SP2016-009- PANERA BREAD
SITE PLAN - LOCATION MAP =

Feet
0 20 40   80   120   160

INTERSTATE 30
INTERSTATE 30
INTERSTATE 30
INTERSTATE 30

RIDGE
RIDGE

C
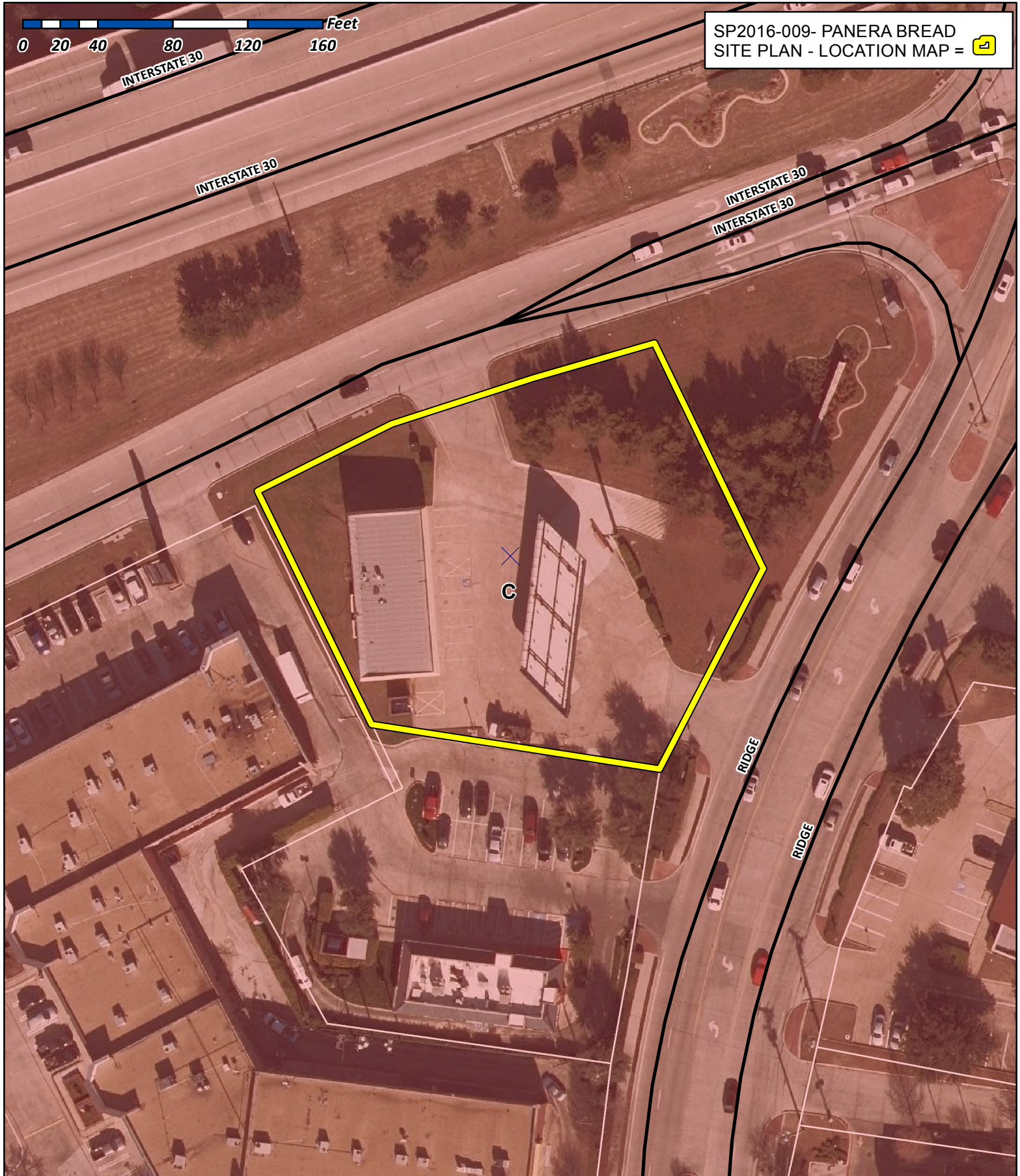
City of Rockwall

Planning & Zoning Department
385 S. Goliad Street
Rockwall, Texas 75032
(P): (972) 771-7745
(W): www.rockwall.com

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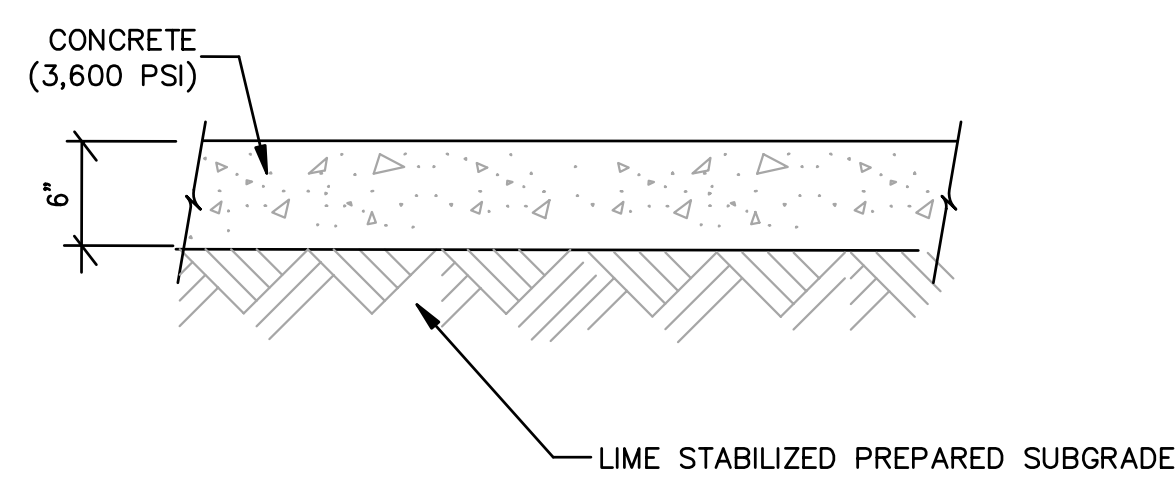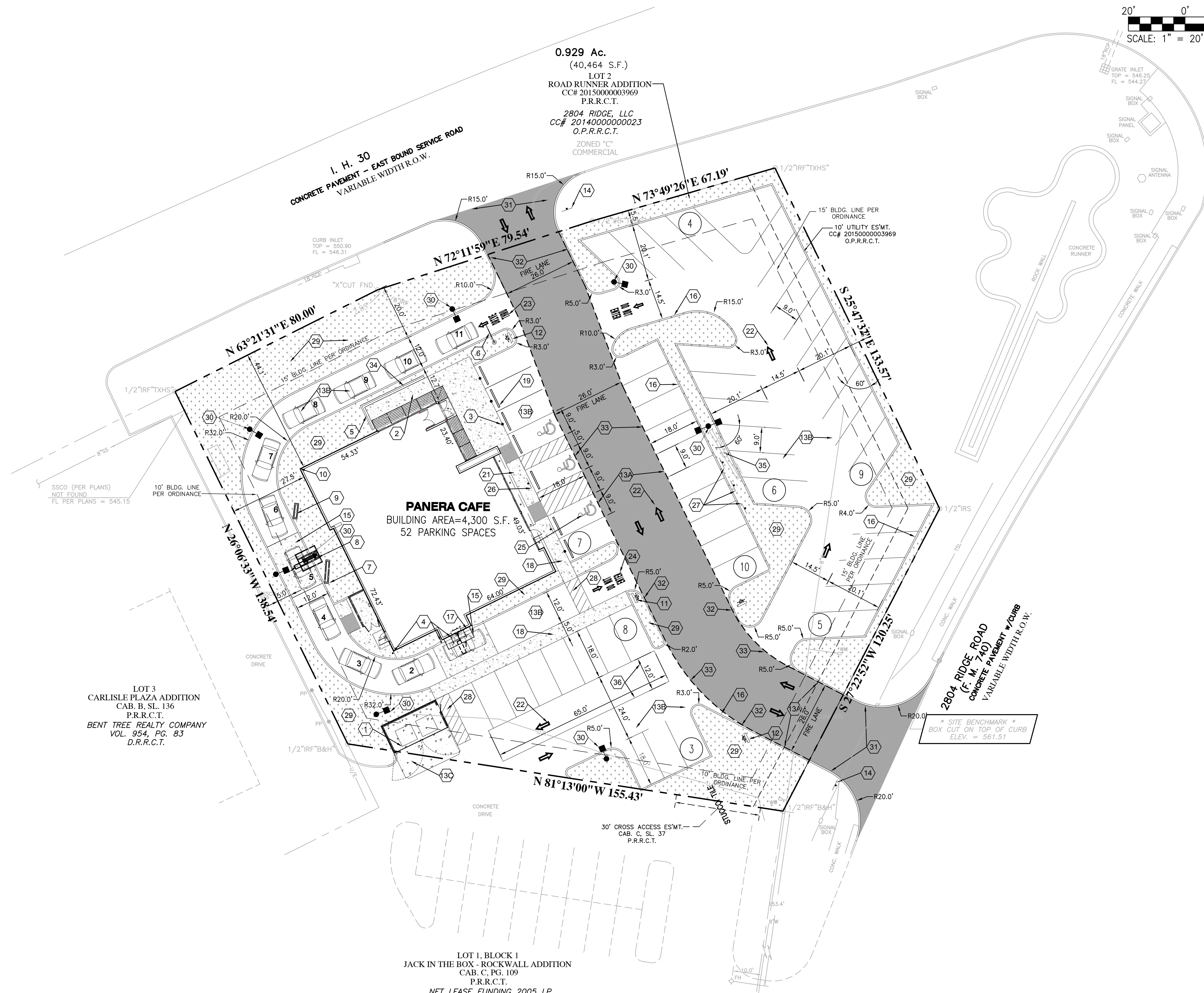
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SCALE: 1" = 20'
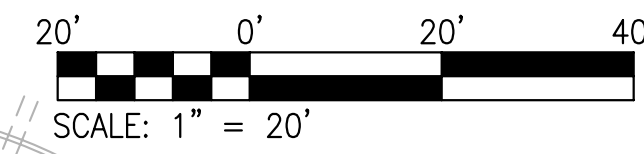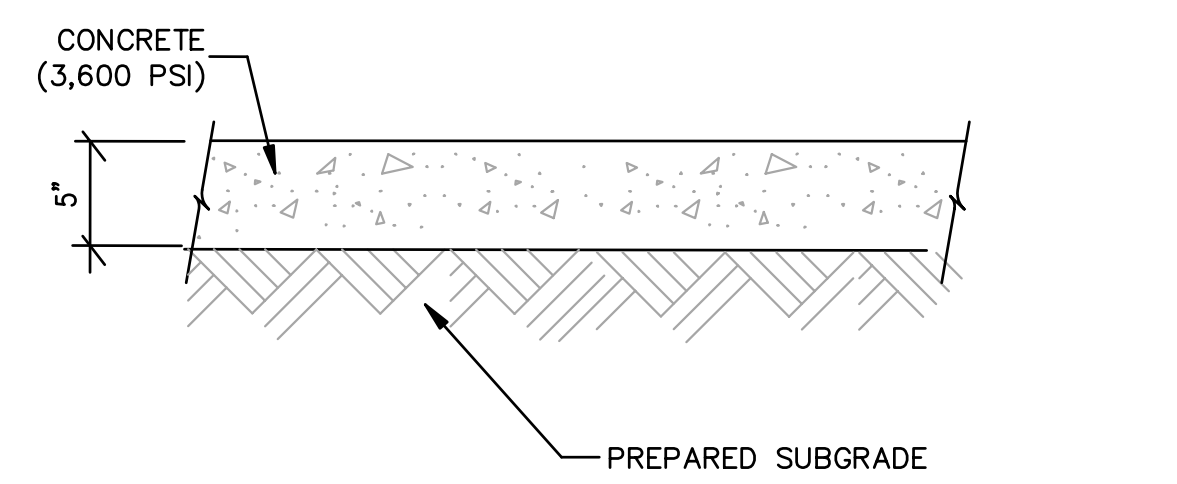
KEYED NOTES:

1. NEW TRASH ENCLOSURE.
2. NEW PATIO AREA.
3. NEW 4" BOLLARD(S).
4. NEW 6" BOLLARD(S).
5. NEW PATIO HANDRAIL WITH INTEGRATED BOLLARDS.
6. NEW CLEARANCE BAR.
7. NEW MENU BOARD.
8. NEW MENU CANOPY.
9. NEW PREVIEW BOARD.
10. NEW BUILDING MOUNTED CAMERA.
11. NEW "DO NOT ENTER / THANK YOU" SIGN.
12. NEW "DRIVE-THRU" SIGN.
13A. NEW HEAVY DUTY CONCRETE PAVEMENT.
13B. NEW LIGHT DUTY CONCRETE PAVEMENT.
13C. NEW REFUSE AREA CONCRETE PAVEMENT.
14. NEW "STOP" SIGN.
15. NEW CONCRETE PAD WITH SENSOR LOOP.
16. NEW 6" VERTICAL CONCRETE CURB (STANDARD SECTION).
17. NEW 6" VERTICAL CONCRETE CURB (WIDE SECTION).
18. NEW TURNED DOWN CONCRETE WALK.
19. NEW WHEEL STOPS (7 TOTAL).
20. NEW FLARED ACCESSIBLE RAMP WITH TRUNCATED DOMES IN SIDEWALK.
21. NEW PARALLEL ACCESSIBLE RAMP WITH TRUNCATED DOMES IN SIDEWALK.
22. NEW TRAFFIC FLOW ARROW.
23. NEW "DRIVE-THRU" STRIPING AND TRAFFIC FLOW ARROW.
24. NEW "DO NOT ENTER" STRIPING AND TRAFFIC FLOW ARROWS.
25. NEW ACCESSIBLE PARKING PAINTED SYMBOL AND STRIPING (3 TOTAL).
26. NEW ACCESSIBLE PARKING AND FINE SIGN(S) IN BOLLARD (3 TOTAL).
27. NEW RAPID PICK UP SIGNS.
28. NEW PAINTED AISLE.
29. NEW LANDSCAPE AREA.
30. NEW SITE LIGHTING.
31. NEW STANDARD DRIVE APPROACH PER CITY OF ROCKWALL STANDARDS.
32. NEW CURB TO BE PAINTED RED WITH CONTRASTING WHITE LETTERS READING "NO PARKING FIRE LANE" PER ROCKWALL FIRE PROTECTION STANDARDS.
33. NEW RED PAINTED STRIPE WITH CONTRASTING WHITE LETTERS READING "NO PARKING FIRE LANE" PER ROCKWALL FIRE PROTECTION STANDARDS.
34. SEGMENTAL RETAINING WALL.
35. EXISTING PYLON SIGN TO REMAIN AND BE REFACED.
36. NEW 12'X65' LOADING AREA.

Site Labels

I. H. 30
CONCRETE PAVEMENT – EAST BOUND SERVICE ROAD
VARIABLE WIDTH R.O.W.

0.929 Ac.
(40,464 S.F.)
LOT 2
ROAD RUNNER ADDITION
CC# 20150000003969
P.R.R.C.T.
2804 RIDGE, LLC
CC# 20140000000023
O.P.R.R.C.T.
ZONED "C" COMMERCIAL

PANERA CAFE
BUILDING AREA=4,300 S.F.
52 PARKING SPACES

15' BLDG. LINE PER ORDINANCE
10' UTILITY ES'MT. CC# 20150000003969 O.P.R.R.C.T.

N 73°49'26"E 67.19'
N 72°11'59"E 79.54'
N 63°21'31"E 80.00'
N 26°06'33"W 138.54'
N 81°13'00"W 155.43'
S 25°47'12"E 133.57'
S 27°22'52"W 120.25'

2804 RIDGE ROAD
(F. M. 740)
CONCRETE PAVEMENT w/CURB
VARIABLE WIDTH R.O.W.

* SITE BENCHMARK *
BOX CUT ON TOP OF CURB
ELEV. = 561.51

LOT 3
CARLISLE PLAZA ADDITION
CAB. B, SL. 136
P.R.R.C.T.
BENT TREE REALTY COMPANY
VOL. 954, PG. 83
D.R.R.C.T.

LOT 1, BLOCK 1
JACK IN THE BOX - ROCKWALL ADDITION
CAB. C, PG. 109
P.R.R.C.T.
NET LEASE FUNDING 2005 LP

30' CROSS ACCESS ES'MT.
CAB. C, SL. 37
P.R.R.C.T.

Details

1. HEAVY DUTY CONCRETE DETAIL SCALE: N.T.S. REF. DWG. ???
CONCRETE (3,600 PSI) — 6"
LIME STABILIZED PREPARED SUBGRADE
NOTE:
PAVEMENT DETAILS SHOWN FOR REFERENCE ONLY. CONTRACTOR TO VERIFY FINAL PAVEMENT REQUIREMENTS WITH GEOTECH REPORT AND/OR OWNER.
CONTRACTOR TO INSTALL CONCRETE PAVEMENT JOINTS PER THE AMERICAN CONCRETE INSTITUTES "GUIDE FOR DESIGN AND CONSTRUCTION OF CONCRETE PARKING LOTS"
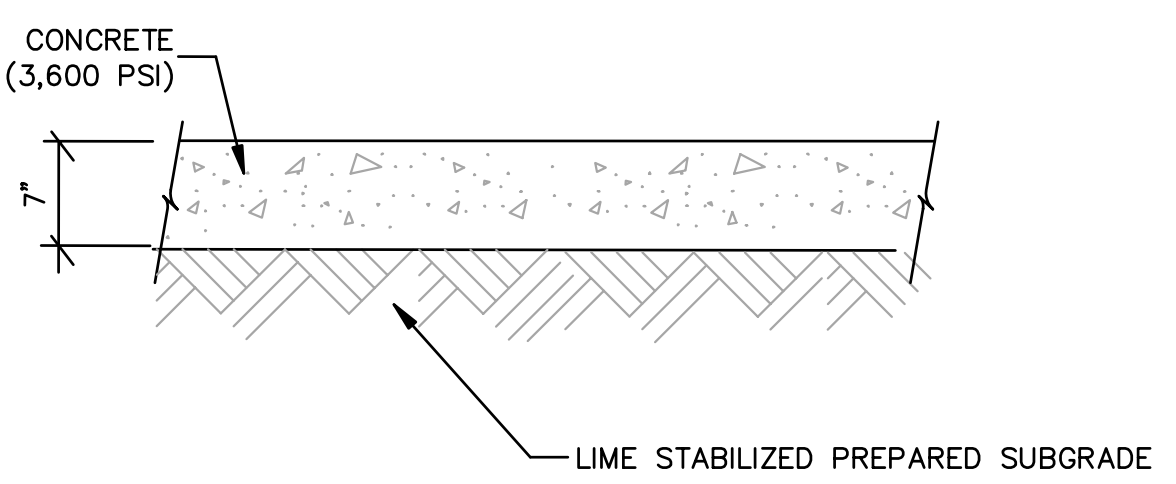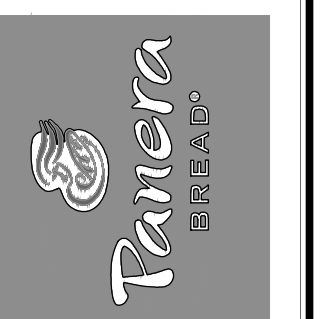
2. LIGHT DUTY CONCRETE DETAIL SCALE: N.T.S. REF. DWG. ???
CONCRETE (3,600 PSI) — 5"
PREPARED SUBGRADE
NOTE:
PAVEMENT DETAILS SHOWN FOR REFERENCE ONLY. CONTRACTOR TO VERIFY FINAL PAVEMENT REQUIREMENTS WITH GEOTECH REPORT AND/OR OWNER.
CONTRACTOR TO INSTALL CONCRETE PAVEMENT JOINTS PER THE AMERICAN CONCRETE INSTITUTES "GUIDE FOR DESIGN AND CONSTRUCTION OF CONCRETE PARKING LOTS"

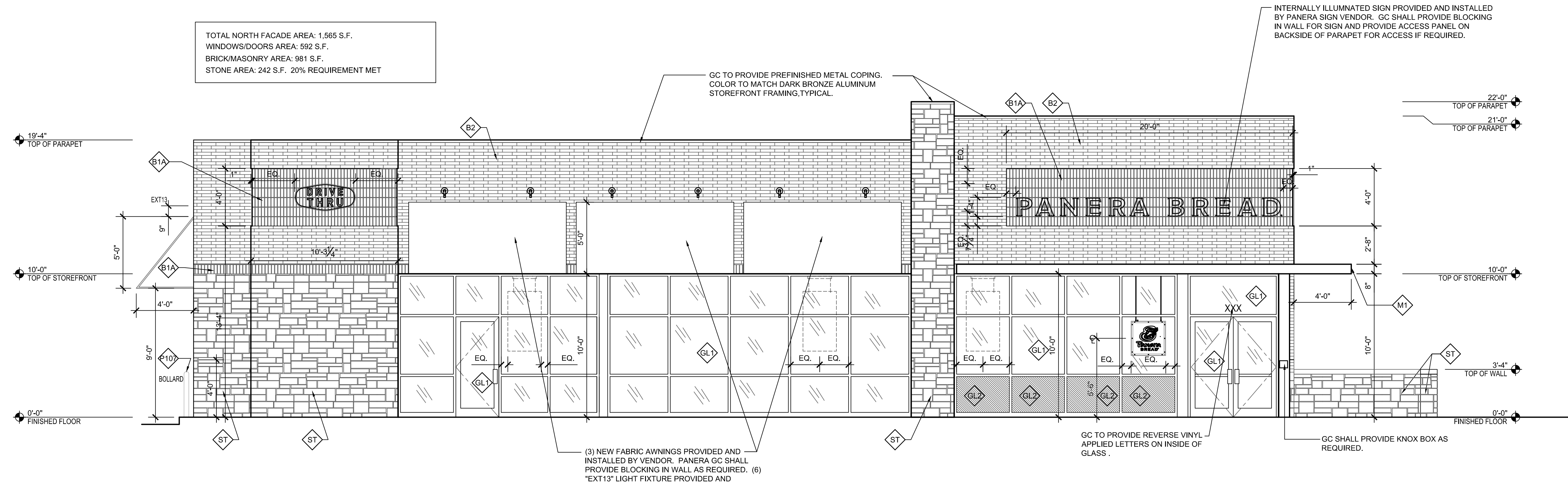**3. REFUSE AREA CONCRETE DETAIL** SCALE: N.T.S. REF. DWG. ???
CONCRETE (3,600 PSI) — 7"
LIME STABILIZED PREPARED SUBGRADE
NOTE:
PAVEMENT DETAILS SHOWN FOR REFERENCE ONLY. CONTRACTOR TO VERIFY FINAL PAVEMENT REQUIREMENTS WITH GEOTECH REPORT AND/OR OWNER.
CONTRACTOR TO INSTALL CONCRETE PAVEMENT JOINTS PER THE AMERICAN CONCRETE INSTITUTES "GUIDE FOR DESIGN AND CONSTRUCTION OF CONCRETE PARKING LOTS"

CALL 8-1-1 or 1-800-344-8377 (TEXAS ONE CALL) TO HAVE LOCATIONS MARKED IN THE FIELD (SUBSCRIBING UTILITIES REQUIRE 48 HOURS NOTICE PRIOR TO CONSTRUCTION).
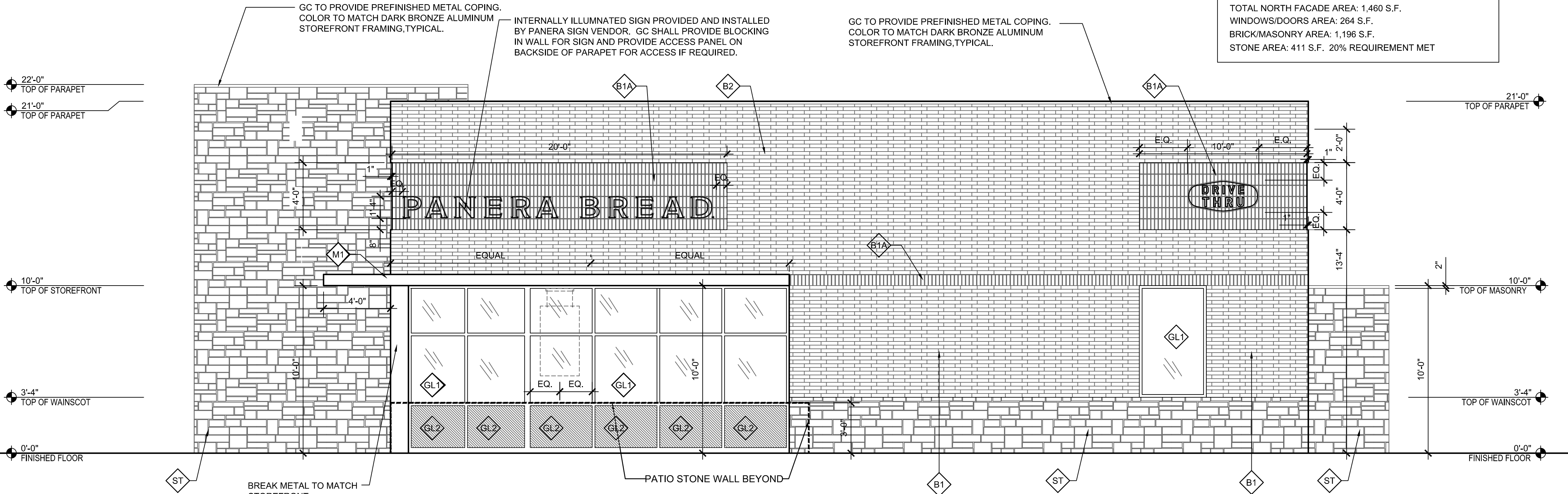
CITY CASE #

PANERA BAKERY CAFE #1982
2804 Ridge Road
Rockwall, TX 75032

EAST EXTERIOR ELEVATION (22)
SCALE: 1/4"=1'-0"

TOTAL NORTH FACADE AREA: 1,565 S.F.
WINDOWS/DOORS AREA: 592 S.F.
BRICK/MASONRY AREA: 981 S.F.
STONE AREA: 242 S.F. 20% REQUIREMENT MET

INTERNALLY ILLUMINATED SIGN PROVIDED AND INSTALLED BY PANERA SIGN VENDOR. GC SHALL PROVIDE BLOCKING IN WALL FOR SIGN AND PROVIDE ACCESS PANEL ON BACKSIDE OF PARAPET FOR ACCESS IF REQUIRED.

GC TO PROVIDE PREFINISHED METAL COPING. COLOR TO MATCH DARK BRONZE ALUMINUM STOREFRONT FRAMING, TYPICAL.

DRIVE THRU

PANERA BREAD

GC TO PROVIDE REVERSE VINYL APPLIED LETTERS ON INSIDE OF GLASS.

GC SHALL PROVIDE KNOX BOX AS REQUIRED.

(3) NEW FABRIC AWNINGS PROVIDED AND INSTALLED BY VENDOR. PANERA GC SHALL PROVIDE BLOCKING IN WALL AS REQUIRED. (6) "EXT13" LIGHT FIXTURE PROVIDED AND

19'-4" TOP OF PARAPET
10'-0" TOP OF STOREFRONT
0'-0" FINISHED FLOOR
22'-0" TOP OF PARAPET
21'-0" TOP OF PARAPET
10'-0" TOP OF STOREFRONT
3'-4" TOP OF WALL
0'-0" FINISHED FLOOR

NORTH EXTERIOR ELEVATION (24)
SCALE: 1/4"=1'-0"

GC TO PROVIDE PREFINISHED METAL COPING. COLOR TO MATCH DARK BRONZE ALUMINUM STOREFRONT FRAMING, TYPICAL.

INTERNALLY ILLUMINATED SIGN PROVIDED AND INSTALLED BY PANERA SIGN VENDOR. GC SHALL PROVIDE BLOCKING IN WALL FOR SIGN AND PROVIDE ACCESS PANEL ON BACKSIDE OF PARAPET FOR ACCESS IF REQUIRED.

GC TO PROVIDE PREFINISHED METAL COPING. COLOR TO MATCH DARK BRONZE ALUMINUM STOREFRONT FRAMING, TYPICAL.

