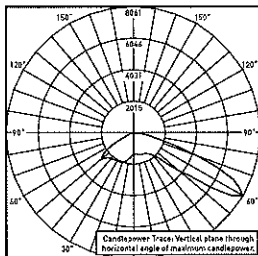
26.5 lbs. (12kg)

OSQ™ LED Area/Flood Luminaire – Medium

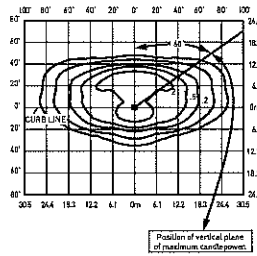
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: <http://lighting.cree.com/products/outdoor/area/osq-series>

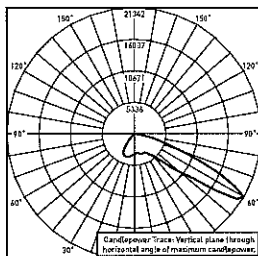
2ME



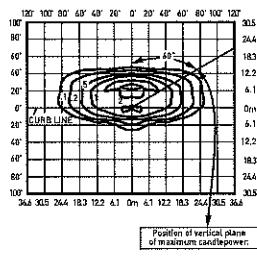
RESTL Test Report #: PL08877-001
OSQ-A-**-2ME-B-30K-UL
Initial Delivered Lumens: 10,381



OSQ-A-**-2ME-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 11,424
Initial FC at grade

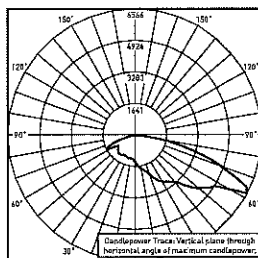


CESTL Test Report #: PL07700-001A
OSQ-A-**-2ME-U-57K-UL w/OSQ-BLSLF
Initial Delivered Lumens: 22,822

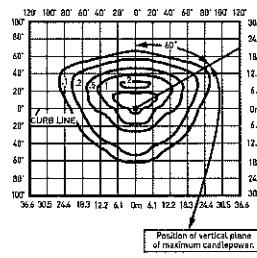


OSQ-A-**-2ME-B-40K-UL w/OSQ-BLSMF
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 8,777
Initial FC at grade

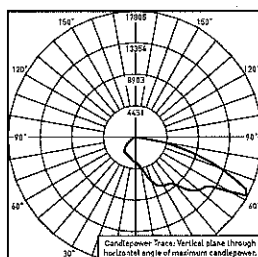
3ME



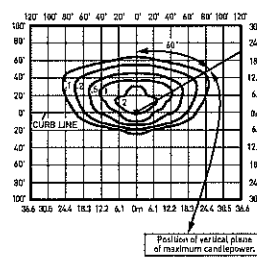
RESTL Test Report #: PL08876-001A
OSQ-A-**-3ME-B-30K-UL
Initial Delivered Lumens: 10,421



OSQ-A-**-3ME-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 11,424
Initial FC at grade



CESTL Test Report #: PL07699-001A
OSQ-A-**-3ME-U-57K-UL w/OSQ-BLSLF
Initial Delivered Lumens: 23,601



OSQ-A-**-3ME-B-40K-UL w/OSQ-BLSMF
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 9,019
Initial FC at grade

Type II Medium Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	10,738	B2 U0 G2	11,424	B2 U0 G2	11,648	B2 U0 G2
K	16,022	B3 U0 G3	16,959	B3 U0 G3	17,291	B3 U0 G3

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens.

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

Type II Medium w/BLS Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11
B	8,251	B2 U0 G2	8,779	B2 U0 G2	8,950	B2 U0 G2
K	12,312	B2 U0 G2	13,032	B2 U0 G2	13,286	B2 U0 G2

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens.

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Type III Medium Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11
B	10,738	B3 U0 G3	11,424	B3 U0 G3	11,648	B3 U0 G3
K	16,022	B3 U0 G3	16,959	B3 U0 G3	17,291	B3 U0 G3

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens.

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

Type III Medium w/BLS Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	8,477	B1 U0 G2	9,019	B1 U0 G2	9,196	B1 U0 G2
K	12,649	B2 U0 G2	13,389	B2 U0 G2	13,650	B2 U0 G2

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens.

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

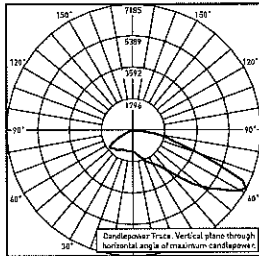


OSQ™ LED Area/Flood Luminaire – Medium

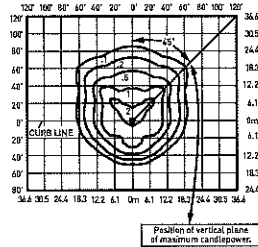
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: <http://lighting.cree.com/products/outdoor/area/osq-series>

4ME



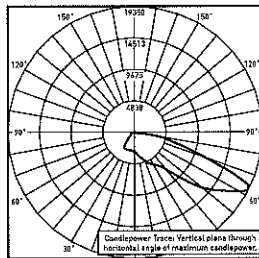
RESTL Test Report #: PL08878-001A
OSQ-A-4ME-B-40K-UL
Initial Delivered Lumens: 10,230



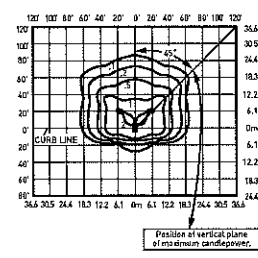
OSQ-A-4ME-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 11,424
Initial FC at grade

Type IV Medium Distribution						
Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	10,738	B2 U0 G2	11,424	B2 U0 G2	11,648	B2 U0 G2
K	16,022	B3 U0 G3	16,959	B3 U0 G3	17,291	B3 U0 G3

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt



CESTL Test Report #: PL07692-001A
OSQ-A-4ME-U-57K-UL w/OSQ-BLSLF
Initial Delivered Lumens: 22,793

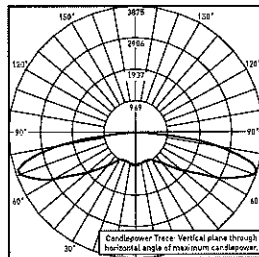


OSQ-A-4ME-U-57K-UL w/OSQ-BLSLF
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 8,779
Initial FC at grade

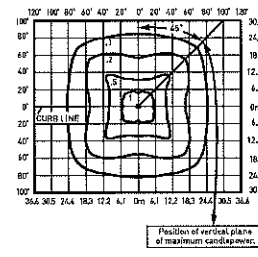
Type IV Medium w/BLS Distribution						
Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11
B	8,251	B1 U0 G2	8,779	B1 U0 G2	8,950	B1 U0 G2
K	12,312	B2 U0 G2	13,032	B2 U0 G2	13,286	B2 U0 G2

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

5ME



CESTL Test Report #: PL08101-001C
OSQ-A-5ME-B-40K-UL
Initial Delivered Lumens: 9,304

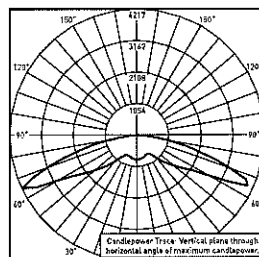


OSQ-A-5ME-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 10,867
Initial FC at grade

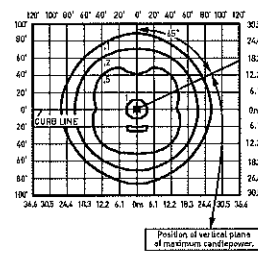
Type V Medium Distribution						
Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	9,387	B3 U0 G3	10,867	B4 U0 G4	11,056	B4 U0 G4
K	13,819	B4 U0 G4	15,999	B4 U0 G5	16,277	B4 U0 G5

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

5SH



CESTL Test Report #: PL08102-001B
OSQ-A-5SH-B-40K-UL
Initial Delivered Lumens: 9,935



OSQ-A-5SH-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 11,478
Initial FC at grade

Type V Short Distribution						
Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11
B	9,914	B4 U0 G3	11,478	B4 U0 G3	11,678	B4 U0 G3
K	14,595	B4 U0 G3	16,897	B4 U0 G3	17,191	B4 U0 G3

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

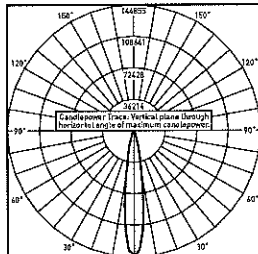


OSQ™ LED Area/Flood Luminaire – Medium

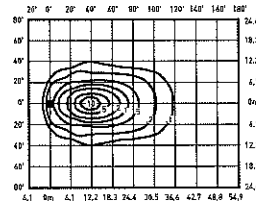
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: <http://lighting.cree.com/products/outdoor/area/osq-series>

15D



CESTL Test Report #: PL07689-001A
OSQ-A-**-15D-U-30K-UL
Initial Delivered Lumens: 23,254



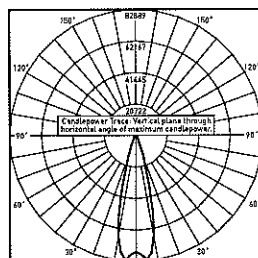
OSQ-A-**-15D-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 11,478
Initial FC at grade

