JNKA ARCHITECTS

Date: October 3, 2017

To: Sam Hubbard
Development Planner
33 South Arlington Heights Road
Arlington Heights, IL 60005

From: Susan Maish, ALA
Jaeger Nickola Kuhlman and Associates
350 South Northwest Hwy, Suite 106
Park Ridge, IL 60068

Re: St. Edna Catholic Church
2525 N. Arlington Heights Road
Arlington Heights, Illinois 60004

Subject **Plan Commission Review Comments for St. Edna Catholic Church (2525 S. Arlington Heights Road, Arlington Heights, IL 60004)**

Dear Mr. Hubbard,

This letter is in response to the Plan Commission Comments received on September 14, 2017 and September 21, 2017. See revised drawing sheets dated Plan Commission Resubmittal #1 9/25/2017 and the itemized letter below.

BUILDING DEPARTMENT – Comments dated 9/15/2017
Reviewer: Deb Pierce

1. Provide the construction type of the existing and new addition

Existing Narthex	3A	Slab on grade floor, brick veneer walls with metal studs and steel column roof support; steel beam and metal deck roof structure. All steel fireproofed.
Existing Church	4	Slab on grade floor, masonry wall construction, glu-laminated roof beams.
Existing Doherty Center	2B	Slab on grade floor, brick and block wall construction, steel beam and tectum roof construction
Existing Hurley Center	2B	Slab on grade basement floor, precast main level floor construction, brick and block exterior walls with glazed block

		and gypsum interior walls, steel joist and metal deck roof structure.
New Parish Center	2B	Slab on grade floor, precast exterior walls with CMU and gypsum interior walls, steel roof joists and long span truss and metal deck roof structure.

2. Revised the occupant load for the Parish life Space per 2009 IBC Table 1004.1.1.
   I have utilized Table 1004.1.1 Assembly without Fixed Seats- unconcentrated or 15sf/ per person to calculate the occupancy of the space. 30% of this total was utilized to determine the number of parking spaces required for this space. This is consistent with the actual occupancy for the space.
   For exiting, I have utilized 7 sf/per person. See added sheet G2.1 for the exiting plan which indicates how many people can be accommodated and how remoteness is handled.

3. Provide accessible access to the stage with a ramp or chair lift.
   Accessible access to the stage has been included. An accessible lift is located in the circulation area to the south of the stage just east of the stair.

4. Review 2009 IBC Section 410 for stage construction requirements including stage ventilation and the number and type of stage exits.
   IBC 2009 defines a Stage in the following fashion, "A space within a building utilized for entertainment or presentations, which includes overhead hanging curtains, drops, scenery or stage effects other than lighting and sound."
   The Code Corner put out by RLGA Technical Services clarifies the definition of a stage further in their article "Stages and Platforms" published in the Winter 2010. (The full article is included as a part of this response. EXHIBIT A)
   "As the definition indicated, stages utilize scenery drops, curtains, and other combustibles that are stored in an overhead space above the stage that is defined in the IBC as the 'fly gallery'..."
   The St. Edna stage has incorporated stage curtains that will hang from the bottom of the roof trusses. The curtains permanently hang below the ceiling and are not retracted upward. As a result, we have defined and detailed the stage as a platform.
   The platform is constructed of type II construction which complies with code.
   "Where the space beneath the permanent platform is used for storage..., the floor assembly shall not be less than 1 hour fire- resistance-rated construction"
   UL #DD7 is utilized to create a 1 hour fire resistance rating.
5. Dressing rooms shall be separated from the stage by fire barriers with a minimum 2 hour rating.

   As per 401.5.1 "Separation from stage. The stage shall be separated from dressing rooms..."
   Since we are incorporating a platform and not a stage, this requirement does not apply.

FIRE SAFETY DEPARTMENT
Reviewer: Don Gay

1. A fire suppression system compliant with NFPA 13 will be required for the addition.

A fire suppression system compliant with NFPA 13 will be provided in the proposed Parish Center and new link.

2. An approved water supply capable of supplying the required fire flow for fire protection shall be provided.
   The new building will be connected to the existing fire suppression system. A fire flow test will be conducted on the existing system to show that the proper fire flow can be obtained for the existing building and new addition.

3. Fire department connections shall be installed in accordance with the NFPA standard applicable to the system design. The location of the fire department connections shall be approved. Fire department connections shall be located on the street side of buildings, fully visible and recognizable from the street or nearest point of fire department vehicle access or as otherwise approved a visible location.
   The fire department connection will be installed in accordance with the NFPA standards and located in a location approved by the fire department.

4. If the proposed kitchen will have cooking facilities a Hood and Duct fire suppression system may also be required.
   A type 1 hood with a fire suppression system has been provided. See sheets M3.1 and M3.2 included as part of this response.

5. A complete fire alarm system is required and will be required to be connected to the existing structure.
   A complete fire alarm system will be provided and will be connected to the existing fire alarm system. See revised sheets E3.1and E4.1

6. Shop drawings for the fire alarm systems shall be submitted for review and approval prior to system installation.
   Shop drawings for the fire alarm systems will be submitted for review and approval prior to system installation.

7. A zoning indicator panel and associated controls or fire alarm control panel shall be located within the closest proximity to the front main entrance.
   The existing fire alarm control panel is located in the existing boiler room just to the east of the nave. The existing annunciator panel is located near the existing and new main entrance. The final location of the annunciator panel will be reviewed and approved by the fire department prior to installation.

8. A key box (Knox Box) shall be provided and contain keys to gain necessary access as required by the fire code official.
   The existing Knox box is located at the Hurley Center entrance where the new link will be built. The new knox box is shown on one of the new canopy columns just to the north of its current location. The final location of the knox box will be reviewed and approved by the fire department prior to installation.

9. Fire department connections shall be fully visible and located at the main front entrance of the building and within a maximum travel distance of 100 feet to the nearest fire hydrant.
   A fire department connection will be provided at the main front entrance. The exact location will be coordinated with a fire code official. An existing fire hydrant is located within 100'-0" of the main entrance and the connection.

10. Buildings or facilities having a gross building area of more than 62,000 square feet shall be provided with two separate and approved fire apparatus access roads. An engineering overlay showing the ability of Arlington Heights aerial apparatus to negotiate the turns and provide access to the building in particular any portion of the building having a height of 30 feet or more.
    The existing building is served from separate access points. There are three accesses off of Arlington Heights road and a separate fire lane access off of Pine Ave. The proposed addition is accessible from these same locations and pavements therefore complying with your two separate access requirements. An "Autoturn" Exhibit FT-1 shows how the building is accessible by AH aerial apparatus.

11. Aerial fire apparatus access roads shall have a minimum unobstructed width of 26 feet exclusive of shoulders, in the immediate vicinity of any building or portion of building more than 30 feet in height.
    According to the Village's Municipal Code, the definition of building height for a flat roof is the average elevation of the finished lot grade at the front of the building to the highest point of the roof exclusive of parapets or false gables. The average finished grade at the front of the building is the 0'-0" level (695.91). The top of the roof deck is 29'-10" from this average finished grade. Per the definition of height by the Municipal Code, the St. Edna addition will not need a fire apparatus access road with a minimum obstructed width of 26 feet because the height of the new addition is not 30'-0". The zoning information on the site plan has been modified to indicate a 29'-10" building height.
    Two additional items to note:
    1) *An autoturn diagram is provided showing that the fire truck can maneuver through the existing fire lane.*
    2) *Widening this driveway would negatively impact drainage for the neighbors to the south of the church.*

12. Signs shall be posted on both sides of an approach of any fire lane state "NO PARKING – FIRE LANE". Signs shall have arrows indicating the area of parking restriction.
    Signage has been added to the plans as reflected on sheet C-3 at each end of the fire lane behind the building.

13. Fire lane signs shall be white with red three-inch letters. The dimensions of the sign shall be 12 inches horizontally and 18 inches vertically. These signs shall be installed so that the top of the sign is no less than 6 feet nor more than 6 feet above grade.
    Fire lane signs will be provided and will comply with all visual requirements. These signs will be installed at the proper height with the top of the sign being 6 feet above grade.

14. Exit signs shall be illuminated at all times and have emergency power backup.
Exit signs will be illuminated at all times and have emergency power backup as required by code.

15. Fire protection equipment and service rooms shall be identified in an approved manner.
We are tying into the existing sprinkler system. The Fire protection equipment is located in the lower level of the Hurley Center. This existing fire protection equipment room is labeled and identified in an approved manner.
The new electrical rooms will be identified in accordance with the fire code and specifications of the fire code official.

16. Approved access shall be provided and maintained for all fire protection equipment to permit immediate safe operation and maintenance of such equipment.
Approved access for all fire protection equipment will be provided and maintained.

PUBLIC WORKS

Reviewer: Cris Papierniak, Assistant Director of Public Works.

1. The new water main will need to be installed, pressure tested, chlorinated and must pass new contraction Bac-T before the old water main is abandoned and reconnected.
The new water main will pass all the requirements listed above before the old water main is abandoned and reconnected.

2. Provide a detail specific to this application for the outlet control structure on the underground storm water detention.
The existing plate restrictor will be removed. A new half trap restrictor will be installed since the diameter of the orifice is between 2" and 4". The manhole structure will be replaced by a catch basin.

3. A 6" meter in a meter vault must be provide to meter the entire property. There is a private unmetered hydrant (existing), 2" domestic, and 4" fire service that are currently separately metered. Those meters can be removed after the installation of the master meter.
Per discussion with staff an appropriately sized meter in a vault will be added to the construction documents. The sizing of the meter requires data that is not yet available but will be obtained. Based upon that data the appropriately sized meter will be designed and added to the documents. In order to assist in the cost of this item, the Village of Arlington Heights has offered to pay for half of the cost of the material of the meter.

4. The existing 4" fire service RPZ must be replaced.
The existing 4" RPZ will be replaced.

5. The existing 2" Domestic water Service must be fitted with a 2" RPZ.
The existing 2" Domestic water service will be outfitted with a 2" RPZ.

6. A 3" RPZ needs to be installed on the proposed 3" connection.
   A 3" RPZ will be install on the proposed new 3" connection.

7. Construction traffic cannot utilize the fire lane.
   The construction traffic will not utilize the fire lane. They will use the entrances off of Arlington Heights Road.

ENGINEERING DEPARTMENT

Reviewer: James Massarelli, PE, Director of Engineering

11. The petitioner is notified that these comments are being provided to ensure that the project meets the requirements for submittal to the Plan Commission. Approval by the Plan Commission is not an endorsement or approval of these documents to obtain the required building permits, engineering approval, or permits required by other government or permitting agencies for construction. Detailed plan review with associated comments will be provided upon submittal of plans for a building permit. The petitioner shall acknowledge that they accept this understanding.

    The petitioner acknowledges this understanding.

12. An Engineers estimate of construction cost for full site improvements is required to complete the calculation for plan review, inspection, and other fees. This estimate should be submitted at least three weeks prior to the final Plan Commission meeting to allow us time to generate a fee letter and for the petitioner to assemble the proper documents.

    An Engineer's estimate of construction cost will be provided at least three weeks prior to the final Plan Commission meeting.

13. Final Engineering plans shall be georeferenced by using State Plane Coordinate System- Illinois East.

    It will be verified that the plans are referenced to the State Plane Coordinate System.

14. The proposed detention facility will be a private system and as such will not be the Village's responsibility to maintain. The basin required a 1-foot freeboard with an overflow weir at the 6" line. Provide calculations for sizing the weir. An Onsite Utility Maintenance Agreement must be executed prior to final engineering approval. Attached is an example. A version in Word is available from the Engineering Department.

    The detention system will meet both Arlington Heights and MWRD requirements. The MWRD requirements will be more restrictive than those of Arlington Heights. Freeboard will be provided relative to the Arlington Heights High Water Level (HWL) and the weir appropriately sized. The subsurface volume control system meets HS-25 loading if installed properly according to the manufacturer's documentation. We have used this system successfully in a parking lot application. The Onsite Utility Maintenance Agreement will be executed as requested.

15. Final approval will require final engineering plans including detention calculations showing HWL, storage required, storage provide, and restrictor sizing calculations. Any detention storage system located under pavement must be designed to AASHTO HS-25 loading standard. The Village's allowable release rate is 0.18 cfs/Ac. Use C=.50 for pervious areas, C=.95 for impervious areas. Use Bulletin 70 rainfall data. Clearly show the overflow route for the site. Minimum restrictor size allowed, for maintenance reasons is 2". Restrictors between 2" and 4" must be in a trap in a catch basin. Show the location and size of the restrictor. Provide a detail showing the restrictor catch basin. Provide a drainage narrative.

    As stated, the detention will be designed to accommodate both Arlington Heights and MWRD requirements and all calculations will be provided prior to final approval. The existing plate restrictor will be removed and replaced with a half trap orifice restrictor. The existing manhole at that location will be replaced by a catch basin. The location and size of the restrictor and structure are shown on sheet C-4. A detail of the restrictor structure is on sheet C-6.

16. Permit for MWRD required. Permit from Cook County DOT may be required for drainage modifications. Check with Cook County and provide Village with a disposition.

    An MWRD permit will be obtained. A CCHD permit is not required based upon previous PUD submittal requirements verified with the county.

17. Provide an exhibit to engineering scale showing the turning path of the Fire Department's responding vehicle, in this cast the tower truck. Exhibit must show front and rear wheel paths and the extent of the front and rear overhands as provided in an "Autoturn" exhibit. The vehicle shall be shown maneuvering through the site in all possible directions of travel. Attached are the specifications for the tower apparatus.
    The requested exhibit is provided as sheet FT-1.

18. Fire lanes adjacent to buildings must have a minimum pavement width as directed by the Fire Department to accommodate the tower truck's outriggers. Fire lanes required a heavy duty pavement section. Asphalt pavement section to consist of 2" surface, 2 ½" N-50 Binder, 5" N-30 Binder, and 4" CA-6 Stone Subbase. Concrete driveway areas to be 8" thick.

    Per the fire safety division response, the intent is to leave the existing fire lane that wraps around the east and south side of the church unchanged. To remove and replace it with a wider lane would negatively impact the drainage toward the neighboring properties. There is very little available pitch and the depth of storm sewers in the area would make virtually impossible to drain the area that would be disturbed to the stormwater management system. The fire lane does accommodate the travel path of the aerial apparatus.

19. Perimeter curb is required for new parking areas. If the petitioner wishes to maintain sheet drainage on the east of the new parking lot, concrete ribbon with no curb head is an acceptable alternative.

A concrete ribbon has been added to that portion of the asphalt parking lot the sheet flows to the east.

20. Consider including bicycle racks in development plan to encourage alternate modes of transportation for employees and patrons.
    St. Edna will consider the addition of bike racks into the new site plan.

21. Please clarify the discrepancy between the Traffic report and architectural plans related to existing and proposed parking stall count. The correct number of stalls and requested stall count needs to be specified for the variation.

    The existing stalls have been recounted. The correct number of existing stalls is 356 as indicated in the traffic report. The existing site plan has been corrected to list 339 stalls on the main lot and 17 stalls on the east lot for a total for 356 stalls.

22. The lighting catalog cuts need to be supplied for review, and all non-compliant fixtures in the lot and mounted to the new and existing building need to be brought up to code.

    The church has replaced the existing pole mounted parking lot lights with new LED heads. The cut sheet is attached and is included as EXHIBIT B. This same head will be utilized for the new pole lighting. Bollard Cut sheet has also been included as a part of Exhibit B.

FIRE DEPARTMENT
Reviewer: LT. Mark Aleckson

1. Could we please get an auto turn diagram for fire apparatus.
   An auto turn diagram for a fire apparatus has been provided. See sheet FT-1

2. Building to be sprinkled.
   The proposed building will be sprinkled. See attached sheet FP1-1 for the sprinkler layout. Shop drawings will be provided for review prior to fabrication or installation of the system.