TOTAL NORTH FACADE AREA: 1,460 S.F.
WINDOWS/DOORS AREA: 264 S.F.
BRICK/MASONRY AREA: 1,196 S.F.
STONE AREA: 411 S.F. 20% REQUIREMENT MET

PANERA BREAD

DRIVE THRU

BREAK METAL TO MATCH STOREFRONT

PATIO STONE WALL BEYOND

22'-0" TOP OF PARAPET
21'-0" TOP OF PARAPET
10'-0" TOP OF STOREFRONT
3'-4" TOP OF WAINSCOT
0'-0" FINISHED FLOOR
21'-0" TOP OF PARAPET
10'-0" TOP OF MASONRY
3'-4" TOP OF WAINSCOT
0'-0" FINISHED FLOOR

EXTERIOR MATERIALS:

INDICATED BY ◇ SYMBOL

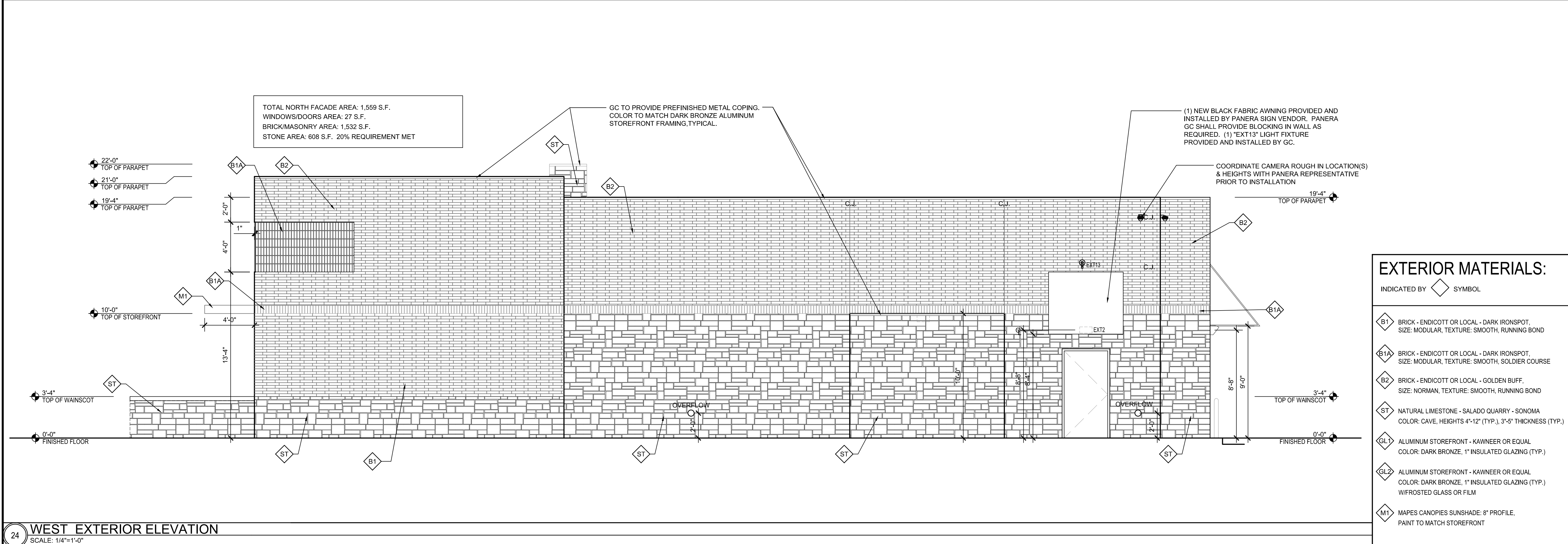| Symbol	Description
B1	BRICK - ENDICOTT OR LOCAL - DARK IRONSPOT, SIZE: MODULAR, TEXTURE: SMOOTH, RUNNING BOND
B1A	BRICK - ENDICOTT OR LOCAL - DARK IRONSPOT, SIZE: MODULAR, TEXTURE: SMOOTH, SOLDIER COURSE
B2	BRICK - ENDICOTT OR LOCAL - GOLDEN BUFF, SIZE: NORMAN, TEXTURE: SMOOTH, RUNNING BOND
ST	NATURAL LIMESTONE - SALADO QUARRY - SONOMA COLOR: CAVE, HEIGHTS 4"-12" (TYP.), 3"-5" THICKNESS (TYP.)
GL1	ALUMINUM STOREFRONT - KAWNEER OR EQUAL COLOR: DARK BRONZE, 1" INSULATED GLAZING (TYP.)
GL2	ALUMINUM STOREFRONT - KAWNEER OR EQUAL COLOR: DARK BRONZE, 1" INSULATED GLAZING (TYP.) W/FROSTED GLASS OR FILM
M1	MAPES CANOPIES SUNSHADE: 8" PROFILE, PAINT TO MATCH STOREFRONT

REVISION

SHEET NO:
A-5.1
EXTERIOR ELEVATIONS

SOUTH EXTERIOR ELEVATION
22 SCALE: 1/4"=1'-0"

TOTAL NORTH FACADE AREA: 1,385 S.F.
WINDOWS/DOORS AREA: 12 S.F.
BRICK/MASONRY AREA: 1,373 S.F.
STONE AREA: 696 S.F. 20% REQUIREMENT MET

GC TO PROVIDE PREFINISHED METAL COPING. COLOR TO MATCH DARK BRONZE ALUMINUM STOREFRONT FRAMING,TYPICAL.

COORDINATE CAMERA ROUGH IN LOCATION(S) & HEIGHTS WITH PANERA REPRESENTATIVE PRIOR TO INSTALLATION

(1) NEW BLACK FABRIC AWNING PROVIDED AND INSTALLED BY PANERA SIGN VENDOR. PANERA GC SHALL PROVIDE BLOCKING IN WALL AS REQUIRED. (2) "EXT13" LIGHT FIXTURE PROVIDED AND INSTALLED BY GC.

GC TO PROVIDE PREFINISHED METAL COPING. COLOR TO MATCH DARK BRONZE ALUMINUM STOREFRONT FRAMING,TYPICAL.

INTERNALLY ILLUMINATED SIGN PROVIDED AND INSTALLED BY PANERA SIGN VENDOR. GC SHALL PROVIDE BLOCKING IN WALL FOR SIGN AND PROVIDE ACCESS PANEL ON BACKSIDE OF PARAPET FOR ACCESS IF REQUIRED.

GC TO PROVIDE PREFINISHED METAL COPING. COLOR TO MATCH DARK BRONZE ALUMINUM STOREFRONT FRAMING,TYPICAL.

PANERA BREAD

22'-0" TOP OF PARAPET
19'-4" TOP OF PARAPET
19'-4" TOP OF PARAPET
10'-0" TOP OF CART CORRAL
0'-0" FINISHED FLOOR
0'-0" FINISHED FLOOR

CMU, PAINT TO MATCH STONE

WEST EXTERIOR ELEVATION
24 SCALE: 1/4"=1'-0"

TOTAL NORTH FACADE AREA: 1,559 S.F.
WINDOWS/DOORS AREA: 27 S.F.
BRICK/MASONRY AREA: 1,532 S.F.
STONE AREA: 608 S.F. 20% REQUIREMENT MET

GC TO PROVIDE PREFINISHED METAL COPING. COLOR TO MATCH DARK BRONZE ALUMINUM STOREFRONT FRAMING,TYPICAL.

(1) NEW BLACK FABRIC AWNING PROVIDED AND INSTALLED BY PANERA SIGN VENDOR. PANERA GC SHALL PROVIDE BLOCKING IN WALL AS REQUIRED. (1) "EXT13" LIGHT FIXTURE PROVIDED AND INSTALLED BY GC.

COORDINATE CAMERA ROUGH IN LOCATION(S) & HEIGHTS WITH PANERA REPRESENTATIVE PRIOR TO INSTALLATION

22'-0" TOP OF PARAPET
21'-0" TOP OF PARAPET
19'-4" TOP OF PARAPET
19'-4" TOP OF PARAPET
10'-0" TOP OF STOREFRONT
3'-4" TOP OF WAINSCOT
3'-4" TOP OF WAINSCOT
0'-0" FINISHED FLOOR
0'-0" FINISHED FLOOR

OVERFLOW
OVERFLOW

EXT2

EXTERIOR MATERIALS:

INDICATED BY ⬦ SYMBOL

B1 BRICK - ENDICOTT OR LOCAL - DARK IRONSPOT,
SIZE: MODULAR, TEXTURE: SMOOTH, RUNNING BOND

B1A BRICK - ENDICOTT OR LOCAL - DARK IRONSPOT,
SIZE: MODULAR, TEXTURE: SMOOTH, SOLDIER COURSE

B2 BRICK - ENDICOTT OR LOCAL - GOLDEN BUFF,
SIZE: NORMAN, TEXTURE: SMOOTH, RUNNING BOND

ST NATURAL LIMESTONE - SALADO QUARRY - SONOMA
COLOR: CAVE, HEIGHTS 4"-12" (TYP.), 3"-5" THICKNESS (TYP.)

GL1 ALUMINUM STOREFRONT - KAWNEER OR EQUAL
COLOR: DARK BRONZE, 1" INSULATED GLAZING (TYP.)

GL2 ALUMINUM STOREFRONT - KAWNEER OR EQUAL
COLOR: DARK BRONZE, 1" INSULATED GLAZING (TYP.)
W/FROSTED GLASS OR FILM

M1 MAPES CANOPIES SUNSHADE: 8" PROFILE,
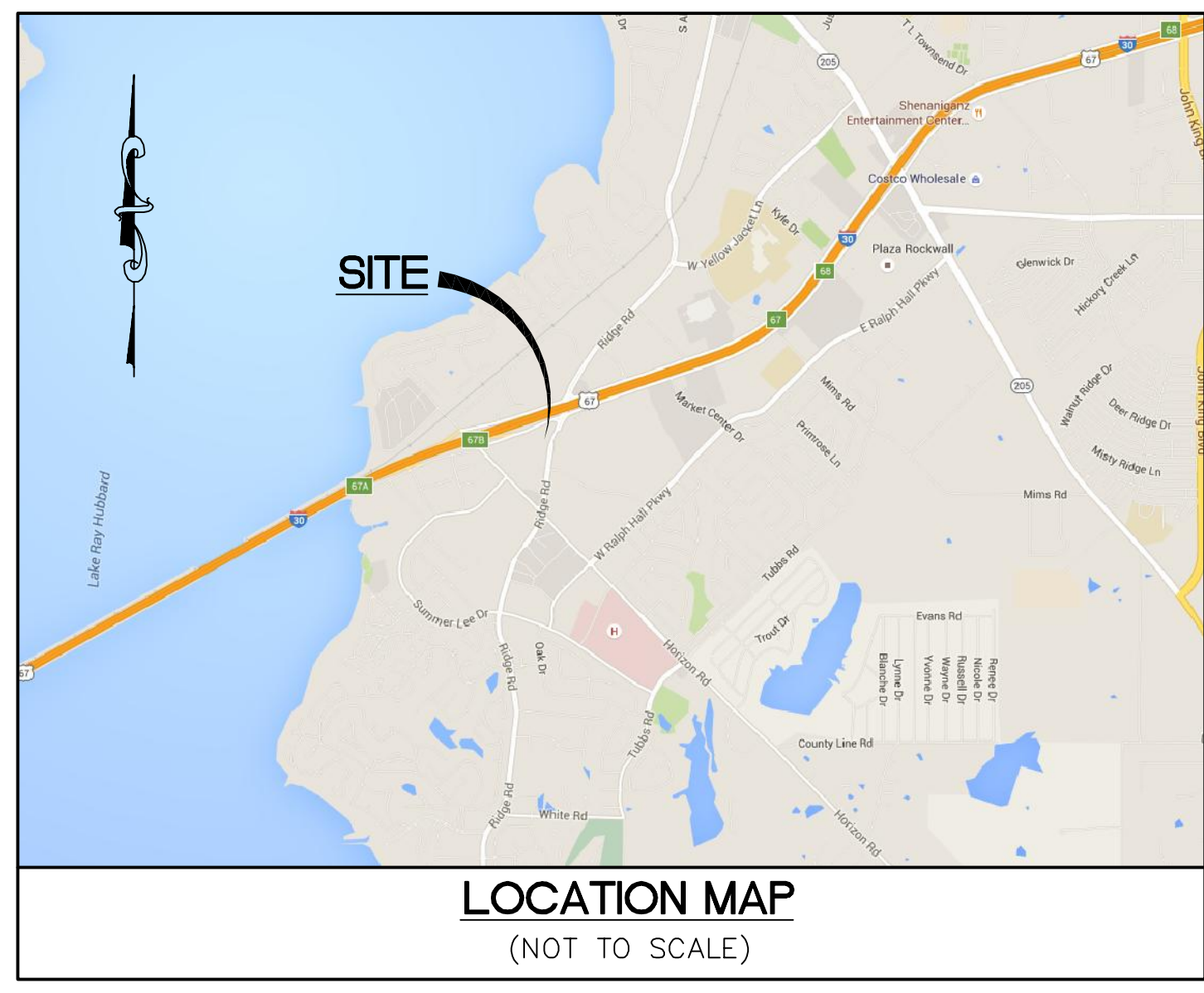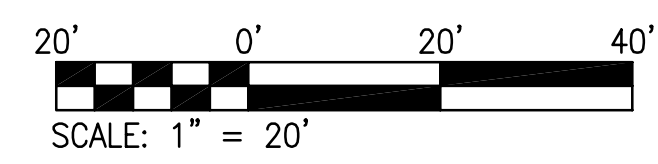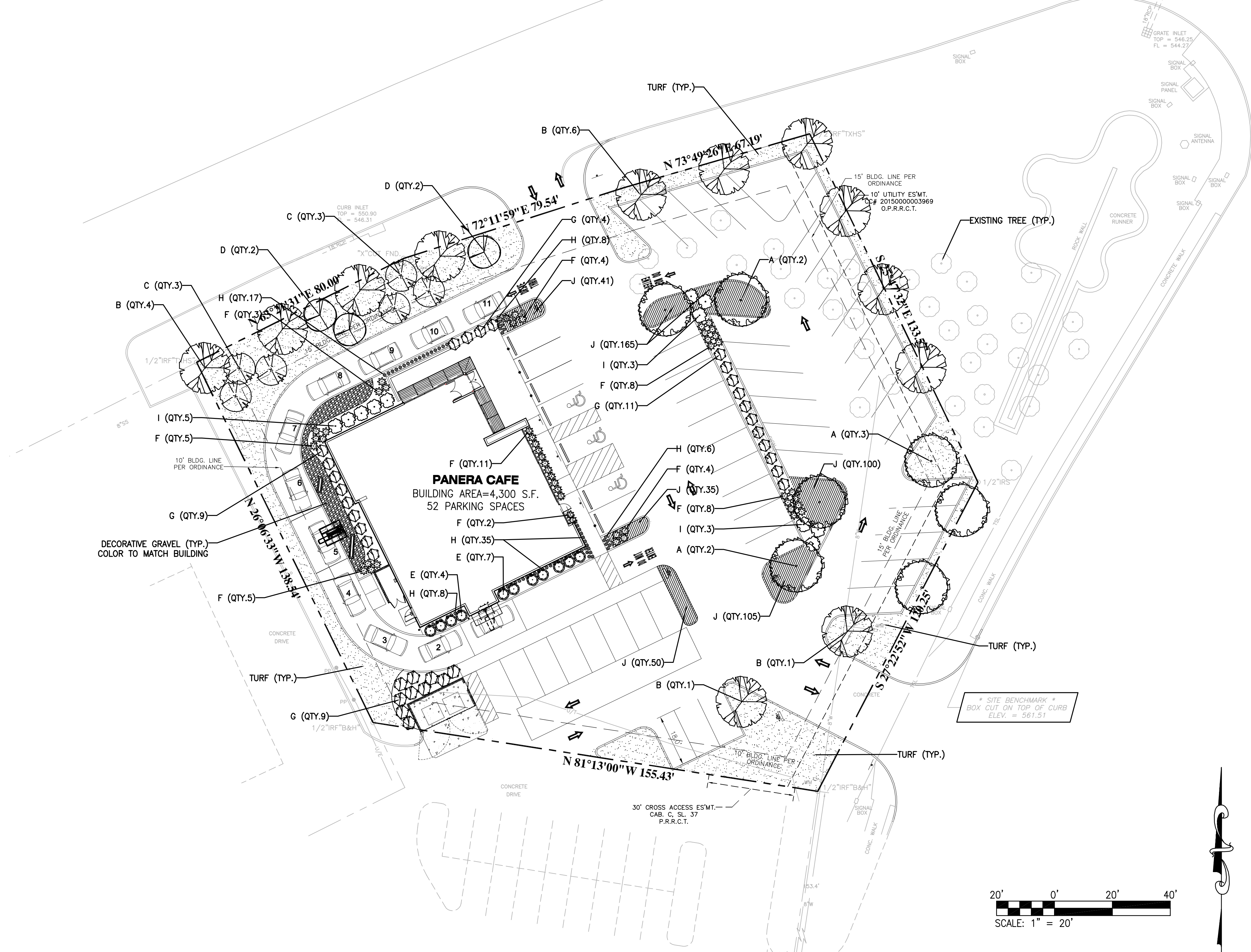PAINT TO MATCH STOREFRONT

SITE

LOCATION MAP
(NOT TO SCALE)

PERTINENT DATA

SITE ADDRESS	=	2804 RIDGE ROAD ROCKWALL, TX 75032
PROPERTY ID#	=	32128
SITE ACREAGE	=	0.93 ACRES/40,464 SF
BUILDING AREA	=	4,300 SF
IMPERVIOUS AREA	=	26,949 SF
PERVIOUS AREA	=	9,215 SF
DISTURBED LAND	=	0.93 ACRES/40,464 SF
EXISTING ZONING	=	C – COMMERCIAL IH–30 OV – I–30 OVERLAY DISTRICT SOV – SCENIC OVERLAY DISTRICT
PROPOSED ZONING	=	C – COMMERCIAL IH–30 OV – I–30 OVERLAY DISTRICT SOV – SCENIC OVERLAY DISTRICT
PROPOSED LAND USE	=	RESTAURANT 2,000 S.F. OR MORE WITH DRIVE–IN

SITE LANDSCAPING
CODE SEC. 5.12.A – AMOUNT OF LANDSCAPING

REQUIREMENT – 5.12.A.1 COMMERCIAL	CALCULATIONS – REQUIRED LANDSCAPE	PROPOSED LANDSCAPE
15% OF SITE AREA TO BE LANDSCAPED	SITE = 40,464 S.F. 40,464 X 15% = 6,069.6 S.F LANDSCAPE AREA REQUIRED	+/- 8,804 S.F LANDSCAPE AREA PROPOSED

REQUIREMENT – 5.12.B LOCATION OF LANDSCAPING	CALCULATIONS – REQUIRED LANDSCAPE	PROPOSED LANDSCAPE
NO LESS THAN 50% OF TOTAL REQ. SHALL BE LOCATED IN FRONT OF AND ALONG SIDE BUILDINGS	6,069.6 S.F TOTAL REQUIRED 6,069.6 X 50% = 3,034.8 S.F. REQUIRED	+/- 5,093 S.F LANDSCAPE AREA PROPOSED FRONT/SIDE

PARKING LOT LANDSCAPING
CODE SEC. 5.9 – PARKING LOT LANDSCAPING

REQUIREMENT – 5.9.B	CALCULATIONS – REQUIRED LANDSCAPE	PROPOSED LANDSCAPE
1 CANOPY TREE PER 10 P.S.	52 PROPOSED PARKING SPACES 52/10 = 5.2 = 6 TREES REQUIRED	6 TREES PROPOSED
5% OF TOTAL PARKING AREA TO BE LANDSCAPE	+/- 21,816 S.F. PARKING AREA 21,816 X 5% = 1,090.8 S.F. REQUIRED	+/- 2,441 S.F.

STREET FRONTAGE LANDSCAPING
IH 30 OVERLAY

REQUIREMENTS	CALCULATIONS – REQUIRED LANDSCAPE	PROPOSED LANDSCAPE
3 CANOPY TREES @ 4"CAL. EACH 4 ACCENT TREES @ 4' HT. MIN EACH PER 100 LINEAR FEET OF FRONTAGE	+/- 226 L.F. 226/100 = 2.26 2.26 X 3 = 7 CANOPY TREES REQUIRED 2.26 X 4 = 9 UNDERSTORY TREES REQUIRED	7 CANOPY TREES 9 UNDERSTORY TREES

RIDGE ROAD – 5.7 STREET LANDSCAPING

REQUIREMENTS	CALCULATIONS – REQUIRED LANDSCAPE	PROPOSED LANDSCAPE
1 CANOPY TREES FOR EVERY 50' OF STREET FRONTAGE EXCLUSIVE OF DRIVEWAYS	+/- 120.25 L.F. 120.25 – 26' DRIVEWAY = 94.25 L.F. 94.25/50 = 2 TREES REQUIRED	2 CANOPY TREES

TREE REPLACEMENT LANDSCAPING

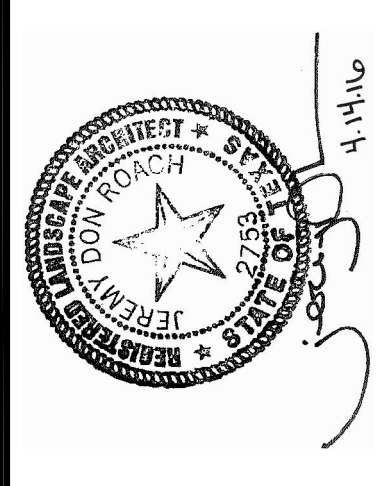| REQUIREMENTS	CALCULATIONS – REQUIRED LANDSCAPE	PROPOSED LANDSCAPE
* SEE NOTE BELOW	TREE #15 11" CEDER = 6" TO BE REPLACED TREE #16 10" PECAN = 10" TO BE REPLACED	4 (4") CALIPER TREES

*TREE REPLACEMENT REQUIREMENTS SECTION 6:

1. PROTECTED TREE(S) MEASURING FOUR INCHES THROUGH 29 INCHES DBH SHALL BE REPLACED WITH CALIPER INCHES EQUAL TO THE TOTAL DIAMETERS OF THE TREE(S) REMOVED.
2. HACKBERRY AND CEDAR TREES THAT ARE 11 INCHES DBH OR LARGER, SHALL BE REPLACED AT 50 PERCENT OF THE TOTAL CALIPER INCHES BEING REMOVED. IN ADDITION, HACKBERRY AND CEDAR TREES THAT ARE LESS THAN 11 INCHES DBH SHALL NOT BE CONSIDERED A PROTECTED TREE.

PLANT SCHEDULE

CODE	QTY.	GENUS	SPECIES	COMMON NAME	SIZE (CAL.)	COND.	COMMENTS
DECIDUOUS TREES							
A	8	QUERCUS	TEXANA	TEXAS RED OAK	4" MIN.	B&B	
B	12	QUERCUS	VIRGINIANA	LIVE OAK	4" MIN.	B&B	
C	6	CERCIS	CANADENSIS	EASTERN REDBUD	2" MIN.	B&B	
D	3	CRATAEGUS	MOLLIS	DOWNY HAWTHORN	2" MIN.	B&B	
SHRUBS/ORNAMENTAL GRASSES							
E	11	DASYLIRION	TEXANUM	TEXAS SOTOL	3–5 GAL.	CONT.	48" O.C.
F	20	HESPERALOE	PARVIFLORA	RED YUCCA	3–5 GAL.	CONT.	
G	34	MUHLENBERGIA	LINDHEIMERI	LINDHEIMER MUHLY	5 GAL.	CONT.	5' O.C.
H	74	BOUTELOUA	GRACILIS	BLUE GRAMA GRASS	1 GAL.	CONT.	18" O.C.
I	11	MISCANTHUS	SINENSIS	MAIDEN GRASS	3–5 GAL.	CONT.	
GROUNDCOVER							
J	496	LIRIOPE	MUSCARI 'ROYAL PURPLE'	LILY TURF	1 GAL. MIN.	CONT.	18" O.C.

GENERAL NOTES:

1. ALL EXISTING TREE LOCATIONS ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BEFORE WORK BEGINS.
2. LANDSCAPE CONTRACTOR TO VERIFY LOCATION OF UNDERGROUND UTILITIES BEFORE BEGINNING WORK.
3. ALL PLANT MATERIAL SHALL BE OF NO. 1 GRADE, FREE FROM PLANT DISEASE, OF TYPICAL GROWTH FOR THE SPECIES, HAVE A HEALTHY, NORMAL ROOT SYSTEM, ROUNDED BRANCHING PATTERN, AND SHALL CONFORM TO THE CODE OF STANDARDS SET FORTH IN THE CURRENT ADDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK.
4. ALL LANDSCAPE SUBSTITUTIONS MUST BE APPROVED BY THE LANDSCAPE ARCHITECT.
5. FORMAL LINES AND GROUPINGS OF A SPECIES OF TREE, SHRUB, GROUNDCOVER SHALL BE MATCHED FOR SIZE, FORM, AND COLOR.
6. ALL BACKFILL IN PLANTING BEDS AND TREE PITS SHALL BE BACKFILLED WITH PLANTING SOIL.
7. ALL TREES OUTSIDE OF PLANT BEDS SHALL BE PLANTED WITH A MULCH RING.
8. ALL LANDSCAPING SHALL BE INSTALLED AS SHOWN ON THE APPROVED PLAN.
9. AT PLANTING, TREE TRUNKS MUST BE STRAIGHT WITH MINIMAL DOGLEGS.
10. PLANTS SHALL BE PROTECTED DURING DELIVERY TO PREVENT DESICCATION OF LEAVES.
11. TREES AND SHRUBS SHOULD BE PLANTED ON DAY OF DELIVERY. IF THIS IS NOT POSSIBLE, THE CONTRACTOR SHALL PROTECT UNPLANTED PLANTS BY KEEPING THEM IN SHADE, WATERED AND PROTECTED WITH SOIL, MULCH OR OTHER ACCEPTABLE MATERIAL.
12. TREES AND SHRUBS SHALL NOT REMAIN UNPLANTED FOR MORE THAN TWO WEEKS.
13. IF PLANTING IN AREAS THAT HAVE BEEN PREVIOUSLY COMPACTED, THE SOIL SHALL BE PROPERLY PREPARED (TILLED AND AMENDED AS NEEDED BASED ON SOIL SAMPLES) TO A DEPTH OF 1 FOOT PRIOR TO INSTALLATION OF LANDSCAPE MATERIAL. SOIL WITHIN INDIVIDUAL PLANTING HOLES SHALL NOT BE AMENDED.
14. WIRE BASKETS, BURLAP WRAPPINGS, ROPE, TWINE OR ANY SIMILAR SHIPPING MATERIALS SHALL BE REMOVED BEFORE PLANTING.
15. ALL DISTURBED AREAS TO BE SODDED UNLESS OTHERWISE NOTED ON PLANS.
16. A SPADE CUT EDGE SHALL BE CREATED AT ALL LOCATIONS WHERE PLANTING BEDS ARE ADJACENT TO GRASS AREAS.
17. SEE CIVIL PLANS FOR TYPE AND LOCATION OF EROSION CONTROL MATERIALS.
18. DECORATIVE GRAVEL SHALL MATCH COLOR OF BUILDING UNLESS OTHERWISE NOTED BY OWNER.
19. THERE ARE NO PROTECTED TREES ONSITE.
20. TREES MUST BE PLANTED AT LEAST 5' FROM WATER,SEWER AND STORM SEWER LINES.
21. IRRIGATION WILL MEET REQUIREMENTS OF UDC.

PANERA CAFE
BUILDING AREA=4,300 S.F.
52 PARKING SPACES

SCALE: 1" = 20'

CITY CASE #

LOCATION MAP
(NOT TO SCALE)

SITE

PERTINENT DATA

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EXISTING ZONING	=	C – COMMERCIAL IH–30 OV – I–30 OVERLAY DISTRICT SOV – SCENIC OVERLAY DISTRICT
PROPOSED ZONING	=	C – COMMERCIAL IH–30 OV – I–30 OVERLAY DISTRICT SOV – SCENIC OVERLAY DISTRICT
PROPOSED LAND USE	=	RESTAURANT 2,000 S.F. OR MORE WITH DRIVE–IN

PANERA CAFE
BUILDING AREA=4,300 S.F.
52 PARKING SPACES

VARIABLE WIDTH R.O.W.

N 73°49'26" E 67.19'
N 72°11'59" E 79.54'
N 63°21'31" E 80.00'
N 26°00'33" W 138.54'
N 81°13'00" W 155.43'
S 25°47'12" E 133.57'
S 37°52'52" W 70.75'

15' BLDG. LINE PER ORDINANCE
10' UTILITY ESM'T.
2015000003969
O.P.R.R.C.T.

10' BLDG. LINE PER ORDINANCE

CONCRETE RUNNER

* SITE BENCHMARK *
BOX CUT ON TOP OF CURB
ELEV. = 561.51

SCALE: 1" = 20'

EXISTING TREE SUMMARY

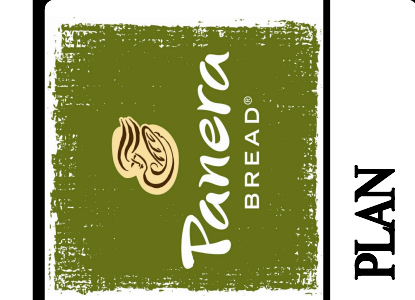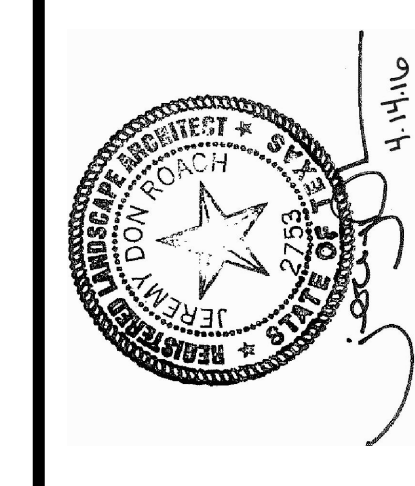| KEY	SPECIES	CONDITION	SIZE	REMAIN/REMOVE	REQUIRED CAL. INCH TO BE REPLACED
1	CEDAR	GOOD	10"	REMOVE	0"
2	CEDAR	GOOD	10"	REMOVE	0"
3	CEDAR	GOOD	10"	REMOVE	0"
4	CEDAR	GOOD	7"	REMOVE	0"
5	CEDAR	GOOD	9"	REMOVE	0"
6	CEDAR	GOOD	8"	REMOVE	0"
7	CEDAR	GOOD	7"	REMOVE	0"
8	CEDAR	GOOD	8"	REMOVE	0"
9	CEDAR	GOOD	6"	REMOVE	0"
10	CEDAR	GOOD	9"	REMOVE	0"
11	CEDAR	GOOD	7"	REMOVE	0"
12	CEDAR	GOOD	7"	REMOVE	0"
13	CEDAR	GOOD	6"	REMOVE	0"
14	CEDAR	GOOD	10"	REMOVE	0"
15	CEDAR	GOOD	11"	REMOVE	6"
16	PECAN	GOOD	10"	REMOVE	10"
17	CEDAR	GOOD	8"	REMOVE	0"

TREE REPLACEMENT REQUIREMENTS SECTION 6:

1. PROTECTED TREE(S) MEASURING FOUR INCHES THROUGH 29 INCHES DBH SHALL BE REPLACED WITH CALIPER INCHES EQUAL TO THE TOTAL DIAMETERS OF THE TREE(S) REMOVED.
2. HACKBERRY AND CEDAR TREES THAT ARE 11 INCHES DBH OR LARGER, SHALL BE REPLACED AT 50 PERCENT OF THE TOTAL CALIPER INCHES BEING REMOVED. IN ADDITION, HACKBERRY AND CEDAR TREES THAT ARE LESS THAN 11 INCHES DBH SHALL NOT BE CONSIDERED A PROTECTED TREE.
3. THERE ARE NO PROTECTED TREES LOCATED ON THE SITE.