15° Flood Distribution

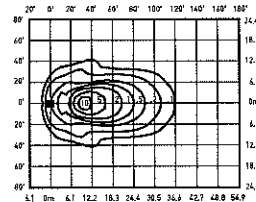
Input Power Designator	3000K	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
B	9,914	11,478	11,678
K	14,595	16,897	17,191

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

25D



CESTL Test Report #: PL07687-001A
OSQ-A-**-25D-U-30K-UL
Initial Delivered Lumens: 23,265



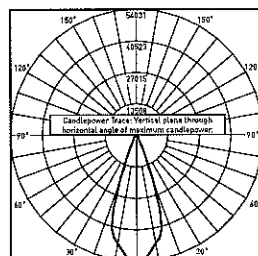
OSQ-A-**-25D-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 11,478
Initial FC at grade

25° Flood Distribution

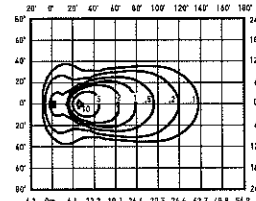
Input Power Designator	3000K	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
B	9,914	11,478	11,678
K	14,595	16,897	17,191

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

40D



CESTL Test Report #: PL07697-001A
OSQ-A-**-40D-U-30K-UL
Initial Delivered Lumens: 22,943



OSQ-A-**-40D-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 11,478
Initial FC at grade

40° Flood Distribution

Input Power Designator	3000K	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
B	9,914	11,478	11,678
K	14,595	16,897	17,191

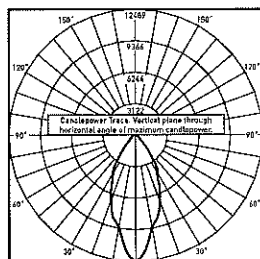
* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

OSQ™ LED Area/Flood Luminaire – Medium

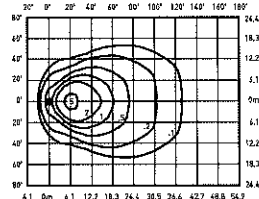
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: <http://lighting.cree.com/products/outdoor/area/osq-series>

60D



CESTL Test Report #: PL08100-001B
OSQ-A-**-60D-B-30K-UL
Initial Delivered Lumens: 10,079



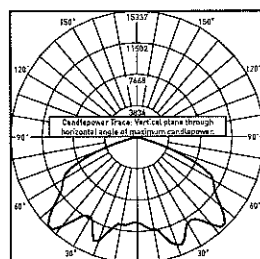
OSQ-A-**-60D-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 11,478
Initial FC at grade

60° Flood Distribution

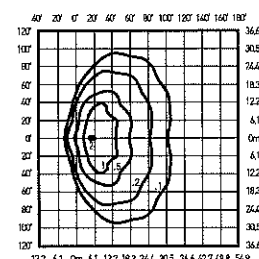
Input Power Designator	3000K	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
B	9,914	11,478	11,678
K	14,595	16,897	17,191

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

WSN



CESTL Test Report #: PL07695-001A
OSQ-A-**-WSN-U-30K-UL
Initial Delivered Lumens: 23,116



OSQ-A-**-WSN-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 11,478
Initial FC at grade

Wide Sign Distribution

Input Power Designator	3000K	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
B	9,914	11,478	11,678
K	14,595	16,897	17,191

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens



OSQ™ LED Area/Flood Luminaire – Medium

Luminaire EPA

Fixed Arm Mount – OSQ-DA Weight: 26.5 lbs. (12kg)					
Single	2 @ 180°	2 @ 90°	3 @ 90°	3 @ 120°	4 @ 90°
					
0.74	1.48	1.19	1.93	1.63	2.38

Adjustable Arm Mount – OSQ-AA Weight: 26.5 lbs. (12kg)							
Single	2 @ 180°	2 @ 90°	3 @ 90°	3 @ 120°	3 @ 180°	4 @ 180°	4 @ 90°
Tenon Configuration [0°-80° Tilt]; If used with Cree tenons, please add tenon EPA with Luminaire EPA							
 PB-1A*; PT-1; PW-1A3**	 PB-2A*; PB-2R2.375; PD-2A4(180); PT-2(180); PW-2A3**	 PB-2A*; PD-2A4(90); PT-2(90)	 PB-3A*; PD-3A4(90); PT-3(90)	 PB-3A*; PT-3(120)	 PB-3A*; PB-3R2.375	 PB-4A*(180)	 PB-4A*(90); PB-4R2.375; PD-4A4(90); PT-4(90)
0° Tilt							
0.74	1.48	1.19	1.93	1.63	3.33	4.66	2.38
10° Tilt							
0.75	1.48	1.49	2.23	2.15	4.22	5.84	2.98
20° Tilt							
1.12	1.48	1.86	2.60	2.85	5.31	7.32	3.72
30° Tilt							
1.46	1.48	2.20	2.94	3.56	6.34	8.68	4.40
45° Tilt							
1.96	1.96	2.69	3.43	4.54	7.83	10.68	5.38
60° Tilt							
2.33	2.33	3.07	3.81	5.11	8.94	12.16	6.14
70° Tilt							
2.49	2.49	3.23	3.97	5.11	9.43	12.80	6.46
80° Tilt							
2.58	2.58	3.32	4.06	5.11	9.71	13.16	6.64
Tenon Configuration [90° Tilt]; If used with Cree tenons, please add tenon EPA with Luminaire EPA							
PB-1A*; PT-1; PW-1A3**	PB-2A*; PB-2R2.375; PD-2A4(180); PT-2(180); PW-2A3**	PB-2A*	PB-3A*	PB-3A*; PT-3(120)	PB-3A*; PB-3R2.375	PB-4A*(180)	PB-4A*(90); PB-4R2.375
90° Tilt							
2.61	2.61	4.44	6.05	5.11	9.79	13.28	10.39

* Specify pole size: 3 [3"], 4 [4"], 5 [5"], or 6 [6"] for single, double or tripla luminaire orientation or 4 [4"], 5 [5"], or 6 [6"] for quad luminaire orientation
 ** These EPA values must be multiplied by the following ratio: Fixture Mounting Height/Total Pole Height. Specify pole size: 3 [3"], 4 [4"], 5 [5"], or 6 [6"]



OSQ™ LED Area/Flood Luminaire – Medium

Tenon EPA

Part Number	EPA
PB-1A*	None
PB-2A*	0.82
PB-3A*	1.52
PB-4A*[180]	2.22
PB-4A*[90]	1.11
PB-2R2.375	0.92
PB-3R2.375	1.62
PB-4R2.375	2.32
PD Series Tenons	0.09
PT Series Tenons	0.10
PW-1A3**	0.47
PW-2A3**	0.94
WM-2	0.08
WM-4	0.25
WM-DM	None

* Specify pole size: 3 [3"], 4 [4"], 5 [5"], or 6 [6"] for single, double or triple luminaire orientation or 4 [4"], 5 [5"], or 6 [6"] for quad luminaire orientation
 ** These EPA values must be multiplied by the following ratio: Fixture Mounting Height/Total Pole Height. Specify pole size: 3 [3"], 4 [4"], 5 [5"], or 6 [6"]

Tenons and Brackets* (must specify color)	
Square Internal Mount Vertical Tenons (Steel) - Mounts to 3-6" (76-152mm) square aluminum or steel poles PB-1A* – Single PB-4A*[90] – 90° Quad PB-2A* – 180° Twin PB-4A*[180] – 180° Quad PB-3A* – 180° Triple	Round External Mount Vertical Tenons (Steel) - Mounts to 2.375" (60mm) O.D. round aluminum or steel poles or tenons PB-2R2.375 – Twin PB-4R2.375 – Quad PB-3R2.375 – Triple
Square Internal Mount Horizontal Tenons (Aluminum) - Mounts to 4" (102mm) square aluminum or steel poles PD-2A4[90] – 90° Twin PD-3A4[90] – 90° Triple PD-2A4[180] – 180° Twin PD-4A4[90] – 90° Quad	Round External Mount Horizontal Tenons (Aluminum) - Mounts to 2.375" (60mm) O.D. round aluminum or steel poles or tenons - Mounts to square pole with PB-1A* tenon PT-1 – Single (Vertical) PT-3[90] – 90° Triple PT-2[90] – 90° Twin PT-4[90] – 90° Quad PT-2[180] – 180° Twin
Wall Mount Brackets - Mounts to wall or roof WM-2 – Horizontal for OSQ-AA mount WM-4 – L-Shape for OSQ-AA mount WM-DM – Plate for OSQ-DA mount	Mid-Pole Bracket - Mounts to square pole PW-1A3** – Single PW-2A3** – Double
	Ground Mount Post - For ground mounted flood luminaires PGM-1 – for OSQ-AA mount

* Refer to the Bracket and Tenons spec sheet for more details

Direct Mount Configurations

Compatibility with OSQ-DA Direct Mount Bracket					
Input Power Designator	2 @ 90°	2 @ 180°	3 @ 90°	3 @ 120°	4 @ 90°
3" Square					
B & K	N/A	✓	N/A	N/A	N/A
3" Round					
B & K	N/A	✓	N/A	N/A	N/A
4" Square					
B & K	✓	✓	✓	N/A	✓
4" Round					
B & K	✓	✓	✓	✓	✓
5" Square					
B & K	✓	✓	✓	N/A	✓
5" Round					
B & K	✓	✓	✓	✓	✓
6" Square					
B & K	✓	✓	✓	N/A	✓
6" Round					
B & K	✓	✓	✓	✓	✓

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US: lighting.cree.com/lighting

T (800) 236-6800 F (262) 504-5415

Canada: www.cree.com/canada



T (800) 473-1234 F (800) 890-7507

OSQ Series

OSQ™ LED Area/Flood Luminaire – Medium

Product Description

The OSQ™ Area/Flood luminaire blends extreme optical control, advanced thermal management and modern, clean aesthetics. Built to last, the housing is rugged cast aluminum with an integral, weathertight LED driver compartment. Versatile mounting configurations offer simple installation. Its slim, low-profile design minimizes wind load requirements and blends seamlessly into the site providing even, quality illumination. The 'B' Input power designator is a suitable upgrade for HID applications up to 250 Watt, and the 'K' Input power designator is a suitable upgrade for HID applications up to 400 Watt.