3. Locate fire department connections at the main front entrance and locate a hydrant within 100' from the connection.
   A fire department connection will be provided at the main front entrance. The exact location will be coordinated with a fire code official and will be located within 100'-0" from a hydrant.

4. A complete alarm system that will be connected with the existing structure with a fully functioning annunciator panel at the main entrance.
   An addressable system was installed in the existing building in 2002. A complete fire alarm system has been provided in the new building and will be connected to the aforementioned existing fire alarm system. See revised sheet E3.1and E4.1

5. A key box (Knox Box) with the necessary access shall be provided.
   The existing Knox box is located at the Hurley Center entrance where the new link will be built. The new knox box is shown on one of the new canopy columns just to the north of its current

location. The final location of the knox box will be reviewed and approved by the fire department prior to installation.

POLICE DEPARTMENT- dated 9/19/217
Reviewer: Brandi Romag, Crime Prevention Officer

1. Character of Use:
   The character of use should not be problematic.
   No comments from JNKA
2. Are lighting requirements adequate?
   Lighting should be up to Village of Arlington Heights code. Special attention should be given to illuminating parking lot areas, and area around garage, pathway, shed and more secluded areas on the east side of the building. These areas should be illuminated especially during nighttime.
   2 wall packs are provide on the east side of the building and 2 on the south side of the building. This will light up the more secluded areas of the site while still maintaining the requirements for 0.1 footcandles at the property line. Additional lighting is not provided to the east side of the existing garage due to the proximity to the neighboring property.

3. Present Traffic Problems?
   Traffic volume during church services is managed with AHPD staffed details on Saturday evening and Sunday mornings through early afternoon.
   No comments from JNKA

4. Traffic Accidents at particular location?
   This is not a problem area in relation to traffic accidents.
   No comments from JNKA

5. Traffic problems that may be created by the development.
   No further comments,
   No comments from JNKA

6. General Comments
   a. Please ensure that there is an emergency information/ contact card on file with the Arlington Heights Police Department and that it is up-to-date...
      The contact card has been updated and submitted as EXHIBIT C.

   b. Landscaping should provide open sightlines to increase natural surveillance and avoid creating ambush locations and havens for illegal activities – theft, trespassing, vandalism, underage drinking, drug use, etc.
      The bulk of the landscaping incorporates low-laying bushes and shrubs that will not create an area for illegal activities. The only densely located 6'-0' high shrubs are located up against the mechanical unit wood fence enclosures. There is no area behind these shrubs to harbor any illegal activities.

   c. Consider posting no trespassing/ loitering/ no authorized use signage. The Arlington Heights Police Department has and utilizes trespass warning forms under qualifying circumstances when requested by property management.

St. Edna would prefer not to post "No Trespassing" signs. St. Edna has always allowed the neighbors to utilize their property and would not want to discourage this activity.

HEALTH & HUMAN SERVICES DEPARTMENT
Reviewers: David Robb, Jeff Bohner and James McCalister

1. The existing well must be properly abandoned by a licensed contractor and witnessed by this Department.
   The well has been abandoned and sealed. This activity was observed by Sean Freres from the Village of Arlington Heights on September 6, 2013. See form included as a part of this response package and included as EXHIBIT D.

2. Parking lots with 301 to 400 parking spaces requires a minimum of eight (8) Accessible Parking Spaces per IAC Section 400.310(c)(1). In accordance with the requirements of IAC section 400.310(c)(2 and 3).
   As indicated on the Existing Site Plan as well as the Proposed Site Plan, St. Edna currently has 11 Accessible Parking Spaces – 6 on the Southeast edge of the parking lot and 5 just west of the existing Church. St. Edna will continue to designate these spaces for Accessible Parking only.

PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT
Reviewer: Sam Hubbard

7. The Plan Commission must review and approve the following action:
   a. PUD Amendment to Ordinance 02-005 and Ordinance 13-072 to allow for construction of a 13, 425 sf parish center building addition.
   b. A variation from Ch. 28, Section 11.4, Schedule of Required Parking, to allow a reduction to the minimum number of required parking stalls from XXX (additional data needed to verify amount) to 378 spaces.
      The variance requested is to allow a reduction to the minimum number of required parking stalls from 629 to 377 spaces. The variance letter and narrative have been updated to reflect these updated numbers.

8. A courtesy meeting with the neighbors is required prior to appearing before the Plan Commission. Has this meeting been scheduled?
   The neighborhood meeting will be held on Tuesday, October 17th at 7:00. Meeting minutes will be provided to the Village of Arlington Heights.

9. The rectory was not shown on the plans as indicated in 2015. Please confirm the long-term plans for the church relative to an onsite rectory.
   The rectory is no longer being considered. The existing rectory is located on a residential lot east of the St. Edna property.

10. Please provide additional information on the 3 proposed HVAC units. Will they all be the 20 ton Carrier grade units as indicated in 2013? How tall are the units? Will the proposed fence and

landscaping be adequate to buffer the sound? The proposed fence around the units is 8' in height, is the 8' tall fence needed to fully screen the unit?

As indicated there are 3 HVAC units.
RTU-1: North East location: 25 tons; RTU sits on a 36" high curb. The unit is 57 3/8" for a total height of 7'-9 3/8".
RTU-2: South East location: 25 tons; RTU sits on a 36" high curb. The unit is 57 3/8" for a total height of 7'-9 3/8".
RTU-3: North West location: 10 tons; RTU sits on a 14" curb. The unit is 49 3/8" for a total height of 5'-3 3/8".
Cuts sheets have been provided. See EXHIBIT E.
Given the heights listed above, an 8'-0" fence is required for RTU-1 and RTU-2 in order to fully screen the unit. The precast screen wall on the north side of RTU-3 is taller than required to screen that unit, but blends with the architecture of the adjacent building. The fence on the east of RTU-3 has been reduced to a 6'-0" high fence.

The db rating of the units are 50db at 50'-0" away. This is equivalent to the sound level of normal conversation. This is further dampened by the fencing and landscaping that surrounds the unit and the actual distance to the neighboring property line which is 131'-0" away. The fencing can reduce the sound by 5 decibels and the landscaping by 3 decibels. When you double the distance from the mechanical unit, you decrease the sound by 5 decibels as well. Since the decibel scale is logarithmic, a 10-decibel drop decreases the perceived noise by half.
Sound data for the RTUs have been included as EXHIBIT F.

11. Please ensure that all plans and/or studies to be resubmitted as a result of the Round 1 Dept. review comments include a revision date.
All changes to the drawings are marked by revision cloud 1. The drawings are all dated with a revision date of 9/25/2017.

12. The engineering plans and architectural site plans do not appear to be consistent. Please revise the plans so that they reflect the same information.
The engineering plans and the architectural site plans have been updated to have the same background.

13. Building height for buildings with a flat roof is defined as measured from the average elevation of the finished lot grade at the front of the building to the highest point of the roof in the case of a flat roof. Please revise the drawing to measure the building height from the average elevation at the front of the building to the top of the roof (this excludes the parapet walls and faux gable).
An elevation tag has been added to the proposed elevations. The average finished grade of the front of the building is the 0'-0" level (695.91) meaning that the average building height according to the above definition would be 29'-10" (725.74). This is marked by the elevation tag labelled "T/Roof Deck." The zoning information on the site plan has been modified to indicate a 29'-10" building height.

14. Please add the existing shed to the building lot coverage calculation.

The existing shed with an area of 300 square feet has been added to the lot coverage calculation.

15. The FAR does not appear to take into consideration the basement space of the Hurley Center. Please confirm that the height of the basement space is less than half above the finished lot grade.
    The main level of the Hurley Center is 694.75. The basement level of the Hurley Center is 11'-6" below that elevation or 683.25. The spot elevations from the survey around the Hurley Center are 695.1, 694.53, 694.49. The Hurley Center is nearly fully below grade and does not need to be added to the FAR calculation.

16. Design Commission approval is required for the proposed building addition. Design Commission hearing is scheduled for Sept. 26th.
    The Design Commission approved the project on Sept. 26th, 2017.

17. There are several areas where the parking calculations must be re-evaluated in order to determine the code required parking. Please clarify the following:

    Church:

    a. Please delineate the areas that are considered the nave and what areas are considered the choir area.
       The choir is now marked on the plan and can be found directly west of the Sanctuary.

    b. Please confirm that Christmas and Easter services are the only times when seating in the narthex is provided and that 130 seats are the maximum number of seats in the narthex.
       Christmas and Easter are the only times when there is seating in the narthex and 130 seats are the maximum number of seats provided.

    c. Were the number of seats calculated as per the building code (where a continuous row has 1 seat per 18") or are there individual seats?
       Where there are individual seats drawn on the floor plan, these areas were counted as individual seats. The number of seats per pew were all calculated using the 18" building code rule. By adding the individual seats and continuous seating counts together we calculated a seating count of 995 in the nave of the church.

    Doherty Center:

    d. The sum of meeting rooms 1-9 equates to 5,320 sf, however, the table indicated that there are 5,342 sf.
       The table has been updated to reflect the 5,320 sf of meeting rooms plus the 515 sf of the nursery, therefore adding to a total of 5,835 sf.

    e. The table lists 750 sf of office spaces in the Doherty Center, yet no office spaces are indicated on the floor plan. Is the "Music Library" used as office space, or just for storage of music played within the church?

The submitted main floor plan showed part of an old design scheme. The plan has been updated to show 3 offices in the location which used to show a youth room. This area is actually considered to be a part of Hurley Center and the parking calculation now reflects that. The 750 sf office line has now been removed from the Doherty Center and a 735 sf office space line has been added under Hurley Center. Please note that the "existing office area" line refers to the untouched offices in the Hurley Center while the "offices" line refers to the 3 new offices marked as a part of revision 1 on the plan.

f. The Nursery should be included as part of the multi-purpose rooms and the label should be changed to read "Nursery/Multi-purpose".
The table has been updated to reflect this. The spaces now have a combined area of 5835 sf and require 117 parking spots per code.

Hurley Center:

g. The upstairs youth room was not included within the "Youth Room" line item in the table. Please incorporate the 728 sf into the parking table.
The upstairs youth room was part of an old design scheme. The current plan places 3 offices in this space. The plan and parking table have been updated to reflect this.

18. The project narrative indicated that the church will not rent out the facilities while Mass is taking place. To whom does the church rent out the facility and for what purposes (both current and future)?
St. Edna does not currently rent out their facility nor do they have any current plans to rent out their new facility. If they would rent out the facility in the future they would not rent it out when the church is utilizing their main worship space.

19. The parking study estimated peak demand at 309 spaces and the proposed parking lot will accommodate 378 parking spaces. If peak demand is estimated at 309 spaces, please explain the reason for needing an oversupply of parking.
The estimated peak demand of 309 parked vehicles represents the typical Sunday parking throughout the year at the church. However during religious holidays, the parking demand at St. Edna, like other religious facilities, increases. Many churches in Arlington Heights and the surrounding area rely on on-street parking to accommodate the additional parking. Near St. Edna there are a few residential streets with parking and on-street parking is not permitted on Arlington Heights Road. The oversupply of parking is to accommodate the peak holiday parking demand due to the minimal availability of on-street parking. In addition to overflow parking, the construction of this parking area will also provide additional spaces near the Parish Center for nighttime events in the new facility.

Landscaping

1. The ends of all parking rows must include a 4" caliper shade tree (Ch. 28, Section 6.15-1.2b). Please incorporate a shade tree near the Parish Center at the west end of the parking row.
A 4" Ironwood tree has been added to the west end of the parking row. In order to accommodate this tree we have taken away one parking space in that row, reducing the new

parking total from 45 spaces to 44. Please see the attached architectural site plan or the landscaping plan (L1.0).

2. Provide additional landscaping adjacent to the proposed parking lot on the east side. The landscaping must be layered and should include a mix of evergreen trees and shrubs in order to provide a dense layered buffer.
   Landscaping has been added to the east side of the proposed lot. Please refer to the attached landscape drawing L1.0 for proposed plant types.

3. Landscape screening must be provided for any utility/mechanical areas.
   All utility and mechanical areas will be screened with landscaping.

4. A landscape compliance bond in the amount of 30% of the landscaping costs will be required and a tree fee of $200 is required for each tree identified for preservation. In addition, a $4 tree fee is required for each lineal foot of frontage.

   A landscaping compliance bond will be provided when requested.

The Code Corner

EXHIBIT A

RLGA Technical Services

No. 30 — Winter 2010

Stages and Platforms

By Ronald L. Geren, AIA, CSI, CCS, CCCA, SCIP

It was a cold afternoon on December 30, 1903, in Chicago. Almost 2,000 patrons, mostly women and children, were crammed into the five-week-old Iroquois Theatre, which was designed to seat slightly fewer than 1,700. The difference in the occupancy was made up by patrons holding standing-room-only tickets, which were commonly issued during that period. Suspended in the fly gallery above the stage were scenery flats—thousands of square feet of painted fabric. Located in close proximity to the scenery were electric arc spotlights that were illuminated for the matinee showing of Mr. Bluebeard.

Sometime late in the second act, one of the spotlights sparked, igniting the adjacent scenery. The fire spread through the fly gallery as flaming debris fell to the stage. Panic ensued and performers and patrons began to run for the exits. The asbestos "fire curtain" at the proscenium was lowered, but became snagged on a light reflector, preventing its full closure.

A door off the side of the stage was opened as the performers exited, allowing cold air to rush in. Since the stage vents were secured from opening, the burst of cold air generated a fireball that blew past the stuck curtain into the house seating, seeking escape through the ventilation provided in the rear wall at the uppermost balcony level. The fireball ignited everything flammable in its path as it rose—primarily in the upper levels—consuming the air that was up there and asphyxiating most patrons who weren't lucky enough to escape.

Within 15 minutes of ignition, the fire essentially burned out by itself, and all was quiet in the theater.

The theater structure—billed as "Absolutely Fireproof" in the show's program—remained intact. However, a total of 602 lives were lost, mostly due to the inadequacy of the theater's egress system. It remained the deadliest single building fire in American history until the events of September 11, 2001[†].

Although the egress system of the Iroquois Theatre was wholly ineffective to handle the volume of patrons attending that day, it is undisputable that many of the casualties would have survived if the stage area was designed with sprinkler protection, and if installed safety equipment were functioning properly. Quoted in the *New York Times* shortly after the fire, then mayor of Chicago, Carter H. Harrison, said,

> ...the fact remains, and it cannot be denied, that there would have been no panic if the apparatus in this theatre, which, judged by all ordinary standards, was the best equipped playhouse in the city, had been in proper working condition. There is no getting beyond that fact.

Building Code Requirements

Several of the theater-related building code requirements in effect at the time of the Iroquois fire are similar to those in the *International Building Code* (IBC)[‡]. Since many of the historic theater fires have started within the stage area (like the Iroquois'), building codes have focused on the regulation of combustible materials, the suppression of fire, and the containment of fire to the stage area, in addition to means of egress.

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† The north building of the World Trade Center had an estimated 1,366 deaths and the south building had 618 deaths, excluding passengers of the planes that struck the buildings.

‡ The 2009 IBC, Second Printing, is used in the preparation of this article.

EXHIBIT A

RLGA Technical Services

No. 30 — Winter 2010

Due to their similarities, the individual requirements for stages and platforms are both found in a single section of Chapter 4 in the IBC. Although providing similar functions, stages and platforms in the IBC are clearly defined in order to highlight their differences. The significant difference between a stage and a platform is that stages have "overhead hanging curtains, drops, or scenery or stage effects other than lighting and sound," whereas these are absent from platforms. As demonstrated in the Iroquois Theatre tragedy, overhead scenery and other combustibles increase the fire hazard; thus, stages are subject to more restrictive requirements.