Panera Café #1982

2804 RIDGE ROAD
ROCKWALL, TX 75032

TREESCAPE PLAN

DESIGN/CALC BY	JCH
DRAWN BY	JCH
CHECKED BY	JDR
DRAWING SCALE	AS SHOWN
DATE	04/15/2016
Job Number	15-0157
Sheet Number	L2.0

CITY CASE #

PANERA CAFE
BUILDING AREA=4,300 S.F.
52 PARKING SPACES
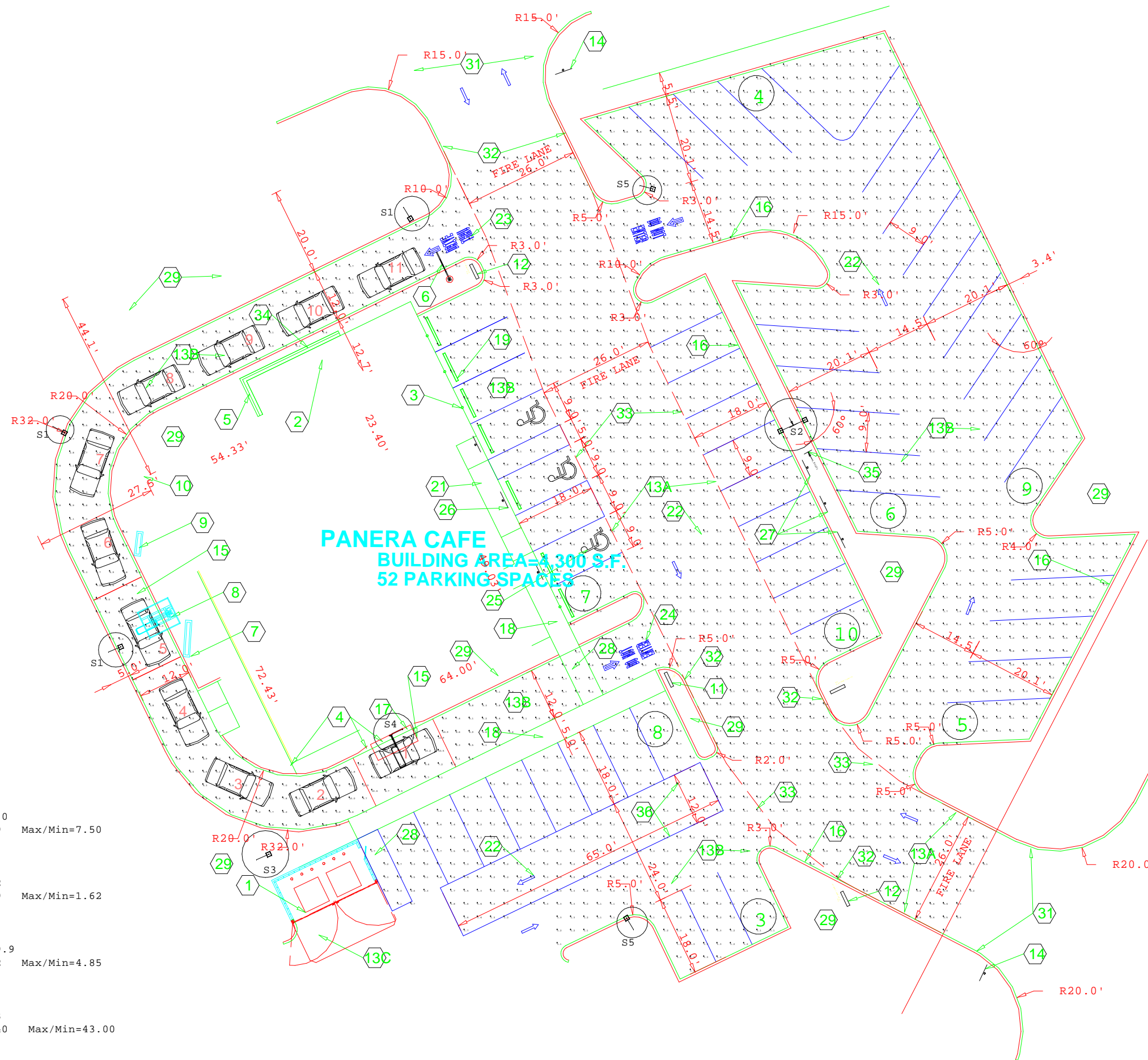
DRIVE-THRU LANE
Illuminance (Fc)
Average=4.14   Maximum=12.0
Minimum=1.6   Avg/Min=2.59   Max/Min=7.50

DRIVE-THRU MENU
Illuminance (Fc)
Average=3.10   Maximum=4.2
Minimum=2.6   Avg/Min=1.19   Max/Min=1.62

DRIVE-THRU WINDOW
Illuminance (Fc)
Average=11.97   Maximum=19.9
Minimum=4.1   Avg/Min=2.92   Max/Min=4.85

PARKING LOT
Illuminance (Fc)
Average=2.04   Maximum=4.3
Minimum=0.1   Avg/Min=20.40   Max/Min=43.00

Luminaire Schedule			
Symbol	Qty	Label	Description
	2	Type S5	ECF-5-215LA-641A-NW
	3	Type S1	ECF-3-215LA-641A-NW-IS
	1	Type S2	ECF-5-215LA-641A-NW
	1	Type S3	ECF-2-215LA-641A-NW
	1	Type S4	ECF-2-70LA-3270-NW

PHILIPS

GARDCO

Site & Area

EcoForm

EcoForm combines economy with performance in an LED area luminaire. Capable of delivering up to 20,000 lumens or more in a compact, low profile housing, EcoForm offers a new level of customer value. EcoForm features an innovative retrofit arm kit, simplifying site conversions to LED by eliminating the need to drill additional holes in most existing poles. Integral control systems, including motion response and wireless controls are available for further energy savings during off peak hours.

Ordering guide

example: ECF-APD-MRO-1-4-75LA-NW-120-NP-LF

Prefix	Controls	Mounting	Optics	LED Wattage	Color Temp	Voltage	Finish	Options
ECF –	–	–	–	–	–	–	–	
ECF EcoForm	**—** Standard luminaire (leave blank)	**1** Standard	**2** Type 2	**530 mA** **55LA-3253**[1] **75LA-4853** **100LA-6453**	**CW** Cool White 5,700 K 70 CRI (nominal)	**120** 120V	**BRP** Bronze Paint	**TL** Tool-Less entry and driver removal hardware
	DIM 0-10V Dimming	**2** 2@180	**3** Type 3			**208** 208V	**BLP** Black Paint	**TB**[3] Terminal Block
	APD[1] Auto Profile Dimming	**2@90** 2@90	**4** Type 4	**700mA** **70LA-3270** **105LA-4870** **135LA-6470**	**NW** Neutral White 4,000 K 70 CRI (nominal)	**240** 240V	**WP** White Paint	**IS**[6] Internal Shield
	APD-MRO[2] Auto Profile Dimming and Motion Response Override pole mounted motion sensor	**3** 3@90	**5** Type 5			**277** 277V	**NP** Natural Paint	**LF**[7] Line Fusing
		3@120 3@120		**1050mA**		**347** 347V	**OC** Optional Color Specify optional color or RAL (ex: OC-LGP or OC-RAL7024)	**LFC**[7] Line Fusing for Canada
	APD-MRI[2,3] APD with Motion Response Override luminaire sensor	**4** 4@90		**105LA-321A**[1] **160LA-481A** **215LA-641A**	**WW**[4] Warm White 3,000 K 70 CRI (nominal)	**480** 480V		**PC**[5,7,8] Receptacle with Photocell (Includes PCR5)
	MRI[2,3] Motion Response at 50% low luminaire sensor	**WS** Wall mount including surface conduit rear entry permitted				**UNV** 120-277V 50hz/60hz		**PCB**[5,7,8] Photocell Button
	MR50[2] Motion Response at 50% low, pole mounted sensor	**MA** Mast Arm Fitter (requires 2-3/8" O.D. Mast Arm)				**HVU** 347-480V 50hz/60hz	**SC** Special color Specify, must supply color chip. Requires factory quote.	**PCR5**[5,11,13] Photocell Receptacle only with 2 dimming connections
	LimeLight Wireless Controls							**PCR7**[5,12,13] Photocell Receptacle only with 2 dimming and 2 auxiliary connections
	LLC2[1,5] #2 lens for 8-15' mounted heights							**RAM** Retrofit Arm Mount kit
	LLC3[1,5] #3 lens for 15-25' mounted heights							**PTF2**[9] Pole Top Fitter for 2³/₈"- 3" Tenon
	LLC4[1,5] #4 lens for 25-40' mounted heights							**PTF3**[9] Pole Top Fitter for 3"- 3¹/₂" Tenon
								PTF4[9] Pole Top Fitter for 3¹/₂"- 4" Tenon
								RPA[10] Round Pole Adapter for 3"- 3.9" O.D.
								BD Bird Deterrent (field installed only)

1. Available in 120V–277V Voltages only (UNV, 120, 208, 240 & 277).
2. MR50 and APD-MRO luminaires require one motion sensor per pole, ordered separately. See page 2 for Accessories. Available in 120V or 277V only.
3. ECF-MRI requires outboarded sensor when used with Terminal Block (TB) Option.
4. Contact factory for lead times on warm white.
5. LLC2/LLC3/LLC4 Wireless Controls are not configurable with PC/PCB/PCR5/PCR7 Options. See page 7–8 for more info.
6. Not configurable with Type 5 (5) Optics.
7. Not configurable with 120–277V (UNV) Voltage. Voltage must be specified.
8. Not configurable with 480V (480) Voltage.
9. Not configurable with 3@120 (3@120) Mounting.
10. No adaptor required for 4" round poles. RPAs provided with Black Paint standard.
11. Works with 3-pin or 5-pin NEMA photocell/dimming device.
12. Works with 3-pin or 5-pin NEMA photocell/dimming device and auxiliary connections are not connected (for future use only).
13. If ordered with DIM, APD, MRI, MR50, APD-MRI, APD-MRO, dimming will not be connected to NEMA receptacle.

ECF EcoForm

Site & Area

EcoForm Accessories (order separately)

FS1R-100

MR hand held programmer

For use with 'MRI' motion response when field programming is required. If desired, only one is needed per job.

MS-A-120V
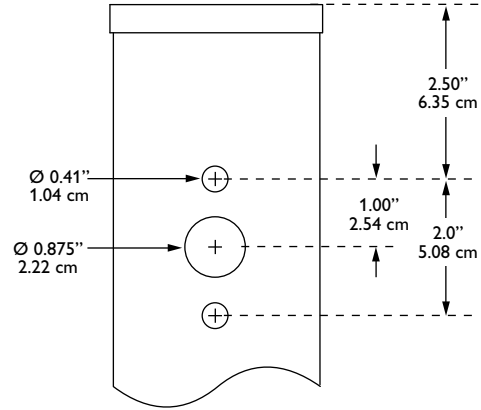
120V Input Area Motion Sensor

For MR50 (Motion Response) or APD–MRO (Automatic Profile Dimming with Motion Response Override)

MS-A-277V

277V Input Area Motion Sensor

For MR50 (Motion Response) or APD–MRO (Automatic Profile Dimming with Motion Response Override)

Note: Motion Sensors are ordered separately, with one (1) motion sensor required per pole location for MR50 or APD–MRO luminaires. See Luminaire Configuration Information on page 5 for more details. Area motion sensor color is Arctic White. MRI and APD–MRI luminaires include an integral motion sensor.

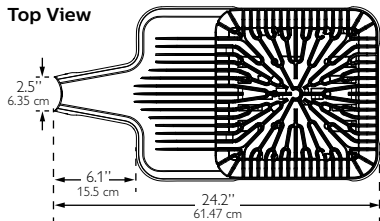### EcoForm Drill Template (standard arm mount)

Ø 0.41"
1.04 cm

Ø 0.875"
2.22 cm

2.50"
6.35 cm

1.00"
2.54 cm

2.0"
5.08 cm

LED Wattage and Lumen Values (standard EcoForm luminaire)

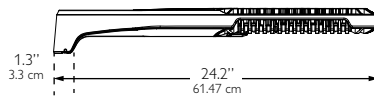| Order Code (standard units)	Array Quantity	Total LEDs	LED Current (mA)	Average System Watts[1]	LED Selection	Initial Lumens[2] 2 Type 2	3 Type 3	4 Type 4	5 Type 5
55LA–3253	2	32	530	52	NW	5,994 (s)	5,895 (s)	5,823 (s)	5,588 (s)
75LA–4853	3	48	530	77	NW	8,899 (s)	8,753 (s)	8,646 (s)	8,297 (s)
100LA–6453	4	64	530	103	NW	11,896 (s)	11,700	11,558	11,091
70LA–3270	2	32	700	69	NW	7,385 (s)	7,576 (s)	7,293 (s)	7,068 (s)
105LA–4870	3	48	700	104	NW	10,965 (s)	11,249 (s)	10,828 (s)	10,494 (s)
135LA–6470	4	64	700	139	NW	14,657 (s)	15,037	14,475 (s)	14,028
105LA–321A	2	32	1050	107	NW	10,199 (s)	10,458	10,072 (s)	9,767
160LA–481A	3	48	1050	158	NW	15,144 (s)	15,565	14,955 (s)	14,465
215LA–641A	4	64	1050	211	NW	20,243	20,252	19,991	19,880

1. System input wattage may vary based on input voltage, by up to +/- 10% , and based on manufacturer forward voltage, by up to +/- 8%.
2. Lumen values based on photometric tests performed in compliance with IESNA LM-79.
(s). Data is scaled based on tests of similar, but not identical, luminaires.
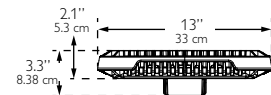
Dimensions — Standard EcoForm luminaire

Top View

2.5"
6.35 cm

6.1"
15.5 cm

24.2"
61.47 cm

Side View

1.3"
3.3 cm

24.2"
61.47 cm

EPA (ft²/m²)

Single	Twin (2@180)	3/4@90
0.2 / 0.019	0.5 / 0.046	0.5 / 0.046

End View

2.1"
5.3 cm

13"
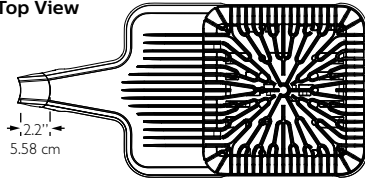33 cm

3.3"
8.38 cm

Approximate Luminaire Weight:
20 Lbs (9.07 Kg)

ECF EcoForm

Site & Area

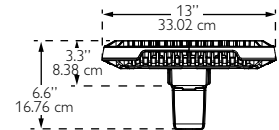---

Dimensions — EcoForm with Retrofit Arm Mount (RAM)

Top View

2.2''
5.58 cm

Side View

26''
66.04 cm

23.8''
60.45 cm

6.6''
16.76 cm

EPA (ft²/m²)

Single	Twin (2@180)	3/4@90
0.3 / 0.028	0.6 / 0.056	0.7 / 0.065

End View

13''
33.02 cm

3.3''
8.38 cm

6.6''
16.76 cm

Approximate Luminaire Weight:
21 Lbs (9.53 Kg)

Dimensions — EcoForm with Mast Arm Fitter (MA)

Top View

2.9''
7.4 cm

13.4''
34.04 cm

31.5''
80.01 cm

Side View

3.3''
8.4 cm

7.7''
19.56 cm

31.5''
80.01 cm

EPA (ft²/m²)

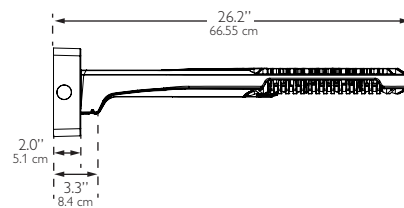| Single |
|--------|
| 0.51 / 0.047 |

End View

2.1''
5.3 cm

13''
33 cm

3.3''
8.38 cm

Approximate Luminaire Weight:
21.5 Lbs (9.77 Kg)

Dimensions — EcoForm with Wall Mount (WS)

Top View

6.5''
16.5 cm

8.1''
20.57 cm

26.2''
66.55 cm

Side View

26.2''
66.55 cm

2.0''
5.1 cm

3.3''
8.4 cm

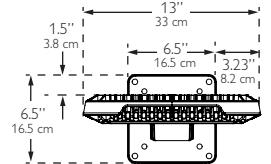**End View**
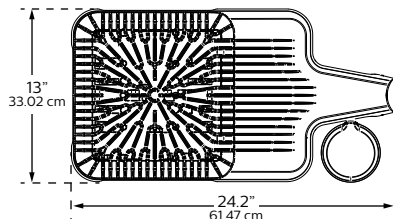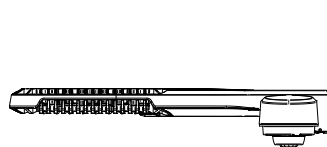
13''
33 cm

1.5''
3.8 cm

6.5''
16.5 cm

3.23''
8.2 cm

6.5''
16.5 cm

Approximate Luminaire Weight:
23.36 Lbs (10.6 Kg)

Dimensions — EcoForm with LimeLight Luminaire mounted controller

Top View

13''
33.02 cm

24.2''
61.47 cm

Side View

End View

2.1''
5.33 cm

3.3''
8.38 cm

4.4''
11.18 cm
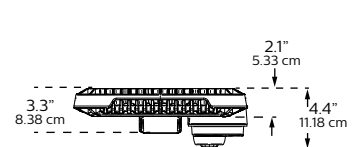
ECF EcoForm

Site & Area

Luminaire Configuration Information

ECF

Philips Gardco EcoForm LED standard luminaire providing constant wattage and constant light output when power to the luminaire is energized.

ECF–DIM

Philips Gardco EcoForm LED luminaire provided with 0–10V dimming for connection to a control system provided by others.

ECF–APD

Philips Gardco EcoForm LED luminaire with Automatic Profile Dimming. Luminaire is provided with a Philips DynaDimmer module, programmed to go to 50% power, 50% light output two (2) hours prior to night time mid–point and remain at 50% for six (6) hours after night time mid–point. Mid–point is continuously recalculated by the Philips DynaDimmer module based on the average mid–point of the last two full night cycles. Short duration cycles, and power interruptions are ignored and do not affect the determination of mid–point.

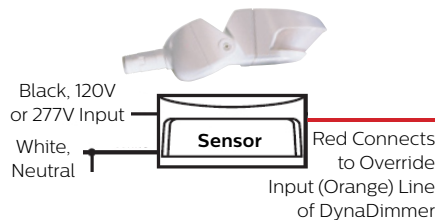ECF–APD is available in 120V–277V input only.

ECF–APD Dimming Profile:

100%	2 hours	6 hours	100%
	50%	50%	
Power On		Mid Point	Power Off

ECF–MR50

Philips Gardco EcoForm LED luminaire with motion response, providing a 50% power reduction on low and a commensurate reduction in light output. The power and light output reduction is accomplished utilizing the Philips DynaDimmer module, programmed for a constant 50% power. Power supplied by the motion sensor connected to the override line on the DynaDimmer takes the luminaire to high setting, 100% power and light output, when motion is detected. The luminaire remains on high until no motion is detected for the motion sensor duration period, after which the luminaire returns to low. Duration period is factory set at 15 minutes, and is field adjustable from 5 minutes up to 15 minutes.
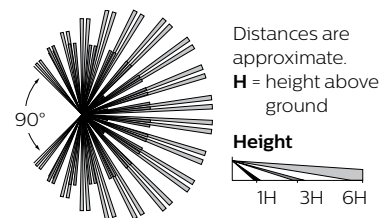
ECF–MR50 is available in 120V–277V input only to the luminaire. Motion sensors require single voltage 120V or 277V input.

The Area PIR motion sensor is the WattStopper EW–200–120–W (120V Input – MSA–120V) or the WattStopper EW–200–277–W (277V Input – MSA–277V.) One motion sensor per pole is required and is ordered separately. Area sensors require single voltage 120V or 277V input.
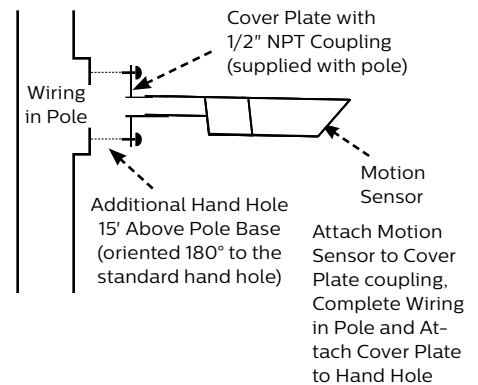

Black, 120V or 277V Input — White, Neutral — **Sensor** — Red Connects to Override Input (Orange) Line of DynaDimmer

The area motion detector provides coverage equal to up to 6 times the sensor height above ground, 270° from the front-center of the sensor.

Area PIR Motion Sensor Coverage Pattern:

Distances are approximate.
H = height above ground

Height

1H   3H   6H

Motion response requires that the pole include an additional hand hole 15 feet above the pole base, normally oriented 180° to the standard hand hole. For Philips Gardco poles, order the pole with the Motion Sensor Mounting (MSM) option which includes the hand hole and a special hand hole cover plate for the sensor with a 1/2" NPT receptacle centered on the hand hole cover plate into which the motion sensor mounts. Once the motion sensor is connected to the hand hole cover plate, then wiring connections are completed in the pole. The plate (complete with motion sensor attached and wired) is then mounted to the hand hole. If poles are supplied by others, the customer is responsible for providing suitable mounting accommodations for the motion sensor in the pole.

Mounting to a Philips Gardco Pole:

Cover Plate with 1/2" NPT Coupling (supplied with pole)

Wiring in Pole

Motion Sensor

Additional Hand Hole 15' Above Pole Base (oriented 180° to the standard hand hole)

Attach Motion Sensor to Cover Plate coupling, Complete Wiring in Pole and Attach Cover Plate to Hand Hole

ECF–APD–MRO

Philips Gardco EcoForm LED luminaire with Automatic Profile Dimming, with Motion Response Override. The ECF–APD–MRO combines the benefits of both automatic profile dimming and motion response, using the Philips DynaDimmer module. The luminaire will dim to 50% power, 50% light output, per the dimming profile shown for the ECF–APD. If motion is detected during the time that the luminaire is operating at 50%, the luminaire returns to 100% power and light output. The luminaire remains on high until no motion is detected for the duration period, after which the luminaire returns to low. Duration period is factory set at 15 minutes, and is field adjustable from 5 minutes up to 15 minutes.

Notes:

ECF–APD–MRO is available in 120V through 277V input only to luminaire. The motion sensor requires either 120V or 277V input to the motion sensor.

The ECF–APD–MRO has the same pole requirements and utilizes the same motion sensors as the ECF–MR50. The motion sensor mounts and wires identically as well. The ECF–APD–MRO utilizes the identical dimming profile as shown for the ECF–APD.

By combining the benefits of automatic profile dimming and motion response, the ECF–APD–MRO assures maximum energy savings, and insures that adequate light is present if motion is detected.

All motion sensors utilized consume 0.0 watts in the off state.

ECF EcoForm

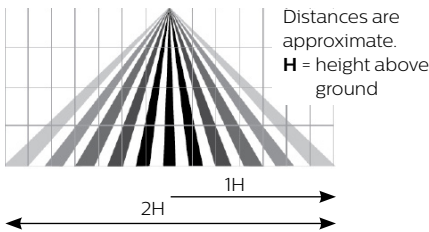## Site & Area

Luminaire Configuration Information (Continued)

ECF–MRI

Luminaires with Motion Response include a LED driver and an integral programmable motion sensor. The motion sensor is set to a constant 50%. When motion is detected, the luminaire goes to 100%. The luminaire remains on high until no motion is detected for the motion sensor duration period, after which the luminaire returns to low. Duration period is factory set at 5 minutes. Available with 120V or 277V only.
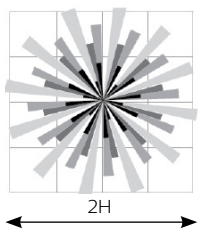
Luminaires include a passive infrared (PIR) motion sensor, WattStopper® FSP-211 equipped with an FSP–L3 lens, capable of detecting motion within 20 feet of the sensor, 180° around the luminaire, when placed at a 20 foot mounting height, or mounted on a wall. Available in 120V or 277V input only. Motion sensor off state power is 0.0 watts.

The approximate motion sensor coverage pattern is as shown below.

Side Coverage Pattern

Distances are approximate.
H = height above ground

1H

2H

Top Coverage Pattern

2H

ECF–APD–MRI

Luminaires with Automatic Profile Dimming and Motion Response Override combine the benefits of both automatic profile dimming and motion response. APD-MRI luminaires utilize Philips DynaDimmer. The luminaire will dim to 50% power, 50% light output, per the dimming profile shown for APD luminaires (see page 4). If motion is detected during the time that the luminaire is operating at 50%, the luminaire goes to 100% power and light output. The luminaire remains on high until no motion is detected for the duration period, after which the luminaire returns to low. Duration period is factory set at 5 minutes.

APD-MRI luminaires are available with 120V or 277V input voltages only.

APD-MRI luminaires use the identical motion sensor as MRI luminaires. See motion sensor details for ECF–MRI.

FS1R-100 Wireless Remote Programming Tool

The FS1R-100 Remote Programming Tool accessory permits adjustment of ECF-MRI and ECF-APD-MRI sensor settings, including duration and dimming level on low, without the need to connect any wires to the luminaire.
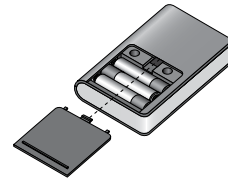
The FS1R-100 Wireless IR Programming Tool is a handheld tool for setup and testing of WattStopper FSP-211. It provides wireless access to the FSP-211 sensors for setup and parameter changes.

The FS1R-100 display shows menus and prompts to lead you through each process. The navigation pad provides a familiar way to navigate through the customization fields.

Within a certain mounting height of the sensor, the FS1R-100 allows modification of the system without requiring ladders or tools simply with a touch of a few buttons.
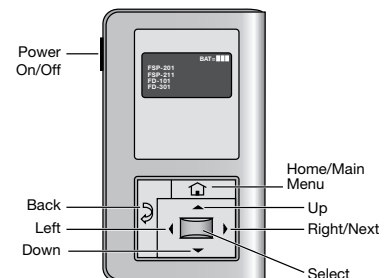
The FS1R-100 IR transceiver allows bi-directional communication between the FSP-211 and the FS1R-100 programming tool . Simple menu screens let you see the current status of the system and make changes. It can change FSP-211 sensor parameters such as high/low mode, sensitivity, time delay, cut off and more. With the FS1R-100 you can also establish and store FSP-211 parameter profiles.

The FS1R-100 operates on three standard 1.5V AAA Alkaline batteries or three rechargeable AAA NiMH batteries. The battery status displays in the upper right corner of the display. Three bars next to BAT= indicates a full battery charge. A warning appears on the display when the battery level falls below a minimum acceptable level. To conserve battery power, the FS1R-100 automatically shuts off 10 minutes after the last key press.

You navigate from one field to another using (up) or (down) arrow keys. The active field is indicated by flashing (alternates between yellow text on black background and black text on yellow background.)

Once active, use the Select button to move to a menu or function within the active field. Value fields are used to adjust parameter settings. They are shown in "less-than/greater-than" symbols: <value>. Once active, change them using (left) and (right) arrow keys. In general the up key increments and the down key decrements a value. Selections wrap–around if you continue to press the key beyond maximum or minimum values. Moving away from the value field overwrites the original value. The Home button takes you to the main menu. The Back button can be thought of as an undo function. It takes you back one screen. Changes that were in process prior to pressing the key are lost.More information on the FS1R-100 Remote Programming Tool is available at wattstopper.com.