Applications: Parking lots, walkways, campuses, car dealerships, office complexes, and internal roadways

Performance Summary

NanoOptic® Precision Delivery Grid™ optic

Made in the U.S.A. of U.S. and imported parts

Initial Delivered Lumens: Up to 17,291

Efficacy: Up to 136 LPW

CRI: Minimum 70 CRI (4000K & 5700K; 3000K asymmetric optics); 80 CRI (3000K symmetric optics)

CCT: 3000K (+/- 300K), 4000K (+/- 300K), 5700K (+/- 500K)

Limited Warranty*: 10 years on luminaire/10 years on Colorfast DeltaGuard® finish

* See <http://lighting.cree.com/warranty> for warranty terms

Accessories

Field-Installed	
Backlight Shield OSQ-BLSMF - Front facing optics OSQ-BLSMR - Rotated optics	Hand-Held Remote XA-SENSREM - For successful implementation of the programmable multi-level option, a minimum of one hand-held remote is required

Ordering Information

Fully assembled luminaire is composed of two components that must be ordered separately:

Example: **Mount:** OSQ-AASV + **Luminaire:** OSQ-A-NM-2ME-B-40K-UL-SV

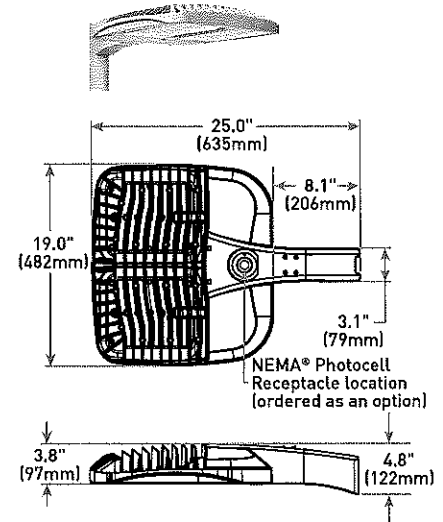
Mount (Luminaire must be ordered separately)			
OSQ-			
OSQ-AA Adjustable Arm	Color Options:	SV Silver BK Black	BZ Bronze WH White
OSQ-DA Direct Arm			

Luminaire (Mount must be ordered separately)									
OSQ	A	DA	2ME	K	40K	UL			
Product	Version	Mounting	Optic	Input Power Designator	CCT	Voltage	Color Options	Options	
OSQ	A	NM No Mount	Asymmetric 2ME* Type II Medium 4ME* Type IV Medium 3ME* Type III Medium Symmetric 5ME Type V Medium 5SH Type V Short WSN Wide Sign 15D 15" Flood	B 86W K 130W	30K 3000K 40K 4000K 57K 5700K	UL Universal 120-277V UH Universal 347-480V	BK Black BZ Bronze SV Silver WH White	DIM 0-10V Dimming - Control by others - Refer to Dimming spec sheet for details - Can't exceed wattage of specified input power designator F Fuse - When code dictates fusing, use time delay fuse ML Multi-Level - Refer to ML spec sheet for details - High: 100%, Low: 30% - Available with UL voltage only - Intended for downlight applications at 0° tilt PML Programmable Multi-Level, 20-40° Mounting Height - Refer to PML spec sheet for details - Available with UL voltage only - Intended for downlight applications at 0° tilt	PML2 Programmable Multi-Level, 10-30° Mounting Height - Refer to PML2 spec sheet for details - Available with UL voltage only - Intended for downlight applications at 0° tilt Q9 Field Adjustable Output - Refer to Field Adjustable Output spec sheet for details R NEMA® Photocell Receptacle - Intended for downlight applications with maximum 45° tilt - 3-pin receptacle per ANSI C136.10 - Photocell and shorting cap by others RL Rotate Left - LED and optic are rotated to the left RR Rotate Right - LED and optic are rotated to the right

* Available with Backlight Shield when ordered with field-installed accessory (see table above)

YS2

DA Mount



Weight

26.5 lbs. (12kg)



Rev. Date: V11 09/27/2016



US: lighting.cree.com/lighting

T (800) 236-6800 F (262) 504-5415

Canada: www.cree.com/canada

T (800) 473-1234 F (800) 890-7507

OSQ™ LED Area/Flood Luminaire – Medium

Product Specifications

CONSTRUCTION & MATERIALS

- Slim, low profile design minimizes wind load requirements
- Luminaire housing is rugged die cast aluminum with an integral, weathertight LED driver compartment and high performance heat sink
- Convenient interlocking mounting method on direct arm mount. Mounting adaptor is rugged die cast aluminum and mounts to 3-6" (76-152mm) square or round pole, secured by two 5/16-18 UNC bolts spaced on 2" (51mm) centers
- Mounting for the adjustable arm mount adaptor is rugged die cast aluminum and mounts to 2" (51mm) IP, 2.375" (60mm) O.D. tenon
- Adjustable arm mount can be adjusted 180° in 2.5° increments
- Designed for uplight and downlight applications
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Silver, bronze, black, and white are available
- **Weight:** 26.5 lbs. (12kg)

ELECTRICAL SYSTEM

- **Input Voltage:** 120-277V or 347-480V, 50/60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral 10kV surge suppression protection standard
- When code dictates fusing, a slow blow fuse or type C/D breaker should be used to address inrush current
- **10V Source Current:** 0.15mA

REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for wet locations
- Enclosure rated IP66 per IEC 60529 when ordered without R option
- Consult factory for CE Certified products
- Certified to ANSI C136.31-2001, 3G bridge and overpass vibration standards
- 10kV surge suppression protection tested in accordance with IEEE/ANSI C62.41.2
- Meets FCC Part 15, Subpart B, Class A standards for conducted and radiated emissions
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Meets Buy American requirements within ARRA
- DLC and DLC Premium qualified versions available. Some exceptions apply. Please refer to www.designlights.org/QPL for most current information
- RoHS compliant. Consult factory for additional details
- Dark Sky Friendly, IDA Approved when ordered with 30K CCT. Please refer to <http://darksky.org/fsa/fsa-products/> for most current information

Electrical Data*							
Input Power Designator	System Watts 120-480V	Total Current [A]					
		120V	208V	240V	277V	347V	480V
B	86	0.73	0.43	0.37	0.32	0.25	0.19
K	130	1.09	0.65	0.56	0.49	0.38	0.28

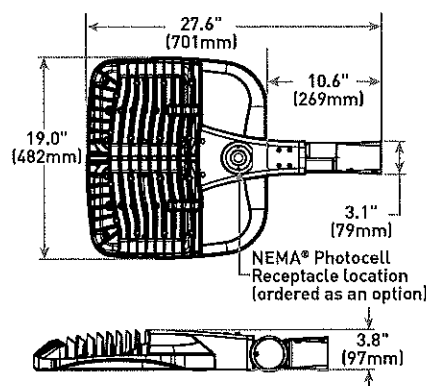
* Electrical data at 25°C (77°F). Actual wattage may differ by +/- 10% when operating between 120-480V +/-10%

Recommended OSQ Series Lumen Maintenance Factors (LMF) ¹						
Ambient	Optic	Initial LMF	25K hr Projected ² LMF	50K hr Projected ² LMF	75K hr Projected ² LMF	100K hr Calculated ³ LMF
5°C (41°F)	Asymmetric	1.04	0.99	0.93	0.89	0.84
	Symmetric	1.05	1.00	0.96 ³	0.92 ³	0.88 ³
10°C (50°F)	Asymmetric	1.03	0.98	0.93	0.88	0.83
	Symmetric	1.04	0.99	0.95 ³	0.91 ³	0.87 ³
15°C (59°F)	Asymmetric	1.02	0.97	0.92	0.87	0.82
	Symmetric	1.02	0.98	0.94 ³	0.90 ³	0.87 ³
20°C (68°F)	Asymmetric	1.01	0.96	0.91	0.86	0.82
	Symmetric	1.01	0.96	0.92 ³	0.88 ³	0.85 ³
25°C (77°F)	Asymmetric	1.00	0.95	0.90	0.85	0.81
	Symmetric	1.00	0.95	0.91 ³	0.88 ³	0.84 ³

¹ Lumen maintenance values at 25°C (77°F) are calculated per TM-21 based on LM-80 data and in-situ luminaire testing
² In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times (6X) the IESNA LM-80-08 total test duration [in hours] for the device under testing (DUT) i.e. the packaged LED chip

³ In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times (6X) the IESNA LM-80-08 total test duration [in hours] for the device under testing (DUT) i.e. the packaged LED chip