Common to both stages and platforms are the superstructures located above them for access, supporting lighting, scenery, and other equipment. Called gridirons, pinrails, and catwalks, these structures shall be fabricated of materials consistent with the building's type of construction, but are not required to have a fire-resistance rating. Also, since they are designed for human access in most cases, these structures are not to be considered as floors, stories, mezzanines, or levels.

Platforms

There are two types of platforms: permanent and temporary. Temporary platforms are those erected for a short period of time not to exceed 30 days. Platforms are generally used to raise the performance or speaker area to an elevation that allows better viewing by patrons, but does not involve complex scenery or have curtains.

Permanent platforms are permitted to be constructed of materials required for the type of construction of the building. However, in Type I, II, and IV buildings, fire-retardant-treated wood may be used for platforms complying with the following:

- The platform is not higher than 30 inches above the main floor;
- The platform is no more than 1/3 of the room floor area; and,
- The platform is not more than 3,000 sq. ft. in area.

If the space below the platform is used for storage or any use other than equipment, wiring, or plumbing, the floor construction of the platform shall be not less than one-hour fire-resistive construction, regardless of the building construction type.

Temporary platforms may be constructed of any materials permitted by the IBC. However, the space under the platform can only be used only for wiring and plumbing connected to platform equipment—storage or any other use is not permitted.

Stages

Unlike platforms, stages have unique characteristics that give them a higher risk for fire. As the definition indicates, stages utilize scenery drops, curtains, and other combustibles that are stored in an overhead space above the stage that is defined in the

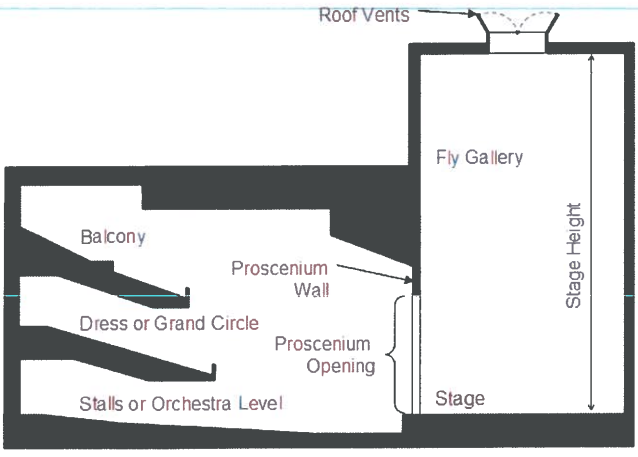

Figure 1 - Typical Theater Cross-Section

EXHIBIT A

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IBC as the "fly gallery," but is also referred to in the industry as the "fly tower" or "fly loft." This overhead space could be extremely high—at least 2 to 2-1/2 times the height of the proscenium, which is the opening between the stage and the seating area. The measurement between the lowest stage surface and the highest point of the roof or floor deck of the fly gallery is considered the "stage height" and it has code compliance implications.

The size of the stage in terms of floor area also has code compliance implications. When the IBC refers to the floor area of a stage, it includes the entire performance area and any backstage and support areas not separated from the performance area by fire-resistance rated construction. Therefore, this area can be much larger than just the visible performance area.

The construction of the stage itself varies with a building's construction type. In Type IIB and IV construction, stages may be constructed of 2-inch wood decking provided the proscenium wall has a 2-hour fire-resistance rating. In Type IIA, IIIA, and VA construction, a fire-resistance-rated floor assembly is not required as long as the space below the stage is protected by an automatic sprinkler system or an alternative automatic fire-extinguishing system. In all types of constructions, the finished floor of the stage may be of wood or other approved noncombustible materials.

One of the requirements based on stage height is the fire-resistance rating of the proscenium wall. If the stage height exceeds 50 feet, the proscenium wall must have a 2-hour fire-resistance rating and must extend from the foundation to the roof. When the proscenium is required to have a fire-resistance rating, the proscenium curtain shall comply with NFPA 80, *Standard for Fire Doors and Other Opening Protectives*, or provide a water curtain complying with NFPA 13, *Installation of Sprinkler Systems*, or a smoke control system complying with IBC Section 909. The smoke control system option is only permitted if the assembly seating *is not* smoke-protected.

Whether the proscenium wall is required to be protected or not, the stage is still required to be separated from dressing rooms, workshops, storerooms, and other spaces accessory to the stage by fire barriers and horizontal assemblies. If the proscenium is not required to be fire-resistance rated, then the required separation need only be 1 hour; if the proscenium is required to be rated, then a 2-hour separation is required. Additionally, these spaces are required to be separated from each other with fire barriers or horizontal assemblies having a 1-hour fire-resistance rating.

To prevent fires from spreading quickly on the stage and in the fly gallery, as experienced in the Iroquois Theatre, the scenery used must comply with the requirements of NFPA 701, *Standard Methods of Fire Tests for Flame Propagation of Textiles and Films*, and with Section 806 of the *International Fire Code* (IFC) for decorative vegetation. Foam plastics used in scenery are required to comply with the requirements of IFC Section 2603.

When a stage has an area greater than 1,000 sq. ft. or a height greater than 50 feet, then one of the following must be provided:

- Two or more roof vents having an aggregate area that is at least 5% of the stage area. The vents are to be located near the center above the highest point of the stage. Operation of the vents shall be heat-activated (typically by fusible links), as well as manually.
- A smoke control system complying with IBC Section 909 that will maintain a smoke layer not less than 6 feet above the highest seating level in the auditorium or above the top of the proscenium opening when the proscenium has a 2-hour fire-resistance rating.

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Means of egress from a stage shall be provided by two exits—one on each side of the stage and one on each side of the space under the stage. Furthermore, exterior doors located on the stage that are required for means of egress or may otherwise be opened when the theater is occupied, must be provided with a vestibule. This is to prevent sudden drafts of air into the theater—similar to the rush of air that sent the massive fireball into the upper levels at the Iroquois Theatre. Fly galleries and gridirons shall also be provided with at least one means of escape, and may utilize steel ladders, alternating tread devices, or spiral stairways that egress to the stage roof.

Stages are required to have an automatic sprinkler system, which was so tragically missing from the Iroquois Theatre. This is required whether or not the rest of the theater is required to be sprinklered per IBC Section 903.2.1.1. The only exception is for stages that have an area 1,000 sq. ft. or less, or a height 50 feet or less, *and* that do not have curtains, scenery, or other combustible hangings that are retracted vertically. Sprinklers are also not required in areas under the stage that are less than 4 feet clear in height, used only for storage of tables and chairs, and are separated from adjacent areas with 5/8-inch-thick Type X gypsum board.

For stage areas greater than 1,000 sq. ft., a Class III wet standpipe shall be provided on both sides of the stage, each with 1-1/2-inch and 2-1/2-inch hose connections. However, if a sprinkler system is required in the building or fire area, then only 1-1/2-inch hose connections are required, and they may utilize the same standpipe required for the NFPA 13 sprinkler system. Additionally, a Class II or III standpipe installed in accordance with NFPA 14, *Standard for the Installation of Standpipes and Hose Systems*, may be used instead of the other systems described.

The Chicago building code in effect in 1903—*An Ordinance relating to the Department of Building and Governing the Erection of Buildings, Etc. in the City of Chicago*—incorporated requirements that exhibit a comprehensive understanding of the fire threat in theaters for that period of time. However, even the most comprehensive and technically advanced building code will not prevent a disaster if owners and designers do not comply with code requirements, and if building departments do not enforce them, which was the situation with the Iroquois Theatre—a lesson that was learned too late.

To comment on this article, suggest other topics, or submit a question regarding codes, contact the author at ron@specsandcodes.com.

About the Author: Ronald L. Geren, AIA, CSI, CCS, CCCA, SCIP, is an ICC Certified Building Plans Examiner, and is the principal of RLGA Technical Services located in Scottsdale, Arizona, which provides specifications and code consulting services to architects, engineers, owners, and product manufacturers. A 1984 graduate of the University of Arizona, Ron has over 25 years of experience with military, public, and private agencies.

Suggested Reading:

Brandt, Nat. *Chicago Death Trap: The Iroquois Theatre Fire of 1903*. New York: Southern Illinois University, 2006. Print.

VIPER S SERIES

SMALL VIPER LUMINAIRE

Cat.#	EXHIBIT B	
Job		Type

BEACON design . performance . technology

Approvals

SPECIFICATIONS

Intended Use:

The Beacon Viper luminaire is available with a wide choice of different LED Wattage configurations and optical distributions designed to replace HID lighting up to 400W MH or HPS.

Construction:

- Manufactured with die cast aluminum.
- Coated with a polyester finish that meets ASTM B117 corrosion test requirements and ASTM D522 cracking and loss of adhesion test requirements.
- External hardware is corrosion resistant.
- One piece optical cartridge system consisting of an LED engine, LED lamps, optics, gasket and stainless steel bezel.
- Cartridge is held together with internal brass standoffs soldered to the board so that it can be field replaced as a one piece optical system.
- Two-piece silicone and micro-cellular polyurethane foam gasket ensures a weather-proof seal around each individual LED.

Electrical:

- 100V through 277V, 50 Hz to 60 Hz (UNV), or 347V or 480V input.
- Power factor is ≥.90 at full load.
- All electrical components are rated at 50,000 hours at full load and 25°C ambient conditions per MIL- 217F Notice 2.
- Dimming drivers are standard, but must contact factory to request wiring leads for purpose of external dimming controls.
- Component-to-component wiring within the luminaire may carry no more than 80% of rated load and is certified by UL for use at 600VAC at 90°C or higher.
- Plug disconnects are certified by UL for use at 600 VAC, 13A or higher. 13A rating applies to primary (AC) side only.
- Fixture electrical compartment shall contain all LED driver components and shall be provided with a push-button terminal block for AC power connections.
- The housing is designed for an optional twist lock photo control receptacle.
- Ambient operating temperature -40°C to 40°C
- Surge protection - 20KA.
- Optional 7-pin ANSI C136.41-2013 twist-lock photo control receptacle available. Compatible with ANSI C136.41 external wireless control devices.
- Lifeshield™ Circuit - protects luminaire from excessive temperature. The device shall activate at a specific, factory-preset temperature, and progressively reduce power over a finite temperature range. Operation shall be smooth and undetectable to the eye. Thermal circuit is designed to "fail on", allowing the luminaire to revert to full power in the event of an interruption of its power supply, or faulty wiring connection to the drivers. The device shall be able to co-exist with other 0-10V control devices (occupancy sensors, external dimmers, etc.).

Controls/Options:

- Available with an optional passive infrared (PIR) motion sensor capable of detecting motion 360° around the luminaire. When no motion is detected for the specified time, the Motion Response system reduces the wattage to factory preset level, reducing the light level accordingly. When motion is detected by the PIR sensor, the luminaire returns to full wattage and full light output. Please contact Beacon Products if project requirements vary from standard configuration.
- Available with Energeni for optional set dimming, timed dimming with simple delay, or timed dimming based on time of night (see www.beaconproducts.com/products/energeni).
- In addition, Viper can be specified with **SiteSync™** wireless control system for reduction in energy and maintenance cost while optimizing light quality 24/7. See ordering information or visit www.hubbelllighting.com/sitesync for more details.

Installation:

- Mounting options for horizontal armd, vertical tenon or traditional arm mounting available. Mounting hardware included.

Finish:

- IFS polyester powder-coat electro-statically applied and thermocured.
- IFS finish consists of a five stage pretreatment regimen with a polymer primer sealer and top coated with a thermosetsuper TGIC polyester powder coat finish.
- The finish meets the AAMA 605.2 performance specification which includes passing a 3000 hour salt spray test for corrosion resistance and resists cracking or loss of adhesion per ASTM D522 and resists surface impacts of up to 160 inch-pounds.

Listings:

- DesignLights Consortium (DLC) qualified, consult DLC website for more details: http://www.designlights.org/QPL
- Certified to UL 1598 and CSA C22.2 No.250.0
- IDA approved
- This product is approved by the Florida Fish and Wildlife Conservation Commission. Separate spec available at: http://www.beaconproducts.com/products/vipersmall

Warranty:

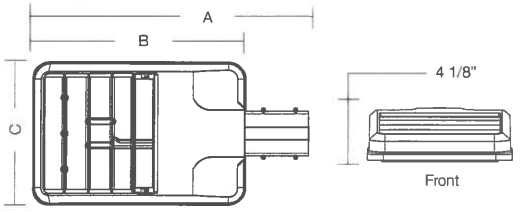
Five year limited warranty for more information visit: www.hubbelllighting.com/resources/warranty

CERTIFICATIONS/LISTINGS

*3000K and warmer CCTs only

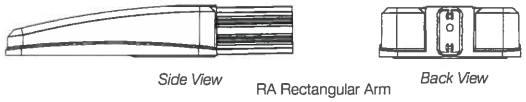
PRODUCT IMAGE(S)

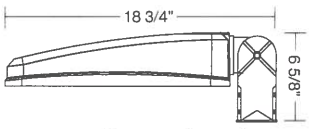
DIMENSIONS



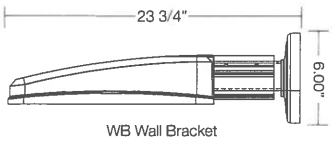
A	B	C	Weight:	EPA
22.75" (578 mm)	16.75" (425 mm)	11.25" (286 mm)	15.0 lbs (6.8 kg)	.67 ft²

MOUNTING OPTIONS

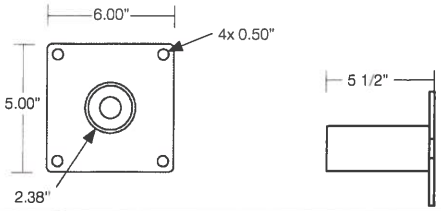




PK2 2-3/8" Adjustable Knuckle



WB Wall Bracket



HUBBELL Lighting

EXHIBIT B

ORDERING INFORMATION

ORDERING EXAMPLE: VPS/36NB-80/5K/T4/UNV/PCR-TL/SWP/BLC/RA/BBT

VPS	60NB-136	5k	T4	UNV					RA	DB

SERIES
- **VPS** viper-small

ENGINE-WATTS
- **24NB-55** 55W, LED array
- **30NB-70**[9] 70W, LED array
- **36NB-80** 80W, LED array
- **48NB-110** 110W, LED array
- **60NB-136** 136W, LED array

LED COLOR[8]
- **3K** 3000K
- **4K** 4000K
- **5K** 5000K

OPTICS[4]
- **T1** type I
- **T2** type II
- **T3** type III
- **T4** type IV
- **T5R** type V, rectangular
- **T5QM** type V, square medium
- **T5W** type V, round wide
- **FR** front row auto optic

VOLTAGE
- **UNV** 120-277V
- **347V** 347V
- **480V** 480V

ELECTRICAL OPTIONS
- **PCR-TL** Twist lock receptacle with photo control
- **PCR-SC** Twist lock receptacle with shorting cap
- **PCRU** Twist lock receptacle
- **2PF**[7] dual power feed

CONTROL OPTIONS
- **GENI-XX**[6] Energeni
- **SWP**[1,5] SiteSync Wireless Pre-Commission
- **SWPM**[1,2,5] SiteSync Wireless Pre-Commission w/ Motion Detection
- **MDD**[2,5] Motion Dimming Detector

HOUSE SIDE SHIELD OPTIONS
- **BLC**[3] backlight control

BIRD DETERRENT
- **BSP** bird spike

MOUNTING OPTIONS
- **RA** rectangular arm for round or square pole mount. RPA included.
- **SF2** 2 3/8" OD slip-fitter
- **PK2** 2 3/8" adjustable knuckle
- **WB** wall bracket (use with SF2 or PK2), SF2 standard

FINISH
- **BBT** basic black textured
- **BMT** black matte textured
- **WHT** white textured
- **MBT** metallic bronze textured
- **BZT** bronze textured
- **DBT** dark bronze textured
- **GYS** gray smooth
- **DPS** dark platinum smooth
- **GNT** green textured
- **MST** metallic silver textured
- **MTT** metallic titanium textured
- **OWI** old world iron
- **RAL** _____

[1] Must specify group and zone information at time of order. See www.hubbelllighting.com/controls/sitesync for further details.
[2] Specify time delay; dimming level and mounting height.
[3] T4 optic only.
[4] To rotate optics Left or right 90 degrees, specify L or R after the optical distribution example T4L.
[5] Not available with other wireless control or sensor options.
[6] When ordering Energeni, specifiy the routine setting code (example GENI-04). See Energeni brochure and instructions for setting table and options. Not available with sensor options.
[7] Not available for 347V or 480V input.
[8] This product is approved by the Florida Fish and Wildlife Conservation Commission. Separate spec available at: http://cdn.beaconproducts.com/content/products/specs/specs_files/Viper_Small_LED_turtle_spec_sheet.pdf
[9] Not available with SWP and SWPM SiteSync options

PRECOMMISSIONED SITESYNC ORDERING INFORMATION: When ordering a fixture with the SiteSync lighting control option, additional information will be required to complete the order. The SiteSync Commissioning Form or alternate schedule information must be completed. This form includes Project location, Group information, and Operating schedules. For more detailed information please visit www.HubbellLighting.com/products/sitesync or contact Hubbell Lighting tech support at (800) 345-4928.