Power On/Off

Home/Main Menu

Back
Left
Down

Up
Right/Next
Select

BAT=

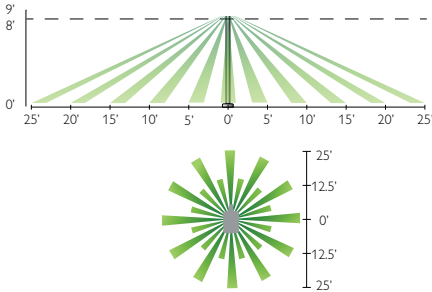FSP-201
FSP-211
FD-101
FD-301

ECF EcoForm

Site & Area

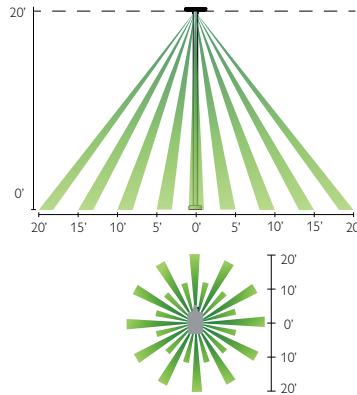## Luminaire Configuration Information — EcoForm with LimeLight

ECF–LLC2

EcoForm with Limelight wireless technology

Controller pod attached to luminaire arm and includes radio, photocell and motion sensor with #2 lens for 8–15' mounting heights.
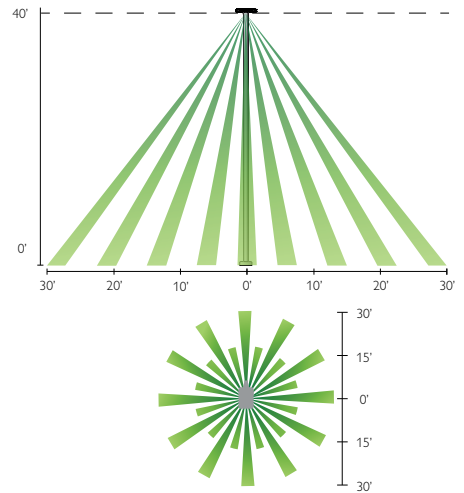
ECF–LLC3

EcoForm with Limelight wireless technology

Controller pod attached to luminaire arm and includes radio, photocell and motion sensor with #3 lens for 15–25' mounting heights.
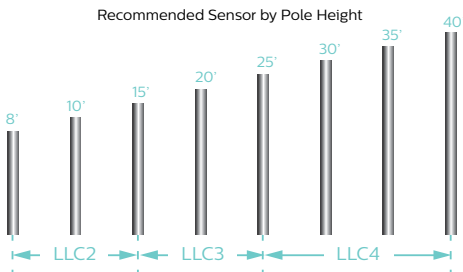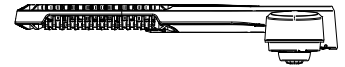
ECF–LLC4

EcoForm with Limelight wireless technology

Controller pod attached to luminaire arm and includes radio, photocell and motion sensor with #4 lens for 25–40' mounting heights.
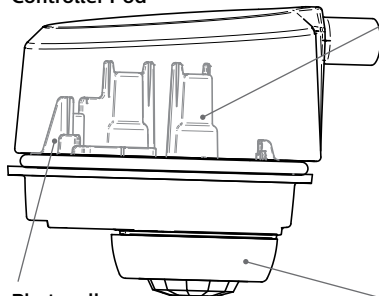

Luminaire Configuration Information — EcoForm with LimeLight

ECF–LLC(#)

With this configuration, the controller pod is mounted to the luminaire arm. One controller is required per luminaire. There are three different motion sensor configurations available. Each one corresponds to the desired mounting height that for your specific application. See motion response detection ranges below.

Recommended Sensor by Pole Height

8' 10' 15' 20' 25' 30' 35' 40'

LLC2   LLC3   LLC4

Controller Pod

Photocell

– Ambient light photocell on every wireless radio that averages the light levels of up to 5 controllers for an accurate reading and optimal light harvesting activity.
– Reports ambient light readings to 1500 Fc.

Wireless Radio

– 1.8 Watts max (no load draw)
– Operating voltage 102–277V RMS
– Communicates using the ZigBee protocol
– Carries out dimming commands from gateway
– Reports internal PCB temperature
– Transmission Systems Operating within the band 2400–2483.5Mhz. IEEE 802.15.4
– ROHS Compliant

Motion Response

– Three different lens configurations
– Detects motion through passive InfraRed sensing technology
– Connects directly to radio through modular jack
– Three different mounting heights and detecion ranges available

ECF EcoForm

Site & Area

Luminaire Configuration Information – EcoForm with LimeLight (Continued)
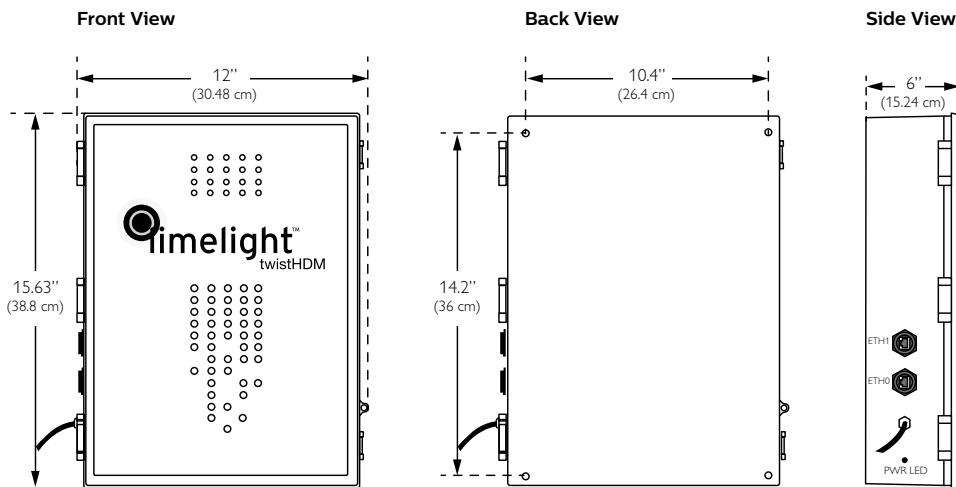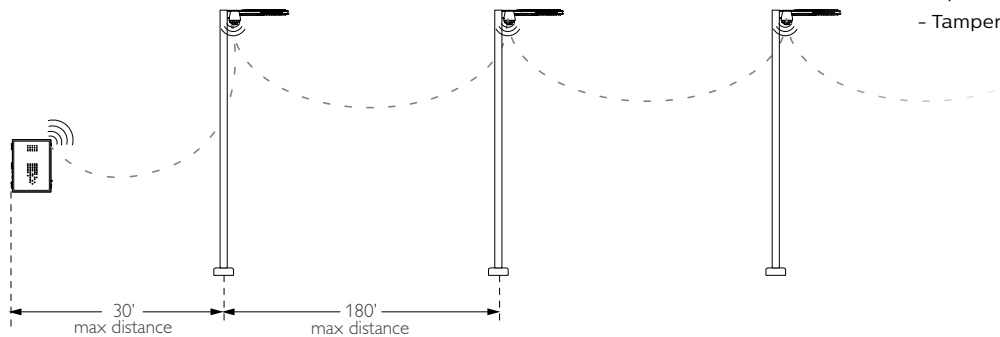
Gateway

Overview: One gateway is included with the wireless controls system. The gateway opens up communication with the wireless radios installed with the EcoForm luminaires (or pole), allowing you to control your fixtures straight from the web. One LimeLight gateway can communicate with up to 800 fixtures. Typically one unit is required per parking lot.

Installation: Gateway has 4 blind threaded holes on the back side that accept 10-32 screws. Mount spacing is 10.41" across and 14.19" vertical.

Requirements: The gateway must be mounted in a secure on-site location. The gateway requires 120V. Distance of gateway to the first radio varies upon application; contact factory. Strong internet connection required.

Specifications:
- High density RF Mesh coordinator
- Ethernet or wireless internet connection to LimeLight server
- Proprietor of software "rules of operation"
- Watertight Ethernet connections
- Highly protected, long life ac/dc power supply
- Single board, ARM compliant 520Mhz Intel computer.
- Operating Temperature –20°C to 55°C
- Tamper proof housing

30'
max distance

180'
max distance

Front View

12"
(30.48 cm)

15.63"
(38.8 cm)

limelight™
twistHDM

Back View

10.4"
(26.4 cm)

14.2"
(36 cm)

Side View

6"
(15.24 cm)

ETH1

ETH0

PWR LED

ECF EcoForm

Site & Area

Specifications

Housing

One piece die cast aluminum housing with integral arm and separate,self retained hinged, one piece die cast door frame.

IP Rating

LED light engine rated IP66.

Vibration Resistance

EcoForm with Standard Arm carries a 3G vibration rating that conforms to standards set forth by ANSI C136.31. Testing includes vibration to 3G acceleration in three axes, all performed on the same luminaire.

Electrical

Driver efficiency (>90% standard). 120–480V available (restrictions apply). Open/short circuit protection. Optional 0-10V dimming to 10% power. RoHS compliant. Surge protector standard. 10KA per ANSI/IEEE C62.41.2.

LED Board and Array

32, 48, or 64 LEDs. Color temperatures: 3000K, 4000K, 5700K +/- 250K. Minimum CRI of 70. Aluminum metal clad board. RoHS compliant.

LED Thermal Management

The housing design allows the one piece housing to provide excellent thermal management critical to long LED system life.

Energy Saving Benefits

System efficacy up to 95 lms/W with significant energy savings over Pulse Start Metal Halide luminaires. Optional control options provide added energy savings during unoccupied periods.

LED Performance

Wireless Controls

The LimeLight wireless Controls System includes: gateway, controller pod (with wireless radio, motion response, and photocell), and commissioning/training. LimeLight is an intelligent web-based system that operates through a high density mesh (HDM) wireless technology. Wireless radios with motion response and photocell sensors are integrated with PureForm luminaires, and enable the fixtures to communicate via the ZigBee protocol. The gateway is a mini computer that connects to the internet, and is located in a secure location. The central LimeLight database channels communication to and from the gateway, allowing data to be viewed or managed through the web-based graphical user interface (GUI). See LimeLight pages for details and technical information.

Motion Sensors

ECF-MR50, ECF-APD-MRO, ECF-MRI, ECF-APD-MRI luminaires may be specified for additional energy savings during unoccupied periods. See pages 4-6 for complete details.
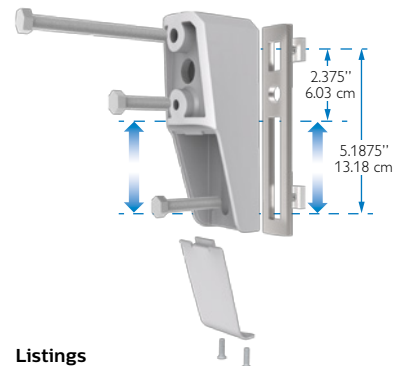
Optical Systems

Type 2, 3, 4, and 5 distributions available. Internal Shield option mounts to LED optics and is available with Type 2, 3, and 4 distributions to control backlight.

Mounting

Standard luminaire arm mounts to 4" round poles. Square pole adapter included with every luminaire. Round Pole Adapter (RPA) required for 3-3.9" poles.

Retrofit Arm Mount

EcoForm features an innovative retrofit arm kit. When specified with the retrofit arm (RAM) option, EcoForm seamlessly simplifies site conversions to LED by eliminating the need for additional pole drilling on most existing poles. RAM will be boxed separately.

2.375''
6.03 cm

5.1875''
13.18 cm

Listings

ETL/cETL listed to the UL 1598 standard, suitable for Wet Locations. Suitable for use in ambients from -40° to 40°C (-40° to 104°F). The quality systems of this facility have been registered by UL to the ISO 9001 series standards. All EcoForm luminaires equipped with NW and CW are DesignLights Consortium® qualified.

Finish

Each standard color luminaire receives a fade and abrasion resistant, electrostatically applied, thermally cured, triglycidal isocyanurate (TGIC) textured polyester powdercoat finish. Standard colors include bronze (BRP), black (BLP), white (WP), and natural aluminum (NP). Consult factory for specs on optional or custom colors.

Warranty

EcoForm luminaires feature a 5 year limited warranty. Philips Gardco LED luminaires with LED arrays feature a 5 year limited warranty covering the LED arrays. LED Drivers also carry a 5 year limited warranty. Motion sensors are covered by warranty for 5 years by the motion sensor manufacturer.

Predicted Lumen Depreciation Data[1]				
Ambient Temperature °C	Driver (mA)	Calculated L_{70} Hours[1,2]	L_{70} Per TM-21[2,3]	Lumen Maintenance % @ 60,000 hours
Up to 40 °C	Up to 1050 mA	> 350,000 hours	> 60,000 hours	97%

1. Predicted performance derived from LED manufacturer's data and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions.
2. L70 is the predicted time when LED performance depreciates to 70% of initial lumen output.
3. Calculated per IESNA TM21-11. Published L70 hours limited to 6 times actual LED test hours.

PHILIPS

PHILIPS

GARDCO

Site & Area

EcoForm

EcoForm combines economy with performance in an LED area luminaire. Capable of delivering up to 20,000 lumens or more in a compact, low profile housing, EcoForm offers a new level of customer value. EcoForm features an innovative retrofit arm kit, simplifying site conversions to LED by eliminating the need to drill additional holes in most existing poles. Integral control systems, including motion response and wireless controls are available for further energy savings during off peak hours.

Ordering guide

example: ECF-APD-MRO-1-4-75LA-NW-120-NP-LF

Prefix	Controls	Mounting	Optics	LED Wattage	Color Temp	Voltage	Finish	Options
ECF –		–		–		–		–		–		–		–	

Prefix	Controls	Mounting	Optics	LED Wattage	Color Temp	Voltage	Finish	Options
ECF EcoForm	**—** Standard luminaire (leave blank)	**1** Standard	**2** Type 2	**530 mA** 55LA-3253[1] 75LA-4853 100LA-6453	**CW** Cool White 5,700 K 70 CRI (nominal)	**120** 120V	**BRP** Bronze Paint	**TL** Tool-Less entry and driver removal hardware
	DIM 0-10V Dimming	**2** 2@180	**3** Type 3			**208** 208V	**BLP** Black Paint	**TB**[3] Terminal Block
	APD[1] Auto Profile Dimming	**2@90** 2@90	**4** Type 4	**700mA** 70LA-3270 105LA-4870 135LA-6470	**NW** Neutral White 4,000 K 70 CRI (nominal)	**240** 240V	**WP** White Paint	**IS**[6] Internal Shield
	APD-MRO[2] Auto Profile Dimming and Motion Response Override pole mounted motion sensor	**3** 3@90	**5** Type 5			**277** 277V	**NP** Natural Paint	**LF**[7] Line Fusing
		3@120 3@120		**1050mA** 105LA-321A[1] 160LA-481A 215LA-641A	**WW**[4] Warm White 3,000 K 70 CRI (nominal)	**347** 347V	**OC** Optional Color Specify optional color or RAL (ex: OC-LGP or OC-RAL7024)	**LFC**[7] Line Fusing for Canada
	APD-MRI[2,3] APD with Motion Response Override luminaire sensor	**4** 4@90				**480** 480V		**PC**[5,7,8] Receptacle with Photocell (Includes PCR5)
	MRI[2,3] Motion Response at 50% low luminaire sensor	**WS** Wall mount including surface conduit rear entry permitted				**UNV** 120-277V 50hz/60hz		**PCB**[5,7,8] Photocell Button
	MR50[2] Motion Response at 50% low, pole mounted sensor	**MA** Mast Arm Fitter (requires 2-3/8" O.D. Mast Arm)				**HVU** 347-480V 50hz/60hz	**SC** Special color Specify, must supply color chip. Requires factory quote.	**PCR5**[5,11,13] Photocell Receptacle only with 2 dimming connections
	LimeLight Wireless Controls							**PCR7**[5,12,13] Photocell Receptacle only with 2 dimming and 2 auxiliary connections
	LLC2[1,5] #2 lens for 8-15' mounted heights							**RAM** Retrofit Arm Mount kit
	LLC3[1,5] #3 lens for 15-25' mounted heights							**PTF2**[9] Pole Top Fitter for 2 3/8"– 3" Tenon
	LLC4[1,5] #4 lens for 25-40' mounted heights							**PTF3**[9] Pole Top Fitter for 3"– 3 1/2" Tenon
								PTF4[9] Pole Top Fitter for 3 1/2"– 4" Tenon
								RPA[10] Round Pole Adapter for 3"– 3.9" O.D.
								BD Bird Deterrent (field installed only)

1. Available in 120V–277V Voltages only (UNV, 120, 208, 240 & 277).
2. MR50 and APD-MRO luminaires require one motion sensor per pole, ordered separately. See page 2 for Accessories. Available in 120V or 277V only.
3. ECF-MRI requires outboarded sensor when used with Terminal Block (TB) Option.
4. Contact factory for lead times on warm white.
5. LLC2/LLC3/LLC4 Wireless Controls are not configurable with PC/PCB/PCR5/PCR7 Options. See page 7–8 for more info.
6. Not configurable with Type 5 (5) Optics.
7. Not configurable with 120–277V (UNV) Voltage. Voltage must be specified.
8. Not configurable with 480V (480) Voltage.
9. Not configurable with 3@120 (3@120) Mounting.
10. No adaptor required for 4" round poles. RPAs provided with Black Paint standard.
11. Works with 3-pin or 5-pin NEMA photocell/dimming device.
12. Works with 3-pin or 5-pin NEMA photocell/dimming device and auxiliary connections are not connected (for future use only).
13. If ordered with DIM, APD, MRI, MR50, APD-MRI, APD-MRO, dimming will not be connected to NEMA receptacle.

ECF EcoForm

Site & Area

EcoForm Accessories (order separately)

FS1R-100

MR hand held programmer

For use with 'MRI' motion response when field programming is required. If desired, only one is needed per job.
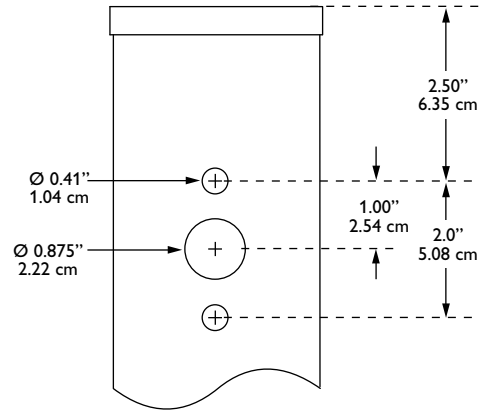
MS–A–120V

120V Input Area Motion Sensor

For MR50 (Motion Response) or APD–MRO (Automatic Profile Dimming with Motion Response Override)

MS–A–277V

277V Input Area Motion Sensor

For MR50 (Motion Response) or APD–MRO (Automatic Profile Dimming with Motion Response Override)

Note: Motion Sensors are ordered separately, with one (1) motion sensor required per pole location for MR50 or APD–MRO luminaires. See Luminaire Configuration Information on page 5 for more details. Area motion sensor color is Arctic White. MRI and APD–MRI luminaires include an integral motion sensor.

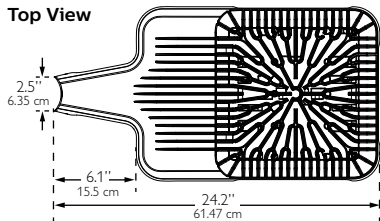### EcoForm Drill Template (standard arm mount)

Ø 0.41" 1.04 cm
Ø 0.875" 2.22 cm
2.50" 6.35 cm
1.00" 2.54 cm
2.0" 5.08 cm

LED Wattage and Lumen Values (standard EcoForm luminaire)

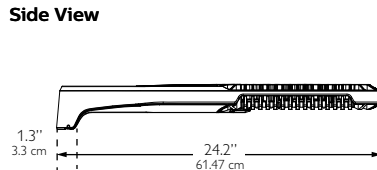| Order Code (standard units)	Array Quantity	Total LEDs	LED Current (mA)	Average System Watts[1]	LED Selection	Initial Lumens[2]			
						2 Type 2	3 Type 3	4 Type 4	5 Type 5
55LA–3253	2	32	530	52	NW	5,994 (s)	5,895 (s)	5,823 (s)	5,588 (s)
75LA–4853	3	48	530	77	NW	8,899 (s)	8,753 (s)	8,646 (s)	8,297 (s)
100LA–6453	4	64	530	103	NW	11,896 (s)	11,700	11,558	11,091
70LA–3270	2	32	700	69	NW	7,385 (s)	7,576 (s)	7,293 (s)	7,068 (s)
105LA–4870	3	48	700	104	NW	10,965 (s)	11,249 (s)	10,828 (s)	10,494 (s)
135LA–6470	4	64	700	139	NW	14,657 (s)	15,037	14,475 (s)	14,028
105LA–321A	2	32	1050	107	NW	10,199 (s)	10,458	10,072 (s)	9,767
160LA–481A	3	48	1050	158	NW	15,144 (s)	15,565	14,955 (s)	14,465
215LA–641A	4	64	1050	211	NW	20,243	20,252	19,991	19,880

1. System input wattage may vary based on input voltage, by up to +/- 10% , and based on manufacturer forward voltage, by up to +/- 8%.
2. Lumen values based on photometric tests performed in compliance with IESNA LM-79.
(s). Data is scaled based on tests of similar, but not identical, luminaires.

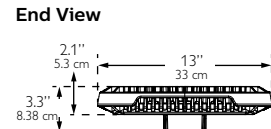### Dimensions — Standard EcoForm luminaire

Top View

2.5" 6.35 cm
6.1" 15.5 cm
24.2" 61.47 cm

Side View

1.3" 3.3 cm
24.2" 61.47 cm

EPA (ft²/m²)

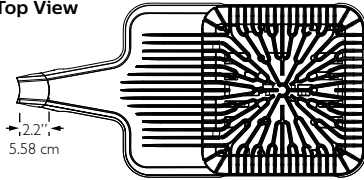| Single	Twin (2@180)	3/4@90
0.2 / 0.019	0.5 / 0.046	0.5 / 0.046

End View

2.1" 5.3 cm
13" 33 cm
3.3" 8.38 cm

Approximate Luminaire Weight: 20 Lbs (9.07 Kg)

ECF   EcoForm

Site & Area

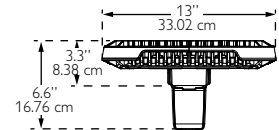---

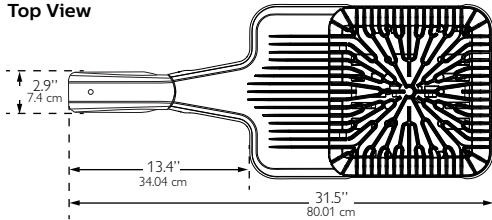## Dimensions — EcoForm with Retrofit Arm Mount (RAM)

Top View

.2.2''
5.58 cm

Side View

26''
66.04 cm

23.8''
60.45 cm

6.6''
16.76 cm

End View

13''
33.02 cm

3.3''
8.38 cm

6.6''
16.76 cm

EPA (ft²/m²)

Single	Twin (2@180)	3/4@90
0.3 / 0.028	0.6 / 0.056	0.7 / 0.065

Approximate Luminaire Weight:
21 Lbs (9.53 Kg)
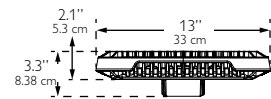

Dimensions — EcoForm with Mast Arm Fitter (MA)

Top View

2.9''
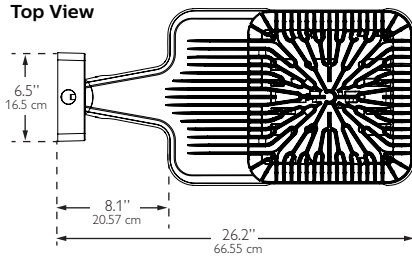7.4 cm

13.4''
34.04 cm

31.5''
80.01 cm

Side View

3.3''
8.4 cm

7.7''
19.56 cm

31.5''
80.01 cm

End View

2.1''
5.3 cm

13''
33 cm

3.3''
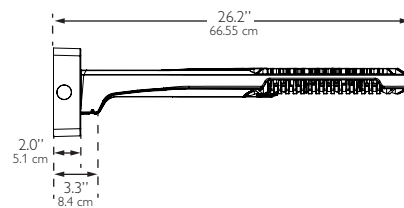8.38 cm

EPA (ft²/m²)

Single
0.51 / 0.047

Approximate Luminaire Weight:
21.5 Lbs (9.77 Kg)

Dimensions — EcoForm with Wall Mount (WS)

Top View

6.5''
16.5 cm

8.1''
20.57 cm

26.2''
66.55 cm

Side View

26.2''
66.55 cm

2.0''
5.1 cm

3.3''
8.4 cm

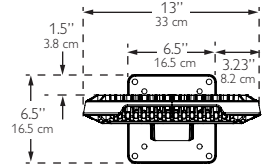**End View**
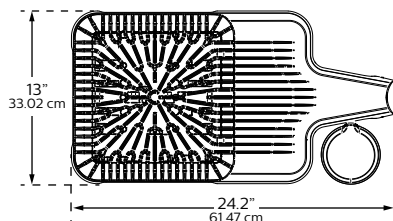
13''
33 cm

1.5''
3.8 cm

6.5''
16.5 cm

3.23''
8.2 cm

6.5''
16.5 cm
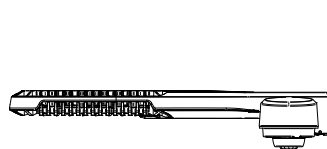
Approximate Luminaire Weight:
23.36 Lbs (10.6 Kg)

Dimensions — EcoForm with LimeLight Luminaire mounted controller

Top View

13''
33.02 cm

24.2''
61.47 cm

Side View

End View

2.1''
5.33 cm

3.3''
8.38 cm

4.4''
11.18 cm
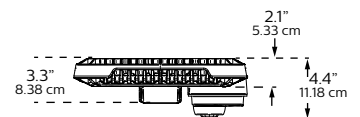
ECF   EcoForm

Site & Area

Luminaire Configuration Information

ECF

Philips Gardco EcoForm LED standard luminaire providing constant wattage and constant light output when power to the luminaire is energized.

ECF–DIM

Philips Gardco EcoForm LED luminaire provided with 0–10V dimming for connection to a control system provided by others.

ECF–APD

Philips Gardco EcoForm LED luminaire with Automatic Profile Dimming. Luminaire is provided with a Philips DynaDimmer module, programmed to go to 50% power, 50% light output two (2) hours prior to night time mid–point and remain at 50% for six (6) hours after night time mid–point. Mid–point is continuously recalculated by the Philips DynaDimmer module based on the average mid–point of the last two full night cycles. Short duration cycles, and power interruptions are ignored and do not affect the determination of mid–point.

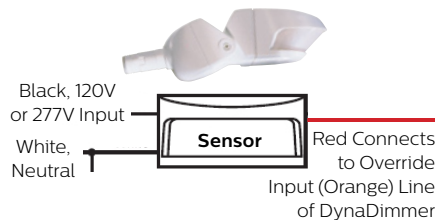ECF–APD is available in 120V–277V input only.

ECF–APD Dimming Profile:

100%	2 hours	6 hours	100%
	50%	50%	
Power On	**Mid Point**		**Power Off**

ECF-MR50

Philips Gardco EcoForm LED luminaire with motion response, providing a 50% power reduction on low and a commensurate reduction in light output. The power and light output reduction is accomplished utilizing the Philips DynaDimmer module, programmed for a constant 50% power. Power supplied by the motion sensor connected to the override line on the DynaDimmer takes the luminaire to high setting, 100% power and light output, when motion is detected. The luminaire remains on high until no motion is detected for the motion sensor duration period, after which the luminaire returns to low. Duration period is factory set at 15 minutes, and is field adjustable from 5 minutes up to 15 minutes.
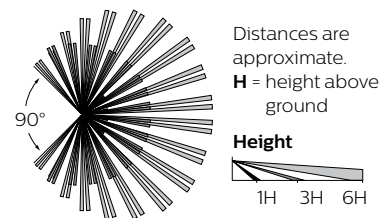
ECF–MR50 is available in 120V–277V input only to the luminaire. Motion sensors require single voltage 120V or 277V input.

The Area PIR motion sensor is the WattStopper EW–200–120–W (120V Input - MSA–120V) or the WattStopper EW–200–277–W (277V Input - MSA–277V.) One motion sensor per pole is required and is ordered separately. Area sensors require single voltage 120V or 277V input.

Black, 120V or 277V Input —
White, Neutral —
Sensor
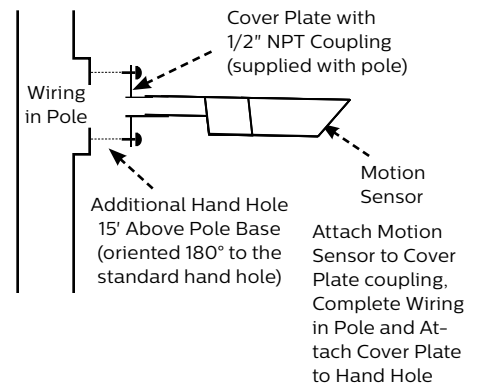Red Connects to Override Input (Orange) Line of DynaDimmer

The area motion detector provides coverage equal to up to 6 times the sensor height above ground, 270° from the front-center of the sensor.

Area PIR Motion Sensor Coverage Pattern:

90°

Distances are approximate.
H = height above ground

Height

1H   3H   6H

Motion response requires that the pole include an additional hand hole 15 feet above the pole base, normally oriented 180° to the standard hand hole. For Philips Gardco poles, order the pole with the Motion Sensor Mounting (MSM) option which includes the hand hole and a special hand hole cover plate for the sensor with a 1/2" NPT receptacle centered on the hand hole cover plate into which the motion sensor mounts. Once the motion sensor is connected to the hand hole cover plate, then wiring connections are completed in the pole. The plate (complete with motion sensor attached and wired) is then mounted to the hand hole. If poles are supplied by others, the customer is responsible for providing suitable mounting accommodations for the motion sensor in the pole.

Mounting to a Philips Gardco Pole:

Cover Plate with 1/2" NPT Coupling (supplied with pole)

Wiring in Pole

Motion Sensor

Additional Hand Hole 15' Above Pole Base (oriented 180° to the standard hand hole)

Attach Motion Sensor to Cover Plate coupling, Complete Wiring in Pole and Attach Cover Plate to Hand Hole

ECF–APD–MRO

Philips Gardco EcoForm LED luminaire with Automatic Profile Dimming, with Motion Response Override. The ECF–APD–MRO combines the benefits of both automatic profile dimming and motion response, using the Philips DynaDimmer module. The luminaire will dim to 50% power, 50% light output, per the dimming profile shown for the ECF–APD. If motion is detected during the time that the luminaire is operating at 50%, the luminaire returns to 100% power and light output. The luminaire remains on high until no motion is detected for the duration period, after which the luminaire returns to low. Duration period is factory set at 15 minutes, and is field adjustable from 5 minutes up to 15 minutes.