AA Mount



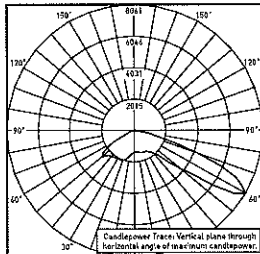
Weight
26.5 lbs. (12kg)

OSQ™ LED Area/Flood Luminaire – Medium

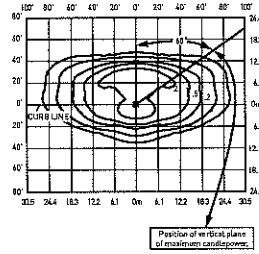
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: <http://lighting.cree.com/products/outdoor/area/osq-series>

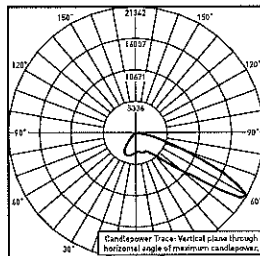
2ME



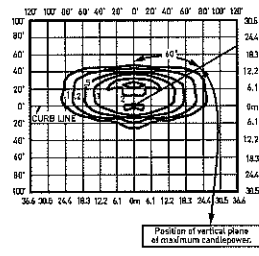
RESTL Test Report #: PL08877-001
OSQ-A-**-2ME-B-40K-UL
Initial Delivered Lumens: 10,381



OSQ-A-**-2ME-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 11,424
Initial FC at grade

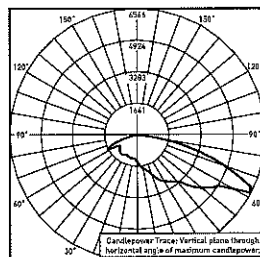


CESTL Test Report #: PL07700-001A
OSQ-A-**-2ME-U-57K-UL w/OSQ-BLSLF
Initial Delivered Lumens: 22,822

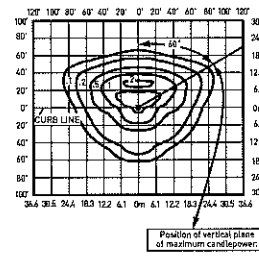


OSQ-A-**-2ME-B-40K-UL w/OSQ-BLSMF
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 8,779
Initial FC at grade

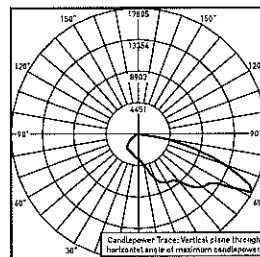
3ME



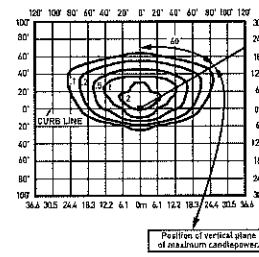
RESTL Test Report #: PL08876-001A
OSQ-A-**-3ME-B-40K-UL
Initial Delivered Lumens: 10,421



OSQ-A-**-3ME-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 11,424
Initial FC at grade



CESTL Test Report #: PL07699-001A
OSQ-A-**-3ME-U-57K-UL w/OSQ-BLSLF
Initial Delivered Lumens: 23,601



OSQ-A-**-3ME-B-40K-UL w/OSQ-BLSMF
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 9,019
Initial FC at grade

Type II Medium Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	10,738	B2 U0 G2	11,424	B2 U0 G2	11,648	B2 U0 G2
K	16,022	B3 U0 G3	16,959	B3 U0 G3	17,291	B3 U0 G3

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

Type II Medium w/BLS Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11
B	8,251	B2 U0 G2	8,779	B2 U0 G2	8,950	B2 U0 G2
K	12,312	B2 U0 G2	13,032	B2 U0 G2	13,286	B2 U0 G2

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

Type III Medium Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11
B	10,738	B3 U0 G3	11,424	B3 U0 G3	11,648	B3 U0 G3
K	16,022	B3 U0 G3	16,959	B3 U0 G3	17,291	B3 U0 G3

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

Type III Medium w/BLS Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	8,477	B1 U0 G2	9,019	B1 U0 G2	9,196	B1 U0 G2
K	12,649	B2 U0 G2	13,389	B2 U0 G2	13,650	B2 U0 G2

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

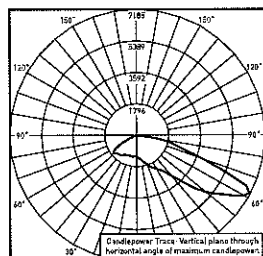


OSQ™ LED Area/Flood Luminaire – Medium

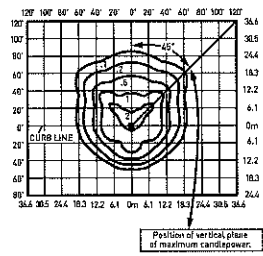
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: <http://lighting.cree.com/products/outdoor/area/osq-series>

4ME



RESTL Test Report #: PL08878-001A
OSQ-A-4ME-B-30K-UL
Initial Delivered Lumens: 10,230

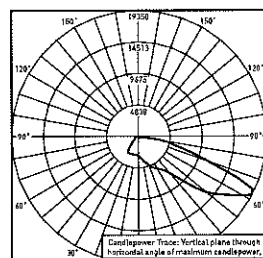


OSQ-A-4ME-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 11,424
Initial FC at grade

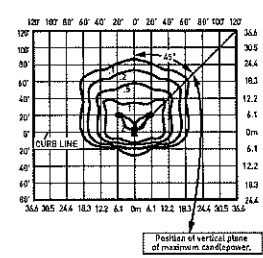
Type IV Medium Distribution						
Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	10,738	B2 U0 G2	11,424	B2 U0 G2	11,648	B2 U0 G2
K	16,022	B3 U0 G3	16,959	B3 U0 G3	17,291	B3 U0 G3

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt



CESTL Test Report #: PL07692-001A
OSQ-A-4ME-U-57K-UL w/OSQ-BLSLF
Initial Delivered Lumens: 22,793



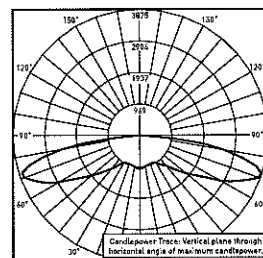
OSQ-A-4ME-B-40K-UL w/OSQ-BLSMF
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 8,779
Initial FC at grade

Type IV Medium w/BLS Distribution						
Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11
B	8,251	B1 U0 G2	8,779	B1 U0 G2	8,950	B1 U0 G2
K	12,312	B2 U0 G2	13,032	B2 U0 G2	13,286	B2 U0 G2

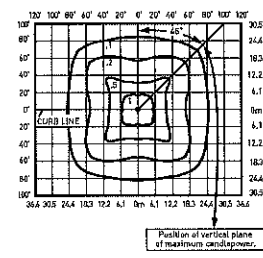
* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

5ME



CESTL Test Report #: PL08101-001C
OSQ-A-5ME-B-30K-UL
Initial Delivered Lumens: 9,304



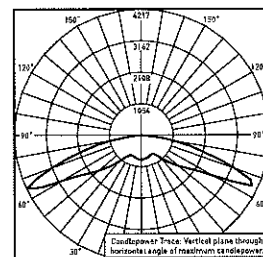
OSQ-A-5ME-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 10,867
Initial FC at grade

Type V Medium Distribution						
Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	9,387	B3 U0 G3	10,867	B4 U0 G4	11,056	B4 U0 G4
K	13,819	B4 U0 G4	15,999	B4 U0 G5	16,277	B4 U0 G5

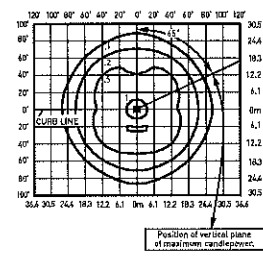
* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

5SH



CESTL Test Report #: PL08102-001B
OSQ-A-5SH-B-30K-UL
Initial Delivered Lumens: 9,935



OSQ-A-5SH-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 11,478
Initial FC at grade

Type V Short Distribution						
Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11
B	9,914	B4 U0 G3	11,478	B4 U0 G3	11,678	B4 U0 G3
K	14,595	B4 U0 G3	16,897	B4 U0 G3	17,191	B4 U0 G3

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

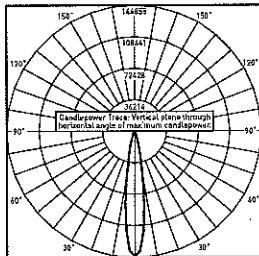


OSQ™ LED Area/Flood Luminaire – Medium

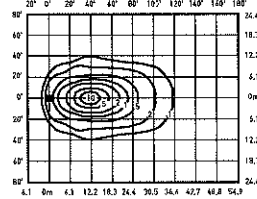
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: <http://lighting.cree.com/products/outdoor/area/osq-series>

15D



CESTL Test Report #: PL07687-001A
OSQ-A-**-15D-U-30K-UL
Initial Delivered Lumens: 23,254



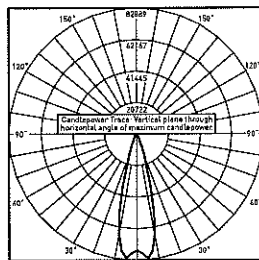
OSQ-A-**-15D-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 11,478
Initial FC at grade

15° Flood Distribution

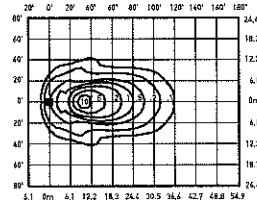
Input Power Designator	3000K	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
B	9,914	11,478	11,678
K	14,595	16,897	17,191