SiteSync fixtures with Motion control (SWPM) require the mounting height of the fixture for selection of the lens.

Examples: VP-S/24NB-55/5K/T3/UNV/SWP/RA/DBT — SiteSync only
VP-S/24NB-55/5K/T3/UNV/SWPM-20F/RA/DBT — SiteSync with Motion Control

MDD ORDERING INFORMATION: When ordering a fixture with the motion detection option (MDD), please specify the appropriate information. These settings are specified in the ordering as shown in the example below.

VP-S/24NB-55/5K/T3/UNV/MDD - 1 to 30 min. - 33% or 50% - ?? / RA/DBT

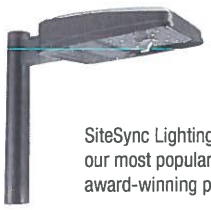
High to Dim Delay | Low Level | Mounting Height (ft.)

Accessories and Services (Ordered Separately)

Catalog Number	Description
SWUSB*	SiteSync loaded on USB flash drive (Windows based only)
SWTAB*	SiteSync Windows Tablet
SWBRG+	SiteSync Wireless Bridge Node

*When ordering with SiteSync, one of the following interface options must be chosen and ordered separately. Each option contains the SiteSync License, GUI and Bridge Node.
+ If needed, an additional Bridge Node can be ordered.

DesignLights Consortium qualified.
Consult DLC website for more details:
http://www.designlights.org/QPL



SiteSync Lighting Control is available from our most popular brands in a broad range of award-winning product families.

Hubbell Control Solutions - Accessories (sold separately)

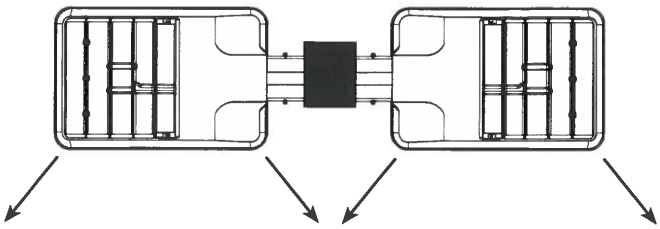
Catalog Number	Description	HCS System
NXOFM-1R1D-UNV	On-fixture Module (7-pin), On / Off / Dim, Daylight Sensor with HubbNET Radio and Bluetooth® Radio, 120-480VAC	NX Distributed Intelligence™
WIR-RME-L	On-fixture Module (7-pin or 5-pin), On / Off / Dim, Daylight Sensor with wiSCAPE Radio, 110-480VAC	wiSCAPE™ Lighting Control

For additional information related to these accessories please visit www.hubbellcontrolsolutions.com. Options provided for use with integrated sensor, please view specification sheet ordering information table for details.

EXHIBIT B

LEFT ROTATED OPTIC

RIGHT ROTATED OPTIC



PERFORMANCE DATA

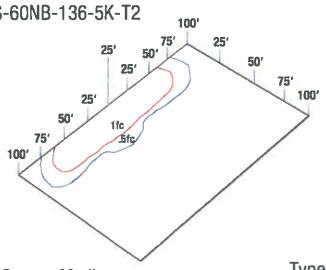
# LED'S	DRIVE CURRENT (MILLIAMPS)	SYSTEM WATTS	DISTRIBUTION TYPE	5K (5000K nominal, 70 CRI)					4K (4000K nominal, 70 CRI)					3K (3000K nominal, 70 CRI)				
				LUMENS	LPW[1]	B	U	G	LUMENS	LPW[1]	B	U	G	LUMENS	LPW[1]	B	U	G
24	700 mA	55 W	FR/T1	6339	114	1	0	1	6276	112	1	0	1	5389	97	1	0	1
			T2	5666	102	2	0	2	5610	101	2	0	2	4816	86	1	0	2
			T3	5610	101	1	0	2	5554	100	1	0	2	4784	86	1	0	2
			T4	6171	111	1	0	2	6110	109	1	0	2	5245	94	1	0	2
			T5R	6283	113	3	0	3	6221	111	3	0	3	5341	96	3	0	3
			T5QM	6171	111	3	0	1	6110	109	3	0	1	5245	94	2	0	1
			T5W	6087	109	3	0	1	6027	108	3	0	1	5201	93	3	0	1
30	700 mA	70 W	FR/T1	8096	113	1	0	1	8016	112	1	0	1	6882	96	1	0	1
			T2	7204	101	2	0	2	7133	100	2	0	2	6123	86	2	0	2
			T3	7743	108	2	0	2	7666	107	2	0	2	6659	93	2	0	2
			T4	7896	111	1	0	2	7817	110	1	0	2	6791	95	1	0	2
			T5R	8035	112	3	0	3	7954	111	3	0	3	6829	95	3	0	3
			T5QM	7846	110	3	0	1	7768	109	3	0	1	6669	93	3	0	1
			T5W	8305	116	3	0	2	8222	115	3	0	2	7142	100	3	0	2
36	700 mA	80 W	FR/T1	9515	114	1	0	1	9414	112	1	0	1	8083	96	1	0	1
			T2	8505	101	2	0	3	8415	100	2	0	3	7224	87	2	0	2
			T3	8415	100	2	0	2	8331	99	2	0	2	7175	86	2	0	2
			T4	9256	110	1	0	3	9164	109	1	0	3	7868	94	1	0	3
			T5R	9425	112	3	0	3	9331	111	3	0	3	8011	96	3	0	3
			T5QM	9257	110	3	0	1	9164	109	3	0	1	7868	94	3	0	1
			T5W	9131	109	3	0	2	9040	108	3	0	2	7801	93	3	0	2
48	700 mA	110 W	FR/T1	12679	114	2	0	1	15522	113	2	0	1	10777	97	1	0	1
			T2	11332	102	3	0	3	11220	101	3	0	3	9633	87	2	0	3
			T3	11220	101	2	0	3	11108	100	2	0	3	9567	86	2	0	3
			T4	12342	111	2	0	3	12219	110	2	0	3	10491	95	2	0	3
			T5R	12567	113	4	0	4	12441	112	4	0	4	10682	96	3	0	3
			T5QM	12342	111	3	0	2	12219	111	3	0	2	10491	95	3	0	2
			T5W	12175	110	4	0	2	12053	109	4	0	2	10402	94	4	0	2
60	700 mA	136 W	FR/T1	15848	116	2	0	1	15690	115	2	0	1	13471	98	2	0	1
			T2	14165	103	3	0	3	14025	102	3	0	3	12041	88	3	0	3
			T3	14025	102	3	0	3	13885	101	3	0	3	11959	87	3	0	3
			T4	15427	113	2	0	3	15274	111	2	0	3	13114	96	2	0	3
			T5R	15708	115	4	0	4	15259	111	4	0	4	13352	97	4	0	4
			T5QM	15427	113	4	0	2	15274	111	4	0	2	13314	96	3	0	2
			T5W	15218	111	4	0	2	15066	111	4	0	2	13002	95	4	0	2

[1]Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown. Actual performance may differ as a result of end-user environment and application.

EXHIBIT B

PHOTOMETRICS

Type II
VP-S-60NB-136-5K-T2



Type III
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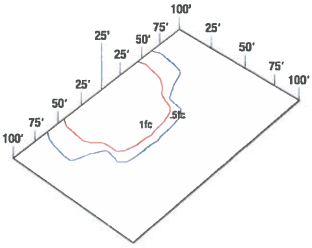
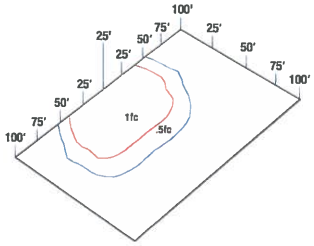
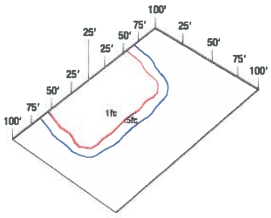


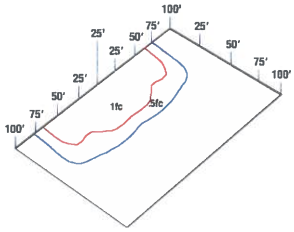
Type IV
VP-S-60NB-136-5K-T4



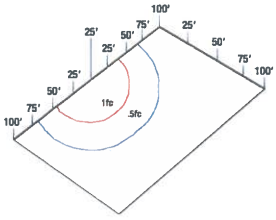
Type V Square Medium
VP-S-60NB-136-5K-T5QM



Type V Rectangular
VP-S-60NB-136-5K-T5R



Type V Round Wide
VP-S-60NB-136-5K-T5W



Front Row Auto Optic / Type I
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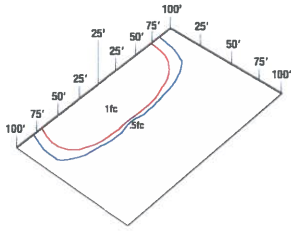
VP-S-60NB-136-5K-T1



ELECTRICAL DATA

# OF LEDS	NUMBER OF DRIVERS	DRIVE CURRENT (mA)	INPUT VOLTAGE (V)	SYSTEM POWER (w)	CURRENT (Amps)
24	2	700 mA	120	55	0.5
			277		0.2
			347		0.2
			480		0.1
30	2	700 mA	120	70	0.6
			277		0.3
			347		0.2
			480		0.1
36	1	700 mA	120	80	0.7
			277		0.3
			347		0.2
			480		0.2
48	1	700 mA	120	110	0.9
			277		0.4
			347		0.3
			480		0.2
60	1	700 mA	120	136	1.1
			277		0.5
			347		0.4
			480		0.3

PROJECTED LUMEN MAINTENANCE

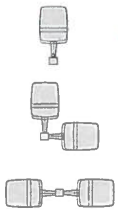
AMBIENT TEMP.	0	25,000	50,000	[1]TM-21-11 60,000	100,000	Calculated L70 (HOURS)
25°C / 77°C	1.00	0.97	0.95	0.95	0.92	>470,000

[1] Projected per IESNA TM-21-11
Data references the extrapolated performance projections for the base model in a 40°C ambient, based on 10,000 hours of LED testing per IESNA LM-80-08.

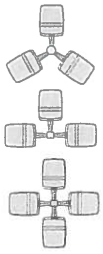
AMBIENT TEMPERATURE		LUMEN MULTIPLIER
0°C	32°F	1.02
10°C	50°F	1.01
20°C	68°F	1.00
25°C	77°F	1.00
30°C	86°F	0.98
40°C	104°F	0.98

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

EPA



Config.	EPA
1	.67
2 @ 90°	1.06
2 @ 180°	1.34



Config.	EPA
3 @ 120°	1.68
3 @ 90°	1.73
4 @ 90°	2.12

DRILL PATTERN

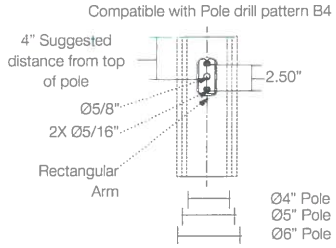


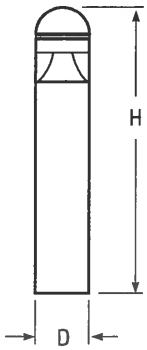
EXHIBIT B

KBA8 LED
LED Specification Bollard

Catalog Number

Notes

Type



Specifications

8" Round (20.3 cm)

Height: 42" (106.7 cm)

Weight (max): 27 lbs (12.25 kg)

Introduction

The KBA8 Bollard is a stylish, fully integrated LED solution for walkways. It features a sleek, modern design and is carefully engineered to provide long-lasting, energy-efficient lighting with a variety of optical and control options for customized performance.

With an expected service life of over 20 years of nighttime use and up to 70% in energy savings over comparable 100W metal halide luminaires, the KBA8 Bollard is a reliable, low-maintenance lighting solution that produces sites that are exceptionally illuminated.

Ordering Information

EXAMPLE: KBA8 LED 16C 700 40K SYM MVOLT DDBXD

KBA8 LED

Series	LEDs	Drive current	Color temperature	Distribution	Voltage	Control options	Other options	Finish *(required)*
KBA8 LED	**Asymmetric** 12C 12 LEDs [1] **Symmetric** 16C 16 LEDs [2]	350 350 mA 450 450 mA [3,4] 530 530 mA 700 700 mA	30K 3000 K 40K 4000 K 50K 5000 K AMBPC Amber phosphor converted AMBLW Amber limited wavelength [3,4]	ASY Asymmetric [1] SYM Symmetric [2]	MVOLT [5] 120 [5] 208 [5] 240 [5] 277 [5] 347 [4]	**Shipped installed** PE Photoelectric cell, button type DMG 0-10V dimming driver (no controls) ELCW Emergency battery backup [6]	**Shipped installed** SF Single fuse (120, 277, 347V) [4,7] DF Double fuse (208, 240V) [4,7] H24 24" overall height H30 30" overall height H36 36" overall height FG Ground-fault festoon outlet L/AB Without anchor bolts (3 bolt base) L/AB4 4 bolt retrofit base without anchor bolts [8]	DWHXD White DNAXD Natural aluminum DDBXD Dark bronze DBLXD Black DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white **Striping [9]** SDDB Dark bronze SDWH White SDBL Black SDNA Natural aluminum SDTG Tennis green SDBR Bright red SDBUA Dark blue SDYLB Yellow

Accessories

Ordered and shipped separately.

MRAB U Anchor bolts for KBA8 LED [8]

NOTES

1. Only available in the 12C, ASY version.
2. Only available in the 16C, SYM version.
3. Only available with 450 AMBLW version.
4. Not available with ELCW.
5. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options), or photocontrol (PE option).
6. Not available with 347V. Not available with fusing. Not available with 450 AMBLW.
7. Single fuse (SF) requires 120, 277, or 347 voltage option. Double fuse (DF) requires 208 or 240 voltage option.
8. MRAB U not available with L/AB4 option.
9. Striping is available only in the colors listed.

EXHIBIT B

Performance Data

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Actual performance may differ as a result of end-user environment and application. Actual wattage may differ by +/- 8% when operating between 120-480V +/- 10%.