Notes:

ECF–APD–MRO is available in 120V through 277V input only to luminaire. The motion sensor requires either 120V or 277V input to the motion sensor.

The ECF–APD–MRO has the same pole requirements and utilizes the same motion sensors as the ECF–MR50. The motion sensor mounts and wires identically as well. The ECF–APD–MRO utilizes the identical dimming profile as shown for the ECF–APD.

By combining the benefits of automatic profile dimming and motion response, the ECF–APD–MRO assures maximum energy savings, and insures that adequate light is present if motion is detected.

All motion sensors utilized consume 0.0 watts in the off state.

ECF EcoForm
Site & Area
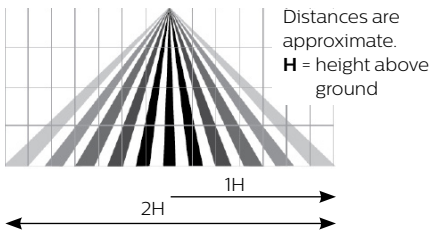
Luminaire Configuration Information (Continued)

ECF–MRI

Luminaires with Motion Response include a LED driver and an integral programmable motion sensor. The motion sensor is set to a constant 50%. When motion is detected, the luminaire goes to 100%. The luminaire remains on high until no motion is detected for the motion sensor duration period, after which the luminaire returns to low. Duration period is factory set at 5 minutes. Available with 120V or 277V only.
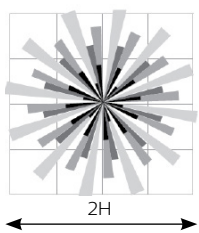
Luminaires include a passive infrared (PIR) motion sensor, WattStopper® FSP-211 equipped with an FSP–L3 lens, capable of detecting motion within 20 feet of the sensor, 180° around the luminaire, when placed at a 20 foot mounting height, or mounted on a wall. Available in 120V or 277V input only. Motion sensor off state power is 0.0 watts.

The approximate motion sensor coverage pattern is as shown below.

Side Coverage Pattern

Distances are approximate.
H = height above ground

1H
2H

Top Coverage Pattern

2H

ECF–APD–MRI

Luminaires with Automatic Profile Dimming and Motion Response Override combine the benefits of both automatic profile dimming and motion response. APD-MRI luminaires utilize Philips DynaDimmer. The luminaire will dim to 50% power, 50% light output, per the dimming profile shown for APD luminaires (see page 4). If motion is detected during the time that the luminaire is operating at 50%, the luminaire goes to 100% power and light output. The luminaire remains on high until no motion is detected for the duration period, after which the luminaire returns to low. Duration period is factory set at 5 minutes.

APD-MRI luminaires are available with 120V or 277V input voltages only.

APD-MRI luminaires use the identical motion sensor as MRI luminaires. See motion sensor details for ECF–MRI.

FS1R-100 Wireless Remote Programming Tool

The FS1R-100 Remote Programming Tool accessory permits adjustment of ECF-MRI and ECF-APD-MRI sensor settings, including duration and dimming level on low, without the need to connect any wires to the luminaire.
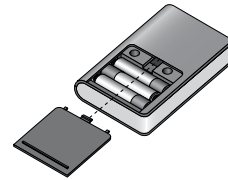
The FS1R-100 Wireless IR Programming Tool is a handheld tool for setup and testing of WattStopper FSP-211. It provides wireless access to the FSP-211 sensors for setup and parameter changes.

The FS1R-100 display shows menus and prompts to lead you through each process. The navigation pad provides a familiar way to navigate through the customization fields.

Within a certain mounting height of the sensor, the FS1R-100 allows modification of the system without requiring ladders or tools simply with a touch of a few buttons.
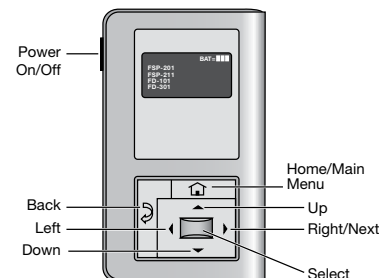
The FS1R-100 IR transceiver allows bi-directional communication between the FSP-211 and the FS1R-100 programming tool . Simple menu screens let you see the current status of the system and make changes. It can change FSP-211 sensor parameters such as high/low mode, sensitivity, time delay, cut off and more. With the FS1R-100 you can also establish and store FSP-211 parameter profiles.

The FS1R-100 operates on three standard 1.5V AAA Alkaline batteries or three rechargeable AAA NiMH batteries. The battery status displays in the upper right corner of the display. Three bars next to BAT= indicates a full battery charge. A warning appears on the display when the battery level falls below a minimum acceptable level. To conserve battery power, the FS1R-100 automatically shuts off 10 minutes after the last key press.

You navigate from one field to another using (up) or (down) arrow keys. The active field is indicated by flashing (alternates between yellow text on black background and black text on yellow background.)

Once active, use the Select button to move to a menu or function within the active field. Value fields are used to adjust parameter settings. They are shown in "less-than/greater-than" symbols: <value>. Once active, change them using (left) and (right) arrow keys. In general the up key increments and the down key decrements a value. Selections wrap–around if you continue to press the key beyond maximum or minimum values. Moving away from the value field overwrites the original value. The Home button takes you to the main menu. The Back button can be thought of as an undo function. It takes you back one screen. Changes that were in process prior to pressing the key are lost.More information on the FS1R-100 Remote Programming Tool is available at wattstopper.com.

Power On/Off

BAT=
FSP-201
FSP-211
FD-101
FD-301
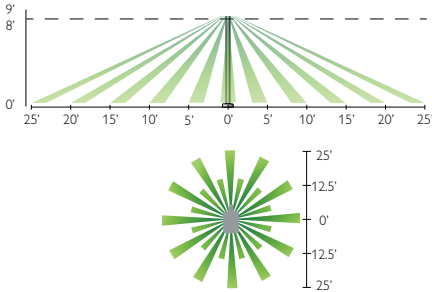
Home/Main Menu

Back
Left
Down

Up
Right/Next
Select

ECF EcoForm

Site & Area

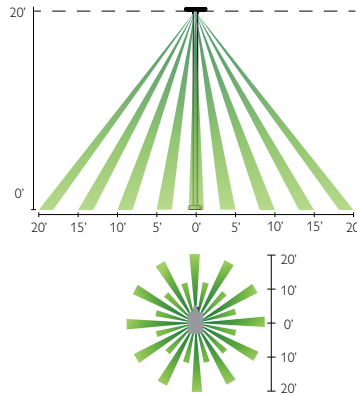## Luminaire Configuration Information — EcoForm with LimeLight

ECF–LLC2

EcoForm with Limelight wireless technology

Controller pod attached to luminaire arm and includes radio, photocell and motion sensor with #2 lens for 8–15' mounting heights.
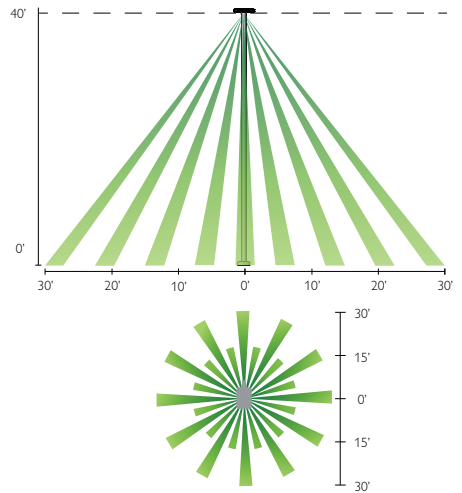
ECF–LLC3

EcoForm with Limelight wireless technology

Controller pod attached to luminaire arm and includes radio, photocell and motion sensor with #3 lens for 15–25' mounting heights.
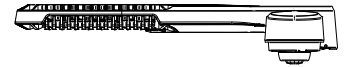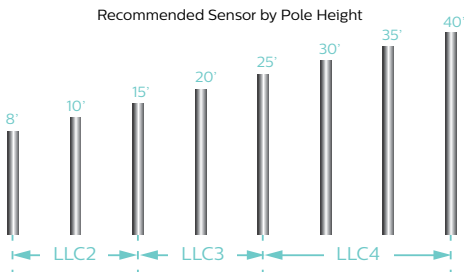
ECF–LLC4

EcoForm with Limelight wireless technology

Controller pod attached to luminaire arm and includes radio, photocell and motion sensor with #4 lens for 25–40' mounting heights.
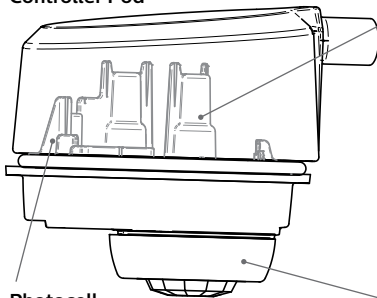
Luminaire Configuration Information — EcoForm with LimeLight

ECF–LLC(#)

With this configuration, the controller pod is mounted to the luminaire arm. One controller is required per luminaire. There are three different motion sensor configurations available. Each one corresponds to the desired mounting height that for your specific application. See motion response detection ranges below.

Recommended Sensor by Pole Height

Controller Pod

Photocell

– Ambient light photocell on every wireless radio that averages the light levels of up to 5 controllers for an accurate reading and optimal light harvesting activity.

– Reports ambient light readings to 1500 Fc.

Wireless Radio

– 1.8 Watts max (no load draw)
– Operating voltage 102–277V RMS
– Communicates using the ZigBee protocol
– Carries out dimming commands from gateway
– Reports internal PCB temperature
– Transmission Systems Operating within the band 2400–2483.5Mhz. IEEE 802.15.4
– ROHS Compliant

Motion Response

– Three different lens configurations
– Detects motion through passive InfraRed sensing technology
– Connects directly to radio through modular jack
– Three different mounting heights and detecion ranges available

ECF   EcoForm

Site & Area

Luminaire Configuration Information — EcoForm with LimeLight (Continued)
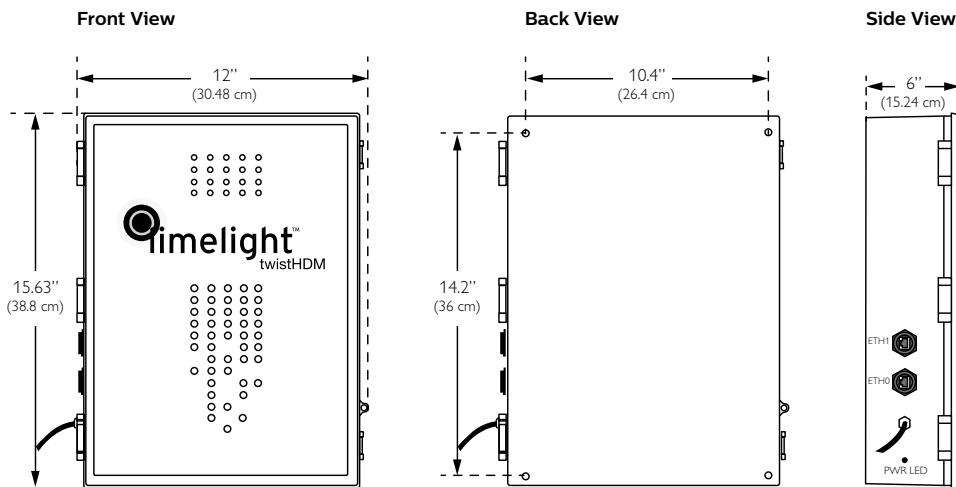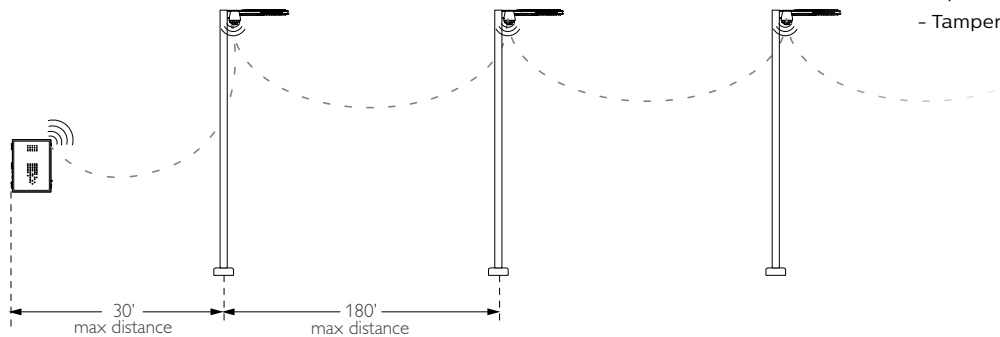
Gateway

Overview: One gateway is included with the wireless controls system. The gateway opens up communication with the wireless radios installed with the EcoForm luminaires (or pole), allowing you to control your fixtures straight from the web. One LimeLight gateway can communicate with up to 800 fixtures. Typically one unit is required per parking lot.

Installation: Gateway has 4 blind threaded holes on the back side that accept 10-32 screws. Mount spacing is 10.41" across and 14.19" vertical.

Requirements: The gateway must be mounted in a secure on-site location. The gateway requires 120V. Distance of gateway to the first radio varies upon application; contact factory. Strong internet connection required.

Specifications:
- High density RF Mesh coordinator
- Ethernet or wireless internet connection to LimeLight server
- Proprietor of software "rules of operation"
- Watertight Ethernet connections
- Highly protected, long life ac/dc power supply
- Single board, ARM compliant 520Mhz Intel computer.
- Operating Temperature –20°C to 55°C
- Tamper proof housing

30'
max distance

180'
max distance

Front View

12"
(30.48 cm)

15.63"
(38.8 cm)

limelight™
twistHDM

Back View

10.4"
(26.4 cm)

14.2"
(36 cm)

Side View

6"
(15.24 cm)

ETH1

ETH0

PWR LED

ECF EcoForm

Site & Area

Specifications

Housing

One piece die cast aluminum housing with integral arm and separate, self retained hinged, one piece die cast door frame.

IP Rating

LED light engine rated IP66.

Vibration Resistance

EcoForm with Standard Arm carries a 3G vibration rating that conforms to standards set forth by ANSI C136.31. Testing includes vibration to 3G acceleration in three axes, all performed on the same luminaire.

Electrical

Driver efficiency (>90% standard). 120–480V available (restrictions apply). Open/short circuit protection. Optional 0-10V dimming to 10% power. RoHS compliant. Surge protector standard. 10KA per ANSI/IEEE C62.41.2.

LED Board and Array

32, 48, or 64 LEDs. Color temperatures: 3000K, 4000K, 5700K +/- 250K. Minimum CRI of 70. Aluminum metal clad board. RoHS compliant.

LED Thermal Management

The housing design allows the one piece housing to provide excellent thermal management critical to long LED system life.

Energy Saving Benefits

System efficacy up to 95 lms/W with significant energy savings over Pulse Start Metal Halide luminaires. Optional control options provide added energy savings during unoccupied periods.

LED Performance

Wireless Controls

The LimeLight wireless Controls System includes: gateway, controller pod (with wireless radio, motion response, and photocell), and commissioning/training. LimeLight is an intelligent web-based system that operates through a high density mesh (HDM) wireless technology. Wireless radios with motion response and photocell sensors are integrated with PureForm luminaires, and enable the fixtures to communicate via the ZigBee protocol. The gateway is a mini computer that connects to the internet, and is located in a secure location. The central LimeLight database channels communication to and from the gateway, allowing data to be viewed or managed through the web-based graphical user interface (GUI). See LimeLight pages for details and technical information.

Motion Sensors

ECF-MR50, ECF-APD-MRO, ECF-MRI, ECF-APD-MRI luminaires may be specified for additional energy savings during unoccupied periods. See pages 4-6 for complete details.
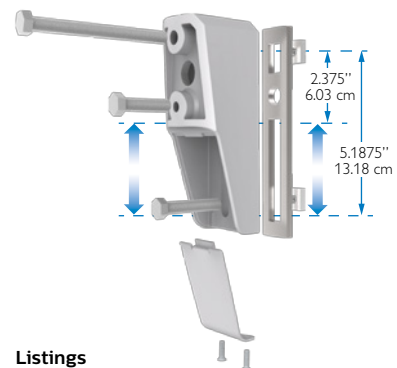
Optical Systems

Type 2, 3, 4, and 5 distributions available. Internal Shield option mounts to LED optics and is available with Type 2, 3, and 4 distributions to control backlight.

Mounting

Standard luminaire arm mounts to 4" round poles. Square pole adapter included with every luminaire. Round Pole Adapter (RPA) required for 3-3.9" poles.

Retrofit Arm Mount

EcoForm features an innovative retrofit arm kit. When specified with the retrofit arm (RAM) option, EcoForm seamlessly simplifies site conversions to LED by eliminating the need for additional pole drilling on most existing poles. RAM will be boxed separately.

2.375''
6.03 cm

5.1875''
13.18 cm

Listings

ETL/cETL listed to the UL 1598 standard, suitable for Wet Locations. Suitable for use in ambients from -40° to 40°C (-40° to 104°F). The quality systems of this facility have been registered by UL to the ISO 9001 series standards. All EcoForm luminaires equipped with NW and CW are DesignLights Consortium® qualified.

Finish

Each standard color luminaire receives a fade and abrasion resistant, electrostatically applied, thermally cured, triglycidal isocyanurate (TGIC) textured polyester powdercoat finish. Standard colors include bronze (BRP), black (BLP), white (WP), and natural aluminum (NP). Consult factory for specs on optional or custom colors.

Warranty

EcoForm luminaires feature a 5 year limited warranty. Philips Gardco LED luminaires with LED arrays feature a 5 year limited warranty covering the LED arrays. LED Drivers also carry a 5 year limited warranty. Motion sensors are covered by warranty for 5 years by the motion sensor manufacturer.

Predicted Lumen Depreciation Data[1]

Ambient Temperature °C	Driver (mA)	Calculated L_{70} Hours[1,2]	L_{70} Per TM-21[2,3]	Lumen Maintenance % @ 60,000 hours
Up to 40 °C	Up to 1050 mA	> 350,000 hours	> 60,000 hours	97%

1. Predicted performance derived from LED manufacturer's data and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions.
2. L70 is the predicted time when LED performance depreciates to 70% of initial lumen output.
3. Calculated per IESNA TM21-11. Published L70 hours limited to 6 times actual LED test hours.

PHILIPS

PHILIPS

GARDCO

Site & Area

EcoForm

EcoForm combines economy with performance in an LED area luminaire. Capable of delivering up to 20,000 lumens or more in a compact, low profile housing, EcoForm offers a new level of customer value. EcoForm features an innovative retrofit arm kit, simplifying site conversions to LED by eliminating the need to drill additional holes in most existing poles. Integral control systems, including motion response and wireless controls are available for further energy savings during off peak hours.

Ordering guide

example: ECF-APD-MRO-1-4-75LA-NW-120-NP-LF

Prefix	Controls	Mounting	Optics	LED Wattage	Color Temp	Voltage	Finish	Options
ECF –		–	–	–	–	–	–	

Prefix	Controls	Mounting	Optics	LED Wattage	Color Temp	Voltage	Finish	Options
ECF EcoForm	**—** Standard luminaire (leave blank)	**1** Standard	**2** Type 2	**530 mA** 55LA-3253[1] 75LA-4853 100LA-6453	**CW** Cool White 5,700 K 70 CRI (nominal)	**120** 120V	**BRP** Bronze Paint	**TL** Tool-Less entry and driver removal hardware
	DIM 0-10V Dimming	**2** 2@180	**3** Type 3	**700mA** 70LA-3270 105LA-4870 135LA-6470	**NW** Neutral White 4,000 K 70 CRI (nominal)	**208** 208V	**BLP** Black Paint	**TB**[3] Terminal Block
	APD[1] Auto Profile Dimming	**2@90** 2@90	**4** Type 4			**240** 240V	**WP** White Paint	**IS**[6] Internal Shield
	APD–MRO[2] Auto Profile Dimming and Motion Response Override pole mounted motion sensor	**3** 3@90	**5** Type 5	**1050mA** 105LA–321A[1] 160LA–481A 215LA-641A	**WW**[4] Warm White 3,000 K 70 CRI (nominal)	**277** 277V	**NP** Natural Paint	**LF**[7] Line Fusing
	APD–MRI[2,3] APD with Motion Response Override luminaire sensor	**3@120** 3@120				**347** 347V	**OC** Optional Color Specify optional color or RAL (ex: OC-LGP or OC-RAL7024)	**LFC**[7] Line Fusing for Canada
	MRI[2,3] Motion Response at 50% low luminaire sensor	**4** 4@90				**480** 480V		**PC**[5,7,8] Receptacle with Photocell (Includes PCR5)
	MR50[2] Motion Response at 50% low, pole mounted sensor	**WS** Wall mount including surface conduit rear entry permitted				**UNV** 120-277V 50hz/60hz	**SC** Special color Specify, must supply color chip. Requires factory quote.	**PCB**[5,7,8] Photocell Button
	LimeLight Wireless Controls	**MA** Mast Arm Fitter (requires 2-3/8" O.D. Mast Arm)				**HVU** 347-480V 50hz/60hz		**PCR5**[5,11,13] Photocell Receptacle only with 2 dimming connections
	LLC2[1,5] #2 lens for 8-15' mounted heights							**PCR7**[5,12,13] Photocell Receptacle only with 2 dimming and 2 auxiliary connections
	LLC3[1,5] #3 lens for 15-25' mounted heights							**RAM** Retrofit Arm Mount kit
	LLC4[1,5] #4 lens for 25-40' mounted heights							**PTF2**[9] Pole Top Fitter for 2 3/8"- 3" Tenon
								PTF3[9] Pole Top Fitter for 3"- 3 1/2" Tenon
								PTF4[9] Pole Top Fitter for 3 1/2"- 4" Tenon
								RPA[10] Round Pole Adapter for 3"- 3.9" O.D.
								BD Bird Deterrent (field installed only)

1. Available in 120V–277V Voltages only (UNV, 120, 208, 240 & 277).
2. MR50 and APD–MRO luminaires require one motion sensor per pole, ordered separately. See page 2 for Accessories. Available in 120V or 277V only.
3. ECF-MRI requires outboarded sensor when used with Terminal Block (TB) Option.
4. Contact factory for lead times on warm white.
5. LLC2/LLC3/LLC4 Wireless Controls are not configurable with PC/PCB/PCR5/PCR7 Options. See page 7–8 for more info.
6. Not configurable with Type 5 (5) Optics.
7. Not configurable with 120–277V (UNV) Voltage. Voltage must be specified.
8. Not configurable with 480V (480) Voltage.
9. Not configurable with 3@120 (3@120) Mounting.
10. No adaptor required for 4" round poles. RPAs provided with Black Paint standard.
11. Works with 3-pin or 5-pin NEMA photocell/dimming device.
12. Works with 3-pin or 5-pin NEMA photocell/dimming device and auxiliary connections are not connected (for future use only).
13. If ordered with DIM, APD, MRI, MR50, APD-MRI, APD-MRO, dimming will not be connected to NEMA receptacle.

ECF EcoForm

Site & Area

EcoForm Accessories (order separately)

FS1R-100

MR hand held programmer

For use with 'MRI' motion response when field programming is required. If desired, only one is needed per job.
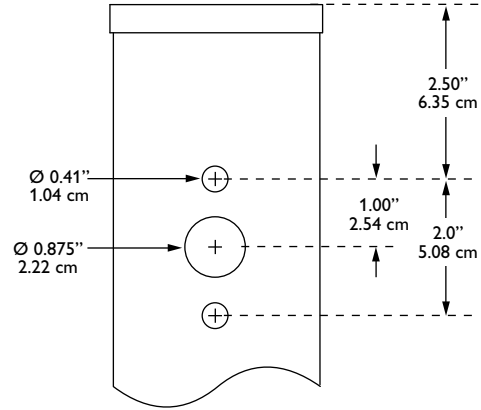
MS-A-120V

120V Input Area Motion Sensor

For MR50 (Motion Response) or APD–MRO (Automatic Profile Dimming with Motion Response Override)

MS-A-277V

277V Input Area Motion Sensor

For MR50 (Motion Response) or APD–MRO (Automatic Profile Dimming with Motion Response Override)

Note: Motion Sensors are ordered separately, with one (1) motion sensor required per pole location for MR50 or APD–MRO luminaires. See Luminaire Configuration Information on page 5 for more details. Area motion sensor color is Arctic White. MRI and APD–MRI luminaires include an integral motion sensor.

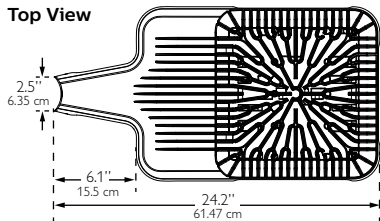### EcoForm Drill Template (standard arm mount)

Ø 0.41" 1.04 cm
Ø 0.875" 2.22 cm
2.50" 6.35 cm
1.00" 2.54 cm
2.0" 5.08 cm

LED Wattage and Lumen Values (standard EcoForm luminaire)

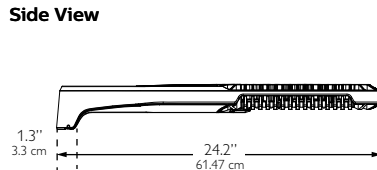| Order Code (standard units)	Array Quantity	Total LEDs	LED Current (mA)	Average System Watts[1]	LED Selection	Initial Lumens[2]			
						2 Type 2	3 Type 3	4 Type 4	5 Type 5
55LA–3253	2	32	530	52	NW	5,994 (s)	5,895 (s)	5,823 (s)	5,588 (s)
75LA–4853	3	48	530	77	NW	8,899 (s)	8,753 (s)	8,646 (s)	8,297 (s)
100LA–6453	4	64	530	103	NW	11,896 (s)	11,700	11,558	11,091
70LA–3270	2	32	700	69	NW	7,385 (s)	7,576 (s)	7,293 (s)	7,068 (s)
105LA–4870	3	48	700	104	NW	10,965 (s)	11,249 (s)	10,828 (s)	10,494 (s)
135LA–6470	4	64	700	139	NW	14,657 (s)	15,037	14,475 (s)	14,028
105LA–321A	2	32	1050	107	NW	10,199 (s)	10,458	10,072 (s)	9,767
160LA–481A	3	48	1050	158	NW	15,144 (s)	15,565	14,955 (s)	14,465
215LA–641A	4	64	1050	211	NW	20,243	20,252	19,991	19,880

1. System input wattage may vary based on input voltage, by up to +/– 10% , and based on manufacturer forward voltage, by up to +/– 8%.
2. Lumen values based on photometric tests performed in compliance with IESNA LM–79.
(s). Data is scaled based on tests of similar, but not identical, luminaires.

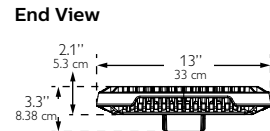### Dimensions — Standard EcoForm luminaire

Top View

2.5" 6.35 cm
6.1" 15.5 cm
24.2" 61.47 cm

Side View

1.3" 3.3 cm
24.2" 61.47 cm

EPA (ft²/m²)

Single	Twin (2@180)	3/4@90
0.2 / 0.019	0.5 / 0.046	0.5 / 0.046

End View

2.1" 5.3 cm
13" 33 cm
3.3" 8.38 cm

Approximate Luminaire Weight: 20 Lbs (9.07 Kg)
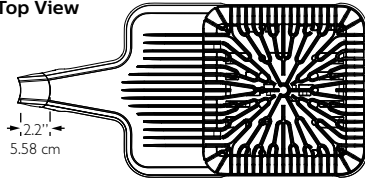
ECF EcoForm

Site & Area

Dimensions — EcoForm with Retrofit Arm Mount (RAM)

Top View
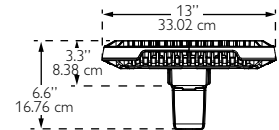
2.2''
5.58 cm

Side View

26''
66.04 cm

23.8''
60.45 cm

6.6''
16.76 cm

EPA (ft²/m²)

Single	Twin (2@180)	3/4@90
0.3 / 0.028	0.6 / 0.056	0.7 / 0.065

End View

13''
33.02 cm

3.3''
8.38 cm

6.6''
16.76 cm

Approximate Luminaire Weight:
21 Lbs (9.53 Kg)

Dimensions — EcoForm with Mast Arm Fitter (MA)

Top View

2.9''
7.4 cm

13.4''
34.04 cm

31.5''
80.01 cm

Side View

3.3''
8.4 cm

7.7''
19.56 cm

31.5''
80.01 cm

EPA (ft²/m²)

Single
0.51 / 0.047

End View

2.1''
5.3 cm

13''
33 cm

3.3''
8.38 cm
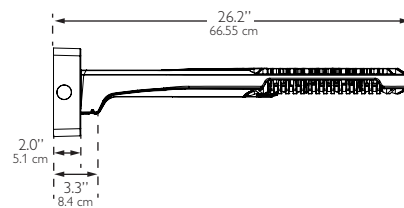
Approximate Luminaire Weight:
21.5 Lbs (9.77 Kg)

Dimensions — EcoForm with Wall Mount (WS)

Top View

6.5''
16.5 cm

8.1''
20.57 cm

26.2''
66.55 cm

Side View

26.2''
66.55 cm

2.0''
5.1 cm

3.3''
8.4 cm

End View

13''
33 cm

1.5''
3.8 cm

6.5''
16.5 cm

3.23''
8.2 cm

6.5''
16.5 cm
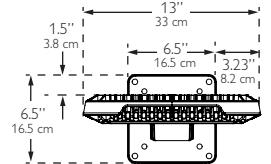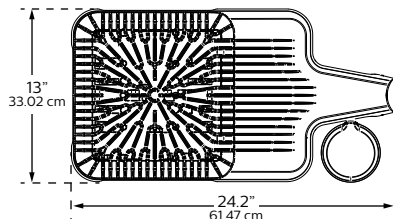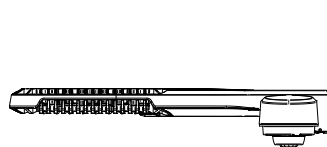
Approximate Luminaire Weight:
23.36 Lbs (10.6 Kg)

Dimensions — EcoForm with LimeLight Luminaire mounted controller

Top View

13''
33.02 cm

24.2''
61.47 cm

Side View

End View

2.1''
5.33 cm

3.3''
8.38 cm

4.4''
11.18 cm
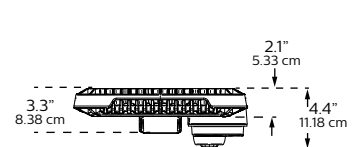
ECF EcoForm

Site & Area

Luminaire Configuration Information

ECF

Philips Gardco EcoForm LED standard luminaire providing constant wattage and constant light output when power to the luminaire is energized.