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

25D



CESTL Test Report #: PL07687-001A
OSQ-A-**-25D-U-30K-UL
Initial Delivered Lumens: 23,265



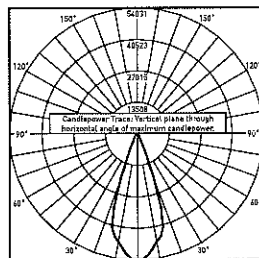
OSQ-A-**-25D-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 11,478
Initial FC at grade

25° Flood Distribution

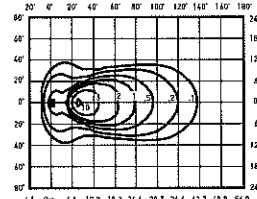
Input Power Designator	3000K	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
B	9,914	11,478	11,678
K	14,595	16,897	17,191

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

40D



CESTL Test Report #: PL07697-001A
OSQ-A-**-40D-U-30K-UL
Initial Delivered Lumens: 22,943



OSQ-A-**-40D-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 11,478
Initial FC at grade

40° Flood Distribution

Input Power Designator	3000K	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
B	9,914	11,478	11,678
K	14,595	16,897	17,191

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

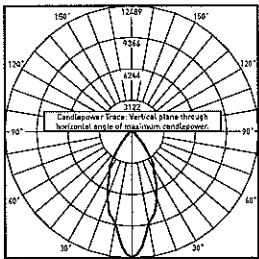


OSQ™ LED Area/Flood Luminaire – Medium

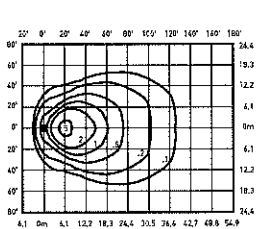
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: <http://lighting.cree.com/products/outdoor/area/osq-series>

60D



CESTL Test Report #: PL08100-001B
OSQ-A-**-60D-B-30K-UL
Initial Delivered Lumens: 10,079

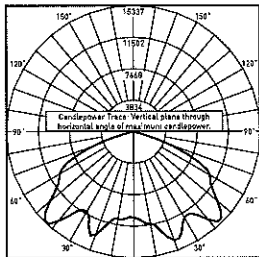


OSQ-A-**-60D-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 11,478
Initial FC at grade

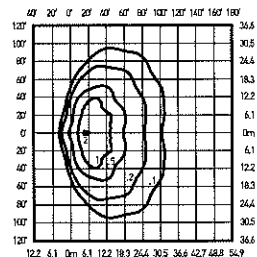
60° Flood Distribution			
Input Power Designator	3000K	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
B	9,914	11,478	11,678
K	14,595	16,897	17,191

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

WSN



CESTL Test Report #: PL07695-001A
OSQ-A-**-WSN-U-30K-UL
Initial Delivered Lumens: 23,116



OSQ-A-**-WSN-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 11,478
Initial FC at grade

Wide Sign Distribution			
Input Power Designator	3000K	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
B	9,914	11,478	11,678
K	14,595	16,897	17,191

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

OSQ™ LED Area/Flood Luminaire – Medium

Luminaire EPA

Fixed Arm Mount – OSQ-DA Weight: 26.5 lbs. (12kg)					
Single	2 @ 180°	2 @ 90°	3 @ 90°	3 @ 120°	4 @ 90°
					
0.74	1.48	1.19	1.93	1.63	2.38

Adjustable Arm Mount – OSQ-AA Weight: 26.5 lbs. (12kg)							
Single	2 @ 180°	2 @ 90°	3 @ 90°	3 @ 120°	3 @ 180°	4 @ 180°	4 @ 90°
Tenon Configuration (0°-80° Tilt); If used with Cree tenons, please add tenon EPA with Luminaire EPA							
							
PB-1A*; PT-1; PW-1A3**	PB-2A*; PB-2R2.375; PD-2A4(180); PT-2(180); PW-2A3**	PB-2A*; PD-2A4(90); PT-2(90)	PB-3A*; PD-3A4(90); PT-3(90)	PB-3A*; PT-3(120)	PB-3A*; PB-3R2.375	PB-4A*(180)	PB-4A*(90); PB-4R2.375; PD-4A4(90); PT-4(90)
0° Tilt							
0.74	1.48	1.19	1.93	1.63	3.33	4.66	2.38
10° Tilt							
0.75	1.48	1.49	2.23	2.15	4.22	5.84	2.98
20° Tilt							
1.12	1.48	1.86	2.60	2.85	5.31	7.32	3.72
30° Tilt							
1.46	1.48	2.20	2.94	3.56	6.34	8.68	4.40
45° Tilt							
1.96	1.96	2.69	3.43	4.54	7.83	10.68	5.38
60° Tilt							
2.33	2.33	3.07	3.81	5.11	8.94	12.16	6.14
70° Tilt							
2.49	2.49	3.23	3.97	5.11	9.43	12.80	6.46
80° Tilt							
2.58	2.58	3.32	4.06	5.11	9.71	13.16	6.64
Tenon Configuration (90° Tilt); If used with Cree tenons, please add tenon EPA with Luminaire EPA							
PB-1A*; PT-1; PW-1A3**	PB-2A*; PB-2R2.375; PD-2A4(180); PT-2(180); PW-2A3**	PB-2A*	PB-3A*	PB-3A*; PT-3(120)	PB-3A*; PB-3R2.375	PB-4A*(180)	PB-4A*(90); PB-4R2.375
90° Tilt							
2.61	2.61	4.44	6.05	5.11	9.79	13.28	10.39

* Specify pole size: 3 [3"], 4 [4"], 5 [5"], or 6 [6"] for single, double or triple luminaire orientation or 4 [4"], 5 [5"], or 6 [6"] for quad luminaire orientation
 ** These EPA values must be multiplied by the following ratio: Fixture Mounting Height/Total Pole Height. Specify pole size: 3 [3"], 4 [4"], 5 [5"], or 6 [6"]

OSQ™ LED Area/Flood Luminaire – Medium

Tenon EPA

Part Number	EPA
PB-1A*	None
PB-2A*	0.82
PB-3A*	1.52
PB-4A*[180]	2.22
PB-4A*[90]	1.11
PB-2R2.375	0.92
PB-3R2.375	1.62
PB-4R2.375	2.32
PD Series Tenons	0.09
PT Series Tenons	0.10
PW-1A3**	0.47
PW-2A3**	0.94
WM-2	0.08
WM-4	0.25
WM-DM	None

* Specify pole size: 3 (3"), 4 (4"), 5 (5"), or 6 (6") for single, double or triple luminaire orientation or 4 (4"), 5 (5"), or 6 (6") for quad luminaire orientation
 ** These EPA values must be multiplied by the following ratio: Fixture Mounting Height/Total Pole Height. Specify pole size: 3 (3"), 4 (4"), 5 (5"), or 6 (6")

Tenons and Brackets* (must specify color)	
Square Internal Mount Vertical Tenons (Steel) - Mounts to 3-6" (76-152mm) square aluminum or steel poles PB-1A* – Single PB-4A*[90] – 90° Quad PB-2A* – 180° Twin PB-4A*[180] – 180° Quad PB-3A* – 180° Triple	Round External Mount Vertical Tenons (Steel) - Mounts to 2.375" (60mm) O.D. round aluminum or steel poles or tenons PB-2R2.375 – Twin PB-4R2.375 – Quad PB-3R2.375 – Triple
Square Internal Mount Horizontal Tenons (Aluminum) - Mounts to 4" (102mm) square aluminum or steel poles PD-2A4[90] – 90° Twin PD-3A4[90] – 90° Triple PD-2A4[180] – 180° Twin PD-4A4[90] – 90° Quad	Round External Mount Horizontal Tenons (Aluminum) - Mounts to 2.375" (60mm) O.D. round aluminum or steel poles or tenons - Mounts to square pole with PB-1A* tenon PT-1 – Single (Vertical) PT-3[90] – 90° Triple PT-2[90] – 90° Twin PT-4[90] – 90° Quad PT-2[180] – 180° Twin
Wall Mount Brackets - Mounts to wall or roof WM-2 – Horizontal for OSQ-AA mount WM-4 – L-Shape for OSQ-AA mount WM-DM – Plate for OSQ-DA mount	Mid-Pole Bracket - Mounts to square pole PW-1A3** – Single PW-2A3** – Double Ground Mount Post - For ground mounted flood luminaires PGM-1 - for OSQ-AA mount

* Refer to the Bracket and Tenons spec sheet for more details

Direct Mount Configurations

Compatibility with OSQ-DA Direct Mount Bracket					
Input Power Designator	2 @ 90°	2 @ 180°	3 @ 90°	3 @ 120°	4 @ 90°
3" Square					
B & K	N/A	✓	N/A	N/A	N/A
3" Round					
B & K	N/A	✓	N/A	N/A	N/A
4" Square					
B & K	✓	✓	✓	N/A	✓
4" Round					
B & K	✓	✓	✓	✓	✓
5" Square					
B & K	✓	✓	✓	N/A	✓
5" Round					
B & K	✓	✓	✓	✓	✓
6" Square					
B & K	✓	✓	✓	N/A	✓
6" Round					
B & K	✓	✓	✓	✓	✓

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Canada: www.cree.com/canada



T (800) 473-1234 F (800) 890-7507

OSQ Series

OSQ™ LED Area/Flood Luminaire – Medium

YS3

Product Description

The OSQ™ Area/Flood luminaire blends extreme optical control, advanced thermal management and modern, clean aesthetics. Built to last, the housing is rugged cast aluminum with an integral, weathertight LED driver compartment. Versatile mounting configurations offer simple installation. Its slim, low-profile design minimizes wind load requirements and blends seamlessly into the site providing even, quality illumination. The 'B' Input power designator is a suitable upgrade for HID applications up to 250 Watt, and the 'K' Input power designator is a suitable upgrade for HID applications up to 400 Watt.