Light Engines	Drive Current	System Watts	3000 K					4000 K					5000 K					Limited Wavelength Amber				
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
Asymmetric 3 Engines (12 LEDs)	350	16	641	40	1	1	1	809	51	1	1	1	870	54	1	1	1					
	530	22	947	43	1	1	1	1,191	54	1	1	1	1,282	58	1	1	1					
	700	31	1,214	40	1	1	1	1,527	51	1	1	1	1,646	55	1	1	1					
	Amber 450	16																324	20	0	1	0
Symmetric 4 Engines (16 LEDs)	350	20	888	44	1	0	0	1,116	56	1	0	0	1,203	60	1	0	0					
	530	28	1,254	45	1	0	0	1,598	57	1	0	1	1,719	61	1	0	1					
	700	39	1,608	41	1	0	1	2,022	52	1	0	1	2,180	56	2	0	1					
	Amber 450	20																374	19	0	0	0

Note: Available with phosphor-converted amber LED's (nomenclature AMBPC). These LED's produce light with 97+% >530 nm. Output can be calculated by applying a 0.7 factor to 4000 K lumen values and photometric files.

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.00	0.98	0.97	0.95

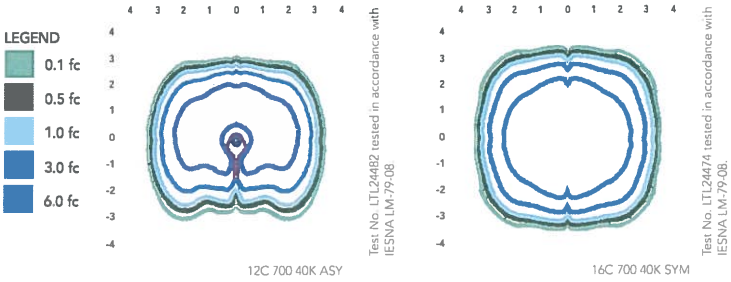
Electrical Load

Light Engines	Drive Current (mA)	System Watts	Current (A) 120	208	240	277	347
12C	350	16W	0.158	0.118	0.114	0.109	0.105
	530	22W	0.217	0.146	0.136	0.128	0.118
	700	31W	0.296	0.185	0.168	0.153	0.139
	Amber 450	16W	0.161	0.120	0.115	0.110	0.106
16C	350	20W	0.197	0.137	0.128	0.121	0.114
	530	28W	0.282	0.178	0.162	0.148	0.135
	700	39W	0.385	0.231	0.207	0.185	0.163
	Amber 450	20W	0.199	0.139	0.130	0.123	0.116

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's KBA8 Bollard homepage.

Isofootcandle plots for the KB LED Bollards. Distances are in units of mounting height (3').



12C 700 40K ASY

16C 700 40K SYM

FEATURES & SPECIFICATIONS

INTENDED USE
The rugged construction and clean lines of the KBA bollard is ideal for illuminating building entryways, walking paths, and pedestrian plazas, as well as any other location requiring a low mounting height light source with fully cutoff illumination.

CONSTRUCTION
One-piece 8-inch round extruded aluminum shaft with thick side walls for extreme durability, a high-impact clear acrylic lens and welded top cap. Die-cast aluminum mounting ring allows for easy leveling even in sloped locations and a full 360-degree rotation for precise alignment during installation. Three ½" x 11" anchor bolts with double nuts and washers and 3 ¾" bolt circle template ensure stability. Overall height is 42" standard.

FINISH
Exterior parts are protected by a zinc-infused super durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering for maximum retention of gloss and luster. A tightly controlled multi-stage process ensures a minimum 3-mil thickness for a finish that can withstand the elements without cracking or peeling. Available in both textured and non-textured finishes.

OPTICS
Two fully cutoff optical distributions are available: symmetrical and asymmetrical. IP66 sealed LED light engine provides smoothly graduated illumination without any uplight. Light engines are available in standard 4000 K (>70 CRI) or optional 3000 K (>80 CRI) or 5000 K (67 CRI). Limited-wavelength amber LEDs are also available.

ELECTRICAL
Light engines consist of high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (L95/100,000 hours at 700mA at 25°C). Class 2 electronic drivers are designed for an expected life of 100,000 hours with < 1% failure rate. Electrical components are mounted on a removable power tray.

LISTINGS
CSA certified to U.S. and Canadian standards. Light engines are IP66 rated. Rated for -40°C minimum ambient. Cold-weather emergency battery backup rated for -20°C minimum ambient.

WARRANTY
Five-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Specifications subject to change without notice.

Arlington Heights Police Department
Emergency Information Card

EXHIBIT C

Arlington Heights Police Department
200 E. Sigwalt Street
Arlington Heights, IL 60005-1499
Phone: 847/368-5300

1. Fill in all information by tabbing to each field.
2. When completed, save the form and send as an attachment to: tmorales@vah.com.

Completed forms may also be printed and submitted in the following manner:

Print Form (To Mail)

By Mail: Arlington Heights Police Department
200 E. Sigwalt Street, Arlington Heights, IL. 60005
Attention: Police Administration

By Fax: (847) 368-5970 - Attention: Police Administration

In Person: Dropped off at the Arlington Heights Police Department's front desk for forwarding to Police Administration.

Name (Firm or Residence)	St. Edna Catholic Church
Address/City	2525 N. Arlington Heights Rd.
Telephone Number	847-398-33662
Date Information Obtained	9-6-17

IN CASE OF EMERGENCY PLEASE CALL:

Contact #1

Name	Fr. Ramirez or Fr. Heidenreich
Address/City	(premises)
Telephone Number	847-749-46866
Cell Number	

Contact #2

Name	Tom Walters - Head of maintenance
Address/City	
Telephone Number	847-222-0513
Cell Number	224-258-66674

Alarm System

☐ No

☒ Yes Phone number: 847-353-7200

Alarm Company Name: Sentry Security

EXHIBIT D

Print Form

ILLINOIS DEPARTMENT OF PUBLIC HEALTH
DIVISION OF ENVIRONMENTAL HEALTH
525 W. JEFFERSON ST.
SPRINGFIELD, IL 62761

WATER WELL SEALING FORM

PDF FILLABLE/SAVABLE

RETURN ALL COPIES TO IDPH OR LOCAL HEALTH DEPARTMENT

This form shall be submitted to this Department or the local health department not more than 30 days after a water well, boring or monitoring well is sealed. Such wells are to be sealed not more than 30 days after they are abandoned in accordance with the sealing requirements in the Illinois Water Well Construction Code. THE LOCAL HEALTH DEPARTMENT OR REGIONAL PUBLIC HEALTH DEPARTMENT MUST BE NOTIFIED AT LEAST 48 HOURS PRIOR TO SEALING.

1. Ownership (Name of Controlling Party) St. Edna's Catholic Church

2. Well Location: Well Site Address 2525 N. Arlington Heights Road City Arlington Heights, Il. Zip 60004

Lot # M&B Land I.D.# 13-17-101-019-0000 County Cook Township Wheeling

Range 42N Section 17 SE Quarter of the NE Quarter of the NW Quarter

GPS: North Degrees 42 Minutes 7 Seconds 18.4188 West Degrees -87 Minutes 58 Seconds 42.779

Report decimal minutes to minutes and seconds by multiplying the decimal part of the minutes by 60, e.g. latitude 38 degrees 46.07 minutes N would be latitude 38 degrees 46 minutes 4.2 seconds (0.07 x 60 = 4.2) N. Report GPS coordinates to the nearest 0.1 second.

3. Year Drilled ? 4. Drilling Permit Number (and date, if known ?

5. Type of Well Drilled 6. Total Depth (ft.) Diameter (in.) 5

7. Formation clear of obstruction Yes

8. Detains of Plugging (bentonite, neat cement or other materials)

Filled with	Bentonite Chips	From (ft.)	125	to (ft.)	100
Kind of plug	Bentonite Grout 30% sol.	From (ft.)	100	to (ft.)	GRADE
Filled with		From (ft.)		to (ft.)	
Kind of plug		From (ft.)		to (ft.)	
Filled with		From (ft.)		to (ft.)	
Kind of plug		From (ft.)		to (ft.)	

OBSERVED 9/11 Steve Snelten Vill. of Barrington Hills 9/18/13

9. CASING RECORD Upper 2 feet of casing removed Yes 10. Date well was sealed 9/6/2013

11. Licensed water well driller or other person approved by the Department performing well sealing

Name Stephen A. Snelten Complete License Number 102-003167

Address 5 Hillview Drive City Barrington State Illinois Zip Code 60010

This state agency is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined under Public Act-0863. Disclosure of this information is mandatory. This form has been approved by the Forms Management Center. IL 482-0631- Revised 5/09

Questions regarding the completion of this form should be directed to the local health department or the Illinois Department of Public Health 217-782-5830, TTY (for hearing impaired only) 800-547-0466.

EXHIBIT E

Certified Drawing for RT-1

Project: M16025 - St. Edna Catholic Church
Prepared By:

03/01/2016
10:16AM

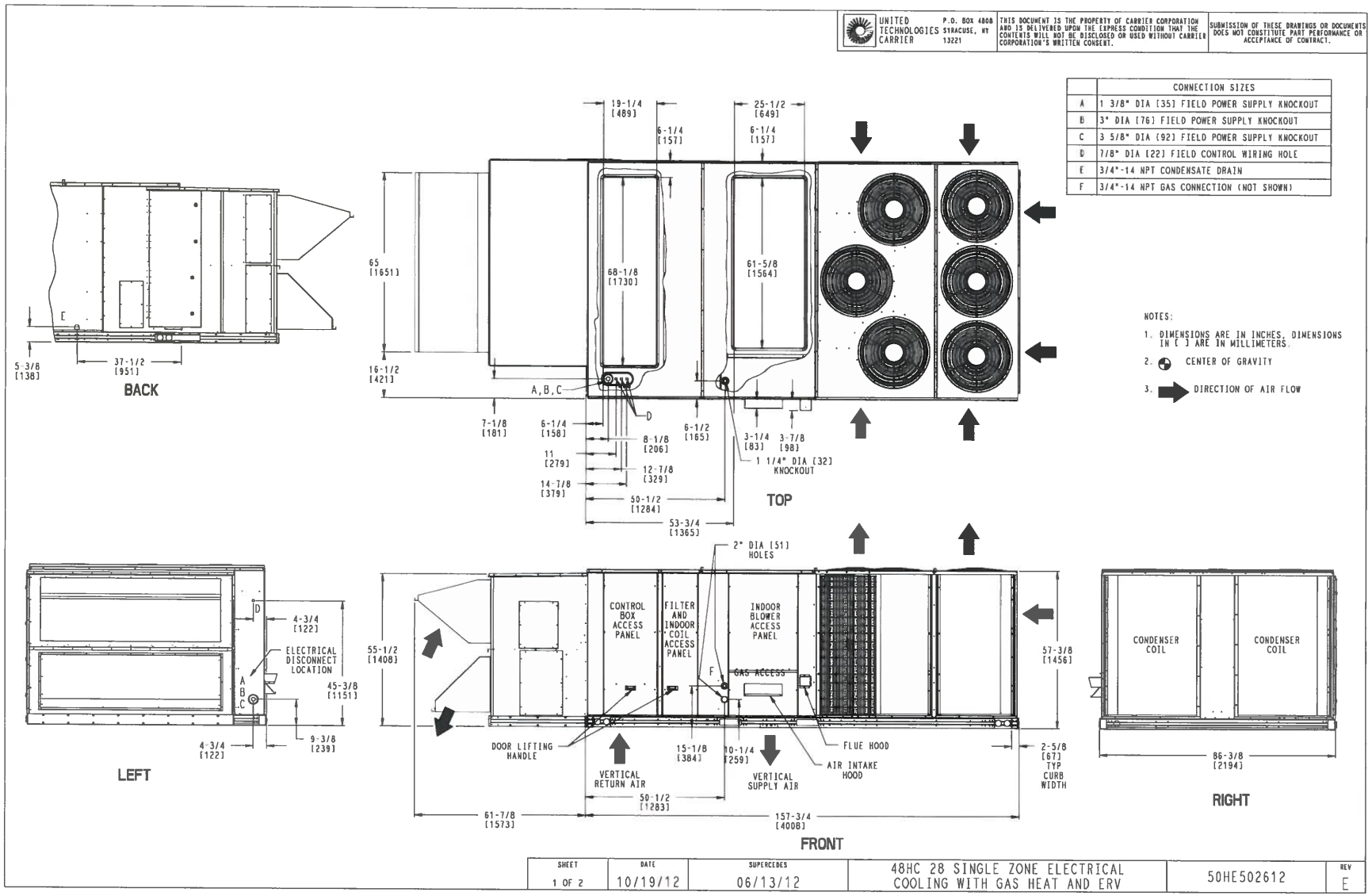


EXHIBIT E

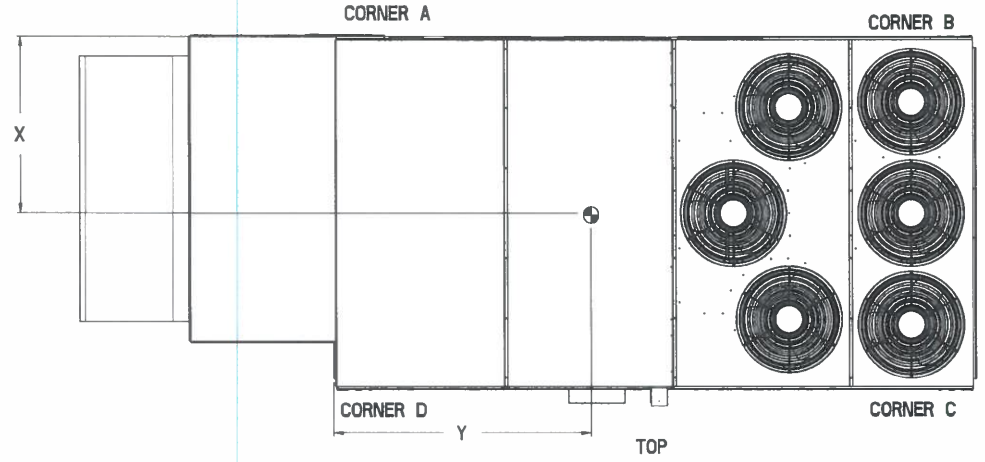
Certified Drawing for RT-1

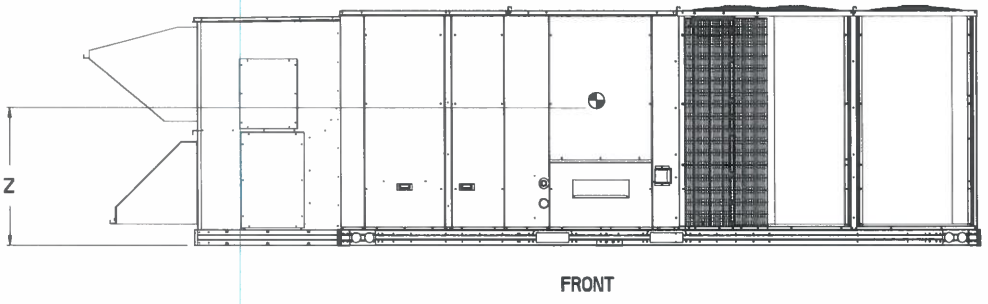
Project: M16025 - St. Edna Catholic Church
Prepared By:

03/01/2016
10:16AM

UNIT	STD UNIT WEIGHT *		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.		
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z
48HC28	3940	1791	1423	647	720	327	603	274	1194	543	39 1/4 [998]	52 7/8 [1344]	19 [483]

* STANDARD UNIT WEIGHT IS WITH LOW GAS HEAT AND WITHOUT PACKAGING.
FOR OTHER OPTIONS AND ACCESSORIES, REFER TO THE PRODUCT DATA CATALOG.