ECF–DIM

Philips Gardco EcoForm LED luminaire provided with 0–10V dimming for connection to a control system provided by others.

ECF–APD

Philips Gardco EcoForm LED luminaire with Automatic Profile Dimming. Luminaire is provided with a Philips DynaDimmer module, programmed to go to 50% power, 50% light output two (2) hours prior to night time mid–point and remain at 50% for six (6) hours after night time mid–point. Mid–point is continuously recalculated by the Philips DynaDimmer module based on the average mid–point of the last two full night cycles. Short duration cycles, and power interruptions are ignored and do not affect the determination of mid–point.

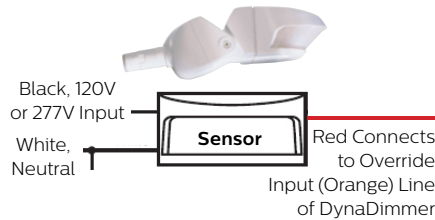ECF–APD is available in 120V–277V input only.

ECF–APD Dimming Profile:

100%	2 hours	6 hours	100%
	50%	50%	

Power On	Mid Point	Power Off

ECF-MR50

Philips Gardco EcoForm LED luminaire with motion response, providing a 50% power reduction on low and a commensurate reduction in light output. The power and light output reduction is accomplished utilizing the Philips DynaDimmer module, programmed for a constant 50% power. Power supplied by the motion sensor connected to the override line on the DynaDimmer takes the luminaire to high setting, 100% power and light output, when motion is detected. The luminaire remains on high until no motion is detected for the motion sensor duration period, after which the luminaire returns to low. Duration period is factory set at 15 minutes, and is field adjustable from 5 minutes up to 15 minutes.
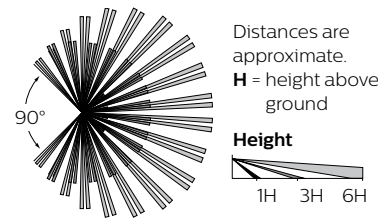
ECF–MR50 is available in 120V–277V input only to the luminaire. Motion sensors require single voltage 120V or 277V input.

The Area PIR motion sensor is the WattStopper EW-200-120-W (120V Input - MSA-120V) or the WattStopper EW-200-277-W (277V Input - MSA-277V.) One motion sensor per pole is required and is ordered separately. Area sensors require single voltage 120V or 277V input.
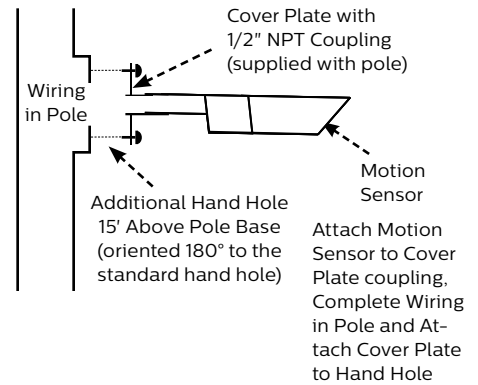
Black, 120V or 277V Input — **Sensor** — Red Connects to Override Input (Orange) Line of DynaDimmer

White, Neutral

The area motion detector provides coverage equal to up to 6 times the sensor height above ground, 270° from the front-center of the sensor.

Area PIR Motion Sensor Coverage Pattern:

90°

Distances are approximate.
H = height above ground

Height

1H   3H   6H

Motion response requires that the pole include an additional hand hole 15 feet above the pole base, normally oriented 180° to the standard hand hole. For Philips Gardco poles, order the pole with the Motion Sensor Mounting (MSM) option which includes the hand hole and a special hand hole cover plate for the sensor with a 1/2" NPT receptacle centered on the hand hole cover plate into which the motion sensor mounts. Once the motion sensor is connected to the hand hole cover plate, then wiring connections are completed in the pole. The plate (complete with motion sensor attached and wired) is then mounted to the hand hole. If poles are supplied by others, the customer is responsible for providing suitable mounting accommodations for the motion sensor in the pole.

Mounting to a Philips Gardco Pole:

Cover Plate with 1/2" NPT Coupling (supplied with pole)

Wiring in Pole

Motion Sensor

Additional Hand Hole 15' Above Pole Base (oriented 180° to the standard hand hole)

Attach Motion Sensor to Cover Plate coupling, Complete Wiring in Pole and Attach Cover Plate to Hand Hole

ECF–APD–MRO

Philips Gardco EcoForm LED luminaire with Automatic Profile Dimming, with Motion Response Override. The ECF–APD–MRO combines the benefits of both automatic profile dimming and motion response, using the Philips DynaDimmer module. The luminaire will dim to 50% power, 50% light output, per the dimming profile shown for the ECF–APD. If motion is detected during the time that the luminaire is operating at 50%, the luminaire returns to 100% power and light output. The luminaire remains on high until no motion is detected for the duration period, after which the luminaire returns to low. Duration period is factory set at 15 minutes, and is field adjustable from 5 minutes up to 15 minutes.

Notes:

ECF–APD–MRO is available in 120V through 277V input only to luminaire. The motion sensor requires either 120V or 277V input to the motion sensor.

The ECF–APD–MRO has the same pole requirements and utilizes the same motion sensors as the ECF–MR50. The motion sensor mounts and wires identically as well. The ECF–APD–MRO utilizes the identical dimming profile as shown for the ECF–APD.

By combining the benefits of automatic profile dimming and motion response, the ECF–APD–MRO assures maximum energy savings, and insures that adequate light is present if motion is detected.

All motion sensors utilized consume 0.0 watts in the off state.

ECF EcoForm

Site & Area
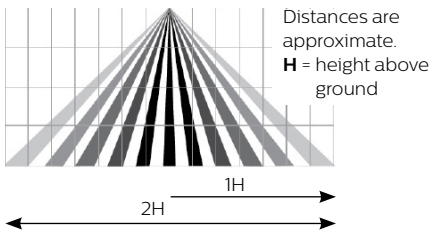
Luminaire Configuration Information (Continued)

ECF–MRI

Luminaires with Motion Response include a LED driver and an integral programmable motion sensor. The motion sensor is set to a constant 50%. When motion is detected, the luminaire goes to 100%. The luminaire remains on high until no motion is detected for the motion sensor duration period, after which the luminaire returns to low. Duration period is factory set at 5 minutes. Available with 120V or 277V only.
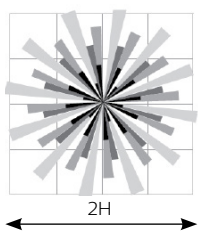
Luminaires include a passive infrared (PIR) motion sensor, WattStopper® FSP-211 equipped with an FSP–L3 lens, capable of detecting motion within 20 feet of the sensor, 180° around the luminaire, when placed at a 20 foot mounting height, or mounted on a wall. Available in 120V or 277V input only. Motion sensor off state power is 0.0 watts.

The approximate motion sensor coverage pattern is as shown below.

Side Coverage Pattern

Distances are approximate.
H = height above ground

1H
2H

Top Coverage Pattern

2H

ECF–APD–MRI

Luminaires with Automatic Profile Dimming and Motion Response Override combine the benefits of both automatic profile dimming and motion response. APD-MRI luminaires utilize Philips DynaDimmer. The luminaire will dim to 50% power, 50% light output, per the dimming profile shown for APD luminaires (see page 4). If motion is detected during the time that the luminaire is operating at 50%, the luminaire goes to 100% power and light output. The luminaire remains on high until no motion is detected for the duration period, after which the luminaire returns to low. Duration period is factory set at 5 minutes.

APD-MRI luminaires are available with 120V or 277V input voltages only.

APD-MRI luminaires use the identical motion sensor as MRI luminaires. See motion sensor details for ECF–MRI.

FS1R-100 Wireless Remote Programming Tool

The FS1R-100 Remote Programming Tool accessory permits adjustment of ECF-MRI and ECF-APD-MRI sensor settings, including duration and dimming level on low, without the need to connect any wires to the luminaire.
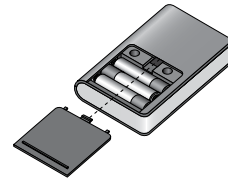
The FS1R-100 Wireless IR Programming Tool is a handheld tool for setup and testing of WattStopper FSP-211. It provides wireless access to the FSP-211 sensors for setup and parameter changes.

The FS1R-100 display shows menus and prompts to lead you through each process. The navigation pad provides a familiar way to navigate through the customization fields.

Within a certain mounting height of the sensor, the FS1R-100 allows modification of the system without requiring ladders or tools simply with a touch of a few buttons.
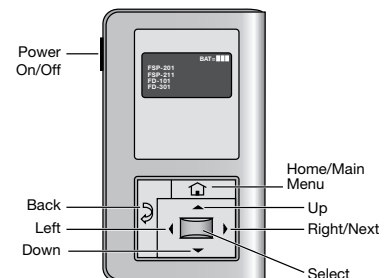
The FS1R-100 IR transceiver allows bi-directional communication between the FSP-211 and the FS1R-100 programming tool . Simple menu screens let you see the current status of the system and make changes. It can change FSP-211 sensor parameters such as high/low mode, sensitivity, time delay, cut off and more. With the FS1R-100 you can also establish and store FSP-211 parameter profiles.

The FS1R-100 operates on three standard 1.5V AAA Alkaline batteries or three rechargeable AAA NiMH batteries. The battery status displays in the upper right corner of the display. Three bars next to BAT= indicates a full battery charge. A warning appears on the display when the battery level falls below a minimum acceptable level. To conserve battery power, the FS1R-100 automatically shuts off 10 minutes after the last key press.

You navigate from one field to another using (up) or (down) arrow keys. The active field is indicated by flashing (alternates between yellow text on black background and black text on yellow background.)

Once active, use the Select button to move to a menu or function within the active field. Value fields are used to adjust parameter settings. They are shown in "less-than/greater-than" symbols: <value>. Once active, change them using (left) and (right) arrow keys. In general the up key increments and the down key decrements a value. Selections wrap–around if you continue to press the key beyond maximum or minimum values. Moving away from the value field overwrites the original value. The Home button takes you to the main menu. The Back button can be thought of as an undo function. It takes you back one screen. Changes that were in process prior to pressing the key are lost.More information on the FS1R-100 Remote Programming Tool is available at wattstopper.com.

Power On/Off

BAT= ▮▮▮
FSP-201
FSP-211
FD-101
FD-301
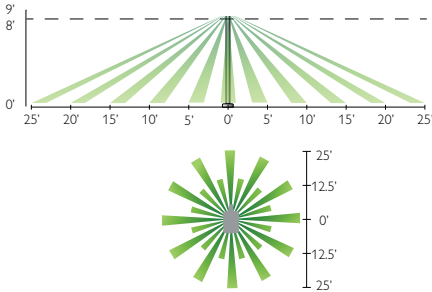
Home/Main Menu

Back
Left
Down
Up
Right/Next
Select

ECF EcoForm

Site & Area

Luminaire Configuration Information — EcoForm with LimeLight

ECF–LLC2

EcoForm with Limelight wireless technology

Controller pod attached to luminaire arm and includes radio, photocell and motion sensor with #2 lens for 8–15' mounting heights.
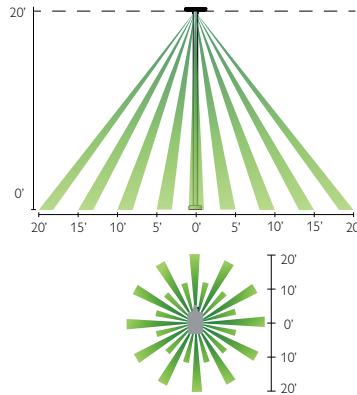
ECF–LLC3

EcoForm with Limelight wireless technology

Controller pod attached to luminaire arm and includes radio, photocell and motion sensor with #3 lens for 15–25' mounting heights.
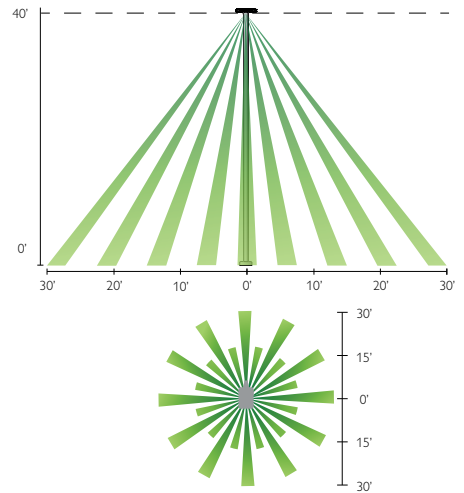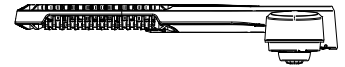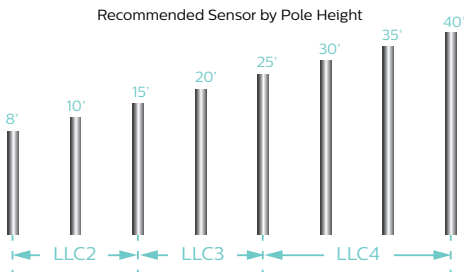
ECF–LLC4

EcoForm with Limelight wireless technology

Controller pod attached to luminaire arm and includes radio, photocell and motion sensor with #4 lens for 25–40' mounting heights.
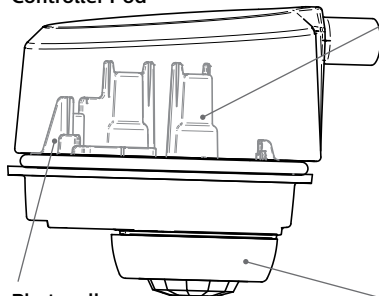
Luminaire Configuration Information — EcoForm with LimeLight

ECF–LLC(#)

With this configuration, the controller pod is mounted to the luminaire arm. One controller is required per luminaire. There are three different motion sensor configurations available. Each one corresponds to the desired mounting height that for your specific application. See motion response detection ranges below.

Recommended Sensor by Pole Height

Controller Pod

Photocell

– Ambient light photocell on every wireless radio that averages the light levels of up to 5 controllers for an accurate reading and optimal light harvesting activity.

– Reports ambient light readings to 1500 Fc.

Wireless Radio

– 1.8 Watts max (no load draw)
– Operating voltage 102–277V RMS
– Communicates using the ZigBee protocol
– Carries out dimming commands from gateway
– Reports internal PCB temperature
– Transmission Systems Operating within the band 2400–2483.5Mhz. IEEE 802.15.4
– ROHS Compliant

Motion Response

– Three different lens configurations
– Detects motion through passive InfraRed sensing technology
– Connects directly to radio through modular jack
– Three different mounting heights and detecion ranges available

ECF EcoForm

Site & Area

Luminaire Configuration Information — EcoForm with LimeLight (Continued)
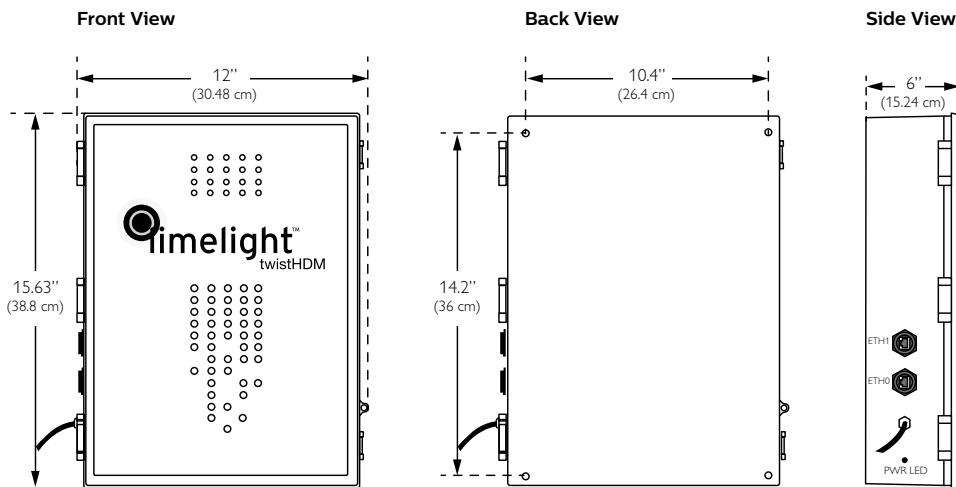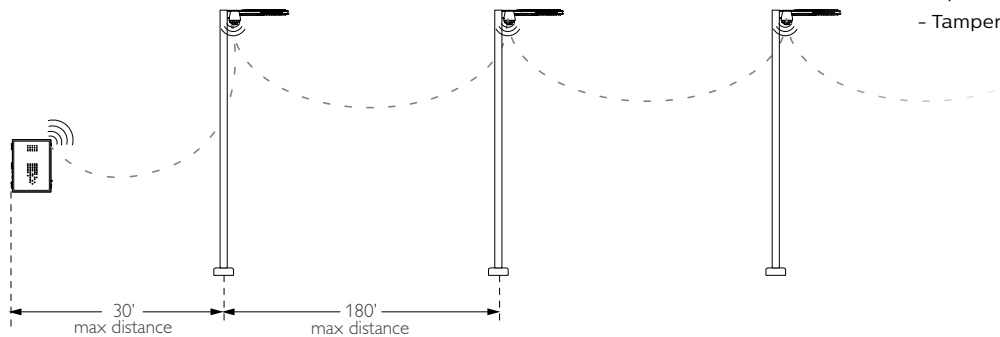
Gateway

Overview: One gateway is included with the wireless controls system. The gateway opens up communication with the wireless radios installed with the EcoForm luminaires (or pole), allowing you to control your fixtures straight from the web. One LimeLight gateway can communicate with up to 800 fixtures. Typically one unit is required per parking lot.

Installation: Gateway has 4 blind threaded holes on the back side that accept 10–32 screws. Mount spacing is 10.41" across and 14.19" vertical.

Requirements: The gateway must be mounted in a secure on-site location. The gateway requires 120V. Distance of gateway to the first radio varies upon application; contact factory. Strong internet connection required.

Specifications:
– High density RF Mesh coordinator
– Ethernet or wireless internet connection to LimeLight server
– Proprietor of software "rules of operation"
– Watertight Ethernet connections
– Highly protected, long life ac/dc power supply
– Single board, ARM compliant 520Mhz Intel computer.
– Operating Temperature –20°C to 55°C
– Tamper proof housing

30'
max distance

180'
max distance

Front View	Back View	Side View

Front View — 12" (30.48 cm), 15.63" (38.8 cm)

Back View — 10.4" (26.4 cm), 14.2" (36 cm)

Side View — 6" (15.24 cm), ETH1, ETH0, PWR LED

limelight™ twistHDM

ECF EcoForm

Site & Area

Specifications

Housing

One piece die cast aluminum housing with integral arm and separate,self retained hinged, one piece die cast door frame.

IP Rating

LED light engine rated IP66.

Vibration Resistance

EcoForm with Standard Arm carries a 3G vibration rating that conforms to standards set forth by ANSI C136.31. Testing includes vibration to 3G acceleration in three axes, all performed on the same luminaire.

Electrical

Driver efficiency (>90% standard). 120–480V available (restrictions apply). Open/short circuit protection. Optional 0-10V dimming to 10% power. RoHS compliant. Surge protector standard. 10KA per ANSI/IEEE C62.41.2.

LED Board and Array

32, 48, or 64 LEDs. Color temperatures: 3000K, 4000K, 5700K +/- 250K. Minimum CRI of 70. Aluminum metal clad board. RoHS compliant.

LED Thermal Management

The housing design allows the one piece housing to provide excellent thermal management critical to long LED system life.

Energy Saving Benefits

System efficacy up to 95 lms/W with significant energy savings over Pulse Start Metal Halide luminaires. Optional control options provide added energy savings during unoccupied periods.

LED Performance

Wireless Controls

The LimeLight wireless Controls System includes: gateway, controller pod (with wireless radio, motion response, and photocell), and commissioning/training. LimeLight is an intelligent web-based system that operates through a high density mesh (HDM) wireless technology. Wireless radios with motion response and photocell sensors are integrated with PureForm luminaires, and enable the fixtures to communicate via the ZigBee protocol. The gateway is a mini computer that connects to the internet, and is located in a secure location. The central LimeLight database channels communication to and from the gateway, allowing data to be viewed or managed through the web-based graphical user interface (GUI). See LimeLight pages for details and technical information.

Motion Sensors

ECF-MR50, ECF-APD-MRO, ECF-MRI, ECF-APD-MRI luminaires may be specified for additional energy savings during unoccupied periods. See pages 4-6 for complete details.
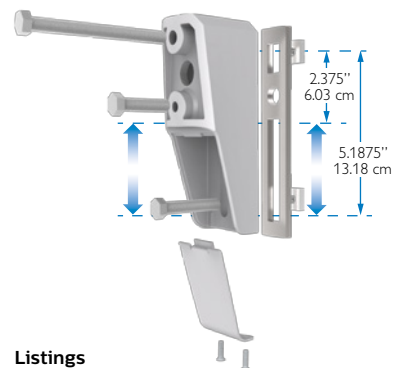
Optical Systems

Type 2, 3, 4, and 5 distributions available. Internal Shield option mounts to LED optics and is available with Type 2, 3, and 4 distributions to control backlight.

Mounting

Standard luminaire arm mounts to 4" round poles. Square pole adapter included with every luminaire. Round Pole Adapter (RPA) required for 3-3.9" poles.

Retrofit Arm Mount

EcoForm features an innovative retrofit arm kit. When specified with the retrofit arm (RAM) option, EcoForm seamlessly simplifies site conversions to LED by eliminating the need for additional pole drilling on most existing poles. RAM will be boxed separately.

2.375''
6.03 cm

5.1875''
13.18 cm

Listings

ETL/cETL listed to the UL 1598 standard, suitable for Wet Locations. Suitable for use in ambients from -40° to 40°C (-40° to 104°F). The quality systems of this facility have been registered by UL to the ISO 9001 series standards. All EcoForm luminaires equipped with NW and CW are DesignLights Consortium® qualified.

Finish

Each standard color luminaire receives a fade and abrasion resistant, electrostatically applied, thermally cured, triglycidal isocyanurate (TGIC) textured polyester powdercoat finish. Standard colors include bronze (BRP), black (BLP), white (WP), and natural aluminum (NP). Consult factory for specs on optional or custom colors.

Warranty

EcoForm luminaires feature a 5 year limited warranty. Philips Gardco LED luminaires with LED arrays feature a 5 year limited warranty covering the LED arrays. LED Drivers also carry a 5 year limited warranty. Motion sensors are covered by warranty for 5 years by the motion sensor manufacturer.

Predicted Lumen Depreciation Data[1]				
Ambient Temperature °C	Driver (mA)	Calculated L_{70} Hours[1,2]	L_{70} Per TM-21[2,3]	Lumen Maintenance % @ 60,000 hours
Up to 40 °C	Up to 1050 mA	> 350,000 hours	> 60,000 hours	97%

1. Predicted performance derived from LED manufacturer's data and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions.
2. L70 is the predicted time when LED performance depreciates to 70% of initial lumen output.
3. Calculated per IESNA TM21-11. Published L70 hours limited to 6 times actual LED test hours.

PHILIPS

PHILIPS
GARDCO

Site & Area

EcoForm

EcoForm combines economy with performance in an LED area luminaire. Capable of delivering up to 20,000 lumens or more in a compact, low profile housing, EcoForm offers a new level of customer value. EcoForm features an innovative retrofit arm kit, simplifying site conversions to LED by eliminating the need to drill additional holes in most existing poles. Integral control systems, including motion response and wireless controls are available for further energy savings during off peak hours.

Ordering guide

example: ECF-APD-MRO-1-4-75LA-NW-120-NP-LF

Prefix	Controls	Mounting	Optics	LED Wattage	Color Temp	Voltage	Finish	Options
ECF –			–	–	–	–	–	

Prefix	Controls	Mounting	Optics	LED Wattage	Color Temp	Voltage	Finish	Options
ECF EcoForm	**—** Standard luminaire (leave blank)	**1** Standard	**2** Type 2	**530 mA** **55LA-3253**[1] **75LA-4853** **100LA-6453**	**CW** Cool White 5,700 K 70 CRI (nominal)	**120** 120V	**BRP** Bronze Paint	**TL** Tool-Less entry and driver removal hardware
	DIM 0-10V Dimming	**2** 2@180	**3** Type 3			**208** 208V	**BLP** Black Paint	**TB**[3] Terminal Block
	APD[1] Auto Profile Dimming	**2@90** 2@90	**4** Type 4	**700mA** **70LA-3270** **105LA-4870** **135LA-6470**	**NW** Neutral White 4,000 K 70 CRI (nominal)	**240** 240V	**WP** White Paint	**IS**[6] Internal Shield
	APD–MRO[2] Auto Profile Dimming and Motion Response Override pole mounted motion sensor	**3** 3@90	**5** Type 5			**277** 277V	**NP** Natural Paint	**LF**[7] Line Fusing
		3@120 3@120		**1050mA** **105LA–321A**[1] **160LA–481A** **215LA–641A**	**WW**[4] Warm White 3,000 K 70 CRI (nominal)	**347** 347V	**OC** Optional Color Specify optional color or RAL (ex: OC-LGP or OC-RAL7024)	**LFC**[7] Line Fusing for Canada
	APD–MRI[2,3] APD with Motion Response Override luminaire sensor	**4** 4@90				**480** 480V		**PC**[5,7,8] Receptacle with Photocell (Includes PCR5)
	MRI[2,3] Motion Response at 50% low luminaire sensor	**WS** Wall mount including surface conduit rear entry permitted				**UNV** 120-277V 50hz/60hz		**PCB**[5,7,8] Photocell Button
	MR50[2] Motion Response at 50% low, pole mounted sensor	**MA** Mast Arm Fitter (requires 2-3/8" O.D. Mast Arm)				**HVU** 347-480V 50hz/60hz	**SC** Special color Specify, must supply color chip. Requires factory quote.	**PCR5**[5,11,13] Photocell Receptacle only with 2 dimming connections
	LimeLight Wireless Controls							**PCR7**[5,12,13] Photocell Receptacle only with 2 dimming and 2 auxiliary connections
	LLC2[1,5] #2 lens for 8-15' mounted heights							**RAM** Retrofit Arm Mount kit
	LLC3[1,5] #3 lens for 15-25' mounted heights							**PTF2**[9] Pole Top Fitter for 2 3/8"– 3" Tenon
	LLC4[1,5] #4 lens for 25-40' mounted heights							**PTF3**[9] Pole Top Fitter for 3"– 3 1/2" Tenon
								PTF4[9] Pole Top Fitter for 3 1/2"– 4" Tenon
								RPA[10] Round Pole Adapter for 3"– 3.9" O.D.
								BD Bird Deterrent (field installed only)

1. Available in 120V–277V Voltages only (UNV, 120, 208, 240 & 277).
2. MR50 and APD–MRO luminaires require one motion sensor per pole, ordered separately. See page 2 for Accessories. Available in 120V or 277V only.
3. ECF-MRI requires outboarded sensor when used with Terminal Block (TB) Option.
4. Contact factory for lead times on warm white.
5. LLC2/LLC3/LLC4 Wireless Controls are not configurable with PC/PCB/PCR5/PCR7 Options. See page 7–8 for more info.
6. Not configurable with Type 5 (5) Optics.
7. Not configurable with 120–277V (UNV) Voltage. Voltage must be specified.
8. Not configurable with 480V (480) Voltage.
9. Not configurable with 3@120 (3@120) Mounting.
10. No adaptor required for 4" round poles. RPAs provided with Black Paint standard.
11. Works with 3-pin or 5-pin NEMA photocell/dimming device.
12. Works with 3-pin or 5-pin NEMA photocell/dimming device and auxiliary connections are not connected (for future use only).
13. If ordered with DIM, APD, MRI, MR50, APD-MRI, APD-MRO, dimming will not be connected to NEMA receptacle.

ECF EcoForm

Site & Area

EcoForm Accessories (order separately)

FS1R-100

MR hand held programmer

For use with 'MRI' motion response when field programming is required. If desired, only one is needed per job.
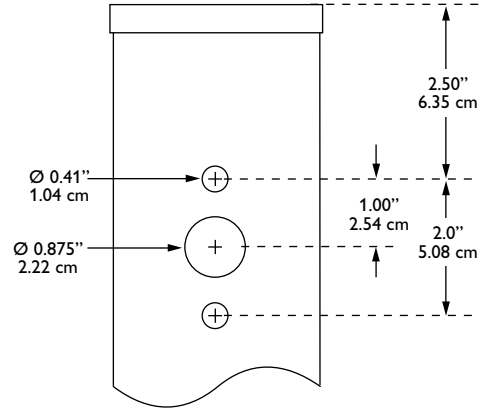
MS-A-120V

120V Input Area Motion Sensor

For MR50 (Motion Response) or APD-MRO (Automatic Profile Dimming with Motion Response Override)

MS-A-277V

277V Input Area Motion Sensor

For MR50 (Motion Response) or APD-MRO (Automatic Profile Dimming with Motion Response Override)

Note: Motion Sensors are ordered separately, with one (1) motion sensor required per pole location for MR50 or APD-MRO luminaires. See Luminaire Configuration Information on page 5 for more details. Area motion sensor color is Arctic White. MRI and APD-MRI luminaires include an integral motion sensor.