Applications: Parking lots, walkways, campuses, car dealerships, office complexes, and internal roadways

Performance Summary

NanoOptic® Precision Delivery Grid™ optic

Made in the U.S.A. of U.S. and imported parts

Initial Delivered Lumens: Up to 17,291

Efficacy: Up to 136 LPW

CRI: Minimum 70 CRI (4000K & 5700K; 3000K asymmetric optics); 80 CRI (3000K symmetric optics)

CCT: 3000K (+/- 300K), 4000K (+/- 300K), 5700K (+/- 500K)

Limited Warranty¹: 10 years on luminaire/10 years on Colorfast DeltaGuard® finish

¹ See <http://lighting.cree.com/warranty> for warranty terms

Accessories

Field-Installed	
Backlight Shield OSQ-BLSMF - Front facing optics OSQ-BLSMR - Rotated optics	Hand-Held Remote XA-SENSREM - For successful implementation of the programmable multi-level option, a minimum of one hand-held remote is required

Ordering Information

Fully assembled luminaire is composed of two components that must be ordered separately:

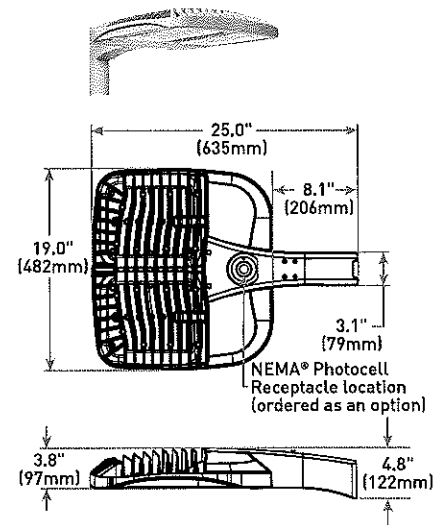
Example: Mount: OSQ-AASV + Luminaire: OSQ-A-NM-2ME-B-40K-UL-SV

Mount (Luminaire must be ordered separately)	
OSQ-	
OSQ-AA Adjustable Arm OSQ-DA Direct Arm	Color Options: SV Silver BK Black BZ Bronze WH White

Luminaire (Mount must be ordered separately)									
OSQ	A	DA	3ME	K	40K	UL			
Product	Version	Mounting	Optic	Input Power Designator	CCT	Voltage	Color Options	Options	
OSQ	A	NM No Mount	Asymmetric 2ME* Type II Medium 4ME* Type IV Medium 3ME* Type III Medium Symmetric 5ME Type V Medium 5SH Type V Short WSN Wide Sign 15D 15" Flood	B 86W K 130W	30K 3000K 40K 4000K 57K 5700K	UL: Universal 120-277V UH Universal 347-480V	BK Black BZ Bronze SV Silver WH White	DIM 0-10V Dimming - Control by others - Refer to Dimming spec sheet for details - Can't exceed wattage of specified input power designator F Fuse - When code dictates fusing, use time delay fuse ML Multi-Level - Refer to ML spec sheet for details - High: 100%, Low: 30% - Available with UL voltage only - Intended for downlight applications at 0° tilt PML Programmable Multi-Level, 20-40° Mounting Height - Refer to PML spec sheet for details - Available with UL voltage only - Intended for downlight applications at 0° tilt	PML2 Programmable Multi-Level, 10-30° Mounting Height - Refer to PML spec sheet for details - Available with UL voltage only - Intended for downlight applications at 0° tilt Q9 Field Adjustable Output - Refer to Field Adjustable Output spec sheet for details R NEMA® Photocell Receptacle - Intended for downlight applications with maximum 45° tilt - 3-pin receptacle per ANSI C136.10 - Photocell and shorting cap by others RL Rotate Left - LED and optic are rotated to the left RR Rotate Right - LED and optic are rotated to the right

* Available with Backlight Shield when ordered with field-installed accessory (see table above)

DA Mount



Weight

26.5 lbs. (12kg)



Rev. Date: V11 09/27/2016



US: lighting.cree.com/lighting

T (800) 236-6800 F (262) 504-5415

Canada: www.cree.com/canada

T (800) 473-1234 F (800) 890-7507

OSQ™ LED Area/Flood Luminaire – Medium

Product Specifications

CONSTRUCTION & MATERIALS

- Slim, low profile design minimizes wind load requirements
- Luminaire housing is rugged die cast aluminum with an integral, weathertight LED driver compartment and high performance heat sink
- Convenient interlocking mounting method on direct arm mount. Mounting adaptor is rugged die cast aluminum and mounts to 3-6" (76-152mm) square or round pole, secured by two 5/16-18 UNC bolts spaced on 2" (51mm) centers
- Mounting for the adjustable arm mount adaptor is rugged die cast aluminum and mounts to 2" (51mm) IP, 2.375" (60mm) O.D. tenon
- Adjustable arm mount can be adjusted 180° in 2.5° increments
- Designed for uplight and downlight applications
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Silver, bronze, black, and white are available
- **Weight:** 26.5 lbs. (12kg)

ELECTRICAL SYSTEM

- **Input Voltage:** 120-277V or 347-480V, 50/60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral 10kV surge suppression protection standard
- When code dictates fusing, a slow blow fuse or type C/D breaker should be used to address inrush current
- **10V Source Current:** 0.15mA

REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for wet locations
- Enclosure rated IP66 per IEC 60529 when ordered without R option
- Consult factory for CE Certified products
- Certified to ANSI C136.31-2001, 3G bridge and overpass vibration standards
- 10kV surge suppression protection tested in accordance with IEEE/ANSI C62.41.2
- Meets FCC Part 15, Subpart B, Class A standards for conducted and radiated emissions
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Meets Buy American requirements within ARRA
- DLC and DLC Premium qualified versions available. Some exceptions apply. Please refer to www.designlights.org/QPL for most current information
- RoHS compliant. Consult factory for additional details
- Dark Sky Friendly, IDA Approved when ordered with 30K CCT. Please refer to <http://darksky.org/fsa/fsa-products/> for most current information

Electrical Data*							
Input Power Designator	System Watts 120-480V	Total Current [A]					
		120V	208V	240V	277V	347V	480V
B	86	0.73	0.43	0.37	0.32	0.25	0.19
K	130	1.09	0.65	0.56	0.49	0.38	0.28

* Electrical data at 25°C (77°F). Actual wattage may differ by +/- 10% when operating between 120-480V +/-10%

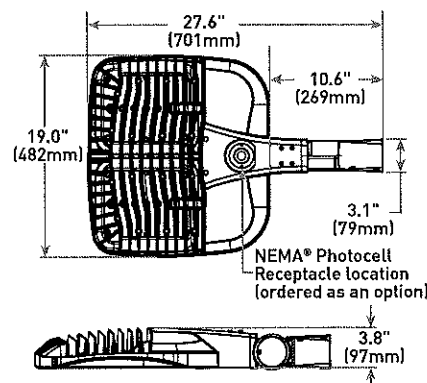
Recommended OSQ Series Lumen Maintenance Factors (LMF) ¹						
Ambient	Optic	Initial LMF	25K hr Projected ² LMF	50K hr Projected ² LMF	75K hr Projected ² LMF	100K hr Calculated ³ LMF
5°C (41°F)	Asymmetric	1.04	0.99	0.93	0.89	0.84
	Symmetric	1.05	1.00	0.96 ³	0.92 ³	0.88 ³
10°C (50°F)	Asymmetric	1.03	0.98	0.93	0.88	0.83
	Symmetric	1.04	0.99	0.95 ³	0.91 ³	0.87 ³
15°C (59°F)	Asymmetric	1.02	0.97	0.92	0.87	0.82
	Symmetric	1.02	0.98	0.94 ³	0.90 ³	0.87 ³
20°C (68°F)	Asymmetric	1.01	0.96	0.91	0.86	0.82
	Symmetric	1.01	0.96	0.92 ³	0.88 ³	0.85 ³
25°C (77°F)	Asymmetric	1.00	0.95	0.90	0.85	0.81
	Symmetric	1.00	0.95	0.91 ³	0.88 ³	0.84 ³

¹ Lumen maintenance values at 25°C (77°F) are calculated per TM-21 based on LM-80 data and in-situ luminaire testing

² In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing (DUT) i.e. the packaged LED chip

³ In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing (DUT) i.e. the packaged LED chip

AA Mount



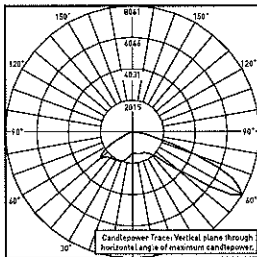
Weight
26.5 lbs. (12kg)