SHEET	DATE	SUPERCEDES			REV
2 OF 2	10/19/12	06/13/12	48HC 28 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT AND ERV	50HE502612	E

EXHIBIT E

Certified Drawing for RT-1

Project: M16025 - St. Edna Catholic Church
Prepared By:

03/01/2016
10:16AM

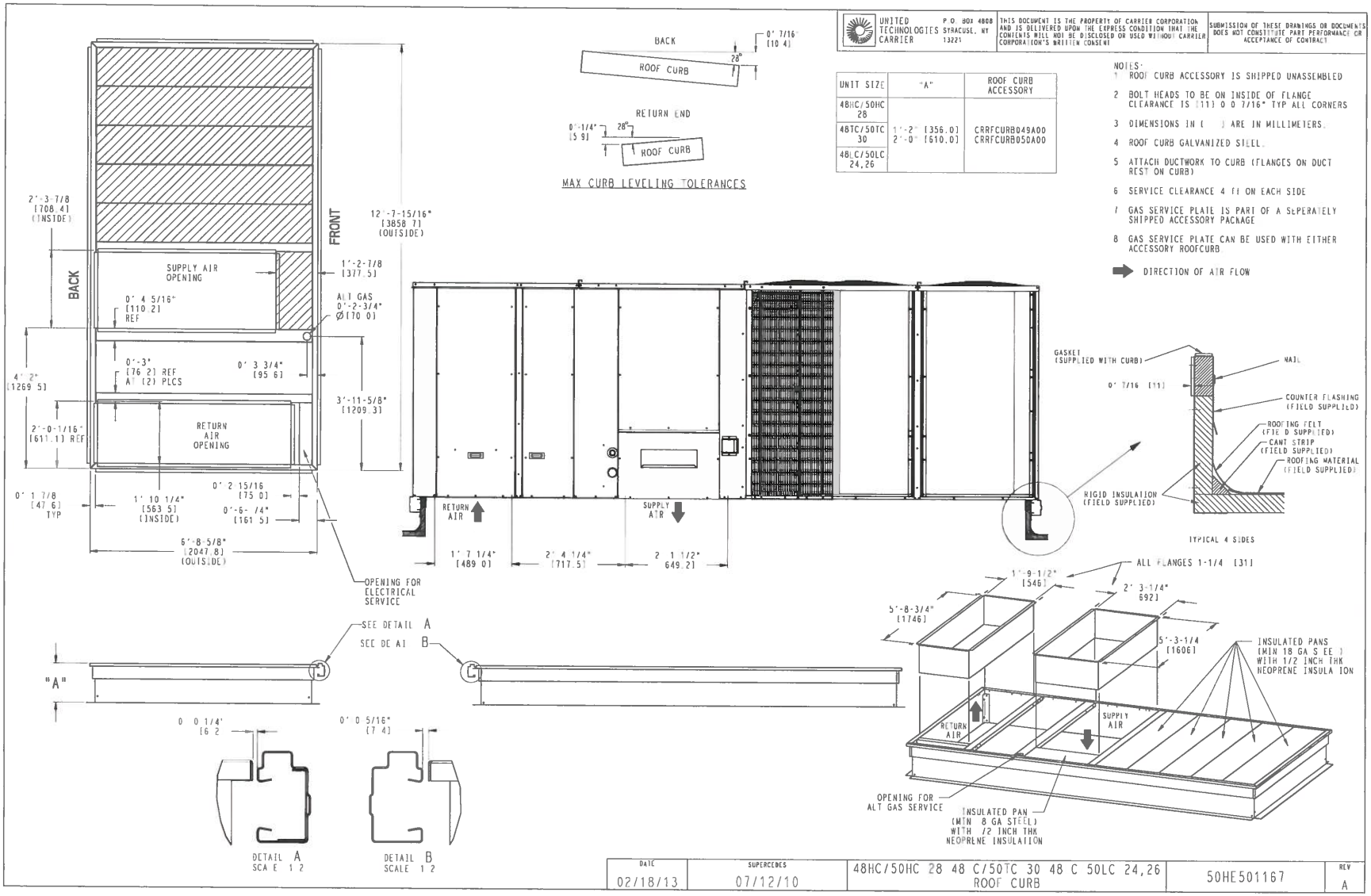


EXHIBIT E

Certified Drawing for RT-2

Project: M16025 - St. Edna Catholic Church
Prepared By:

03/01/2016
10:17AM

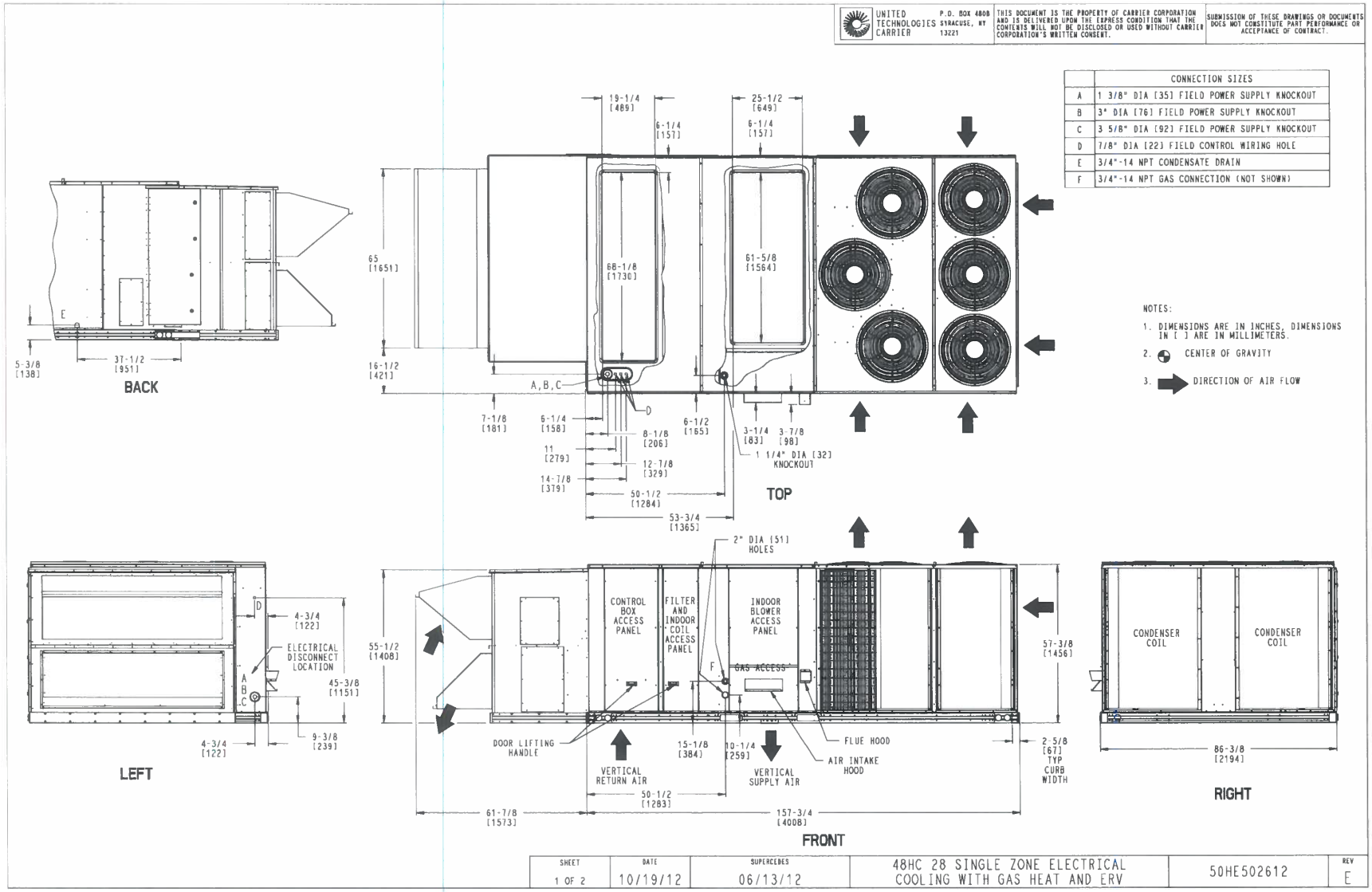


EXHIBIT E

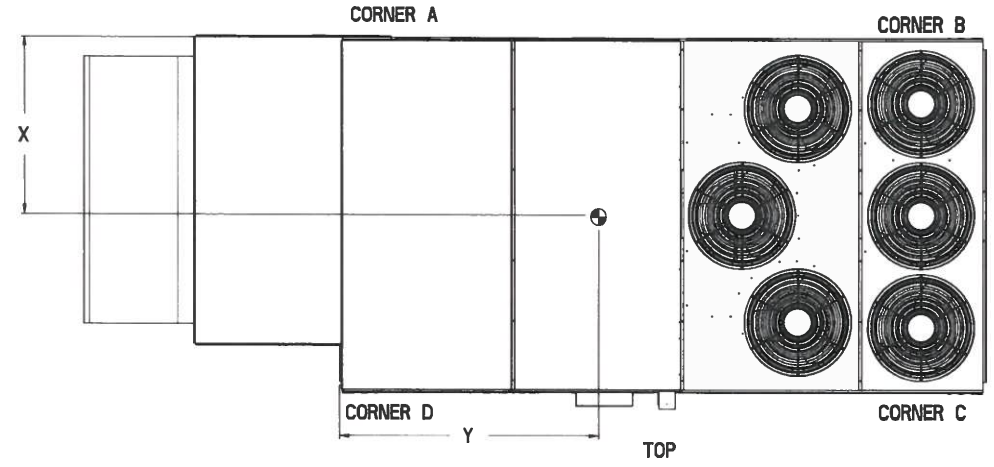
Certified Drawing for RT-2

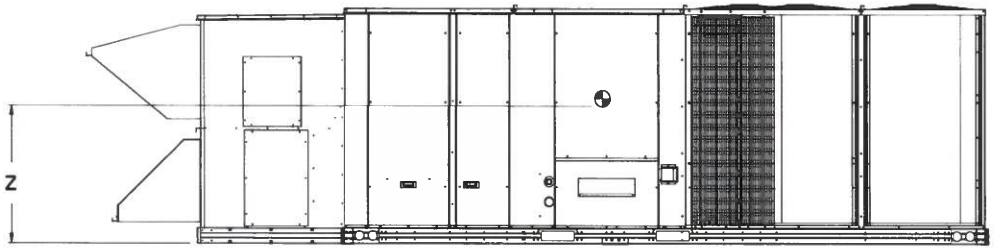
Project: M16025 - St. Edna Catholic Church
Prepared By:

03/01/2016
10:17AM

UNIT	STD UNIT WEIGHT *		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.		
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z
48HC28	3940	1791	1423	647	720	327	603	274	1194	543	39 1/4 [998]	52 7/8 [1344]	19 [483]

* STANDARD UNIT WEIGHT IS WITH LOW GAS HEAT AND WITHOUT PACKAGING.
FOR OTHER OPTIONS AND ACCESSORIES, REFER TO THE PRODUCT DATA CATALOG.





SHEET	DATE	SUPERCEDES			REV
2 OF 2	10/19/12	06/13/12	48HC 28 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT AND ERV	50HE502612	E

EXHIBIT E

Certified Drawing for RT-2

Project: M16025 - St. Edna Catholic Church
Prepared By:

03/01/2016
10:17AM

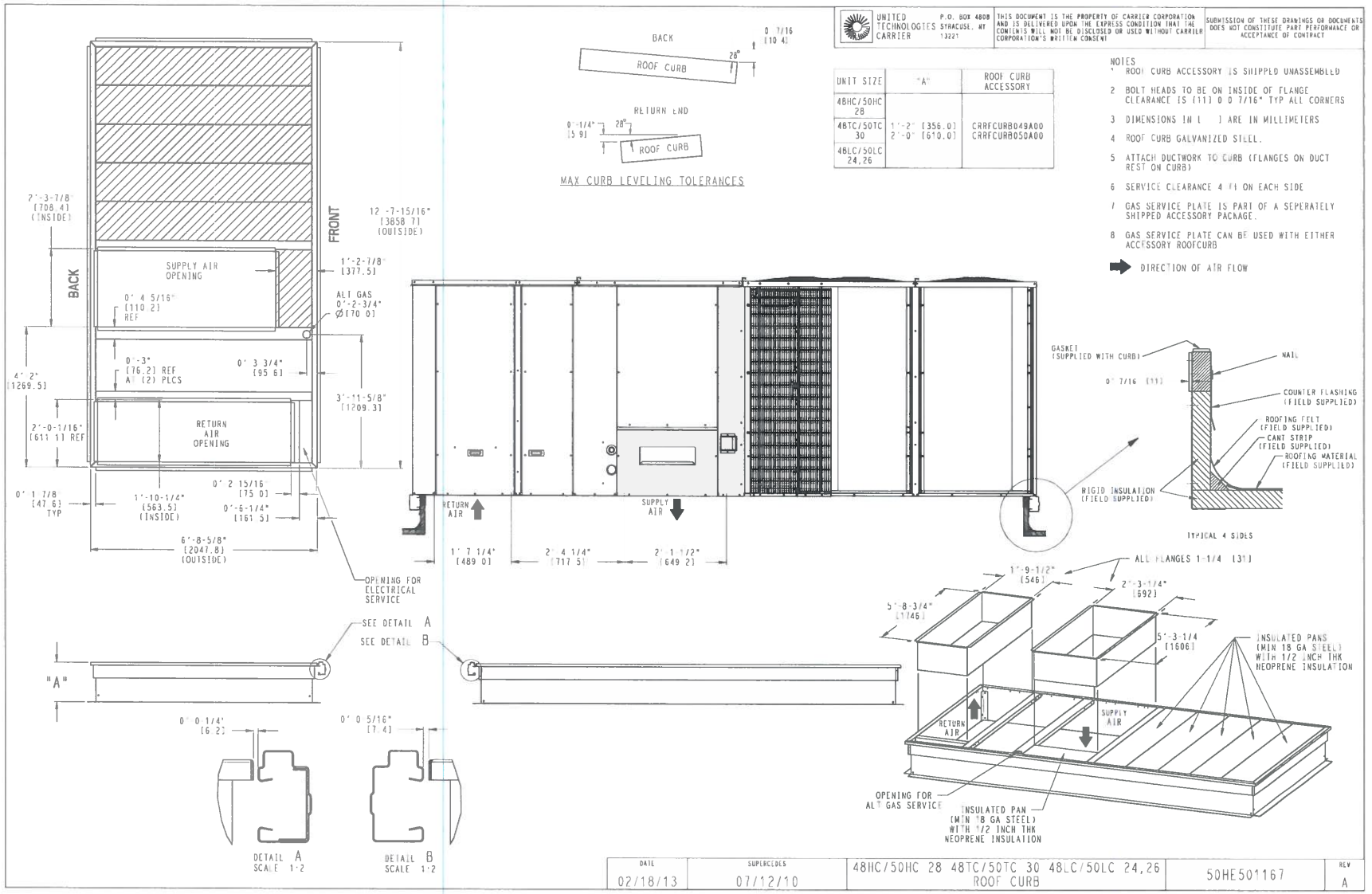
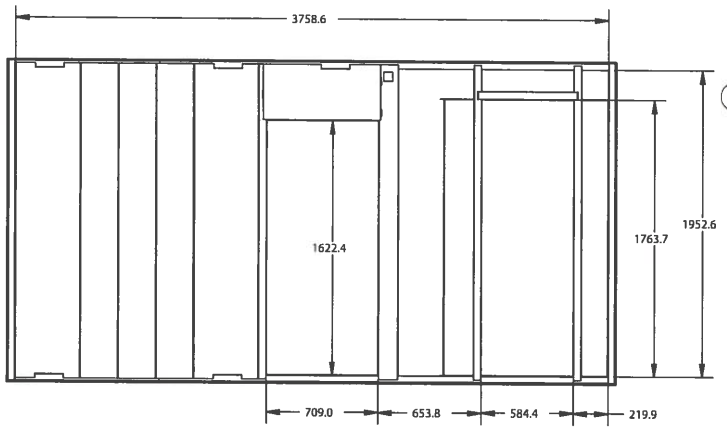
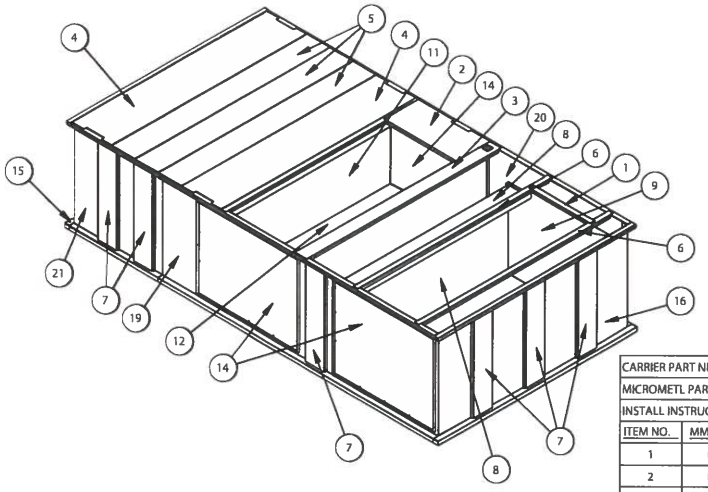
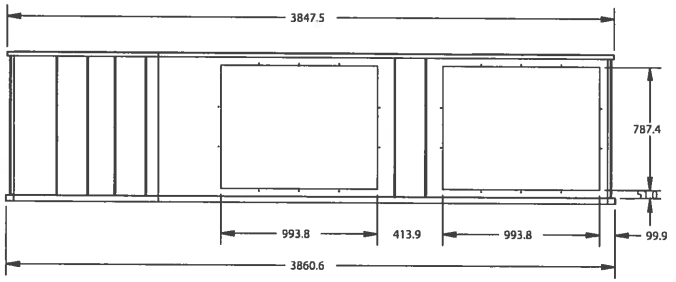


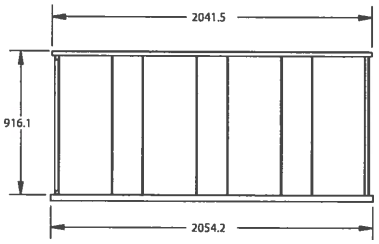
EXHIBIT E

RTU 1 AND 2 WILL DISCHARGE DOWN INTO THE CURB SHOWN BELOW.









CARRIER PART NUMBER: CRADCURB012A00			
MICROMETL PART NUMBER: HE6F-W-HCRB			
INSTALL INSTRUCTION # IIK-CRADCURB01-01			
ITEM NO.	MMC PART NO.	DESCRIPTION	QTY.
1	0403565A	R/A SUPPORT	1
2	0403566A	S/A SUPPORT	1
3	0403567A	A CROSS SUPPORT	1
4	0403580A	DECK PAN A	2
5	0403581A	DECK PAN B	3
6	0403593A	CROSS SUPPORT	3
7	CRBHE0033	VERTICAL SUPPORT	13
8	CRBHE0034	RETURN SHROUD A	1
9	CRBHE0035	RETURN SHROUD B	1
10	CRBHE0036	SUPPLY SHROUD A	1
11	CRBHE0037	SUPPLY SHROUD B	1
12	CRBHE0038	SUPPLY SHROUD C	1
13	CRBHE0039	RETURN SHROUD C	1
14	CRBHE0040	COVERS	3
15	CRBHE0041	FRONT	1
16	CRBHE0042	REAR	1
17	CRBHE0043	HORIZONTAL CURB, SIDE B	1
18	CRBHE0044	SUPPORT PLATE	2
19	CRBHE0046	HORIZONTAL CURB, SIDE A	1
20	CRBHE0047	HORIZONTAL CURB, SIDE B	1
21	CRBHE0048	HORIZONTAL CURB, SIDE A	1

NOTES:
1. SHIPS FULLY WELDED
2. INSULATED DECK PANS
3. INCLUDE 25 L/F OF 1-1/2 X 1/4" GASKETING (9430-0100)
4. WILL SIT ON STANDARD CURB

SIZE	DRAWING NUMBER	REV
D	48TM404345	-

Fig. 4 - CRADCURB012A00 Horizontal Curb Adapter Assembly

5

C12175

EXHIBIT E

Certified Drawing for RT-3

Project: M16025 - St. Edna Catholic Church
Prepared By:

RTU-3 WILL BE ON A STANDARD 14" CURB. DUCTS WILL DISCHARGE OUT THE SIDE OF THE UNIT.

10/04/2017
01:05PM

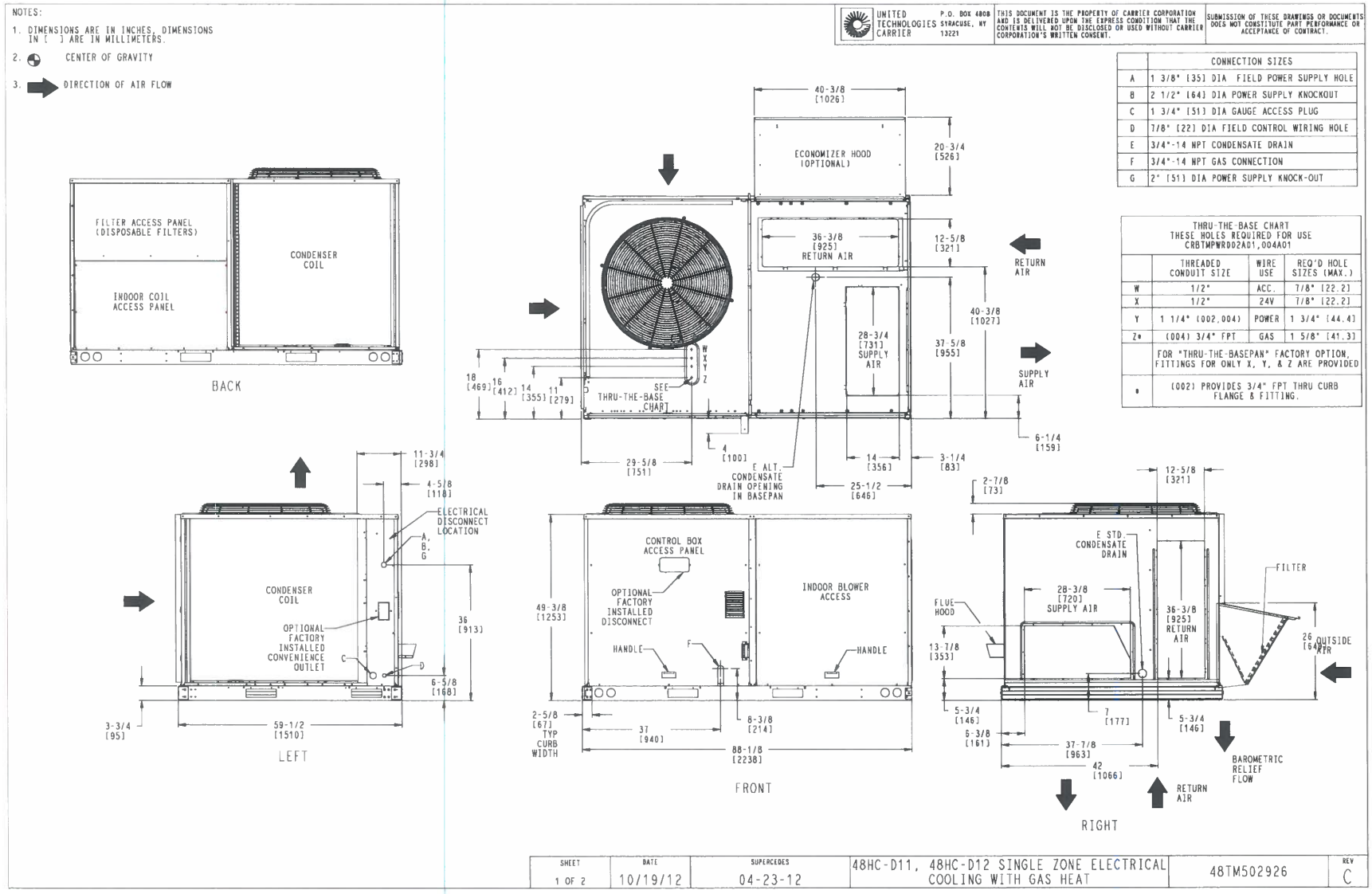


EXHIBIT E

Certified Drawing for RT-3

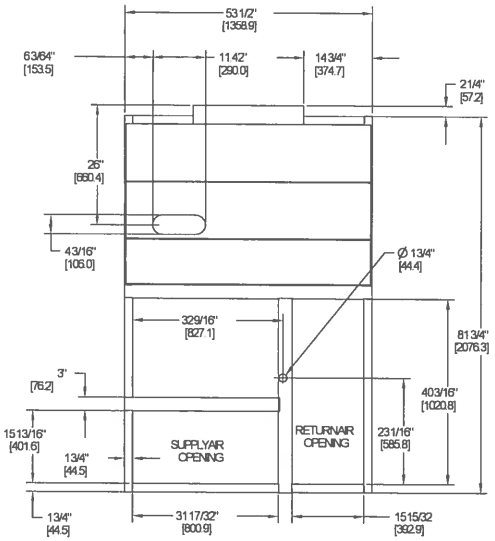
Project: M16025 - St. Edna Catholic Church
Prepared By:

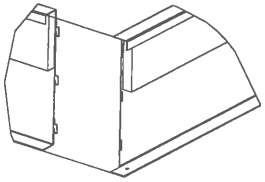
10/04/2017
01:05PM

ROOF CURB ACCESSORY#	A
CRRFCURB003A01	14" [356]
CRRFCURB004A01	24" [610]

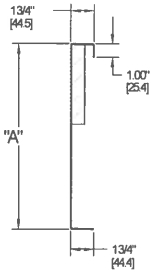
NOTES:
1. ROOF CURB ACCESSORY IS SHIPPED DISASSEMBLED.
2. INSULATED PANELS: 25.4 [1"] THK, POLYURETHANE FOAM, 44.5 [1-3/4#] DENSITY.
3. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
4. ROOF CURB: 18 GAGE STEEL.
5. ATTACH DUCTWORK TO CURB (FLANGES OF DUCT RESTON CURB).
6. SERVICE CLEARANCE: 4 FEET ON EACH SIDE.
7. [illegible] TION OF AIRFLOW.
8. CONNECTOR PACKAGE CRBTMPVAR003A01 IS FOR THRU-THE-CURB GAS TYPE.
PACKAGE CRBTMPVAR004A01 IS FOR THRU-THE-BOTTOM TYPE GAS CONNECTIONS.

CONNECTOR PKG. ACC.	GAS CONNECTION TYPE	GAS FITTING	POWER WIRING FITTING	CONTROL WIRING FITTING	ACCESSORY CONVENIENCE OUTLET WIRING CONNECTOR
CRBTMPVAR002A01	THRU THE CURB	3/4" [19] NPT	1 1/4" [31.7] NPT	1/2" [12.7] NPT	1/2" [12.7] NPT
CRBTMPVAR004A01	THRU THE BOTTOM				

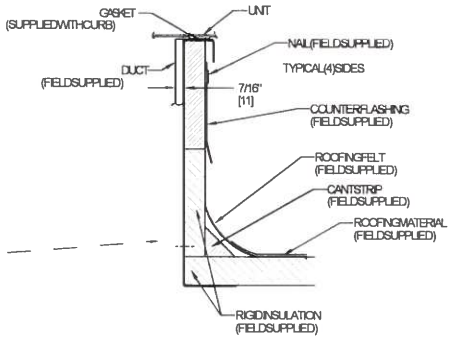


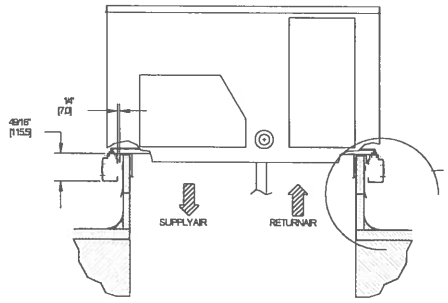


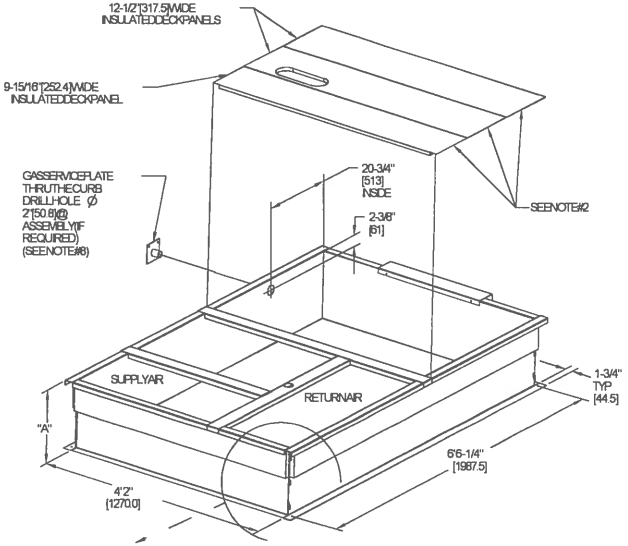
VIEW "B"
CORNER DETAIL



SECTION THRU SIDE







SEE VIEW "B"

CERTIFIED DRAWING

REV	REVISION RECORD	DATE	BY	CHK'D	APP'D	ECN NO.
C	6'6 1/4" WAS 6'7 1/6", 4'2" WAS 4'2 13/16"; 18GA WAS 16GA, 1513/16" WAS 1515/16"; NAIL FIELD SUPPLIED WAS WITH CURB	4/22/13	MVC	-	-	1057898

DRAWING RELEASE LEVEL	PRODUCTION
THIRD ANGLE PROJECTION	
MATERIAL	- - -
ENGINEERING REQUIREMENTS	T-005, Y-002
WEIGHT:	-
SURFACE FINISH	-
MFG PURCH	PURCH
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON: 1 DEC ± - 2 DEC ± - 3 DEC ± - ANG ± °	
AUTHORIZATION NUMBER	1029120
ENGINEERING	-
MANUFACTURING	-
DRAFTER	MVC 12/16/09
CHECKER	-
MODEL (INTERNAL USE ONLY)	
NEXT DRAWING	-
SCALE	N/A
DISTRIBUTION	-

TITLE	CURB ASY, ROOF		
SIZE	DRAWING NUMBER		REV
D	50HJ405012	SHEET 3 OF 5	C

EXHIBIT F

Performance Summary For RT-1

Project: M16025 - St. Edna Catholic Church
Prepared By:

09/22/2017
02:02PM

Leaving Air Temp:	**87.5**	F
Gas Heating Input Capacity:	**320.0 / 400.0**	MBH
Gas Heating Output Capacity (R/ERV/S):	**324.00 / 119.44 / 443.44**	MBH
Temperature Rise:	**31.4**	F
Thermal Efficiency (%):	**81.0**	

Supply Fan

External Static Pressure:	**0.50**	in wg
Options / Accessories Static Pressure		
Economizer:	**0.10**	in wg
Total Application Static (ESP + Unit Opts/Acc.):	**0.60**	in wg
Fan RPM:	**998**	
Fan Power:	**5.52**	BHP
NOTE:	**Selected IFM RPM Range: 913 - 1116**	

Electrical Data

Voltage Range:	**187 - 253**
Compressor #1 RLA:	**48.1**
Compressor #1 LRA:	**245**
Compressor #2 RLA:	**33.3**
Compressor #2 LRA:	**239**
Indoor Fan Motor Type:	**MED**
Indoor Fan Motor FLA:	**17.1**
Combustion Fan Motor FLA (ea):	**0.52**
Power Supply MCA:	**151.8**
Power Supply MOCP (Fuse or HACR):	**175**
Disconnect Size FLA:	**161**
Disconnect Size LRA:	**619**
Electrical Convenience Outlet:	**None**
EnergyX Exhaust [Qty / FLA(ea)]:	**2 / 7.78**
Outdoor Fan [Qty / FLA (ea)]:	**6 / 1.5**
EnergyX Supply [Qty / FLA(ea)]:	**2 / 7.78**
EnergyX Wheel [Qty / FLA(ea)]:	**1 / 1.2**

Electrical Data (Unit produced on or after May 16, 2016)

Compressor #1 RLA:	**48.1**
Compressor #1 LRA:	**245**
Compressor #2 RLA:	**33.9**
Compressor #2 LRA:	**240**
Power Supply MCA:	**152.4**
Power Supply MOCP (Fuse or HACR):	**200**
Disconnect Size FLA:	**161**
Disconnect Size LRA:	**620**

May 16, 2016 and beyond units can be identified by serial number 2116P15272 and higher

Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

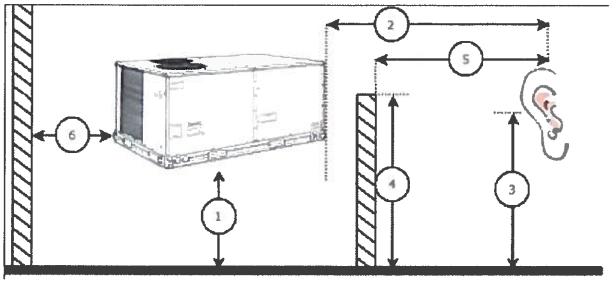
Sound Rating: **86.0** db

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	96.7	99.4	97.1
125 Hz	90.0	79.0	88.3
250 Hz	83.6	70.1	84.4
500 Hz	83.6	61.2	83.3
1000 Hz	77.7	55.7	80.7
2000 Hz	76.1	53.9	77.4
4000 Hz	75.6	47.5	73.4
8000 Hz	68.0	36.9	67.3

A-Weighted	85.3	74.1	85.9

Advanced Acoustics



Advanced Accoustics Parameters

1. Unit height above ground: **30.0** ft
2. Horizontal distance from unit to receiver: **50.0** ft
3. Receiver height above ground: **5.7** ft
4. Height of obstruction: **8.0** ft
5. Horizontal distance from obstruction to receiver: **3.5** ft
6. Horizontal distance from unit to obstruction: **0.0** ft

Detailed Acoustics Information

Octave Band Center Freq. Hz	63	125	250	500	1k	2k	4k	8k	Overall
A	97.1	88.3	84.4	83.3	80.7	77.4	73.4	67.3	98.1 Lw
B	70.9	72.2	75.8	80.1	80.7	78.6	74.4	66.2	85.9 LwA
C	58.3	50.4	46.8	45.4	42.0	37.4	31.8	23.7	59.5 Lp
D	32.1	34.3	38.2	42.2	42.0	38.6	32.8	22.6	47.2 LpA

Legend
A Sound Power Levels at Unit's Acoustic Center, Lw
B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA
C Sound Pressure Levels at Specific Distance from Unit, Lp
D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system sound estimation and is aware of the tolerances involved in real world acoustical estimation. This program makes certain assumptions as to the dominant sound sources and sound paths which may not always be appropriate to the real system being estimated. Because of this, no assurances can be offered that this software will always generate an accurate sound prediction from user supplied input data. If in doubt about the estimation of expected sound levels in a space, an Acoustical Engineer or a person with sound prediction expertise should be consulted.

EXHIBIT F

Performance Summary For RT-2

Project: M16025 - St. Edna Catholic Church
Prepared By:

09/22/2017
02:05PM

Leaving Air Temp:	**86.9**	F
Gas Heating Input Capacity:	**320.0 / 400.0**	MBH
Gas Heating Output Capacity (R/ERV/S):	**324.00 / 104.87 / 428.87**	MBH
Temperature Rise:	**31.9**	F
Thermal Efficiency (%):	**81.0**	

Supply Fan

External Static Pressure:	**0.50**	in wg
Options / Accessories Static Pressure		
Economizer:	**0.10**	in wg
Total Application Static (ESP + Unit Opts/Acc.):	**0.60**	in wg
Fan RPM:	**987**	
Fan Power:	**5.31**	BHP
NOTE:	**Selected IFM RPM Range: 913 - 1116**	

Electrical Data

Voltage Range:	**187 - 253**
Compressor #1 RLA:	**48.1**
Compressor #1 LRA:	**245**
Compressor #2 RLA:	**33.3**
Compressor #2 LRA:	**239**
Indoor Fan Motor Type:	**MED**
Indoor Fan Motor FLA:	**17.1**
Combustion Fan Motor FLA (ea):	**0.52**
Power Supply MCA:	**151.8**
Power Supply MOCP (Fuse or HACR):	**175**
Disconnect Size FLA:	**161**
Disconnect Size LRA:	**619**
Electrical Convenience Outlet:	**None**
EnergyX Exhaust [Qty / FLA(ea)]:	**2 / 7.78**
Outdoor Fan [Qty / FLA (ea)]:	**6 / 1.5**
EnergyX Supply [Qty / FLA(ea)]:	**2 / 7.78**
EnergyX Wheel [Qty / FLA(ea)]:	**1 / 1.2**

Electrical Data (Unit produced on or after May 16, 2016)

Compressor #1 RLA:	**48.1**
Compressor #1 LRA:	**245**
Compressor #2 RLA:	**33.9**
Compressor #2 LRA:	**240**
Power Supply MCA:	**152.4**
Power Supply MOCP (Fuse or HACR):	**200**
Disconnect Size FLA:	**161**
Disconnect Size LRA:	**620**

May 16, 2016 and beyond units can be identified by serial number 2116P15272 and higher

Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Rating: **86.0** db

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	96.3	98.8	97.1
125 Hz	89.6	78.6	88.3
250 Hz	83.2	70.0	84.4
500 Hz	83.2	61.4	83.3
1000 Hz	77.3	55.8	80.7
2000 Hz	75.7	53.7	77.4
4000 Hz	75.2	47.3	73.4
8000 Hz	67.6	36.6	67.3

EXHIBIT F

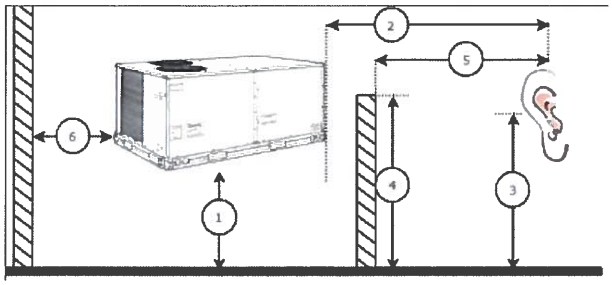
Performance Summary For RT-2

Project: M16025 - St. Edna Catholic Church
Prepared By:

09/22/2017
02:05PM

A-Weighted	84.9	73.5	85.9

Advanced Acoustics



Advanced Accoustics Parameters

1. Unit height above ground: **30.0** ft
2. Horizontal distance from unit to receiver: **50.0** ft
3. Receiver height above ground: **5.7** ft
4. Height of obstruction: **8.0** ft
5. Horizontal distance from obstruction to receiver: **3.5** ft
6. Horizontal distance from unit to obstruction: **0.0** ft

Detailed Acoustics Information

Octave Band Center Freq. Hz	63	125	250	500	1k	2k	4k	8k	Overall
A	97.1	88.3	84.4	83.3	80.7	77.4	73.4	67.3	98.1 Lw
B	70.9	72.2	75.8	80.1	80.7	78.6	74.4	66.2	85.9 LwA
C	58.3	50.4	46.8	45.4	42.0	37.4	31.8	23.7	59.5 Lp
D	32.1	34.3	38.2	42.2	42.0	38.6	32.8	22.6	47.2 LpA

Legend
A Sound Power Levels at Unit's Acoustic Center, Lw
B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA
C Sound Pressure Levels at Specific Distance from Unit, Lp
D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system sound estimation and is aware of the tolerances involved in real world acoustical estimation. This program makes certain assumptions as to the dominant sound sources and sound paths which may not always be appropriate to the real system being estimated. Because of this, no assurances can be offered that this software will always generate an accurate sound prediction from user supplied input data. If in doubt about the estimation of expected sound levels in a space, an Acoustical Engineer or a person with sound prediction expertise should be consulted.

EXHIBIT F

Performance Summary For RT-3

Project: M16025 - St. Edna Catholic Church
Prepared By:

09/22/2017
02:05PM

External Static Pressure:	**0.50**	in wg
Options / Accessories Static Pressure		
Economizer:	**0.27**	in wg
Total Application Static (ESP + Unit Opts/Acc.):	**0.77**	in wg
Fan RPM:	**898**	
Fan Power:	**2.13**	BHP
NOTE:	**Selected IFM RPM Range: 838 - 1084**	

Electrical Data

Voltage Range:	**187 - 253**
Compressor #1 RLA:	**15.9**
Compressor #1 LRA:	**110**
Compressor #2 RLA:	**15.9**
Compressor #2 LRA:	**110**
Indoor Fan Motor Type:	**MED**
Indoor Fan Motor FLA:	**10.8**
Combustion Fan Motor FLA (ea):	**0.48**
Power Supply MCA:	**54**
Power Supply MOCP (Fuse or HACR):	**60**
Disconnect Size FLA:	**58**
Disconnect Size LRA:	**304**
Electrical Convenience Outlet:	**None**
Outdoor Fan [Qty / FLA (ea)]:	**1 / 7.4**

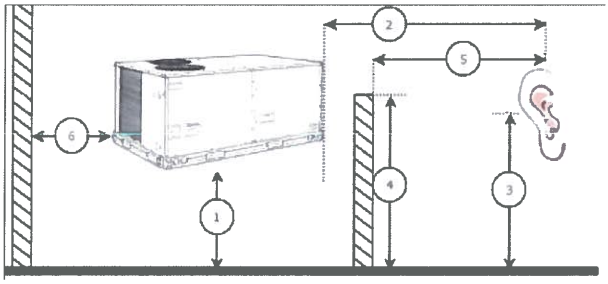
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	99.1	95.1	85.9
125 Hz	94.9	83.2	87.9
250 Hz	81.0	72.6	85.6
500 Hz	73.1	64.1	84.4
1000 Hz	70.1	62.2	82.8
2000 Hz	68.3	61.2	78.5
4000 Hz	73.0	62.5	74.9
8000 Hz	74.3	64.3	72.5
A-Weighted	82.7	73.9	87.0

Advanced Acoustics



Advanced Accoustics Parameters

1. Unit height above ground:	**30.0**	ft
2. Horizontal distance from unit to receiver:	**50.0**	ft
3. Receiver height above ground:	**5.7**	ft
4. Height of obstruction:	**9.0**	ft

EXHIBIT F

Performance Summary For RT-3

Project: M16025 - St. Edna Catholic Church
Prepared By:

09/22/2017
02:05PM

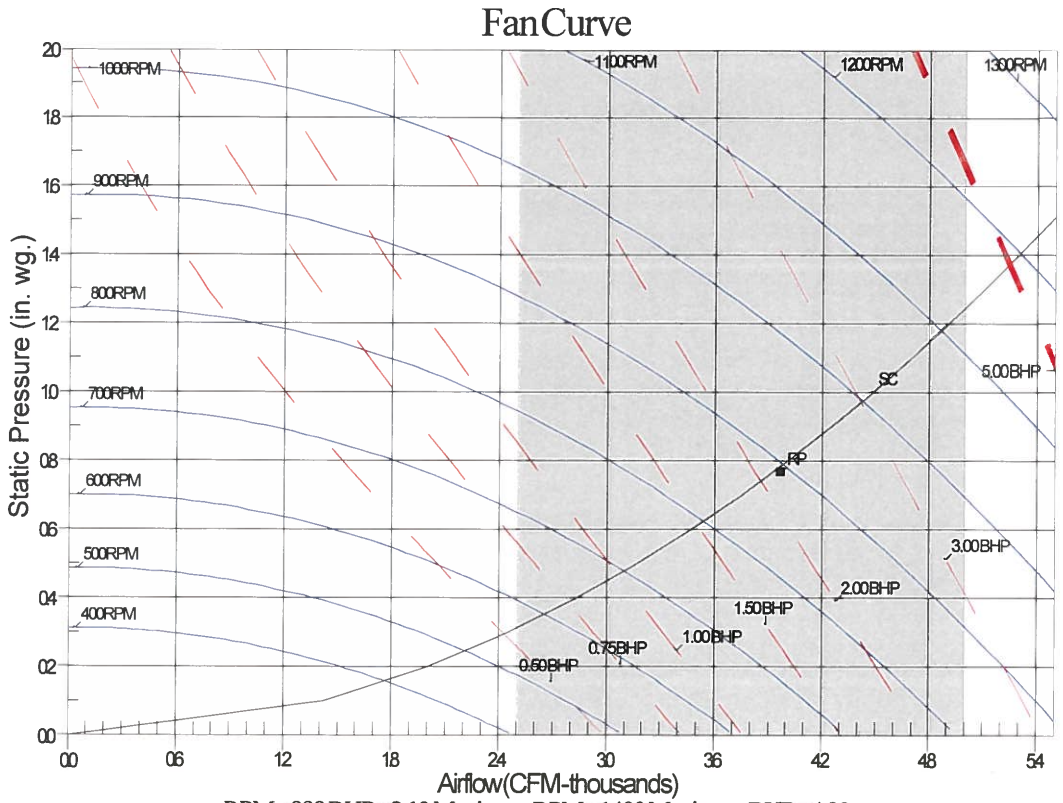
5. Horizontal distance from obstruction to receiver: **4.5** ft
6. Horizontal distance from unit to obstruction: **0.0** ft

Detailed Acoustics Information

Octave Band Center Freq. Hz	63	125	250	500	1k	2k	4k	8k	Overall
A	85.9	87.9	85.6	84.4	82.8	78.5	74.9	72.5	92.9 Lw
B	59.7	71.8	77.0	81.2	82.8	79.7	75.9	71.4	87.3 LwA
C	48.2	50.3	47.4	45.2	42.2	36.1	30.4	25.6	54.5 Lp
D	22.0	34.2	38.8	42.0	42.2	37.3	31.4	24.5	47.0 LpA

Legend
A Sound Power Levels at Unit's Acoustic Center, Lw
B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA
C Sound Pressure Levels at Specific Distance from Unit, Lp
D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system sound estimation and is aware of the tolerances involved in real world acoustical estimation. This program makes certain assumptions as to the dominant sound sources and sound paths which may not always be appropriate to the real system being estimated. Because of this, no assurances can be offered that this software will always generate an accurate sound prediction from user supplied input data. If in doubt about the estimation of expected sound levels in a space, an Acoustical Engineer or a person with sound prediction expertise should be consulted.



RPM=898 BHP=2.13 Maximum RPM=1400 Maximum BHP=4.90
Note: Please contact application engineering for selections outside the shaded region.
SC-System Curve RP-Rated Point