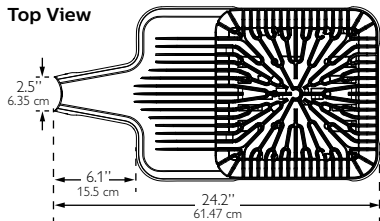### EcoForm Drill Template (standard arm mount)

Ø 0.41" 1.04 cm

Ø 0.875" 2.22 cm

2.50" 6.35 cm

1.00" 2.54 cm

2.0" 5.08 cm

LED Wattage and Lumen Values (standard EcoForm luminaire)

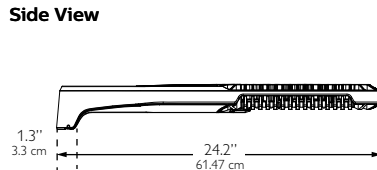| Order Code (standard units)	Array Quantity	Total LEDs	LED Current (mA)	Average System Watts[1]	LED Selection	Initial Lumens[2]			
						2 Type 2	3 Type 3	4 Type 4	5 Type 5
55LA-3253	2	32	530	52	NW	5,994 (s)	5,895 (s)	5,823 (s)	5,588 (s)
75LA-4853	3	48	530	77	NW	8,899 (s)	8,753 (s)	8,646 (s)	8,297 (s)
100LA-6453	4	64	530	103	NW	11,896 (s)	11,700	11,558	11,091
70LA-3270	2	32	700	69	NW	7,385 (s)	7,576 (s)	7,293 (s)	7,068 (s)
105LA-4870	3	48	700	104	NW	10,965 (s)	11,249 (s)	10,828 (s)	10,494 (s)
135LA-6470	4	64	700	139	NW	14,657 (s)	15,037	14,475 (s)	14,028
105LA-321A	2	32	1050	107	NW	10,199 (s)	10,458	10,072 (s)	9,767
160LA-481A	3	48	1050	158	NW	15,144 (s)	15,565	14,955 (s)	14,465
215LA-641A	4	64	1050	211	NW	20,243	20,252	19,991	19,880

1. System input wattage may vary based on input voltage, by up to +/- 10% , and based on manufacturer forward voltage, by up to +/- 8%.
2. Lumen values based on photometric tests performed in compliance with IESNA LM-79.
(s). Data is scaled based on tests of similar, but not identical, luminaires.
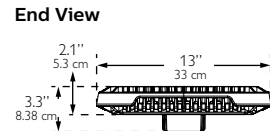
Dimensions — Standard EcoForm luminaire

Top View

2.5" 6.35 cm

6.1" 15.5 cm

24.2" 61.47 cm

Side View

1.3" 3.3 cm

24.2" 61.47 cm

EPA (ft²/m²)

Single	Twin (2@180)	3/4@90
0.2 / 0.019	0.5 / 0.046	0.5 / 0.046

End View

2.1" 5.3 cm

13" 33 cm

3.3" 8.38 cm

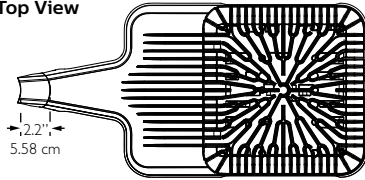Approximate Luminaire Weight: 20 Lbs (9.07 Kg)

ECF EcoForm

Site & Area

Dimensions — EcoForm with Retrofit Arm Mount (RAM)

Top View

2.2"
5.58 cm

Side View

26"
66.04 cm

23.8"
60.45 cm

6.6"
16.76 cm

End View

13"
33.02 cm

3.3"
8.38 cm

6.6"
16.76 cm

EPA (ft²/m²)

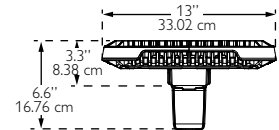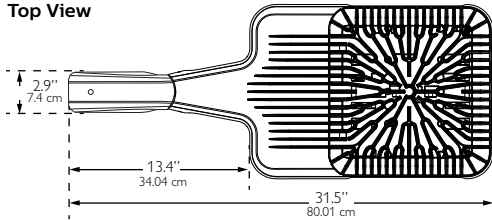| Single	Twin (2@180)	3/4@90
0.3 / 0.028	0.6 / 0.056	0.7 / 0.065

Approximate Luminaire Weight:
21 Lbs (9.53 Kg)
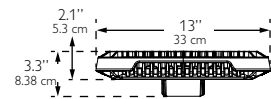

Dimensions — EcoForm with Mast Arm Fitter (MA)

Top View

2.9"
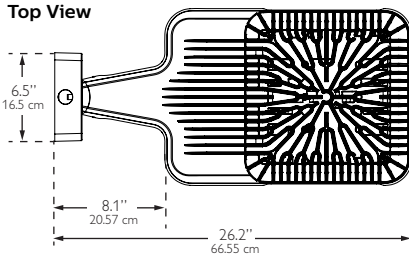7.4 cm

13.4"
34.04 cm

31.5"
80.01 cm

Side View

3.3"
8.4 cm

7.7"
19.56 cm

31.5"
80.01 cm

End View

2.1"
5.3 cm

13"
33 cm

3.3"
8.38 cm

EPA (ft²/m²)

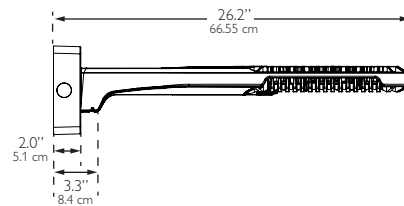| Single |
|---|
| 0.51 / 0.047 |

Approximate Luminaire Weight:
21.5 Lbs (9.77 Kg)

Dimensions — EcoForm with Wall Mount (WS)

Top View

6.5"
16.5 cm

8.1"
20.57 cm

26.2"
66.55 cm

Side View

26.2"
66.55 cm

2.0"
5.1 cm

3.3"
8.4 cm

End View

13"
33 cm

1.5"
3.8 cm

6.5"
16.5 cm

3.23"
8.2 cm

6.5"
16.5 cm
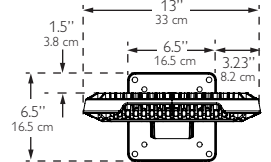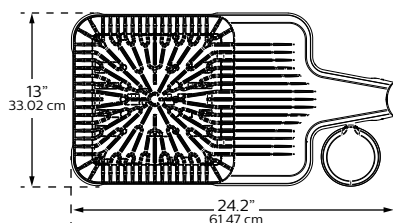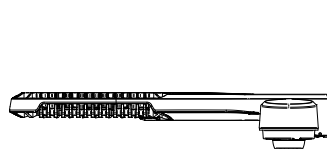
Approximate Luminaire Weight:
23.36 Lbs (10.6 Kg)

Dimensions — EcoForm with LimeLight Luminaire mounted controller

Top View

13"
33.02 cm

24.2"
61.47 cm

Side View

End View

2.1"
5.33 cm

3.3"
8.38 cm

4.4"
11.18 cm
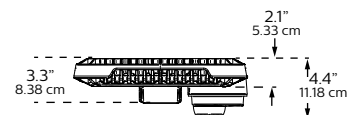
ECF EcoForm

Site & Area

Luminaire Configuration Information

ECF

Philips Gardco EcoForm LED standard luminaire providing constant wattage and constant light output when power to the luminaire is energized.

ECF–DIM

Philips Gardco EcoForm LED luminaire provided with 0–10V dimming for connection to a control system provided by others.

ECF–APD

Philips Gardco EcoForm LED luminaire with Automatic Profile Dimming. Luminaire is provided with a Philips DynaDimmer module, programmed to go to 50% power, 50% light output two (2) hours prior to night time mid–point and remain at 50% for six (6) hours after night time mid–point. Mid–point is continuously recalculated by the Philips DynaDimmer module based on the average mid–point of the last two full night cycles. Short duration cycles, and power interruptions are ignored and do not affect the determination of mid–point.

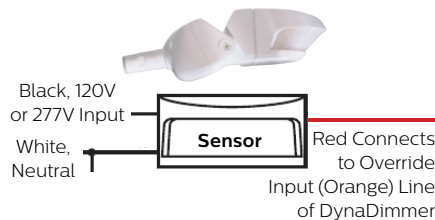ECF–APD is available in 120V–277V input only.

ECF–APD Dimming Profile:

	2 hours	6 hours	
100%			**100%**
	50%	50%	
Power On	**Mid Point**		**Power Off**

ECF–MR50

Philips Gardco EcoForm LED luminaire with motion response, providing a 50% power reduction on low and a commensurate reduction in light output. The power and light output reduction is accomplished utilizing the Philips DynaDimmer module, programmed for a constant 50% power. Power supplied by the motion sensor connected to the override line on the DynaDimmer takes the luminaire to high setting, 100% power and light output, when motion is detected. The luminaire remains on high until no motion is detected for the motion sensor duration period, after which the luminaire returns to low. Duration period is factory set at 15 minutes, and is field adjustable from 5 minutes up to 15 minutes.
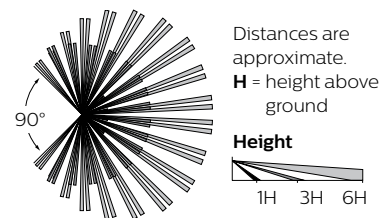
ECF–MR50 is available in 120V–277V input only to the luminaire. Motion sensors require single voltage 120V or 277V input.

The Area PIR motion sensor is the WattStopper EW-200-120-W (120V Input - MSA-120V) or the WattStopper EW-200-277-W (277V Input - MSA-277V.) One motion sensor per pole is required and is ordered separately. Area sensors require single voltage 120V or 277V input.
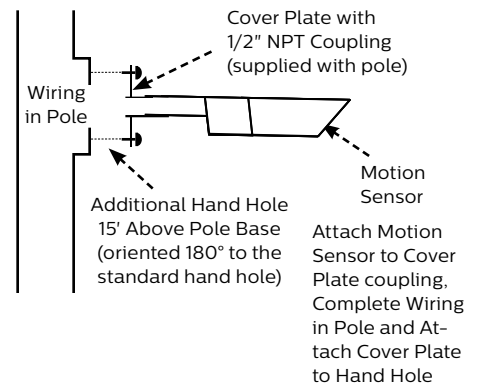

Black, 120V or 277V Input — **Sensor** — Red Connects to Override Input (Orange) Line of DynaDimmer
White, Neutral

The area motion detector provides coverage equal to up to 6 times the sensor height above ground, 270° from the front-center of the sensor.

Area PIR Motion Sensor Coverage Pattern:

Distances are approximate.
H = height above ground

Height

1H   3H   6H

90°

Motion response requires that the pole include an additional hand hole 15 feet above the pole base, normally oriented 180° to the standard hand hole. For Philips Gardco poles, order the pole with the Motion Sensor Mounting (MSM) option which includes the hand hole and a special hand hole cover plate for the sensor with a 1/2" NPT receptacle centered on the hand hole cover plate into which the motion sensor mounts. Once the motion sensor is connected to the hand hole cover plate, then wiring connections are completed in the pole. The plate (complete with motion sensor attached and wired) is then mounted to the hand hole. If poles are supplied by others, the customer is responsible for providing suitable mounting accommodations for the motion sensor in the pole.

Mounting to a Philips Gardco Pole:

Cover Plate with 1/2" NPT Coupling (supplied with pole)

Wiring in Pole

Motion Sensor

Additional Hand Hole 15' Above Pole Base (oriented 180° to the standard hand hole)

Attach Motion Sensor to Cover Plate coupling, Complete Wiring in Pole and Attach Cover Plate to Hand Hole

ECF–APD–MRO

Philips Gardco EcoForm LED luminaire with Automatic Profile Dimming, with Motion Response Override. The ECF–APD–MRO combines the benefits of both automatic profile dimming and motion response, using the Philips DynaDimmer module. The luminaire will dim to 50% power, 50% light output, per the dimming profile shown for the ECF–APD. If motion is detected during the time that the luminaire is operating at 50%, the luminaire returns to 100% power and light output. The luminaire remains on high until no motion is detected for the duration period, after which the luminaire returns to low. Duration period is factory set at 15 minutes, and is field adjustable from 5 minutes up to 15 minutes.

Notes:

ECF–APD–MRO is available in 120V through 277V input only to luminaire. The motion sensor requires either 120V or 277V input to the motion sensor.

The ECF–APD–MRO has the same pole requirements and utilizes the same motion sensors as the ECF–MR50. The motion sensor mounts and wires identically as well. The ECF–APD–MRO utilizes the identical dimming profile as shown for the ECF–APD.

By combining the benefits of automatic profile dimming and motion response, the ECF–APD–MRO assures maximum energy savings, and insures that adequate light is present if motion is detected.

All motion sensors utilized consume 0.0 watts in the off state.

ECF EcoForm

Site & Area

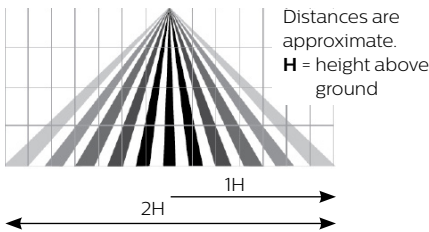## Luminaire Configuration Information (Continued)

ECF–MRI

Luminaires with Motion Response include a LED driver and an integral programmable motion sensor. The motion sensor is set to a constant 50%. When motion is detected, the luminaire goes to 100%. The luminaire remains on high until no motion is detected for the motion sensor duration period, after which the luminaire returns to low. Duration period is factory set at 5 minutes. Available with 120V or 277V only.
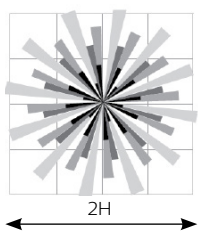
Luminaires include a passive infrared (PIR) motion sensor, WattStopper® FSP-211 equipped with an FSP–L3 lens, capable of detecting motion within 20 feet of the sensor, 180° around the luminaire, when placed at a 20 foot mounting height, or mounted on a wall. Available in 120V or 277V input only. Motion sensor off state power is 0.0 watts.

The approximate motion sensor coverage pattern is as shown below.

Side Coverage Pattern

Distances are approximate.
H = height above ground

1H

2H

Top Coverage Pattern

2H

ECF–APD–MRI

Luminaires with Automatic Profile Dimming and Motion Response Override combine the benefits of both automatic profile dimming and motion response. APD-MRI luminaires utilize Philips DynaDimmer. The luminaire will dim to 50% power, 50% light output, per the dimming profile shown for APD luminaires (see page 4). If motion is detected during the time that the luminaire is operating at 50%, the luminaire goes to 100% power and light output. The luminaire remains on high until no motion is detected for the duration period, after which the luminaire returns to low. Duration period is factory set at 5 minutes.

APD-MRI luminaires are available with 120V or 277V input voltages only.

APD-MRI luminaires use the identical motion sensor as MRI luminaires. See motion sensor details for ECF–MRI.

FS1R-100 Wireless Remote Programming Tool

The FS1R-100 Remote Programming Tool accessory permits adjustment of ECF-MRI and ECF-APD-MRI sensor settings, including duration and dimming level on low, without the need to connect any wires to the luminaire.
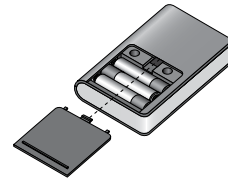
The FS1R-100 Wireless IR Programming Tool is a handheld tool for setup and testing of WattStopper FSP-211. It provides wireless access to the FSP-211 sensors for setup and parameter changes.

The FS1R-100 display shows menus and prompts to lead you through each process. The navigation pad provides a familiar way to navigate through the customization fields.

Within a certain mounting height of the sensor, the FS1R-100 allows modification of the system without requiring ladders or tools simply with a touch of a few buttons.
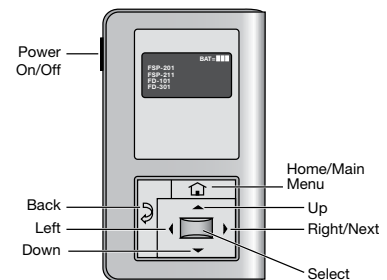
The FS1R-100 IR transceiver allows bi-directional communication between the FSP-211 and the FS1R-100 programming tool . Simple menu screens let you see the current status of the system and make changes. It can change FSP-211 sensor parameters such as high/low mode, sensitivity, time delay, cut off and more. With the FS1R-100 you can also establish and store FSP-211 parameter profiles.

The FS1R-100 operates on three standard 1.5V AAA Alkaline batteries or three rechargeable AAA NiMH batteries. The battery status displays in the upper right corner of the display. Three bars next to BAT= indicates a full battery charge. A warning appears on the display when the battery level falls below a minimum acceptable level. To conserve battery power, the FS1R-100 automatically shuts off 10 minutes after the last key press.

You navigate from one field to another using (up) or (down) arrow keys. The active field is indicated by flashing (alternates between yellow text on black background and black text on yellow background.)

Once active, use the Select button to move to a menu or function within the active field. Value fields are used to adjust parameter settings. They are shown in "less-than/greater-than" symbols: <value>. Once active, change them using (left) and (right) arrow keys. In general the up key increments and the down key decrements a value. Selections wrap–around if you continue to press the key beyond maximum or minimum values. Moving away from the value field overwrites the original value. The Home button takes you to the main menu. The Back button can be thought of as an undo function. It takes you back one screen. Changes that were in process prior to pressing the key are lost.More information on the FS1R-100 Remote Programming Tool is available at wattstopper.com.

Power On/Off

FSP-201
FSP-211
FD-101
FD-301

BAT=

Home/Main Menu

Back
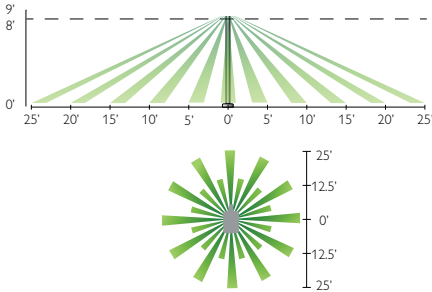
Left

Down

Up

Right/Next

Select

ECF   EcoForm

Site & Area

Luminaire Configuration Information — EcoForm with LimeLight

ECF–LLC2

EcoForm with Limelight wireless technology

Controller pod attached to luminaire arm and includes radio, photocell and motion sensor with #2 lens for 8–15' mounting heights.
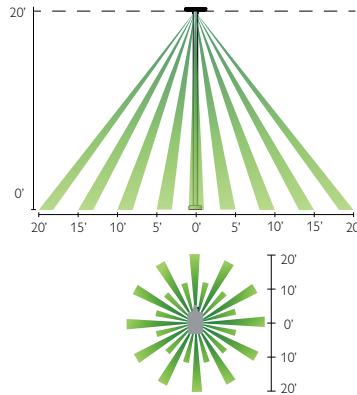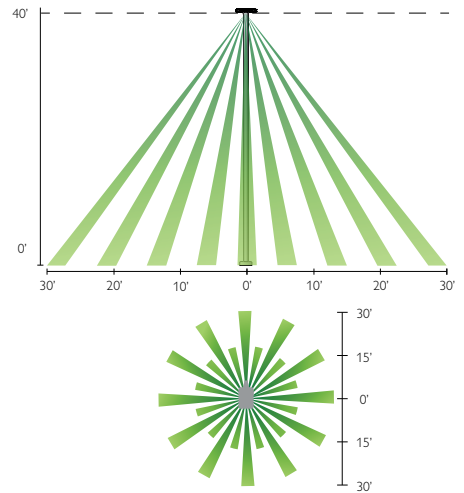
ECF–LLC3

EcoForm with Limelight wireless technology

Controller pod attached to luminaire arm and includes radio, photocell and motion sensor with #3 lens for 15–25' mounting heights.
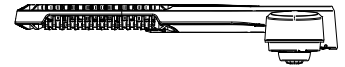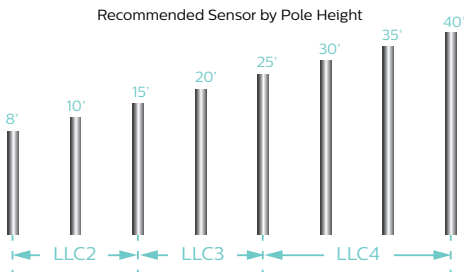
ECF–LLC4

EcoForm with Limelight wireless technology

Controller pod attached to luminaire arm and includes radio, photocell and motion sensor with #4 lens for 25–40' mounting heights.
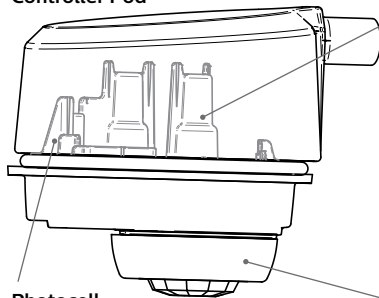

Luminaire Configuration Information — EcoForm with LimeLight

ECF–LLC(#)

With this configuration, the controller pod is mounted to the luminaire arm. One controller is required per luminaire. There are three different motion sensor configurations available. Each one corresponds to the desired mounting height that for your specific application. See motion response detection ranges below.

Recommended Sensor by Pole Height

Controller Pod

Photocell

– Ambient light photocell on every wireless radio that averages the light levels of up to 5 controllers for an accurate reading and optimal light harvesting activity.

– Reports ambient light readings to 1500 Fc.

Wireless Radio

– 1.8 Watts max (no load draw)
– Operating voltage 102–277V RMS
– Communicates using the ZigBee protocol
– Carries out dimming commands from gateway
– Reports internal PCB temperature
– Transmission Systems Operating within the band 2400–2483.5Mhz. IEEE 802.15.4
– ROHS Compliant

Motion Response

– Three different lens configurations
– Detects motion through passive InfraRed sensing technology
– Connects directly to radio through modular jack
– Three different mounting heights and detecion ranges available

ECF EcoForm

Site & Area

Luminaire Configuration Information — EcoForm with LimeLight (Continued)
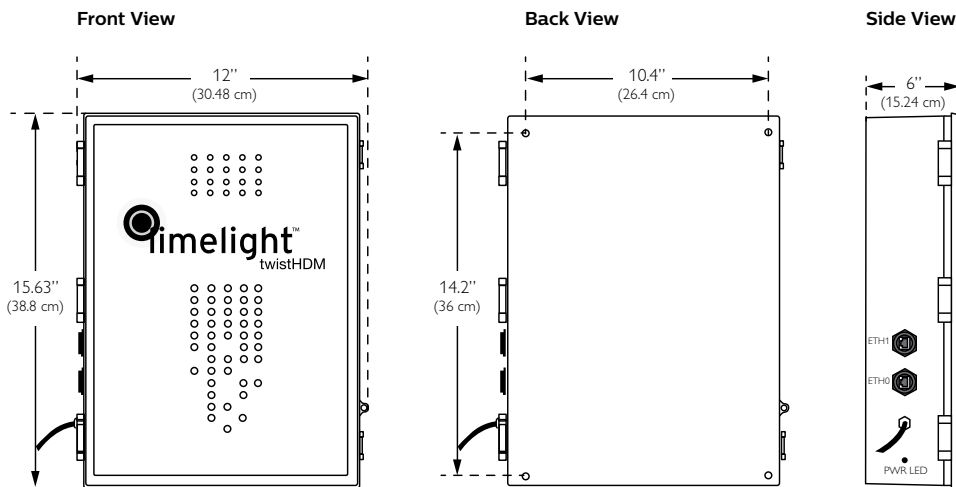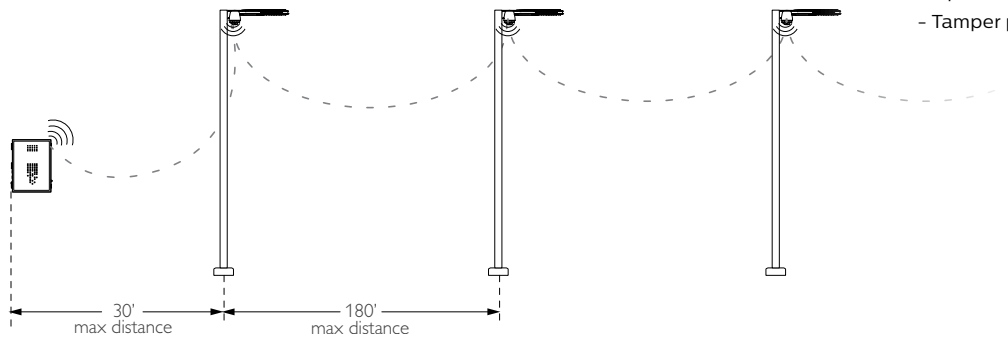
Gateway

Overview: One gateway is included with the wireless controls system. The gateway opens up communication with the wireless radios installed with the EcoForm luminaires (or pole), allowing you to control your fixtures straight from the web. One LimeLight gateway can communicate with up to 800 fixtures. Typically one unit is required per parking lot.

Installation: Gateway has 4 blind threaded holes on the back side that accept 10-32 screws. Mount spacing is 10.41" across and 14.19" vertical.

Requirements: The gateway must be mounted in a secure on-site location. The gateway requires 120V. Distance of gateway to the first radio varies upon application; contact factory. Strong internet connection required.

Specifications:
- High density RF Mesh coordinator
- Ethernet or wireless internet connection to LimeLight server
- Proprietor of software "rules of operation"
- Watertight Ethernet connections
- Highly protected, long life ac/dc power supply
- Single board, ARM compliant 520Mhz Intel computer.
- Operating Temperature –20°C to 55°C
- Tamper proof housing

30'
max distance

180'
max distance

Front View

12"
(30.48 cm)

15.63"
(38.8 cm)

limelight™ twistHDM

Back View

10.4"
(26.4 cm)

14.2"
(36 cm)

Side View

6"
(15.24 cm)

ETH1
ETH0
PWR LED

ECF EcoForm

Site & Area

Specifications

Housing

One piece die cast aluminum housing with integral arm and separate,self retained hinged, one piece die cast door frame.

IP Rating

LED light engine rated IP66.

Vibration Resistance

EcoForm with Standard Arm carries a 3G vibration rating that conforms to standards set forth by ANSI C136.31. Testing includes vibration to 3G acceleration in three axes, all performed on the same luminaire.

Electrical

Driver efficiency (>90% standard). 120–480V available (restrictions apply). Open/short circuit protection. Optional 0-10V dimming to 10% power. RoHS compliant. Surge protector standard. 10KA per ANSI/IEEE C62.41.2.

LED Board and Array

32, 48, or 64 LEDs. Color temperatures: 3000K, 4000K, 5700K +/- 250K. Minimum CRI of 70. Aluminum metal clad board. RoHS compliant.

LED Thermal Management

The housing design allows the one piece housing to provide excellent thermal management critical to long LED system life.

Energy Saving Benefits

System efficacy up to 95 lms/W with significant energy savings over Pulse Start Metal Halide luminaires. Optional control options provide added energy savings during unoccupied periods.

LED Performance

Wireless Controls

The LimeLight wireless Controls System includes: gateway, controller pod (with wireless radio, motion response, and photocell), and commissioning/training. LimeLight is an intelligent web-based system that operates through a high density mesh (HDM) wireless technology. Wireless radios with motion response and photocell sensors are integrated with PureForm luminaires, and enable the fixtures to communicate via the ZigBee protocol. The gateway is a mini computer that connects to the internet, and is located in a secure location. The central LimeLight database channels communication to and from the gateway, allowing data to be viewed or managed through the web-based graphical user interface (GUI). See LimeLight pages for details and technical information.

Motion Sensors

ECF-MR50, ECF-APD-MRO, ECF-MRI, ECF-APD-MRI luminaires may be specified for additional energy savings during unoccupied periods. See pages 4-6 for complete details.
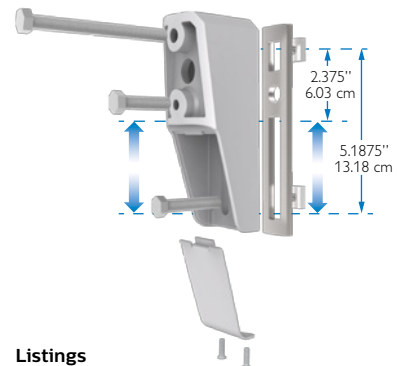
Optical Systems

Type 2, 3, 4, and 5 distributions available. Internal Shield option mounts to LED optics and is available with Type 2, 3, and 4 distributions to control backlight.

Mounting

Standard luminaire arm mounts to 4" round poles. Square pole adapter included with every luminaire. Round Pole Adapter (RPA) required for 3-3.9" poles.

Retrofit Arm Mount

EcoForm features an innovative retrofit arm kit. When specified with the retrofit arm (RAM) option, EcoForm seamlessly simplifies site conversions to LED by eliminating the need for additional pole drilling on most existing poles. RAM will be boxed separately.