OSQ™ LED Area/Flood Luminaire – Medium

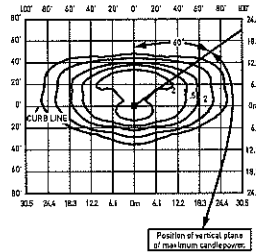
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: <http://lighting.cree.com/products/outdoor/area/osq-series>

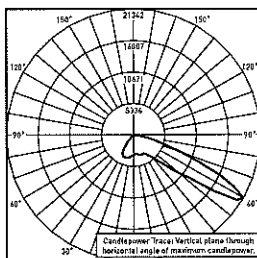
2ME



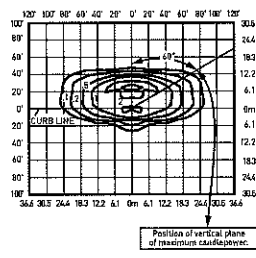
RESTL Test Report #: PL08877-001
OSQ-A-**-2ME-B-30K-UL
Initial Delivered Lumens: 10,381



OSQ-A-**-2ME-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 11,424
Initial FC at grade

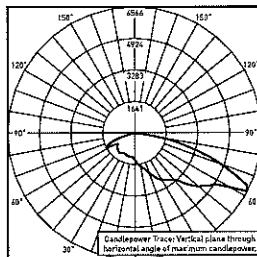


CESTL Test Report #: PL07700-001A
OSQ-A-**-2ME-U-57K-UL w/OSQ-BLSLF
Initial Delivered Lumens: 22,822

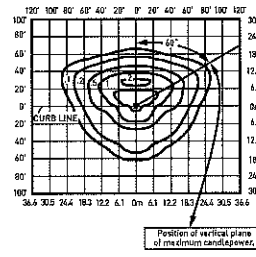


OSQ-A-**-2ME-B-40K-UL w/OSQ-BLSMF
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 8,779
Initial FC at grade

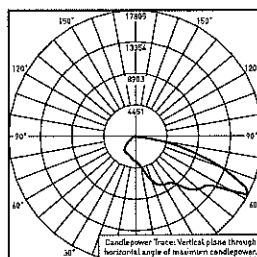
3ME



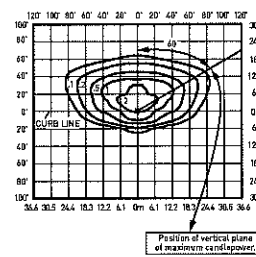
RESTL Test Report #: PL08876-001A
OSQ-A-**-3ME-B-30K-UL
Initial Delivered Lumens: 10,421



OSQ-A-**-3ME-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 11,424
Initial FC at grade



CESTL Test Report #: PL07699-001A
OSQ-A-**-3ME-U-57K-UL w/OSQ-BLSLF
Initial Delivered Lumens: 23,801



OSQ-A-**-3ME-B-40K-UL w/OSQ-BLSMF
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 9,019
Initial FC at grade

Type II Medium Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	10,738	B2 U0 G2	11,424	B2 U0 G2	11,648	B2 U0 G2
K	16,022	B3 U0 G3	16,959	B3 U0 G3	17,291	B3 U0 G3

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

Type II Medium w/BLS Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11
B	8,251	B2 U0 G2	8,779	B2 U0 G2	8,950	B2 U0 G2
K	12,312	B2 U0 G2	13,032	B2 U0 G2	13,286	B2 U0 G2

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

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Type III Medium Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11
B	10,738	B3 U0 G3	11,424	B3 U0 G3	11,648	B3 U0 G3
K	16,022	B3 U0 G3	16,959	B3 U0 G3	17,291	B3 U0 G3

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

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Type III Medium w/BLS Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	8,477	B1 U0 G2	9,019	B1 U0 G2	9,196	B1 U0 G2
K	12,649	B2 U0 G2	13,389	B2 U0 G2	13,650	B2 U0 G2

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

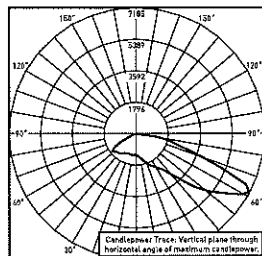


OSQ™ LED Area/Flood Luminaire – Medium

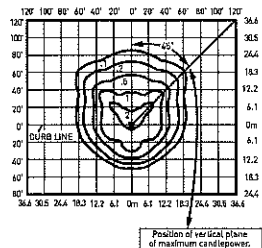
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: <http://lighting.cree.com/products/outdoor/area/osq-series>

4ME



CESTL Test Report #: PL08878-001A
OSQ-A-4ME-B-30K-UL
Initial Delivered Lumens: 10,230

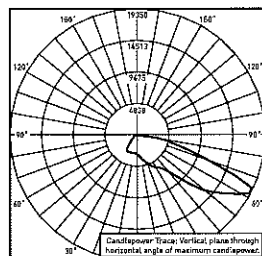


OSQ-A-4ME-B-40K-UL
Mounting Height: 25' (7.6m) A.F.C.
Initial Delivered Lumens: 11,424
Initial FC at grade

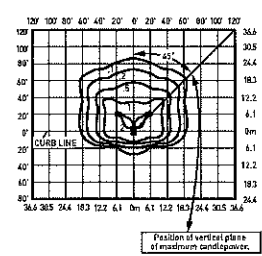
Type IV Medium Distribution						
Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	10,738	B2 U0 G2	11,424	B2 U0 G2	11,648	B2 U0 G2
K	16,022	B3 U0 G3	16,959	B3 U0 G3	17,291	B3 U0 G3

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt



CESTL Test Report #: PL07692-001A
OSQ-A-4ME-U-87K-UL w/OSQ-BLSLF
Initial Delivered Lumens: 22,793



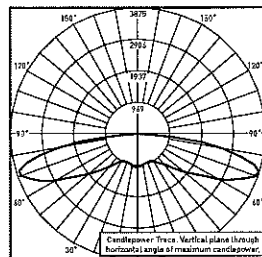
OSQ-A-4ME-B-40K-UL w/OSQ-BLSMF
Mounting Height: 25' (7.6m) A.F.C.
Initial Delivered Lumens: 8,779
Initial FC at grade

Type IV Medium w/BLS Distribution						
Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11
B	8,251	B1 U0 G2	8,779	B1 U0 G2	8,950	B1 U0 G2
K	12,312	B2 U0 G2	13,032	B2 U0 G2	13,286	B2 U0 G2

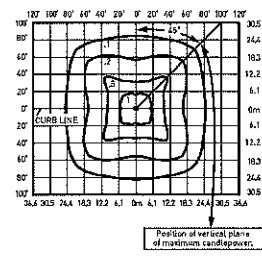
* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

5ME



CESTL Test Report #: PL08101-001C
OSQ-A-5ME-B-30K-UL
Initial Delivered Lumens: 9,304



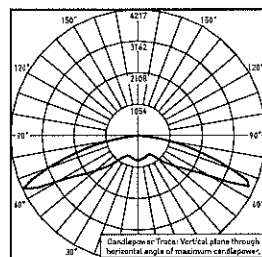
OSQ-A-5ME-B-40K-UL
Mounting Height: 25' (7.6m) A.F.C.
Initial Delivered Lumens: 10,867
Initial FC at grade

Type V Medium Distribution						
Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	9,387	B3 U0 G3	10,867	B4 U0 G4	11,056	B4 U0 G4
K	13,819	B4 U0 G4	15,999	B4 U0 G5	16,277	B4 U0 G5

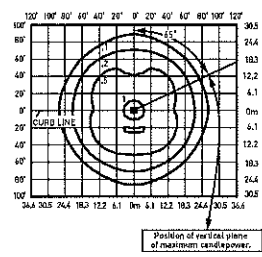
* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

5SH



CESTL Test Report #: PL08102-001B
OSQ-A-5SH-B-30K-UL
Initial Delivered Lumens: 9,935



OSQ-A-5SH-B-40K-UL
Mounting Height: 25' (7.6m) A.F.C.
Initial Delivered Lumens: 11,478
Initial FC at grade

Type V Short Distribution						
Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11
B	9,914	B4 U0 G3	11,478	B4 U0 G3	11,678	B4 U0 G3
K	14,595	B4 U0 G3	16,897	B4 U0 G3	17,191	B4 U0 G3

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Valid with no tilt

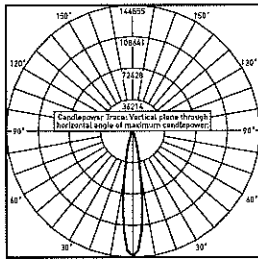


OSQ™ LED Area/Flood Luminaire – Medium

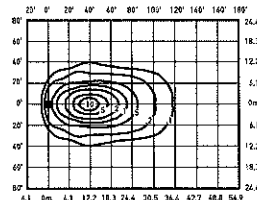
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: <http://lighting.cree.com/products/outdoor/area/osq-series>

15D



CESTL Test Report #: PL07689-001A
OSQ-A-**-15D-U-30K-UL
Initial Delivered Lumens: 23,254



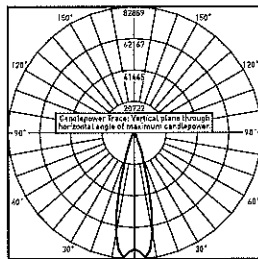
OSQ-A-**-15D-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 11,478
Initial FC at grade

15° Flood Distribution

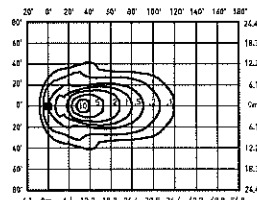
Input Power Designator	3000K	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
B	9,914	11,478	11,678
K	14,595	16,897	17,191

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

25D



CESTL Test Report #: PL07687-001A
OSQ-A-**-25D-U-30K-UL
Initial Delivered Lumens: 23,265



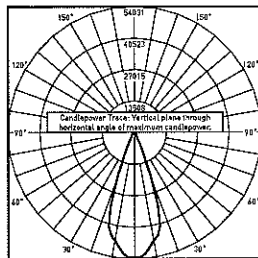
OSQ-A-**-25D-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 11,478
Initial FC at grade

25° Flood Distribution

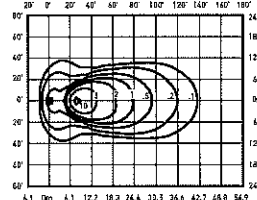
Input Power Designator	3000K	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
B	9,914	11,478	11,678
K	14,595	16,897	17,191

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

40D



CESTL Test Report #: PL07697-001A
OSQ-A-**-40D-U-30K-UL
Initial Delivered Lumens: 22,943



OSQ-A-**-40D-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 11,478
Initial FC at grade

40° Flood Distribution

Input Power Designator	3000K	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
B	9,914	11,478	11,678
K	14,595	16,897	17,191

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

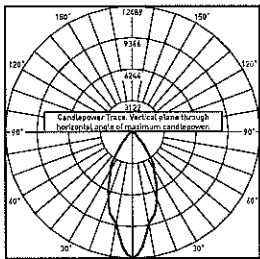


OSQ™ LED Area/Flood Luminaire – Medium

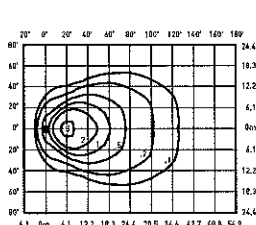
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: <http://lighting.cree.com/products/outdoor/area/osq-series>

60D



CESTL Test Report #: PL08100-001B
OSQ-A-**-60D-B-30K-UL
Initial Delivered Lumens: 10,079

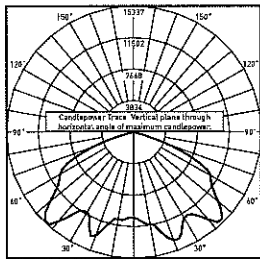


OSQ-A-**-60D-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 11,478
Initial FC at grade

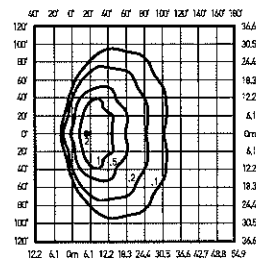
60° Flood Distribution			
Input Power Designator	3000K	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
B	9,914	11,478	11,678
K	14,595	16,897	17,191

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

WSN



CESTL Test Report #: PL07695-001A
OSQ-A-**-WSN-B-30K-UL
Initial Delivered Lumens: 23,116



OSQ-A-**-WSN-B-40K-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 11,478
Initial FC at grade

Wide Sign Distribution			
Input Power Designator	3000K	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
B	9,914	11,478	11,678
K	14,595	16,897	17,191

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

OSQ™ LED Area/Flood Luminaire – Medium

Luminaire EPA

Fixed Arm Mount – OSQ-DA Weight: 26.5 lbs. (12kg)					
Single	2 @ 180°	2 @ 90°	3 @ 90°	3 @ 120°	4 @ 90°
					
0.74	1.48	1.19	1.93	1.63	2.38

Adjustable Arm Mount – OSQ-AA Weight: 26.5 lbs. (12kg)							
Single	2 @ 180°	2 @ 90°	3 @ 90°	3 @ 120°	3 @ 180°	4 @ 180°	4 @ 90°
Tenon Configuration (0°–80° Tilt); If used with Cree tenons, please add tenon EPA with Luminaire EPA							
							
PB-1A*; PT-1; PW-1A3**	PB-2A*; PB-2R2.375; PD-2A4(180); PT-2(180); PW-2A3**	PB-2A*; PD-2A4(90); PT-2(90)	PB-3A*; PD-3A4(90); PT-3(90)	PB-3A*; PT-3(120)	PB-3A*; PB-3R2.375	PB-4A*(180)	PB-4A*(90); PB-4R2.375; PD-4A4(90); PT-4(90)
0° Tilt							
0.74	1.48	1.19	1.93	1.63	3.33	4.66	2.38
10° Tilt							
0.75	1.48	1.49	2.23	2.15	4.22	5.84	2.98
20° Tilt							
1.12	1.48	1.86	2.60	2.85	5.31	7.32	3.72
30° Tilt							
1.46	1.48	2.20	2.94	3.56	6.34	8.68	4.40
45° Tilt							
1.96	1.96	2.69	3.43	4.54	7.83	10.68	5.38
60° Tilt							
2.33	2.33	3.07	3.81	5.11	8.94	12.16	6.14
70° Tilt							
2.49	2.49	3.23	3.97	5.11	9.43	12.80	6.46
80° Tilt							
2.58	2.58	3.32	4.06	5.11	9.71	13.16	6.64
Tenon Configuration (90° Tilt); If used with Cree tenons, please add tenon EPA with Luminaire EPA							
PB-1A*; PT-1; PW-1A3**	PB-2A*; PB-2R2.375; PD-2A4(180); PT-2(180); PW-2A3**	PB-2A*	PB-3A*	PB-3A*; PT-3(120)	PB-3A*; PB-3R2.375	PB-4A*(180)	PB-4A*(90); PB-4R2.375
90° Tilt							
2.61	2.61	4.44	6.05	5.11	9.79	13.28	10.39

* Specify pole size: 3 [3"], 4 [4"], 5 [5"], or 6 [6"] for single, double or triple luminaire orientation or 4 [4"], 5 [5"], or 6 [6"] for quad luminaire orientation

** These EPA values must be multiplied by the following ratio: Fixture Mounting Height/Total Pole Height. Specify pole size: 3 [3"], 4 [4"], 5 [5"], or 6 [6"]

OSQ™ LED Area/Flood Luminaire – Medium

Tenon EPA

Part Number	EPA
PB-1A*	None
PB-2A*	0.82
PB-3A*	1.52
PB-4A*(180)	2.22
PB-4A*(90)	1.11
PB-2R2.375	0.92
PB-3R2.375	1.62
PB-4R2.375	2.32
PD Series Tenons	0.09
PT Series Tenons	0.10
PW-1A3**	0.47
PW-2A3**	0.94
WM-2	0.08
WM-4	0.25
WM-DM	None

* Specify pole size: 3 [3"], 4 [4"], 5 [5"], or 6 [6"] for single, double or triple luminaire orientation or 4 [4"], 5 [5"], or 6 [6"] for quad luminaire orientation
 ** These EPA values must be multiplied by the following ratio: Fixture Mounting Height/Total Pole Height. Specify pole size: 3 [3"], 4 [4"], 5 [5"], or 6 [6"]

Tenons and Brackets* (must specify color)	
Square Internal Mount Vertical Tenons (Steel) - Mounts to 3-6" [76-152mm] square aluminum or steel poles PB-1A* – Single PB-4A*(90) – 90° Quad PB-2A* – 180° Twin PB-4A*(180) – 180° Quad PB-3A* – 180° Triple	Round External Mount Vertical Tenons (Steel) - Mounts to 2.375" [60mm] O.D. round aluminum or steel poles or tenons PB-2R2.375 – Twin PB-4R2.375 – Quad PB-3R2.375 – Triple
Square Internal Mount Horizontal Tenons (Aluminum) - Mounts to 4" [102mm] square aluminum or steel poles PD-2A4(90) – 90° Twin PD-3A4(90) – 90° Triple PD-2A4(180) – 180° Twin PD-4A4(90) – 90° Quad	Round External Mount Horizontal Tenons (Aluminum) - Mounts to 2.375" [60mm] O.D. round aluminum or steel poles or tenons - Mounts to square pole with PB-1A* tenon PT-1 – Single (Vertical) PT-3(90) – 90° Triple PT-2(90) – 90° Twin PT-4(90) – 90° Quad PT-2(180) – 180° Twin
Wall Mount Brackets - Mounts to wall or roof WM-2 – Horizontal for OSQ-AA mount WM-4 – L-Shape for OSQ-AA mount WM-DM – Plate for OSQ-DA mount	Mid-Pole Bracket - Mounts to square pole PW-1A3** – Single PW-2A3** – Double
	Ground Mount Post - For ground mounted flood luminaires PGM-1 – for OSQ-AA mount

* Refer to the Bracket and Tenons spec sheet for more details

Direct Mount Configurations

Compatibility with OSQ-DA Direct Mount Bracket					
Input Power Designator	2 @ 90°	2 @ 180°	3 @ 90°	3 @ 120°	4 @ 90°
3" Square					
B & K	N/A	✓	N/A	N/A	N/A
3" Round					
B & K	N/A	✓	N/A	N/A	N/A
4" Square					
B & K	✓	✓	✓	N/A	✓
4" Round					
B & K	✓	✓	✓	✓	✓
5" Square					
B & K	✓	✓	✓	N/A	✓
5" Round					
B & K	✓	✓	✓	✓	✓
6" Square					
B & K	✓	✓	✓	N/A	✓
6" Round					
B & K	✓	✓	✓	✓	✓

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