2.375''
6.03 cm

5.1875''
13.18 cm

Listings

ETL/cETL listed to the UL 1598 standard, suitable for Wet Locations. Suitable for use in ambients from -40° to 40°C (-40° to 104°F). The quality systems of this facility have been registered by UL to the ISO 9001 series standards. All EcoForm luminaires equipped with NW and CW are DesignLights Consortium® qualified.
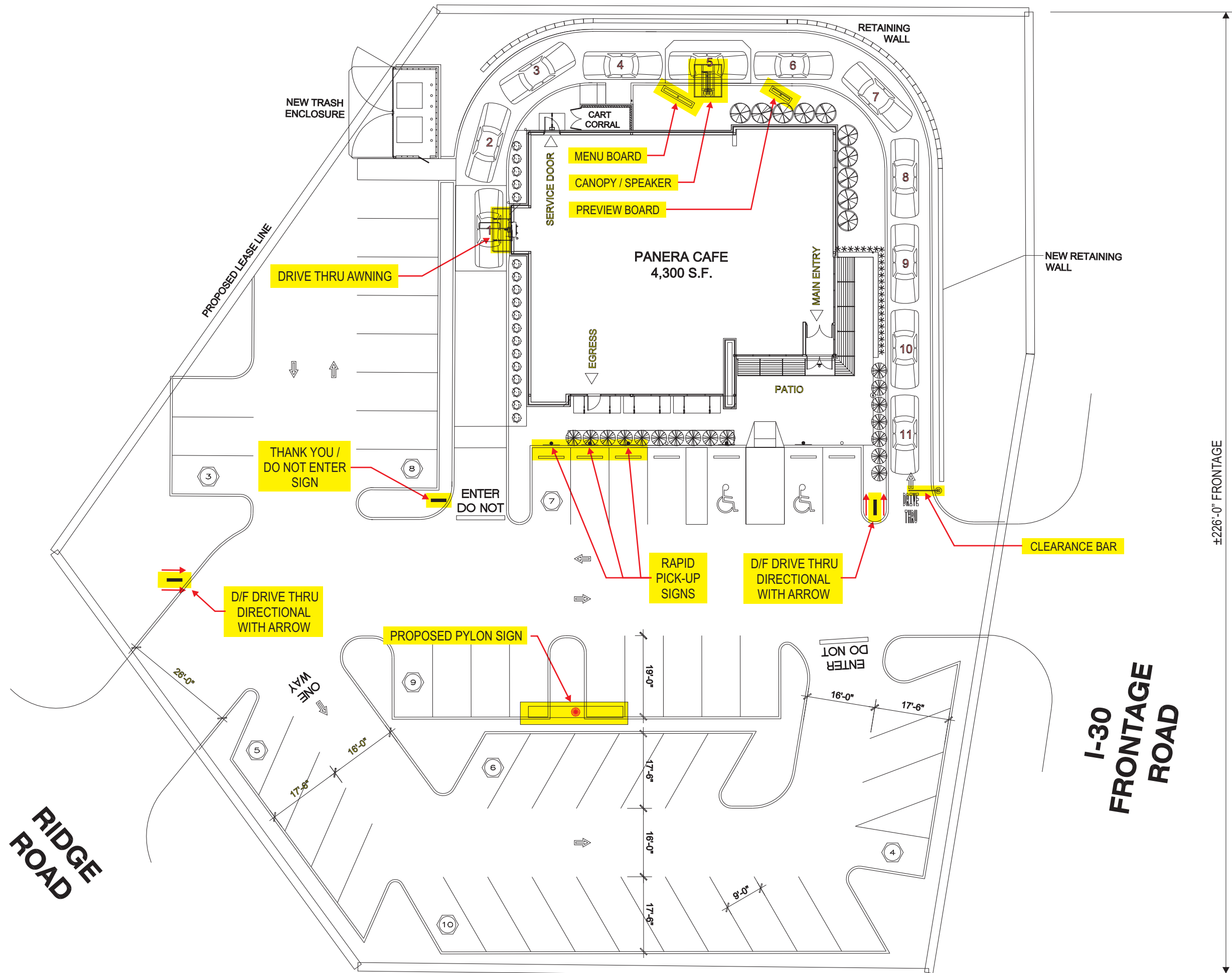
Finish

Each standard color luminaire receives a fade and abrasion resistant, electrostatically applied, thermally cured, triglycidal isocyanurate (TGIC) textured polyester powdercoat finish. Standard colors include bronze (BRP), black (BLP), white (WP), and natural aluminum (NP). Consult factory for specs on optional or custom colors.

Warranty

EcoForm luminaires feature a 5 year limited warranty. Philips Gardco LED luminaires with LED arrays feature a 5 year limited warranty covering the LED arrays. LED Drivers also carry a 5 year limited warranty. Motion sensors are covered by warranty for 5 years by the motion sensor manufacturer.

Predicted Lumen Depreciation Data[1]				
Ambient Temperature °C	Driver (mA)	Calculated L_{70} Hours[1,2]	L_{70} Per TM-21[2,3]	Lumen Maintenance % @ 60,000 hours
Up to 40 °C	Up to 1050 mA	> 350,000 hours	> 60,000 hours	97%

1. Predicted performance derived from LED manufacturer's data and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions.
2. L70 is the predicted time when LED performance depreciates to 70% of initial lumen output.
3. Calculated per IESNA TM21-11. Published L70 hours limited to 6 times actual LED test hours.

RETAINING WALL

NEW TRASH ENCLOSURE

CART CORRAL

SERVICE DOOR

MENU BOARD

CANOPY / SPEAKER

PREVIEW BOARD

PANERA CAFE
4,300 S.F.

MAIN ENTRY

NEW RETAINING WALL

PROPOSED LEASE LINE

DRIVE THRU AWNING

EGRESS

PATIO

THANK YOU / DO NOT ENTER SIGN

ENTER DO NOT

DRIVE THRU

CLEARANCE BAR

RAPID PICK-UP SIGNS

D/F DRIVE THRU DIRECTIONAL WITH ARROW

±226'-0" FRONTAGE

D/F DRIVE THRU DIRECTIONAL WITH ARROW

26'-0"

ONE WAY

PROPOSED PYLON SIGN

19'-0"

ENTER DO NOT

16'-0"   17'-6"

16'-0"

17'-6"

16'-0"

9'-0"

17'-6"

RIDGE ROAD

I-30 FRONTAGE ROAD

APPROVALS
Signatures Required Before Release to Production

Engineering
BY   DATE
Sales
BY   DATE
Estimating
BY   DATE
Production
BY   DATE
Quality Control
BY   DATE

PDF NAME

REVISIONS

NO	BY	DESCRIPTION	DATE
1	JM	reuse pylon sign base	03/16/16
2			
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All electrical signs shall comply with the National Electric Code (Article 600) and be manufactured according to Underwriters Laboratories U.L. 48 standards and labeled accordingly.
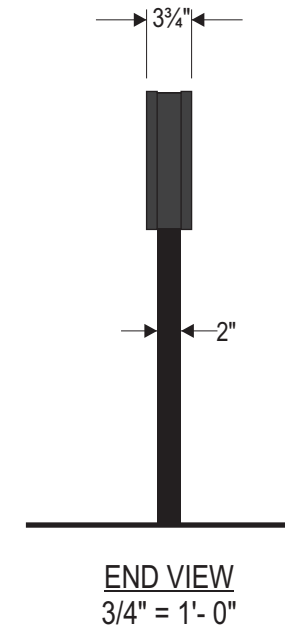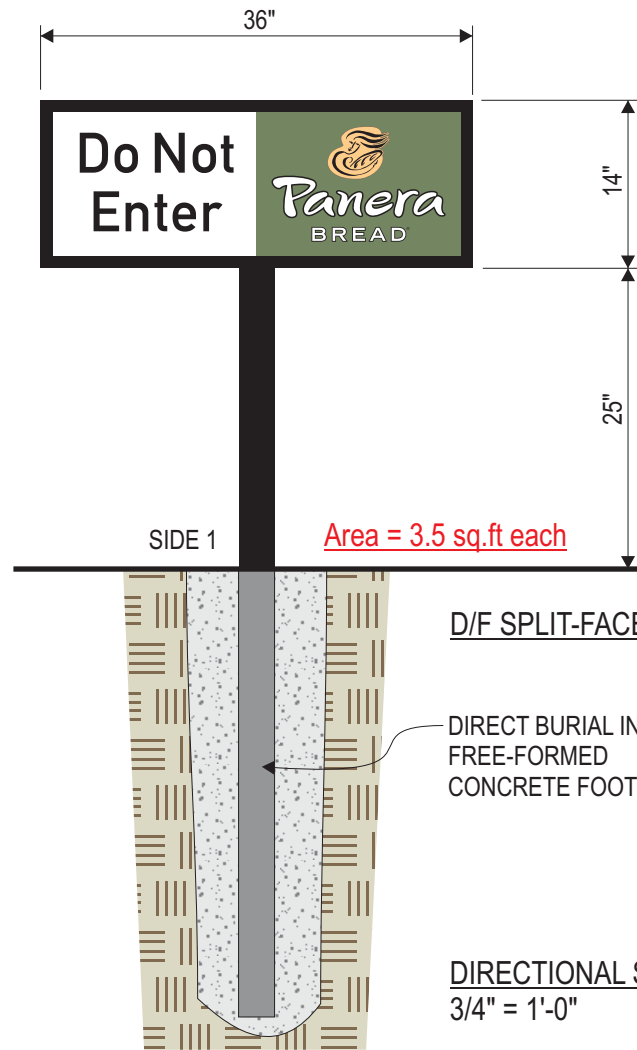
WORK ORDER #   27910-1

PANERA BREAD DRIVE THRU

CUSTOMER

1982
STORE NUMBER

2804 Ridge Road
ROCKWALL, TX
LOCATION

Jim / Linda
PROJECT MANAGER

WD   01/21/16
ARTIST   DATE

27910.7
DRAWING NAME

36"

Do Not Enter

Panera BREAD

14"

25"

SIDE 1

Area = 3.5 sq.ft each

DIRECT BURIAL IN FREE-FORMED CONCRETE FOOTING

Panera BREAD

Thank You

QUANTITY = (1)

SIDE 2

D/F SPLIT-FACE DIRECTIONAL SIGN w/ LOGO

DIRECTIONAL SIGNS
3/4" = 1'-0"

3¾"

2"

END VIEW
3/4" = 1'- 0"

INTERNALLY ILLUMINATED DIRECTIONAL SIGNS:

• (BLACK) PAINTED 3¾" DEEP .063 ALUM. RETURNS & 1" ALUM. RETAINERS
• CLEAR POLYCARBONATE SIGN FACES
• DIGITALLY PRINTED VINYL GRAPHICS APPLIED to 2ND SURFACE:
  - OPAQUE PMS 5757u GREEN BACKGROUND,
  - WHITE Panera Bread w/ BLACK OUTLINES
  - PANTONE 1355 PEACH LOGO w/ BLACK DETAILS
  - BLACK MESSAGE COPY & ARROWS IF REQUIRED
• HIGH OUTPUT FLUORESCENT ILLUMINATION
• ELECTRICAL REQUIREMENTS = .5 AMP EA. @ 120 VOLTS
• (BLACK) 2" DEEP X 3" WIDE X 1/4" WALL ALUMINUM TUBE POSTS
• (BLACK) PAINTED FINISHED .080 ALUM. BACKS ON SINGLE FACE SIGNS
• DIRECT BURIAL IN FREE-FORMED CONCRETE FOOTING

36"

◄ **Drive Thru**

Panera BREAD

14"

25"

SIDE 1

Area = 3.5 sq.ft each

Panera BREAD

Drive Thru ►

QUANTITY = (2)

SIDE 2

D/F SPLIT-FACE DIRECTIONAL SIGN w/ LOGO
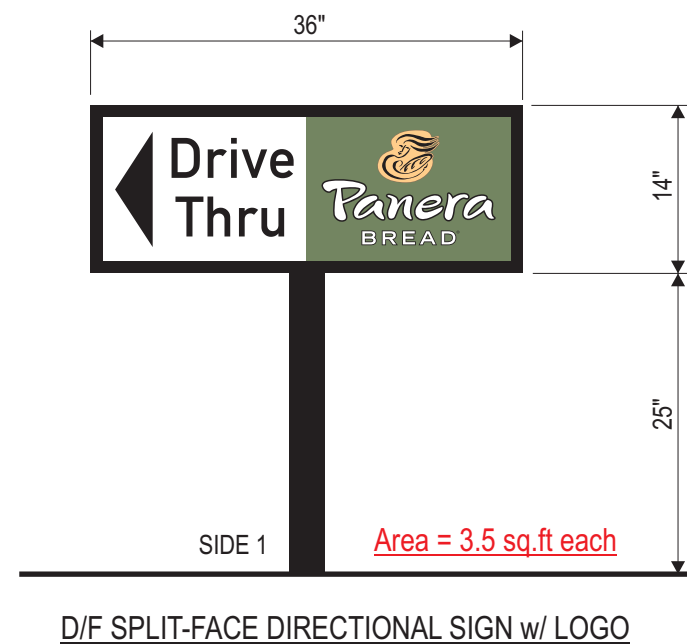
DIRECTIONAL SIGNS ALLOWANCE:
Logos are allowed.
Not to exceed 8 sq.ft. each face.
Height undefined

CODE COMPLIANT

APPROVALS
Signatures Required Before Release to Production

Engineering		
BY		DATE
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PDF NAME

REVISIONS

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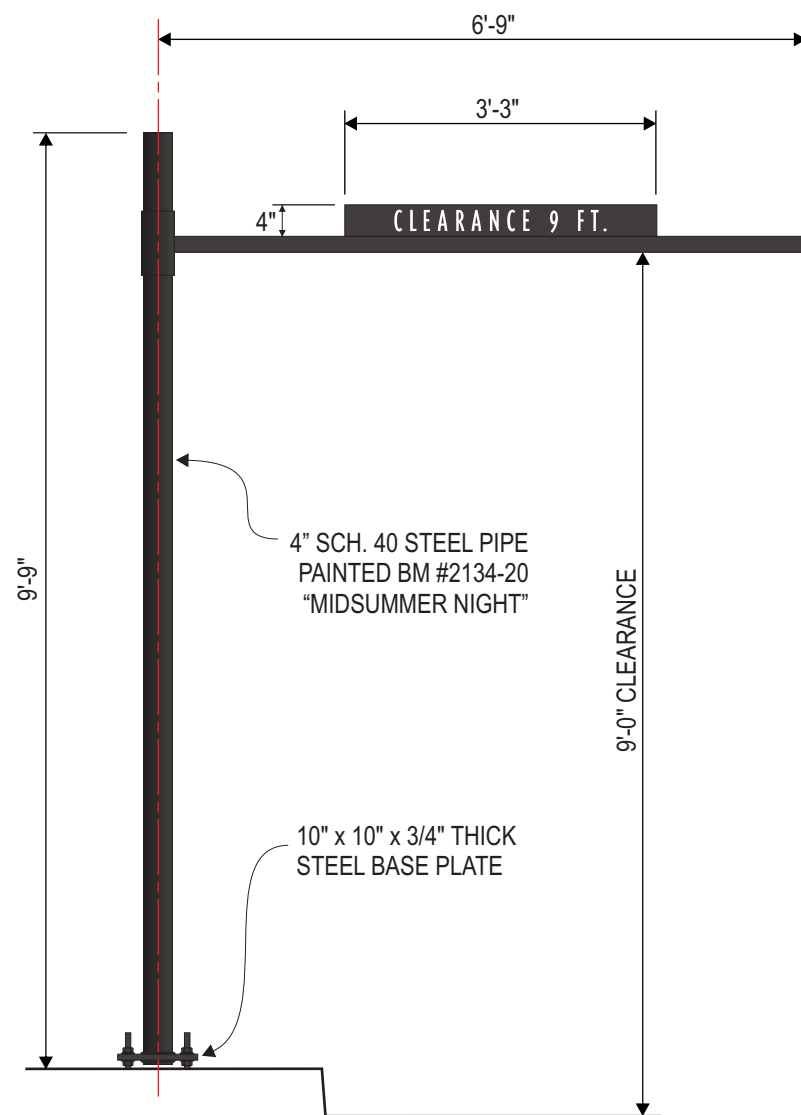
WORK ORDER #   27910-1

PANERA BREAD DRIVE THRU

CUSTOMER

STORE NUMBER   1982

2804 Ridge Road
ROCKWALL, TX

LOCATION

PROJECT MANAGER   Jim / Linda

WD   01/21/16
ARTIST   DATE

27910.8

DRAWING NAME

6'-9"

3'-3"

4"

CLEARANCE 9 FT.

9'-9"

9'-0" CLEARANCE

4" SCH. 40 STEEL PIPE
PAINTED BM #2134-20
"MIDSUMMER NIGHT"

10" x 10" x 3/4" THICK
STEEL BASE PLATE

D/T HEIGHT CLEARANCE BAR
1/2" = 1'-0"

6'-6"

9'-5"

PAINTED BM #2134-20
"MIDSUMMER NIGHT"

6" STEEL SQ. TUBE

18¾"

ORDER HERE

Panera BREAD

32.5"
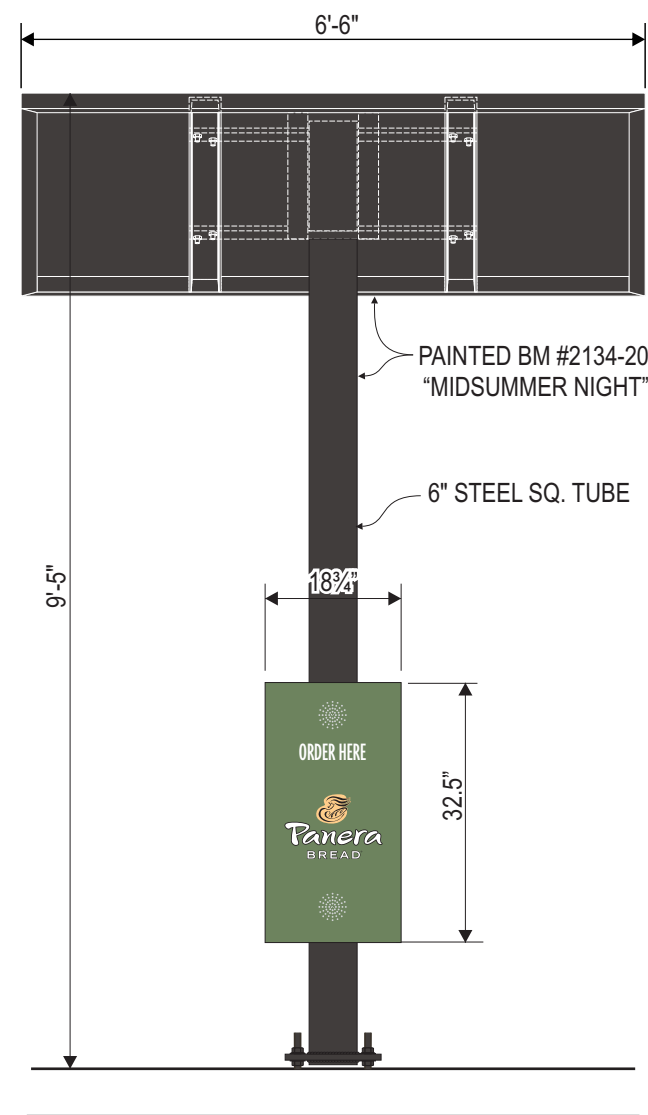
D/T CANOPY ELEVATION
1/2" = 1'-0"

56½"

36"

5'-8"

20"

2"

10"

Panera BREAD

59½"

PREVIEW BOARD ELEVATION
1/2" = 1'-0"   21.97 sq.ft.

88 3/8"

57"

5'-11"

4"

10"

Panera BREAD

94½"

MENU BOARD ELEVATION   34.98 sq.ft.
1/2" = 1'-0"

MENU BOARD AND PREVIEW BOARDS ARE UNREGULATED

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WORK ORDER #   27910-1

PANERA
BREAD
DRIVE THRU

CUSTOMER

1982
STORE NUMBER

2804 Ridge Road
ROCKWALL, TX

LOCATION

Jim / Linda
PROJECT MANAGER

WD   01/21/16
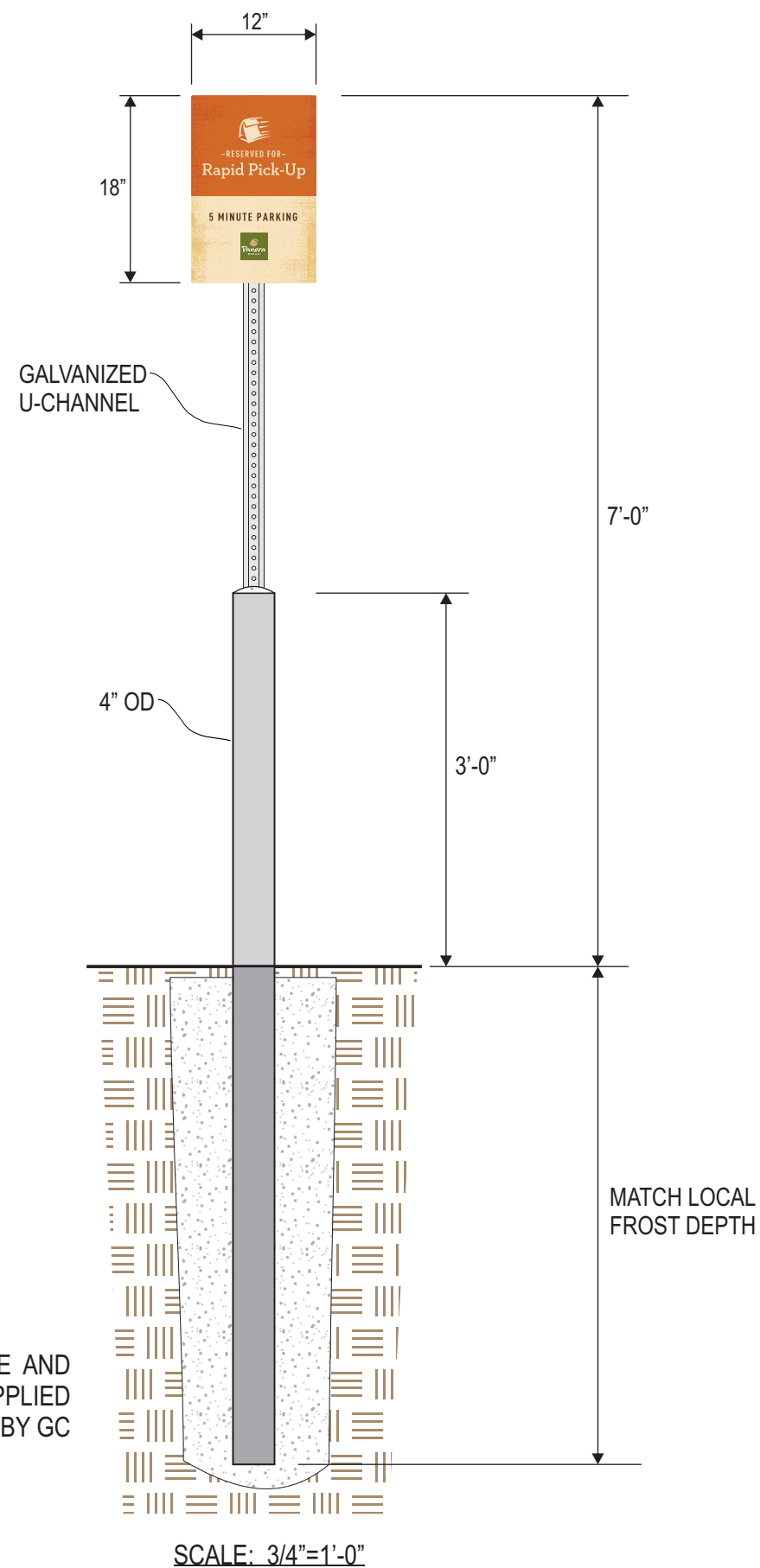ARTIST   DATE

27910.9

DRAWING NAME

SPECIFICATIONS

Sign Post Material:

galvanized u channel

Bollard Pipe:

4" schedule 40 steel pipe
with painted finish

12"

18"

GALVANIZED
U-CHANNEL

7'-0"

4" OD

3'-0"

MATCH LOCAL
FROST DEPTH

BOLLARD PIPE AND
C CHANNEL SUPPLIED
AND INSTALLED BY GC

SCALE: 3/4"=1'-0"

RESERVED FOR
Rapid Pick-Up

5 MINUTE PARKING

Panera
BREAD

12"

18"

SCALE: 1½" = 1'-0"

(3) REQUIRED - S/F PARKING SIGNS

SINGLE-SIDED TRAFFIC CONTROL SIGNS:

• WHITE .080 ALUMINUM PANELS
  (DO NOT PRE-DRILL HOLES)
• REFLECTIVE, DIGITALLY PRINTED VINYL GRAPHICS
  WITH CLEAR OVERLAMINATE
• 10' HEAVY DUTY U-IRON SUPPORT POSTS
• FREE FORMED CONCRETE FOOTINGS

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WORK ORDER #   27910-1

PANERA BREAD
DRIVE THRU

CUSTOMER

STORE NUMBER   1982

2804 Ridge Road
ROCKWALL, TX

LOCATION

PROJECT MANAGER   Jim / Linda

WD   01/21/16
ARTIST   DATE

27910.10

DRAWING NAME

2" ALUM. ANGLE MOUNTING CLIPS

3 PRONG POWER CORD TO GROUNDED CEILING OUTLET

ENTIRE BACKGROUND ILLUMINATES

.177" #7328 WHITE ACRYLIC FACE w/ DIGITAL PRINT GRAPHICS & MATTE CLEAR OVERLAY

29"

29"

SIDE 1 FACES WINDOW/EXTERIOR: ILLUMINATED

4"

WINDOW SIGN: 1½" = 1'- 0"   **5.84 SQ.FT.**

3 PRONG POWER CORD TO GROUNDED CEILING OUTLET

2" ALUM. ANGLE MOUNTING CLIPS

FINISH OAK PANEL WITH DARK STAIN BEFORE ROUTING GRAPHICS

INCISED ROUTED GRAPHICS IN OAK PANEL

SIDE 2 FACES CAFE INTERIOR: NON-ILLUMINATED

29" X 29" X 5 3/4" DEEP D/F INTERIOR ILLUMINATED HANGING WINDOW SIGN WITH ILLUMINATED FACE & OPAQUE REMOVABLE BACK.

- 1/2" thick White Oak, Stained and Sealed, Wooden Face Trim secured to Flange in Face Side of Frame with Flat Head Brass Machine Screws.

- .177" #7328 White Acrylic Face with 1st Surface Digital Print and Matte Clear Over Laminate.

- BACK FACE SPECS:

- 1/2" thick White Oak, Stained and Sealed, Engraved Wood Back secured to Flange in Frame with Flat Head Brass Machine Screws, Removable.

- 4" x 1 1/4" x 1/8" Brake Formed Aluminum Channel Frame.

- End Fillers to receive a "Scribe" on the Fillers and Wrapping the Flanges 4" in from Each End.

- Install (4) 1/8" Aluminum Rivets 1/2" in from Scribe Line and 1" C/C.

- (2) 1/4-20 x 7/8" Long ZP Nut Couplings out Top for Installation.

- (1) 18 AWG x 6'-7" Long NEMA 5-15 Power Cord out Top. Disconnect Switch on Top.

- White LED Illumination

- (1) Self Contained Meanwell LPF-40-12 Class 2 Power Supply: 120 VAC / .6 Amp.

- Paint Inside of Sign ZAP White.

- Paint Outside of Sign, 2" Angle Mounting Clips & Hardware MP29527 Midsummer Night in Satin Finish.

- Supply Bottle of Touchup Paint and (2) 1/4-20 x 6' Long Black Oxide Threaded Rods for Installation.

40 watt power supply

4"   1½" 1½"   4"

4"

7"

3½"

3½"

7"

4"

CL

¼-20 x 1½" STUD w/ NYLON NUT   ¼-20 x 3/8" STUD

WHITE L.E.D. STICKS (4)

SCORE LINES IN FILLERS (typ.)

4"

4"

11½" (typ.)   11½" (typ.)

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WORK ORDER #   **27910-1**

PANERA BREAD DRIVE THRU

CUSTOMER

STORE NUMBER   **1982**

2804 Ridge Road ROCKWALL, TX

LOCATION

PROJECT MANAGER   **Jim / Linda**

WD   01/21/16
ARTIST   DATE

27910.11

DRAWING NAME

Panera #1982 Material Sample Board

B1
B1A

B2

ST

GL1
GL2

AWNING

M1

Panera Café #1982
2804 RIDGE ROAD
ROCKWALL, TX 75032

EXTERIOR MATERIALS:

INDICATED BY ⬦ SYMBOL

B1 BRICK – ENDICOTT OR LOCAL – DARK IRONSPOT,
SIZE: MODULAR, TEXTURE: SMOOTH, RUNNING BOND

B1A BRICK – ENDICOTT OR LOCAL – DARK IRONSPOT,
SIZE: MODULAR, TEXTURE: SMOOTH, SOLDIER COURSE

B2 BRICK – ENDICOTT OR LOCAL – GOLDEN BUFF,
SIZE: NORMAN, TEXTURE: SMOOTH, RUNNING BOND

ST NATURAL LIMESTONE – SALADO QUARRY – SONOMA
COLOR: CAVE, HEIGHTS 4"–12" (TYP.), 3"–5"
THICKNESS (TYP.)

GL1 ALUMINUM STOREFRONT – KAWNEER OR EQUAL
COLOR: DARK BRONZE, 1" INSULATED GLAZING (TYP.)

GL2 ALUMINUM STOREFRONT – KAWNEER OR EQUAL
COLOR: DARK BRONZE, 1" INSULATED GLAZING (TYP.)
W/FROSTED GLASS OR FILM

M1 MAPES CANOPIES SUNSHADE: 8" PROFILE,
PAINT TO MATCH STOREFRONT

applicant information:

cole

401 S. 18th Street
Suite 200
St. Louis, MO 63103
314.984.9887 tel

Owner Information:
PANERA, LLC
3630 South Geyer Rd,
Suite 100
St. Louis, MO 63127
(314) 984-2646

Project Name:
Panera Café #1982
2804 RIDGE ROAD
ROCKWALL, TX 75032

Case Number: