

STAFF REPORT 09-14-2019 REGULAR MEETING

PREPARED BY: A. PHILLIPS

APPLICATION NUMBER: 19-6409

**ADDRESS: 2630 W. LAFAYETTE BOULEVARD
(2635 W. LAFAYETTE—LEGAL ADDRESS)**

HISTORIC DISTRICT: STE. ANNE’S PARISH COMPLEX

APPLICANT: JOHN A. VITALE, STUCKY-VITALE ARCHITECTS

DATE OF COMPLETE APPLICATION: 08-28-2019

STAFF SITE VISIT: 08-30-2019

SCOPE: REHABILITATE BUILDING

EXISTING CONDITIONS

The building located at 2630 W Lafayette Boulevard is a 3½-story structure that was constructed in 1924 as the Ste Anne Convent. Clad in red brick, the building features brick, stone, and wood detailing and arched masonry openings at the front façade. A painted wood ramp exists at the east half of the front entrance. The simple massing is topped with a multi-gable roof features two prominent dormers flanking a smaller third dormer at the front (south) façade and a small dormer at the rear (north) façade. The roof is covered in dark gray asphalt shingles. The side yard adjacent to the alley (east) is landscaped while the rear yard is an asphalt parking area. The west side yard includes a raised exterior patio off the main massing of the building. A chain-link fence surrounds the side and rear yards.

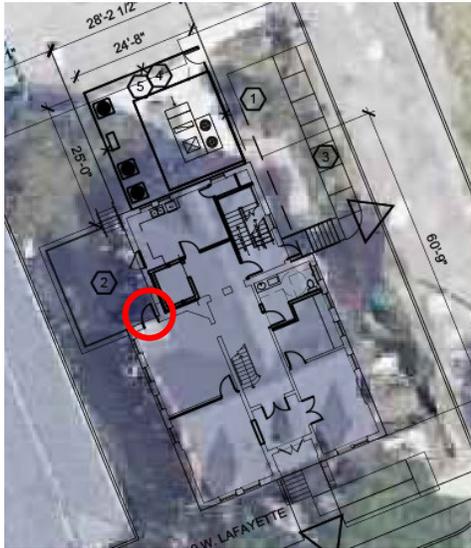


PROPOSAL

With the current proposal, the applicant is seeking the Commission’s approval **to perform a general rehabilitation per the attached drawings**. Included in the proposal are the following scope items:

- South (Front) Elevation
 - Repair, paint, and seal existing windows
 - Clean brick as indicated
 - Repair existing concrete steps at front entrance
- East (Alley Side) Elevation
 - Repair, paint, and seal existing windows
 - Repoint mortar joints as indicated
 - Clean brick as indicated
 - Replace (2) existing exterior light fixture with new LED exterior lighting
 - Remove existing exhaust vent and infill opening to match existing

- Construct new concrete landing and stair to finish 3' above grade with new railing system to be painted bronze to match existing
- Relocate existing door to 3' above grade to allow access to the building off of the new landing. Repaint door match color of existing windows.
- North (Rear) Elevation
 - Repair, paint, and seal existing windows
 - Clean brick as indicated
 - Replace (1) existing exterior light fixture with new LED exterior lighting
 - Remove existing door at third floor and infill opening to match existing
 - **Note:** It is staff's understanding that the new person-door shown on the plan (see diagram below) and elevation has been removed from this application



- West Elevation
 - Repair, paint, and seal existing windows
 - Repoint mortar joints as indicated
 - Clean brick as indicated
 - Replace (2) existing exterior light fixture with new LED exterior lighting
 - Paint existing door and frame
 - Replace existing vision glass at (3) windows with opaque glass—these windows are located in the area of the proposed barrier-free elevator
 - Construct new dormer to accommodate new interior elevator shaft clearances. Dormer cladding is to be painted cedar siding to match existing. Additionally, the painted wood trim, aluminum gutters and asphalt shingles are to also match existing.
- Site
 - Installation of multiple new mechanical units and associated concrete pad(s) at rear (north) of building
 - Construction of new 6' tall wood slat fencing around perimeter of the area of the mechanical equipment. The fence will completely screen the new equipment and will be painted to match color of existing fascia at the building.
 - New concrete walkway which leads to the new concrete stair at the east (alley side) elevation.
 - New guardrail at existing concrete patio on west elevation.
 - **Note:** According to the applicant, the ADA ramp shown in the mechanical drawings has been removed from this application

STAFF OBSERVATIONS & RESEARCH

- The rear yard (parking area) is visible from the right-of-way

ISSUES

- The **Fence and Hedge Guidelines** state, “A single lot shall contain no more than two types of fencing

material.” Currently, a chain-link fence exists at the perimeter of the lot and the applicant is proposing a new wood fence in a new location which would cause there to be two different types of fencing on the lot.

RECOMMENDATION

It is staff’s opinion that the work, as proposed, does not destroy historic materials that characterize the historic building, its site, and setting. Staff therefore recommends that the Commission find the scope items listed above to be appropriate as the scope of work meets the following Secretary of the Interior’s Standards for Rehabilitation

6) Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.

9) New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

10) New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

However, staff recommends that the Commission issue this COA with the following condition:

- HDC Staff shall be afforded the opportunity to review and approve any minor revisions to the project's design prior to the issuance of the permit. Should staff determine that such revisions are not consistent with the intent of the Commission’s approval or do not meet the SOI Standards, staff shall forward the project to the Commission for review at a regular meeting.

ELEMENTS OF DESIGN

- (1) Height.** The buildings of the Ste. Anne's Parish Complex vary in the number of stories and height. The church is a tall single story space that is approximately forty (40) feet in height to the eaves according to the Sanborn Maps, which list the height of the towers at the northern corners of the church as being one hundred eighty (180) feet. The rectory is two and one-half (2½) stories tall, meaning that it has two (2) full stories and an attic space. The school is three and one-half (3½) stories tall, meaning that it has three (3) full stories and an attic space. The convent is two and one-half (2½) stories tall meaning that it has two (2) full stories and an attic space. The hall is one and a half (1½) stories tall, with walls one (1) story in height and a tall roof into which the interior space projects.
- (2) Proportion of buildings' front facades.** The facade of the church is taller than wide due to the towers, but gives an impression of balance with its tall towers widely spaced on either side of the central facade. The side elevations of the church are wider than tall to their eaves, and there is no visible rear elevation because of the abutting chapel. The rectory appears originally to have been proportioned vertically, but the later addition of the extensive porch on the west and south sides balance the facades by introducing a strong horizontal element. The convent facade is balanced. The school facade is balanced, but the central gable and the cupola tend to create a feeling of verticality. The hall is rather horizontal in feeling because of the wider base and the narrower two (2) story central bay.
- (3) Proportion of openings within the facades.** Openings in the facade of the church amount to approximately five (5) percent. All openings are taller than wide except for the circular window centered in the central bay. Openings on other facades of the church are similarly proportioned. Openings in other buildings occupy a higher percentage of wall area, varying from building to building. In general, openings are taller than wide. In some instances individual openings which are taller than wide are combined in a single opening and divided by mullion(s); in such cases the total opening may be balanced or wider than tall. The horizontal windows over the infill in the openings on the south side of the rectory porch are later and uncharacteristic.
- (4) Rhythm of solids to voids in front facades.** The front facade of the church is divided into three (3) sections: The center main gabled section and the two (2) projecting tower sections at the outer ends. The gaps between the central gable wall and the towers are an important design element of this building. The large stained glass circular window in the facade is positioned above the central entrance opening. There are ogival windows arranged symmetrically in the facade, and blind arcading is a feature that occurs in several locations. The octagonal upper stages of the towers have one (1) tall ogival opening filled with lowers on each face. The side elevation of the church on Ste. Anne Street has its openings regularly arranged. Although not fully symmetrical, the openings in the front facade of the rectory are also

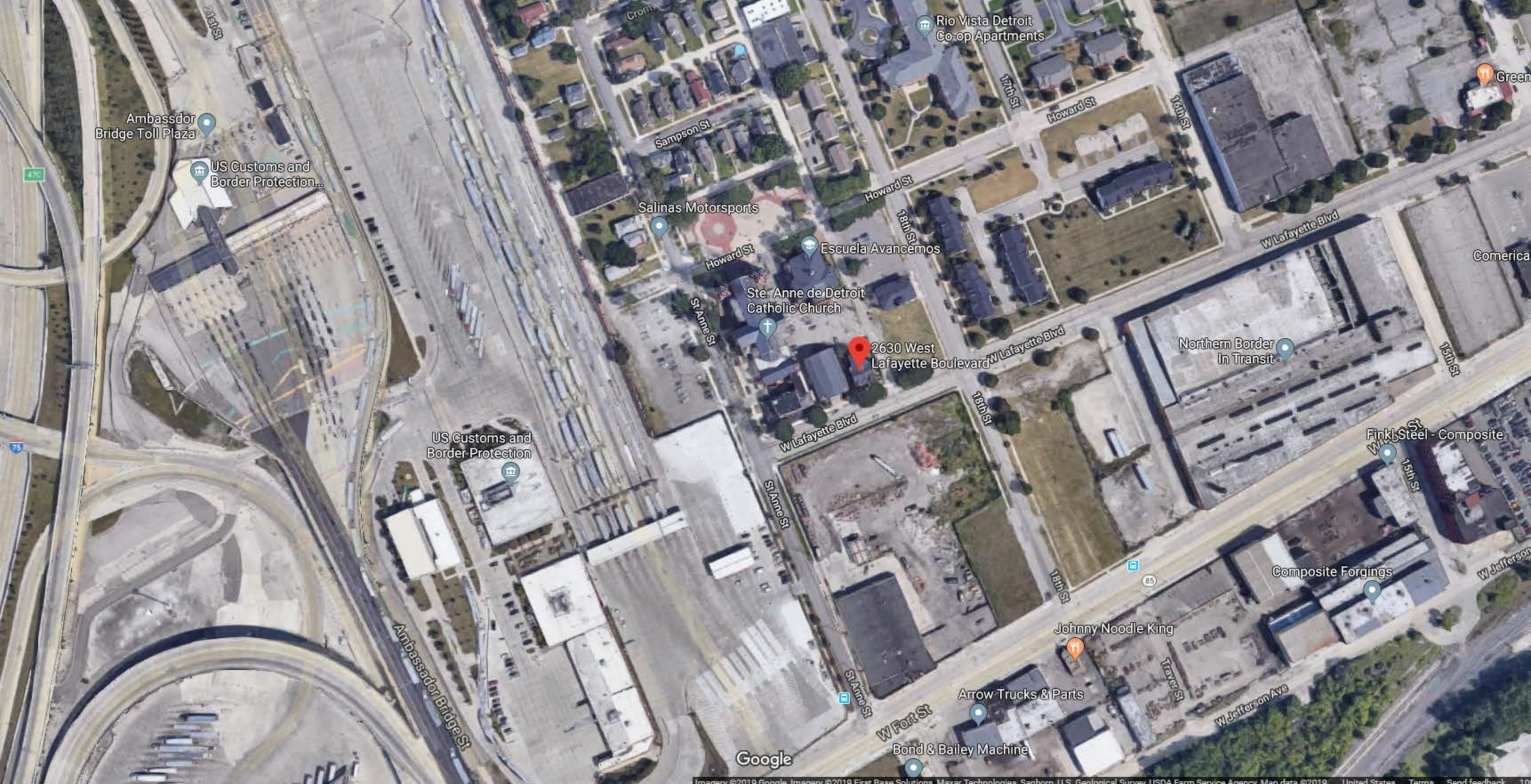
regularly arranged. The Mansard roof has dormers arranged above the windows in the wall below. The openings in the front facades of the school, convent, and hall are fully symmetrical and regularly arranged.

- (5) ***Rhythm of spacing of buildings on streets.*** Not applicable due to single complex district.
- (6) ***Rhythm of entrance and/or porch projections.*** Because of the relationship of the separate buildings that make up the complex, no rhythm is established.
- (7) ***Relationship of materials.*** Detroit common brick is the dominant material of the complex. Stone is commonly used for decorative purposes, for sills, and for other functional elements. The whole lower level of the church facade is stone. The church and hall retain slate roofs, while the other buildings have been re-roofed in asphalt shingle. Wood trim is commonplace. The church facade and towers have sheet metal elements originally meant to imitate stone.
- (8) ***Relationship of textures.*** The major textural relationship is that of common brick laid in mortar. The slate roofs contribute significantly to textural interest, while the asphalt roofs do not. Wood, which is generally smooth, is commonly used for the trim and functional elements such as windows and doors. Secondary textural relationships exist, such as the juxtaposition of stone trim with common brick, the rock-faced texture of the stone base of the church facade, and the use of sheet metal elements. The glazing on all buildings, especially the church, provides a contrasting smooth surface.
- (9) ***Relationship of color.*** The orange-red of Detroit common brick is the predominant color, and in some cases is darkened with age and dirt. The roofs of the church and hall are composed of natural color slate, with gray being the most predominant color. Stone colors contrast with the common brick. The copper trim has weathered to a shade of green. Wood trim is usually painted brown, although other colors might be appropriate. In some places, the sheet metal is painted stone color, in imitation of stone, and is appropriate. The natural wood doors of the church contrast with the stone color of the base of the facade.
- (10) ***Relationship of architectural details.*** The architectural elements and details of Ste. Anne's Church reflect its Gothic Revival Style. Buttresses exist to the sides of the entrances, at the corners of the front facade, at the transition between the main bay of the front facade and the bays dividing it from the towers, on the side elevations at the corners, and between aisle windows. The two (2) towers with their steeples have had some details removed since their construction, but still display typical details such as pinnacles. Above the molded and carved central doorway in the gable of the main section of the church facade is a blind arcade and a large traceried circular window. Within the apex of the large gable is a blind triple arch. There is a small cupola in "fleche" position on the roof at the intersection of the nave and transepts.

Details of the other buildings conform to their styles and types. The school is vaguely Gothic or Tudor Revival, with buttresses which flank the entrance and at the corners of the facade, and with a cupola with ogival openings. The rectory's appearance has been greatly altered by the addition of large porches with masonry piers to the west and south. The house was originally an eclectic design with a Mansard roof. The details of the rectory itself are in accord with the usual treatment of eclectic Victorian residences of the 1880's, while the porches have a strong prairie and/or arts and crafts character. The convent is Romanesque Revival in style with strong architectural elements such as arched windows, and relatively simple surfaces, which are typical of that style. The hall is designed in a classical manner, with quoins laid in the brick, a triple-arched arcade in the second floor of the facade, and a classical pediment. Its details are in accord with the classical manner.

- (11) ***Relationship of roof shapes.*** The main roof of the church is a front-facing gable with a transverse gable over the crossing and transepts. The towers are roofed with tall steeples. The rectory has a Mansard roof interrupted by dormers. The convent has a side facing gabled roof flanked by gabled parapet walls and fronted by a pair of wall dormers. A small dormer lies higher in the roof between the wall dormers. The hall has a broad hip roof, the upper central portion of which is carried forward as a front-facing gable roof. The school has intersecting hipped roofs with a tall wall dormer centered on the front and a cupola at the intersection of the ridges.
- (12) ***Walls of continuity.*** Because of the small size of the district, the walls of continuity tend to be weakened; however, the church and school share a similar setback on the Howard Street frontage. The church, chapel, garage, and rectory form a strong wall of continuity on St. Anne Street. The side of the rectory, the hall, and the convent form a strong wall of continuity on Lafayette Boulevard.
- (13) ***Relationship of significant landscape features and surface treatments.*** The church faces a public space created by the closure of Howard Street. The surface treatments and plantings are typical of the 1970's. The Ste. Anne frontage is characterized by a grass turf lawn and modest plantings lying between the public sidewalk and the church, chapel, and rectory, with a drive leading to the garage. The setback on Lafayette Boulevard is very shallow, but is consistent, and there are areas of grass turf lawn and plantings. There is a recent timber-built wheelchair ramp in front of the convent. An asphalt parking lot occupies the space that is between the church and school, and behind the school, convent, and hall. There is a State of Michigan Historical Marker on the lawn at the northwest corner of the property.

- (14) Relationship of open space to structures.** The public space in front of the church is intended to serve as a forecourt to a landmark building. The open space on the Ste. Anne frontage consists of the setback to the building line and modest plantings. There is a little open space on Lafayette Boulevard since the setback is shallow. The parking area in the center of the property and between the church and school tends to be invisible except when viewed from the Howard Street side and from within the space itself. There are dwellings located across from the property on Ste. Anne Street and considerable vacant land in both residential and commercial areas around the property, that is partially due to decline, and partially due to clearance.
- (15) Scale of facades and facade elements.** The Ste. Anne's Parish Complex rises above the residential and commercial structures that surround it. In that context, its scale is grand, although only the church is of monumental scale. Major elements of the church such as towers, spires, transepts, and apses, are also large in scale. Other buildings are less monumental, but still contain the large elements typical of buildings of a public character.
- (16) Directional expression of front elevations.** In general, the original directional expression of all the buildings, except the hall and school, was vertical. In the church, the wide spread of the towers reduces the vertical impression, but the facade is distinctly taller than wide. The added porches of the rectory are opposed to its original vertical expression, and the building now tends to balance. The convent retains its vertical expression. The hall has always tended to a horizontal expression of the front elevation. The school tends to the vertical, although the original two (2) story building, prior to the addition of the third floor, was likely horizontal in expression.
- (17) Rhythm of building set backs.** Little rhythm is established in this district with few buildings.
- (18) Relationship of lot coverage.** There is no standard range of lot coverage among separate properties because this is a single complex, and the buildings vary greatly in size. The buildings of the complex as a whole occupy between forty (40) percent and forty-five (45) percent of the property.
- (19) Degree of complexity within the facades.** The facade of the church, rectory, convent, school, and hall are all fairly straightforward in their arrangements of elements, but display some complexity of details. Overall, there is a fair degree of complexity.
- (20) Orientation, vistas, overviews.** The church and school are oriented toward Howard Street, now a vacated public space. The side of the church, chapel, garage, and rectory orient to Ste. Anne Street and form a strong, but not straight, continuous wall of buildings. The hall and convent orient to Lafayette Boulevard with the side wall of the rectory forming an additional element of that street face. Ste. Anne's Church serves as an impressive landmark as viewed from the Fisher Freeway and the Ambassador Bridge when entering the United States from Canada.
- (21) Symmetric or asymmetric appearance.** The front of the church is symmetrical in appearance. The front facades of the hall, school, and convent are symmetrical. The rectory is asymmetrical, but was originally a balanced composition.
- (22) General environmental character.** The complex is located in a mixed-use area, with a declining residential area to the east, west and north; commercial uses often associated with the Ambassador Bridge are nearby to the west and to the south. New development is proposed for the area both for residential and commercial purposes. This is, and will likely remain, a mixed-use urban area. The Ste. Anne's Parish Complex is a physical reminder of this religious institution's role as a focal point of the community.



Ambassdor
Bridge Toll Plaza

US Customs and
Border Protection...

Salinas Motorsports

Escuela Avancemos

Ste. Anne de Detroit
Catholic Church

2630 West
Lafayette Boulevard

Northern Border
In Transit

US Customs and
Border Protection

Finkl Steel - Composite

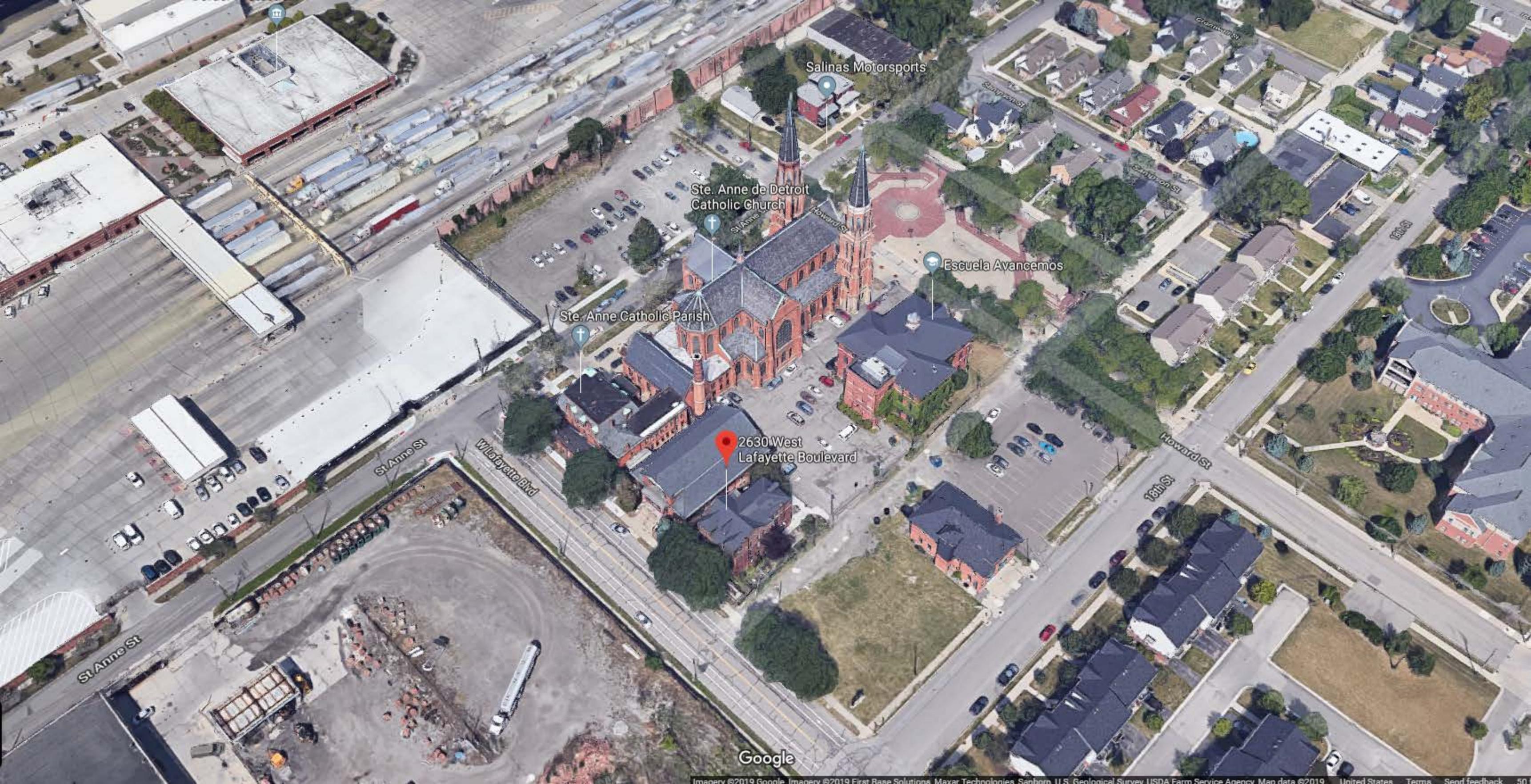
Composite Forgings

Johnny Noodle King

Arrow Trucks & Parts

Bond & Bailey Machine

Google



Salinas Motorsports

Ste. Anne de Detroit
Catholic Church

Escuela Avancemos

Ste. Anne Catholic Parish

2630 West
Lafayette Boulevard

Google



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2630

May Peace Prevail On Earth
La Mi Mi Mi

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NO PARKING
IN SNOW &
ICE
DURING
EMERGENCY

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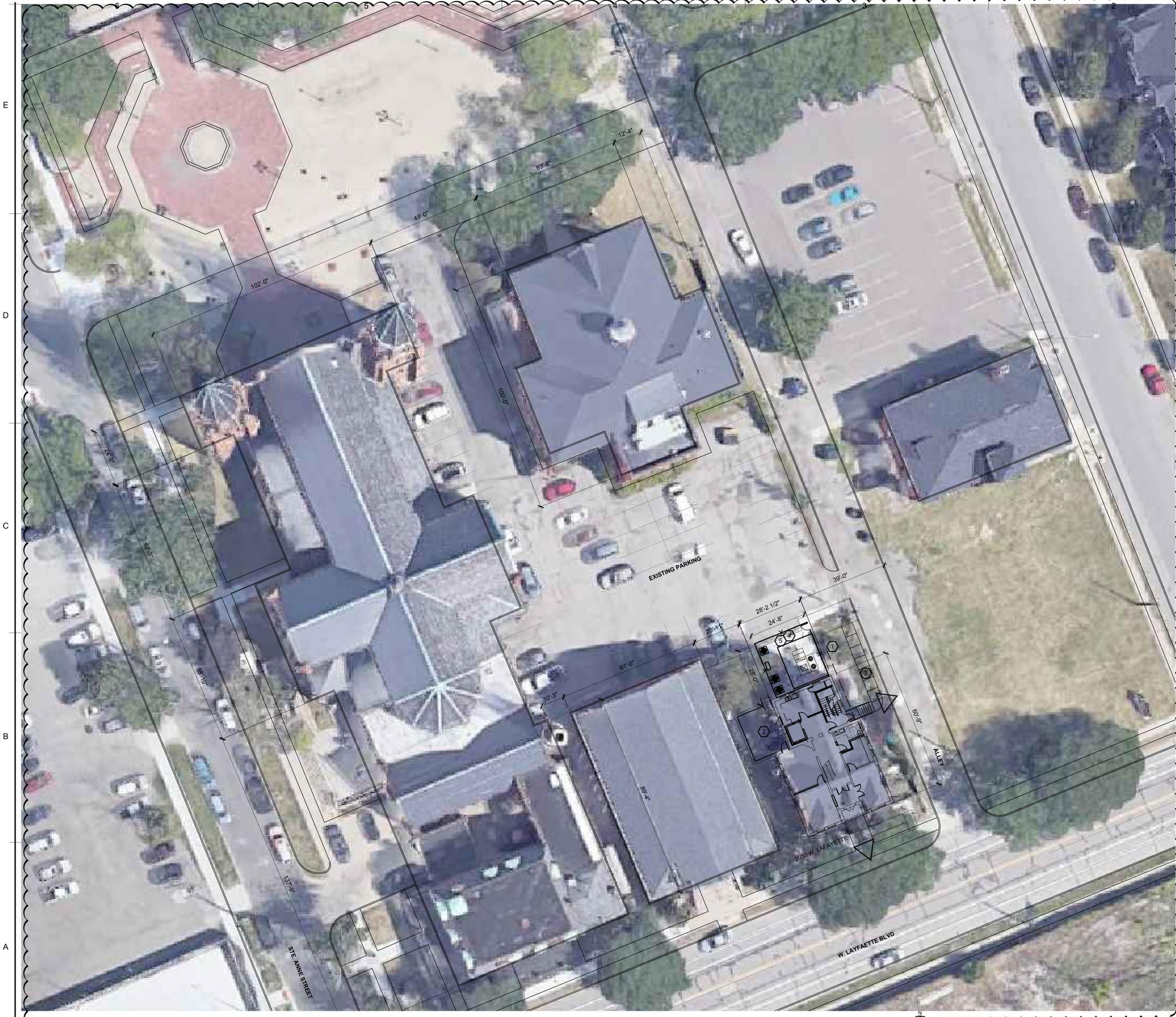
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GENERAL SITE PLAN NOTES:

1. PAVEMENT SHALL BE OF THE TYPE, THICKNESS AND CROSS SECTION AS INDICATED ON THE PLANS AND AS FOLLOWS:
2. CONCRETE: PORTLAND CEMENT TYPE IA (AIR-ENTRAINED) WITH A MINIMUM CEMENT CONTENT OF SIX SACKS PER CUBIC YARD, MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,500 PSI AND A SLUMP OF 1 1/2 TO 3 INCHES.
3. ASPHALT: BASE COURSE - MDT BITUMINOUS MIXTURE NO. 1100L, 20AA; SURFACE COURSE - MDT BITUMINOUS MIXTURE NO. 1100T, 20AA; ASPHALT CEMENT PENETRATION GRADE 85-100, BOND COAT - MDT SS-1H EMULSION AT 0.10 GALLON PER SQUARE YARD; MAXIMUM 2 INCH LIFT.
4. PAVEMENT BASE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY (MODIFIED PROCTOR) PRIOR TO PLACEMENT OF PROPOSED PAVEMENT. EXISTING SUB-BASE SHALL BE PROOF-ROLLED IN THE PRESENCE OF THE ENGINEER TO DETERMINE STABILITY.
5. ALL CONCRETE PAVEMENT, DRIVEWAYS, CURB & GUTTER, ETC., SHALL BE SPRAY CURED WITH WHITE MEMBRANE CURING COMPOUND IMMEDIATELY FOLLOWING FINISHING OPERATION.
6. ALL CONCRETE PAVEMENT JOINTS SHALL BE FILLED WITH HOT POURED RUBBERIZED ASPHALT JOINT SEALING COMPOUND IMMEDIATELY AFTER SAW CUT OPERATION, FEDERAL SPECIFICATION SS-S164.
7. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF THE MUNICIPALITY AND THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, CURRENT EDITION.
8. ALL TOP OF CURB ELEVATIONS, AS SHOWN ON THE PLANS, ARE CALCULATED FOR A 6" CONCRETE CURB UNLESS OTHERWISE NOTED.
9. ALL SIDEWALK RAMPS, CONFORMING TO PUBLIC ACT NO. 8, 1993, SHALL BE INSTALLED AS INDICATED ON THE PLANS.
10. CONSTRUCTION OF A NEW OR RECONSTRUCTED DRIVE APPROACH CONNECTING TO AN EXISTING STATE OR COUNTY ROADWAY SHALL BE ALLOWED ONLY AFTER AN APPROVED PERMIT HAS BEEN SECURED FROM THE AGENCY HAVING JURISDICTION OVER SAID ROADWAY.
11. FOR ANY WORK WITHIN THE PUBLIC RIGHT-OF-WAY, THE CONTRACTOR SHALL PAY FOR AND SECURE ALL NECESSARY PERMITS AND LIKEWISE ARRANGE FOR ALL INSPECTION.
12. EXISTING TOPSOIL, VEGETATION AND ORGANIC MATERIALS SHALL BE STRIPPED AND REMOVED FROM PROPOSED PAVEMENT AREA PRIOR TO PLACEMENT OF BASE MATERIALS.
13. EXPANSION JOINTS SHOULD BE INSTALLED AT THE END OF ALL INTERSECTION RADII.
14. SIDEWALK RAMPS, CONFORMING TO PUBLIC ACT NO. 8, 1973, SHALL BE INSTALLED AS SHOWN AT ALL STREET INTERSECTIONS AND AT ALL BARRIER FREE PARKING AREAS AS INDICATED ON THE PLANS.
15. ALL PAVEMENT AREAS SHALL BE PROOF-ROLLED UNDER THE SUPERVISION OF A GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF BASE MATERIALS AND PAVING MATERIALS.
16. FILL AREAS SHALL BE MACHINE COMPACTED IN UNIFORM LIFTS NOT EXCEEDING 9 INCHES THICK TO 98% OF THE MAXIMUM DENSITY (MODIFIED PROCTOR) PRIOR TO PLACEMENT OF PROPOSED PAVEMENT.
17. ALL LANDSCAPED AREAS TO BE PROVIDED W/ SPRINKLER SYSTEMS FOR 100% COVERAGE.

SITE PLAN KEY NOTES:

- (TYPICAL THIS SHEET ONLY)
- 1 ALTERNATE #2 - PROVIDE NEW WOOD AND CONCRETE RAMP SYSTEM TO EXISTING FIRST FLOOR ELEVATION, VERIFY ELEVATION IN FIELD. REFER TO SP1.1 FOR RAMP DETAILS
 - 2 EXISTING CONCRETE PATIO, PROVIDE NEW GUARDRAIL, REFER TO DETAILS
 - 3 NEW CONCRETE WALK TO NEW CONCRETE STAIR, REFER TO DETAILS
 - 4 6" H WOOD SLAT FENCING SYSTEM, PAINTED TO MATCH ADJACENT BUILDINGS
 - 5 NEW MECHANICAL UNIT, REFER TO MEP DRAWINGS FOR SCOPE OF WORK, PROVIDE NEW CONCRETE HOUSEKEEPING PAD AT MINIMUM 4" ABOVE GRADE. COORDINATE SIZE WITH SELECTED UNIT

SITE AREA - APPROX 121,267 SF (2.78 ACRES)



SVA
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Consultants:

Project:
 STE. ANNE CONVENT
 CLIENT: RONCELLI
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 DETROIT, MI 48216

Issued for:
 PERMITS 07.16.19

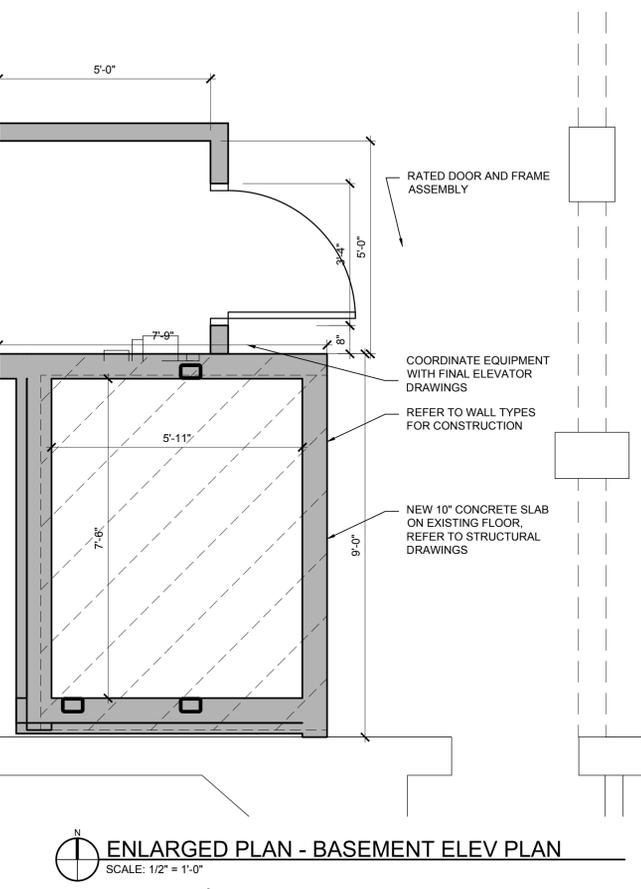
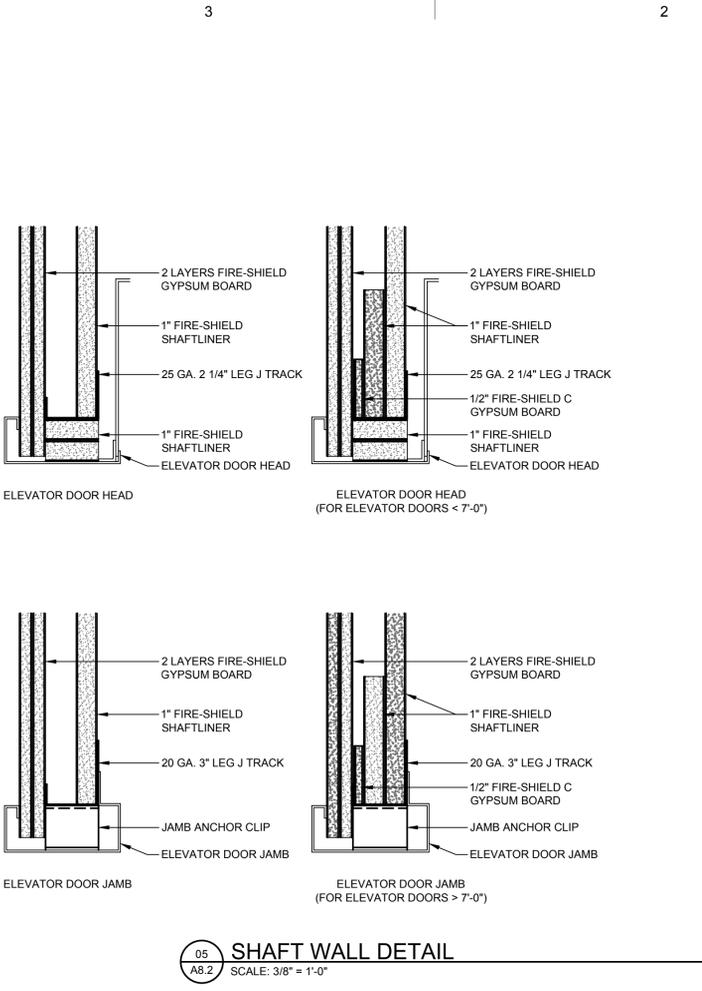
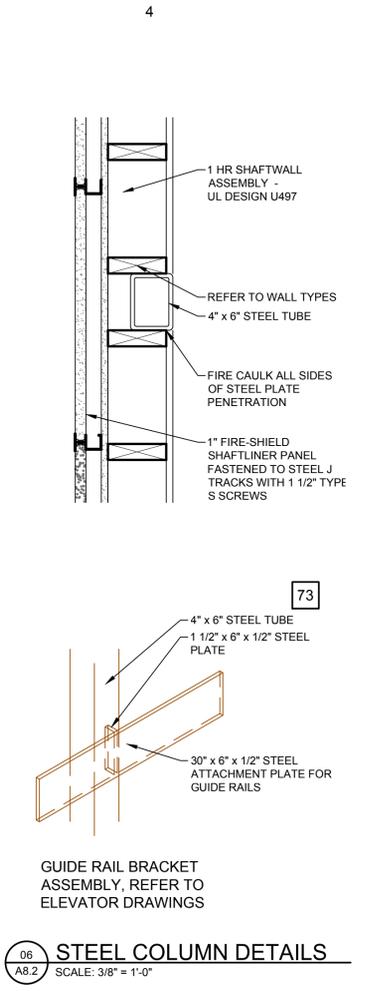
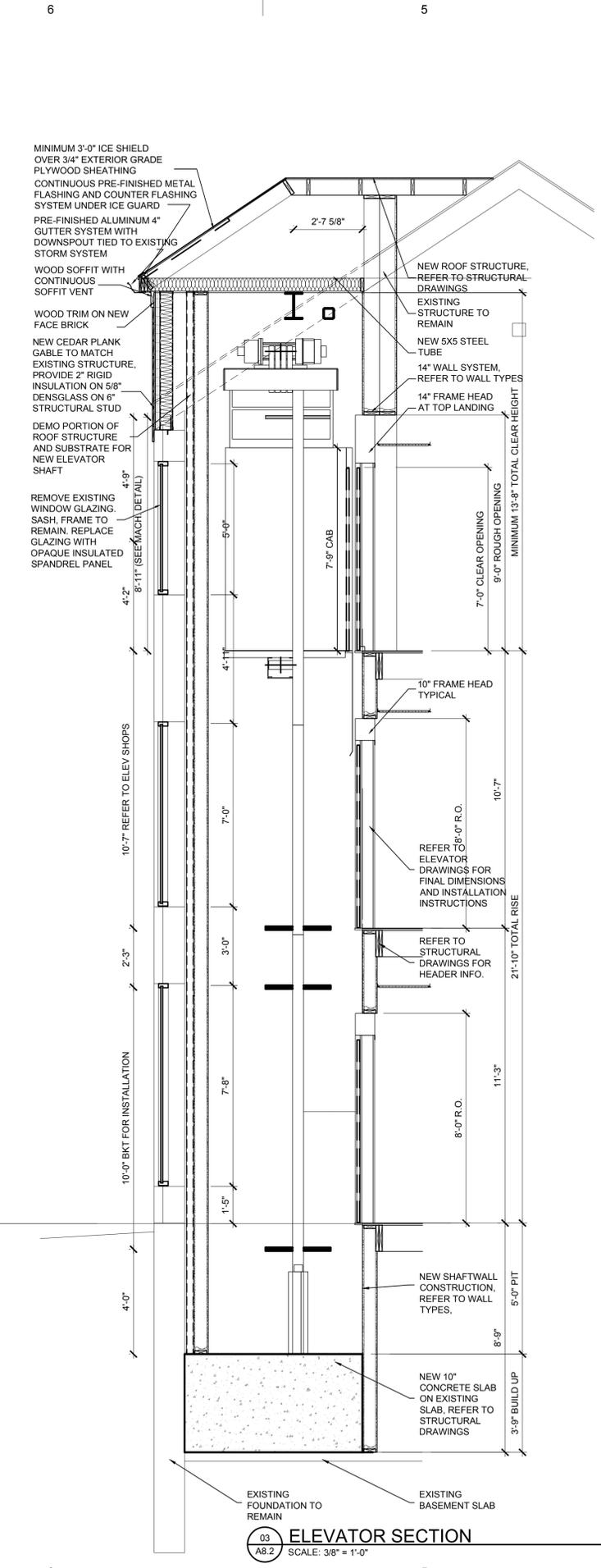
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 SVA
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 JAV, MJB, AJD
Sheet Title:
 SITE PLAN DETAILS

Project No.:
 2018.111

Sheet No.:
SP1.1

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E
D
C
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DETROIT, MI 48216

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Drawn by:
SMB
Checked by:
AJD
Sheet Title:
ENLARGED STAIR PLANS

Project No.:
2018.111
Sheet No.:
A8.2

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 DETROIT, MI 48216

Issued for:

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Drawn by:

SVA

Checked by:

JAV, MJB, AJD

Sheet Title:

EXTERIOR ELEVATIONS

Project No.:

2018.111

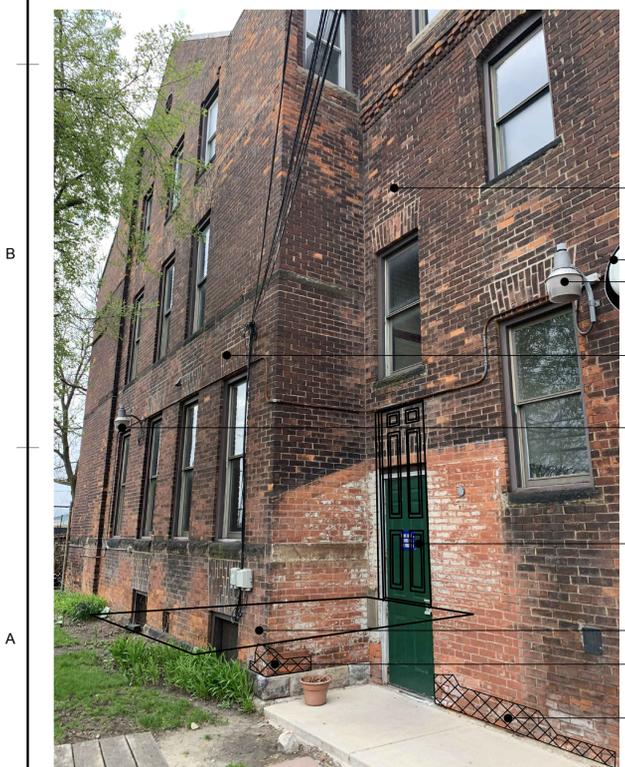
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4 NORTH ELEVATION
 SCALE: N.T.S.



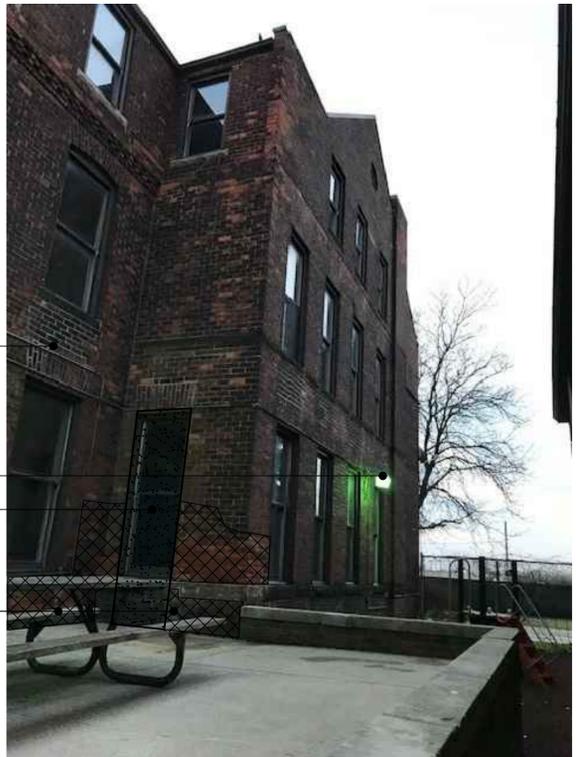
2 EAST ELEVATION
 SCALE: N.T.S.



3 WEST ELEVATION
 SCALE: N.T.S.



1 SOUTH ELEVATION
 SCALE: N.T.S.

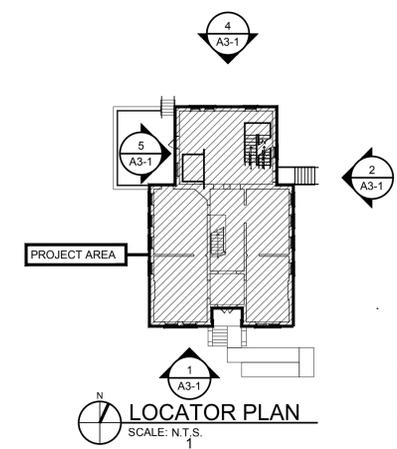


GENERAL NOTES:

- CLEAN ENTRY OF BRICK SURFACE
- TUCK POINT ALL DAMAGED MORTAR JOINTS. VERIFY IN FIELD EXTENT OF DAMAGE.
- CLEAN EXISTING STONE SILLS
- RETAIN EXISTING BRICK IN AREAS REMOVED IN DEMOLITION FOR NEW OPENINGS. CLEAN & REMOVE MORTAR FOR REUSE.

ELEVATION KEY NOTES:
 (TYPICAL THIS SHEET ONLY)

- 1 EXISTING WINDOW TO REMAIN, INFILL REPLACE EXISTING VISION GLAZING WITH SPANDREL PANELS
- 2 PREP, STAIN, AND SEAL EXISTING WINDOW FRAMES, SILLS AND SASH. REPAIR ANY BROKEN GLASS PANES. PROVIDE NEW SEALANT WHERE DAMAGED. PREP, PAINT AND SEAL EXTERIOR SIDE OF WINDOW (TYPICAL ALL WINDOWS).
- 3 REPOINT V-GROOVE MORTAR JOINTS
- 4 REPAIR/ REPLACED SPLAYED
- 5 CLEAN EFFLORESCENT SURFACE
- 6 REPLACE EXISTING EXTERIOR LIGHT FIXTURE WITH LED EXTERIOR LIGHTING. REFER TO ELECTRICAL DRAWINGS. (TYPICAL ALL LOCATIONS).
- 7 NEW EXTERIOR INFILL WALL. 6" STUD WITH 5/8" DENSGLASS SHEATHING. MATCH EXISTING SIDING AND PAINT
- 8 NEW EXTERIOR DOOR OPENING - ALT#1 (REFER TO PLANS).
- 9 REPAIR EXISTING CONCRETE STEPS.
- 10 REMOVE EXISTING HOOD EXHAUST, PATCH HOLE TO MATCH EXISTING.
- 11 APPROXIMATE LOCATION OF RAMP/STAIR LANDING. (REFER TO FLOOR PLAN).
- 12 RELOCATED DOOR IN NEW OPENING. REPAIR BRICK DAMAGED IN DEMOLITION TO MATCH EXISTING BRICK. (REFER TO PLAN).



LOCATOR PLAN
 SCALE: N.T.S.



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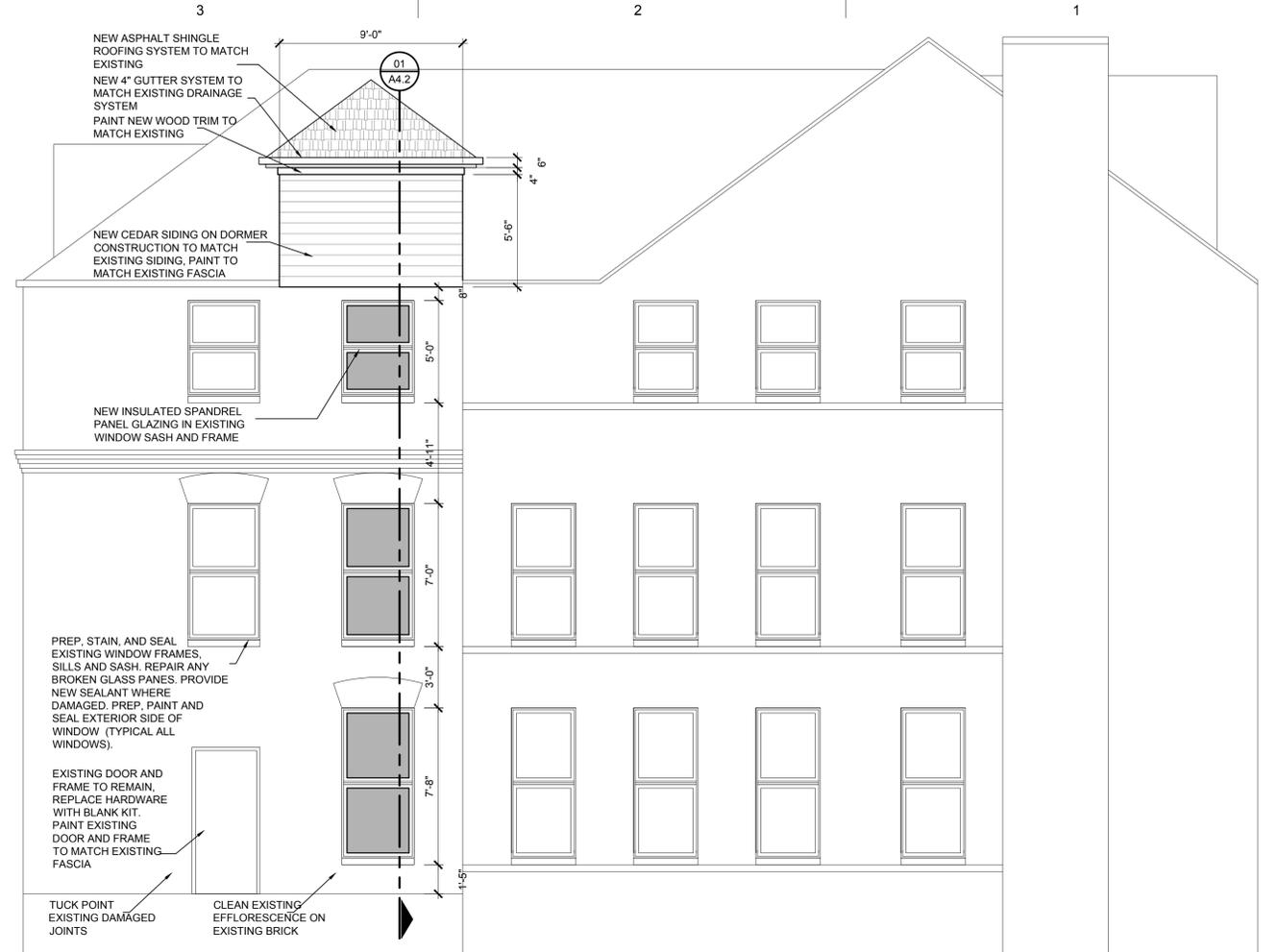
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 EXTERIOR
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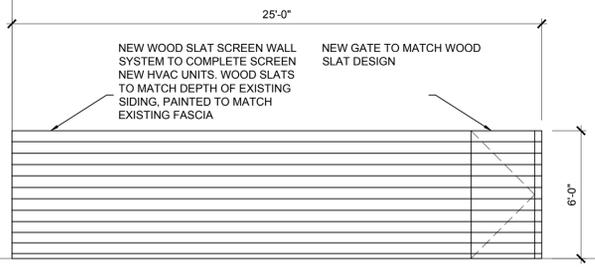
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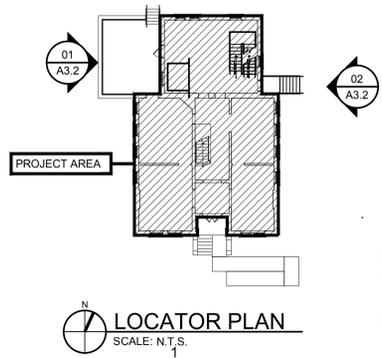
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01 WEST ELEVATION
 A3.2 SCALE: 1/4" = 1'-0"



02 EAST ELEVATION
 A3.2 SCALE: 1/4" = 1'-0"



LOCATOR PLAN
 SCALE: N.T.S.



6
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01 NORTH ELEVATION
A3.3 SCALE: NO SCALE



02 PARTIAL WEST ELEVATION
A3.3 SCALE: NO SCALE



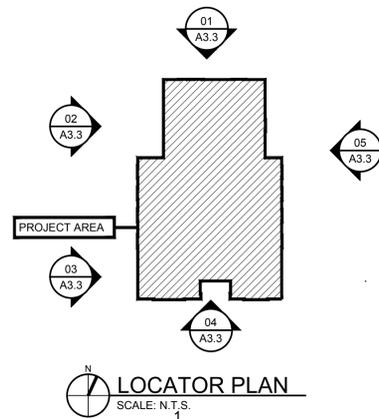
03 PARTIAL WEST ELEVATION
A3.3 SCALE: NO SCALE



04 EAST ELEVATION
A3.3 SCALE: 1/4" = 1'-0"



05 EAST ELEVATION
A3.3 SCALE: 1/4" = 1'-0"



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PHOTOS

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GENERAL NOTES	
1.	SEE STRUCTURAL DRAWINGS FOR EXACT LOCATIONS AND PARTITIONS.
2.	COORDINATE ALL LOCATIONS, SIZES, AND ELEVATIONS OF ALL SLEEVES THROUGH WALLS AND SLABS WITH STRUCTURAL AND (ARCHITECTURAL) DRAWINGS.
3.	SEE SPECIFICATION FOR FURTHER DETAIL.
4.	ALL WORK AND MATERIALS SHALL CONFORM TO THE CURRENT EDITION OF THE MICHIGAN REFRIGERATION AND MICHIGAN MECHANICAL CODES, ORDINANCES, AND REGULATIONS: STATE HEALTH AND SAFETY REGULATIONS, STATE FIRE MARSHAL, LOCAL FIRE DEPARTMENT AND HEALTH DEPARTMENT AND ALL OTHER AUTHORITIES HAVING JURISDICTION.
5.	COORDINATE INSTALLATION OF MECHANICAL WORK SO AS TO AVOID UNNECESSARY JOB DELAYS OR INTERFERENCE WITH ALL OTHER TRADES.
6.	OBTAIN ALL FIELD APPROVALS ON MECHANICAL WORK FROM REGULATING AGENCIES WHERE REQUIRED.
7.	GUARANTEE ALL LABOR AND MATERIALS FOR ONE YEAR FROM DATE OF COMPLETION.
8.	CONTRACTOR SHALL RECORD ON AS-BUILT DRAWINGS ALL SIZES, MATERIAL, ELEVATIONS, AND LOCATIONS OF ALL THE EQUIPMENT AND DUCTWORK THAT DEVIATE FROM THE DESIGN CONTRACT DRAWINGS AND SUBMIT TO THE ENGINEER FOR REVIEW.
9.	ALL MODEL NUMBER USED TO BE VERIFIED WITH MANUFACTURER FOR DESIGN INTENT, SHOWN ON DESIGN DOCUMENT.
10.	ALL EQUIPMENT, DEVICES, ACCESSORIES, ETC. TO BE INSTALLED PER MANUFACTURER'S RECOMMENDATION.
11.	PLUMBER SHALL PROVIDE FULL SIZE CONDENSATE DRAIN FROM AIR CONDITIONING UNITS (WITH DEEP SEAL TRAP AND UNION) AND DISCHARGE TO THE NEAREST APPROVED RECEPTOR.
12.	ALL CONTROL WIRING 120 V OR LESS SHALL BE MECHANICAL CONTRACTOR'S RESPONSIBILITY.
13.	INSTALLATION OF VENTILATION OR HEAT PRODUCING EQUIPMENT SHALL BE IN ACCORDANCE WITH NFPA PAMPHLET 91, NFPA 211, NFPA 31 AND NFPA 54 AS APPLICABLE.
14.	ALL HVAC WORK SHALL BE IN COMPLIANCE WITH NFPA 90A AND 90B, AS APPLICABLE AND IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTION.
15.	ALL UNITARY CONTROLLER SHALL INCLUDE LON CARD.
16.	ALL ACCESSORIES, SENSORS, DEVICES INCLUDING FLOW SENSOR, PRESSURE SENSOR TEMPERATURE SENSOR, CONTROL VALVES, SWITCHES, TRANSDUCERS, SHALL BE PROVIDED BY THE CONTRACTOR TO ACHIEVE SEQUENCE OF OPERATION FOR HVAC SYSTEM.
17.	ELECTRICAL TO BE DESIGN OR BUILD AND COORDINATE WITH ELECTRICAL CONTRACTOR FOR NEW CIRCUIT BREAKER, FUSED DISCONNECT, STARTERS, ETC.
18.	PROVIDE SMOKE DETECTOR IN SUPPLY AND MAIN RETURN DUCT. FOR ALL HVAC UNIT CONNECT TO BUILDING FIRE ALARM SYSTEM.
19.	ALL MODEL NUMBERS AS SHOWN ARE FOR REFERENCE ONLY, CONTRACTOR IS RESPONSIBLE FOR THE PERFORMANCE AS SHOWN ON SCHEDULE. VERIFY MODEL NUMBER WITH MANUFACTURER.
20.	ALL DUCTWORK TO BE INSTALLED PER SMACNA STANDARD & EQUIPMENT MANUFACTURER'S PUBLISHED CONNECTION DETAIL.
21.	VERIFY DUCT & PIPE CHASE TO BE ADEQUATE TO INSTALL DUCT & PIPE AS SHOWN INCLUDING INSULATION & SUPPORT.
22.	PROVIDE FIRE, SMOKE OR COMBINATION FIRE/SMOKE DAMPER FOR ALL RATED PARTITION WHETHER SHOWN ON PLAN OR NOT. SEE ARCHITECTURAL LIFE SAFETY PLAN. INCLUDING ALL SHAFT PENETRATION WALLS, FLOOR PENETRATION & EXIT CORRIDOR.
23.	PROVIDE DUCT SMOKE DETECTORS AND NOTIFICATION DEVICE IN SPACE.

GENERAL NOTES	
24.	ALL EQUIPMENT, DUCTWORK, PIPING, CONTROLS, ETC. TO BE INSTALLED PER MICHIGAN ENERGY CODE.
25.	ALL DUCT COVERINGS AND LININGS SHALL NOT FLAME, GLOW, SMOLDER OR SMOKE WHEN TESTED IN ACCORDANCE WITH ASTM C 411 AND THE APPLICABLE PROVISIONS OF SECTION 604.3 OF MECHANICAL CODE.
26.	ALL FLEXIBLE DUCT AND CONNECTORS MUST BE TESTED IN ACCORDANCE WITH UL 181. LENGTH NOT TO EXCEED 8'.
27.	ALL DUCTS MUST BE SEALED IN ACCORDANCE WITH THE PROVISIONS IN THE INTERNATIONAL ENERGY CONSERVATION CODE.
28.	ALL DUCTWORK SHOULD BE SUPPORTED AT MINIMUM 10' INTERVAL, UNLESS NOTED OTHERWISE IN CONTRACT DOCUMENT.
29.	ALL FILTERS SHALL MEET 603, 604 & 605 OF MECHANICAL CODE.
30.	ALL DUCT SMOKE DETECTORS MUST BE INSTALLED IN ACCORDANCE WITH NFPA 72 (606.3).
31.	TYPE OF REFRIGERANT, QUANTITY, APPLICATION AND USE SHALL COMPLY WITH SECTION 1102.2, 1104.3, TABLE 1103.1 OF MICHIGAN MECHANICAL CODE.
32.	ALL FIRE DAMPERS SHALL BE DYNAMIC FIRE DAMPERS.
33.	CONTRACTOR IS RESPONSIBLE TO LIST ALL MODIFICATION TO ORIGINAL DOCUMENT DURING SHOP DRAWING PROCESS. IT SHOULD CLEARLY MENTION THE CHANGES BEING MADE TO THE PARTS, OPTIONS, MATERIAL, CAPACITY, ETC. THAT IS DIFFERENT THAN WHAT IS SHOWN ON DOCUMENT. CONTRACTOR WILL REMAIN RESPONSIBLE FOR THE PERFORMANCE, OPERATION, WARRANTY, ALL REQUIRED MODIFICATIONS ETC. FOR THE PRODUCT.
34.	CONTRACTOR TO PROVIDE ALL FITTINGS, ELBOWS, OFFSETS FOR PIPING & DUCTWORK TO SUIT SITE CONDITION.
35.	PROVIDE INSULATION PER SPECIFICATION FOR ALL PIPING, DUCTWORK FOR HVAC SYSTEM.
36.	UNLESS NOTED OTHERWISE ALL DUCTWORK @ 1000FPM, DUCTWORK FROM MAIN DUCT TO DIFFUSER SHALL MATCH NECK SIZE.
37.	ALL MOTOR STARTERS LOCATION TO BE IDENTIFIED DURING CONSTRUCTION AT SITE BY ENGINEER, UNLESS NOTED OTHERWISE. MAINTAIN 3" CLEARANCE.
38.	PROVIDE 4" CONCRETE BASE FOR ALL FLOOR MOUNTED EQUIPMENT WITH MIN. 6" OVERHANG.
39.	ALL DUCT SIZES AS SHOWN ARE CLEAR AREA FOR PASSAGE OF AIR.
40.	FOR APPROVAL, CONTROL CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS INCLUDING WIRING DIAGRAM, SEQUENCE OF OPERATION FOR ALL EQUIPMENT.
41.	PROVIDE FIRE RATED ACCESS PANEL SIZED TO REPLACE WHOLE UNIT.
42.	ALL MECHANICAL EQUIPMENT SHALL BE INSTALLED WITH ACCESS AND SERVICE SPACE PER MICHIGAN MECHANICAL CODE SECTION 306. MAINTAIN WALL RATINGS.
43.	CONTRACTOR NEED TO PROVIDE DUCT FABRICATION SHOP DRAWINGS FOR APPROVAL UNLESS NOTED OTHERWISE.

MECHANICAL LEGEND					
SYMBOL	ABBR.	DESCRIPTION	SYMBOL	ABBR.	DESCRIPTION
		DUCT		CC	COOLING COIL
	FC	DUCT FLEXIBLE CONNECTION		HC	HEATING COIL
		RECTANGULAR TO ROUND DUCT CONVERT.		UP	PIPE ELBOW UP
	SAD	SUPPLY AIR DUCT UP		DN	PIPE ELBOW DOWN
		RETURN AIR DUCT UP		MAV	MANUAL AIR VENT
		EXHAUST AIR DUCT UP		AD	ACCESS DOOR
		RETURN AIR GRILLE W/ ACOUST. BOOT		A/C	AIR CONDITIONING
	RAG	RETURN AIR GRILLE		AFF	ABOVE FINISHED FLOOR
	ER	EXHAUST AIR REGISTER		AHU	AIR HANDLING UNIT
	EG	EXHAUST AIR GRILLE		DB	DRY BULB TEMPERATURE
	DL	DOOR LOUVER		DDC	DIRECT DIGITAL CONTROL
		RECTANGULAR ELBOW DOWN		DX	DIRECT EXPANSION
		RECTANGULAR ELBOW UP		(E)	EXISTING
		SQUARE ELBOW WITH TURNING VANES		EA	EXHAUST AIR
	T-STAT	THERMOSTAT		EAT	ENTERING AIR TEMPERATURE
		DIRECTION OF AIR FLOW		EDB	ENTERING DRY BULB TEMPERATURE
	VD	VOLUME DAMPER (MANUALLY ADJUSTED)		ESP	EXTERNAL STATIC PRESSURE (IN. WC.)
	BDD	BACK DRAFT DAMPER		EWB	ENTERING WET BULB TEMPERATURE
	MOD	MOTOR OPERATED DAMPER		EWT	ENTERING WATER TEMPERATURE
	FD	FIRE DAMPER(HORIZONTAL DUCT RUN)		FPM	FEET PER MINUTE
	FD	FIRE DAMPER(VERTICAL DUCT RUN)		GC	GENERAL CONTRACTOR
	SD	SMOKE DAMPER(HORIZONTAL DUCT RUN)		GLY	GLYCOL
	SD	SMOKE DAMPER (VERTICAL DUCT RUN)		GPM	GALLONS PER MINUTE
	FSD	FIRE/SMOKE DAMPER(HORIZONTAL DUCT RUN)		HP	HORSEPOWER
	FSD	FIRE/SMOKE DAMPER(VERTICAL DUCT RUN)		HVAC	HEATING, VENTILATING & AIR CONDITIONING
	POC	POINT OF CONNECTION		LAT	LEAVING AIR TEMPERATURE
	P	PUMP		LWT	LEAVING WATER TEMPERATURE
	CWS	COLD WATER SUPPLY		MBH	THOUSAND BTU'S PER HOUR
	HWS	HOT WATER SUPPLY		MCA	MINIMUM CIRCUIT AMPACITY
	HWR	HOT WATER RETURN		NC	NOISE CRITERIA
	CTWS	COOLING TOWER WATER SUPPLY		OA	OUTSIDE AIR
	CTWR	COOLING TOWER WATER RETURN		RA	RETURN AIR
	HWHS	HEATING HOT WATER SUPPLY		RPM	REVOLUTIONS PER MINUTE
	HWHR	HEATING HOT WATER RETURN		SA	SUPPLY AIR
	STM	STEAM SUPPLY LINE		SP	STATIC PRESSURE (IN. WC.)
	COND	CONDENSATE LINE		TSP	TOTAL STATIC PRESSURE (IN. WC.)
	U	UNION		TYP	TYPICAL
	BFVA	BUTTERFLY VALVE		UNO	UNLESS NOTED OTHERWISE
	BV	BALL VALVE		∅	PHASE, ROUND
	PRV	PRESSURE REGULATING VALVE		STR	STRAINER
	CVA	CHECK VALVE (SWING)		T	THERMOMETER
	BAL. V.	BALANCING VALVE			FLEXIBLE INSULATED DUCT
	CV	CONTROL VALVE (2-WAY)		WTR	WATER
	CV	CONTROL VALVE (3-WAY)		ICWS/R	INDUCTION UNIT CHILLED WATER SUPPLY/RETURN
	RVA	RELIEF VALVE		IHWS/R	INDUCTION UNIT HOT WATER SUPPLY/RETURN
	PG	PRESSURE GAUGE WITH GAUGE COCK		DDC	DIRECT DIGITAL CONTROL
		DEMOLITION ITEM		BMS	BUILDING MANAGEMENT SYSTEM OR DDC
				A.F.F	ABOVE FINISHED FLOOR



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 M.MASIC
Sheet Title :
 MECHANICAL
 LEGENDS, NOTES
 AND SCHEDULES

Project No. :
2018.111

Sheet No. :
M-100

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ELECTRIC HEATER					
TAG	KW	POWER	MANUF./ MODEL (DESIGN BASIS)	MODEL	REMARKS
EUH-1	3.0	208V-1Ø	Q-MARK	WALL MOUNTED AWH SERIES	①②③④⑤
EUH-2	5.0	208V-1Ø	Q-MARK	CEILING MOUNTED EFF SERIES	①②③④⑤
EUH-3	5.0	208V-1Ø	Q-MARK	WALL MOUNTED AWH SERIES	①②③④⑤
EUH-4	1.5	120V-1Ø	Q-MARK	WALL MOUNTED GFR1500T2F	①②③④⑤

① BUILT IN STARTER & DISCONNECT
 ② PROVIDE MOUNTING HARDWARE
 ③ THERMOSTATIC CONTROL COMPATIBLE WITH DDC
 ④ VERIFY SEMI RECESSED/RECESSED UNITS FROM PLANS (BASED ON SITE CONDITION)
 ⑤ PROVIDE DOUBLE POLE THERMOSTAT.

ENERGY RECOVERY UNIT SCHEDULE																					
TAG	EER	FAN						COOLING CAPACITY @ 90°F AMBIENT				HEATING CAPACITY @ 0°F AMBIENT			MANUF.	MODEL	FLA (A)	MFS (A)	ELECT.	WEIGHT LBS	REMARKS
		TYPE	CFM	E.S.P (INH2O)	QTY.	HP	OUTDOOR		INDOOR		CAPACITY (TONS)	AIR TEMP. (DRY BULB) ENFTRING/LEAVING	INPUT (MBH)	OUTPUT (MBH)							
							DB	WB	DB	WB											
MAU-1	-	SUPPLY	1500	0.25	1	-	90	73	75	62	3	-10/90	-	-	-	-	-	208V/1Ø	-	①②③④⑤⑥	

NOTES:
 ① PROVIDE STARTER & DISCONNECT.
 ② INSTALLATION, VIBRATION, ISOLATION & CLEARANCE PER MANUFACTURER'S RECOMMENDATION.
 ③ PROVIDE DISCHARGE AIR TEMPERATURE CONTROL.
 ④ STAINLESS STEEL HEAT EXCHANGER.
 ⑤ PROVIDE MERV-8 FILTRATION FILTER SECTION AND WEATHER HOOD.
 ⑥ ROOM TEMP. SENSOR FOR LEAVING AIR TEMP. RESET.

VRF UNIT SCHEDULE (OUTDOOR)											
TAG	SERVES	EER	MANUF. (DESIGN BASIS)	MODEL	RATED COOLING CAPACITY (BTUH)	RATED HEATING CAPACITY (BTUH)	ELECTRICAL			DIMENSION (H X W X D)	WEIGHT (lbs)
							POWER	MOP (A)	MCA (A)		
ACCU-1	1ST FLOOR	-	-	-	-	-	208V/1Ø	-	-	-	-
ACCU-2	SECOND FLOOR	-	-	-	-	-	208V/1Ø	-	-	-	-
ACCU-3	THIRD FLOOR	-	-	-	-	-	208V/1Ø	-	-	-	-

① PROVIDE FACTORY MOTOR STARTER & DISCONNECT.
 ② CONDENSATE DRAIN KIT.
 ③ REFRIGERANT PIPING PER MANUFACTURER'S RECOMMENDATION.
 ④ PROVIDE REFRIGERANT R-410A, SYSTEM SHOULD BE DESIGNED FOR 11 FLOORS.
 ⑤ SEE FLOOR PLANS FOR NON DUCTED OR DUCTED UNIT.
 ⑥ EQUIPMENT MOUNTING RAILS AT LEAST 18" HIGH.
 ⑦ PROVIDE 10 YEAR COMPRESSOR PARTS WARRANTY ON CONDENSING UNIT
 ⑧ PROVIDE 10 YEAR PARTS WARRANTY ON CONDENSING UNIT
 ⑨ DISCONNECT SWITCH BY MECHANICAL.
 ⑩ THE INSTALLING CONTRACTOR MUST ATTEND A FACTORY AUTHORIZED INSTALLATION CLASS BEFORE COMMENCING INSTALLATION
 ⑪ SYSTEM HEATING AND COOLING CAPACITY MUST INCLUDE THE OUTDOOR TEMPERATURE DERATE, DEFROST DERATE AND PIPING ELEVATIONS DERATE PER THE SYSTEM LAYOUT AND DESIGN CONDITIONS (95F SUMMER/ OF WINTER)
 ⑫ EQUIPMENT TO MEET AHRI 1230 STANDARDS.

EXHAUST FAN SCHEDULE										
TAG	SERVES	TYPE	CFM	ESP	HP	FAN RPM	DRIVE TYPE	ELEC. VLT./PH.	MANUFACTURER/ MODEL (DESIGN BASIS)	REMARKS
EF-1	1ST FL.	CEILING MOUNTED	50	0.375	-	-	BELT	120V 1Ø	GREENHECK SP--	
EF-2	2ND FL.	CEILING MOUNTED	70	0.375	-	-	BELT	120V 1Ø	GREENHECK SP--	
EF-3	2ND FL.	CEILING MOUNTED	50	0.375	-	-	BELT	120V 1Ø	GREENHECK SP--	
EF-4	ROOF	ROOF MOUNTED	100	0.5	-	-	BELT	120V 1Ø	GREENHECK GB--	

NOTES:
 ① PROVIDE STARTER AND DISCONNECT.
 ② PROVIDE ALL MOUNTING HARDWARE, FLEXIBLE CONNECTOR.
 ③ VERIFY FAN MOTOR LOCATION AT SITE.
 ④ MAXIMUM SONES 13.
 ⑤ INTERLOCK WITH ASSOCIATED MAU. GREENHECK
 ⑥ PROVIDE VFD.
 ⑦ IF ANY FAN BRAKES VISUAL AND AUDIO ALARM SHALL BE SHOWN ON PANEL.

HEAT PUMP UNIT:										
TAG	AIR FLOW CFM	MAX COOLING BTUH	MAX HEATING BTUH	POWER		BREAKER SIZE AMP	RATED AMP/ POWER INPUT (W)	(DESIGN BASIS)		REMARKS
				VOLTS	PHASE			MANUF.	MODEL	
FCU-1	-	6000	6000	208V	1Ø	-	-	-	-	
FCU-2	-	9000	9000	208V	1Ø	-	-	-	-	
FCU-3	-	12000	12000	208V	1Ø	-	-	-	-	
FCU-4	-	15000	15000	208V	1Ø	-	-	-	-	

NOTES:
 ① PROVIDE EVAPORATOR INSTALLATION HARDWARE, CEILING MOUNTED.
 ② PROVIDE EXTENDED PIPE AS PER MANUFACTURER RECOMMENDATION.
 ③ WALL MOUNTED T-STAY.
 ④ DISCONNECT SWITCH BY MECHANICAL.
 ⑤ ALL CONTROL WIRING BY INSTALLING CONTRACTOR (18-2 AWG NO POLARITY STRANDED, NON-SHIELDED)
 ⑥ PROVIDE DUCT KIT FOR DUCTED UNIT.
 ⑦ SEE PLAN FOR EXACT CFM.
 ⑧ PROVIDE 10 YEAR PARTS WARRANTY ON FAN COIL UNITS.
 ⑨ PROVIDE VENTILATION KIT.

APARTMENT VENTILATION SCHEDULE		
TAG	OUTSIDE AIR	
	REQUIRED	PROVIDED
ONE BEDROOM	30	30
TWO BEDROOM	45	45

CONDENSING UNIT SCHEDULE								
TAG	MANUF.	MODEL NO.	COOLING CAPACITY (BTUH)	HEATING CAPACITY (BTUH)	MAX FUSE	MCA	VOLTAGE	REMARKS
ACCU-4	DAIKIN	RXL09QMJVU	9.000	10.900	15	9.5	230/1/60	A, B, C, D

A. PROVIDE ALL REFRIGERANT PIPING DEVICES AND ACCESSORIES AS REQUIRED AND CHARGED REFRIGERANT.
 B. SUCTION SERVICE VALVE AND PRESSURE GAUGES.
 C. 5-YR COMPRESSOR WARRANTY.
 D. PROVIDE STARTER & DISCONNECT.

HEAT PUMP UNIT (INDOOR):												
TAG	MAXIMUM AIR FLOW CFM	RATED COOLING BTUH	RATED HEATING BTUH	ELECTRICAL DATA				TON	(DESIGN BASIS)		WEIGHT (lbs.)	REMARKS
				VOLTS	PHASE	MCA AMP	MOP AMP		MANUF.	MODEL		
HP-1	250	9.000	10.900	208V	1Ø	9.5	15	0.75	DAIKIN	FTX09NMVUJ	23	①②③④⑤⑥⑦⑧

NOTES:
 ① PROVIDE EVAPORATOR INSTALLATION HARDWARE, WALL MOUNTED.
 ② PROVIDE CONDENSATE PUMP AND DRAIN KIT TO NEAREST INDIRECT WASTE (PIPING INSTALLED BY PLUMBER).
 ③ PROVIDE PROGRAMMABLE THERMOSTATIC CONTROL. VERIFY THERMOSTAT (WALL/CEILING) LOCATION ON PLAN.
 ④ PROVIDE INSULATED DRAIN PAN.
 ⑤ ALL CONTROL WIRING BY INSTALLING CONTRACTOR (18-2 AWG NO POLARITY STRANDED, NON-SHIELDED)
 ⑥ SEE PLAN FOR EXACT CFM.
 ⑦ PROVIDE 10 YEAR PARTS WARRANTY ON FAN COIL UNITS.
 ⑧ DISCONNECT SWITCH BY MECHANICAL.



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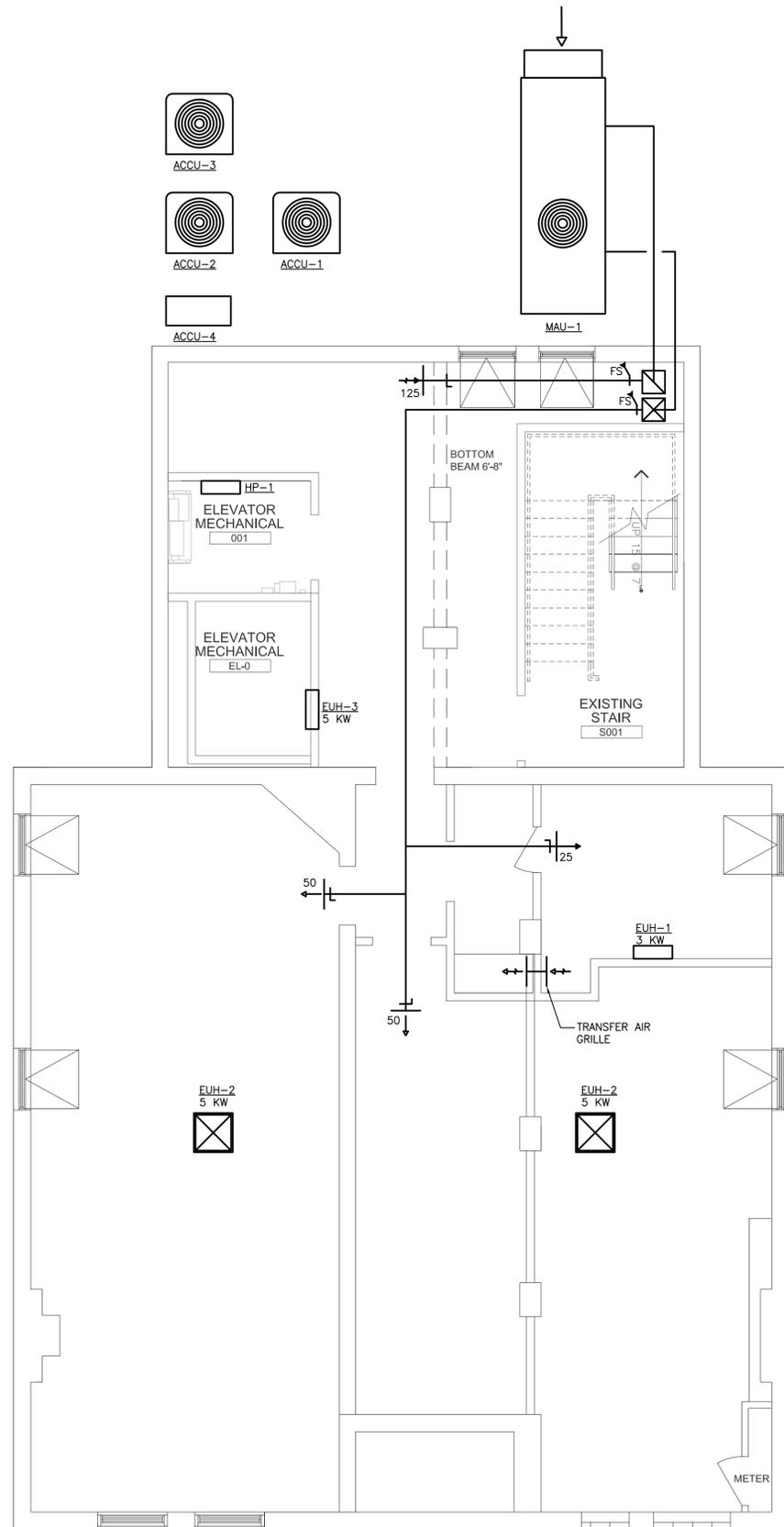
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 MECHANICAL LEGENDS, NOTES AND SCHEDULES

Project No.:
2018.111

Sheet No.:
M-101

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MECHANICAL HVAC BASEMENT PLAN
 SCALE: 1/4"=1'-0"
 NORTH

GENERAL NOTES:

- GN1. ALL DUCT SUPPORT SHALL BE PER SMACNA WITH ADEQUATE SPACE FOR PIPING & CONDUIT ABOVE DUCTWORK.
- GN2. SEE M-100 & M-101 FOR SCHEDULES, NOTES & LEGENDS.
- GN3. ALL EXPOSED DUCTWORK SHALL BE FLAT ROUND OR SPIRAL ROUND.
- GN4. COORDINATE DUCTWORK WITH PIPING, STORM DRAIN, ETC. PRODUCE WORKING SHOP DRAWING.
- GN5. PROVIDE ACCESS DOOR FOR ALL FIRE DAMPERS & MANUAL BALANCE DAMPER IN GYP BOARD CEILING OR SOFFIT.
- GN6. COORDINATE FINAL THERMOSTAT LOCATION WITH OWNER/ARCHITECT.
- GN7. COORDINATE WITH G.C. TO PROVIDE GYP BOARD CEILING & COORDINATE SOFFIT LOCATION.
- GN8. SEE ARCHITECTURAL DRAWING FOR LIFE SAFETY TO PROVIDE APPROPRIATE DAMPERS.
- GN9. COORDINATE EXACT DUCT LOCATION WITH SOFFIT LOCATION.



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DETROIT, MI 48216

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SSE

Checked by :

M.MASIC

Sheet Title :

MECHANICAL HVAC
 BASEMENT
 PLAN

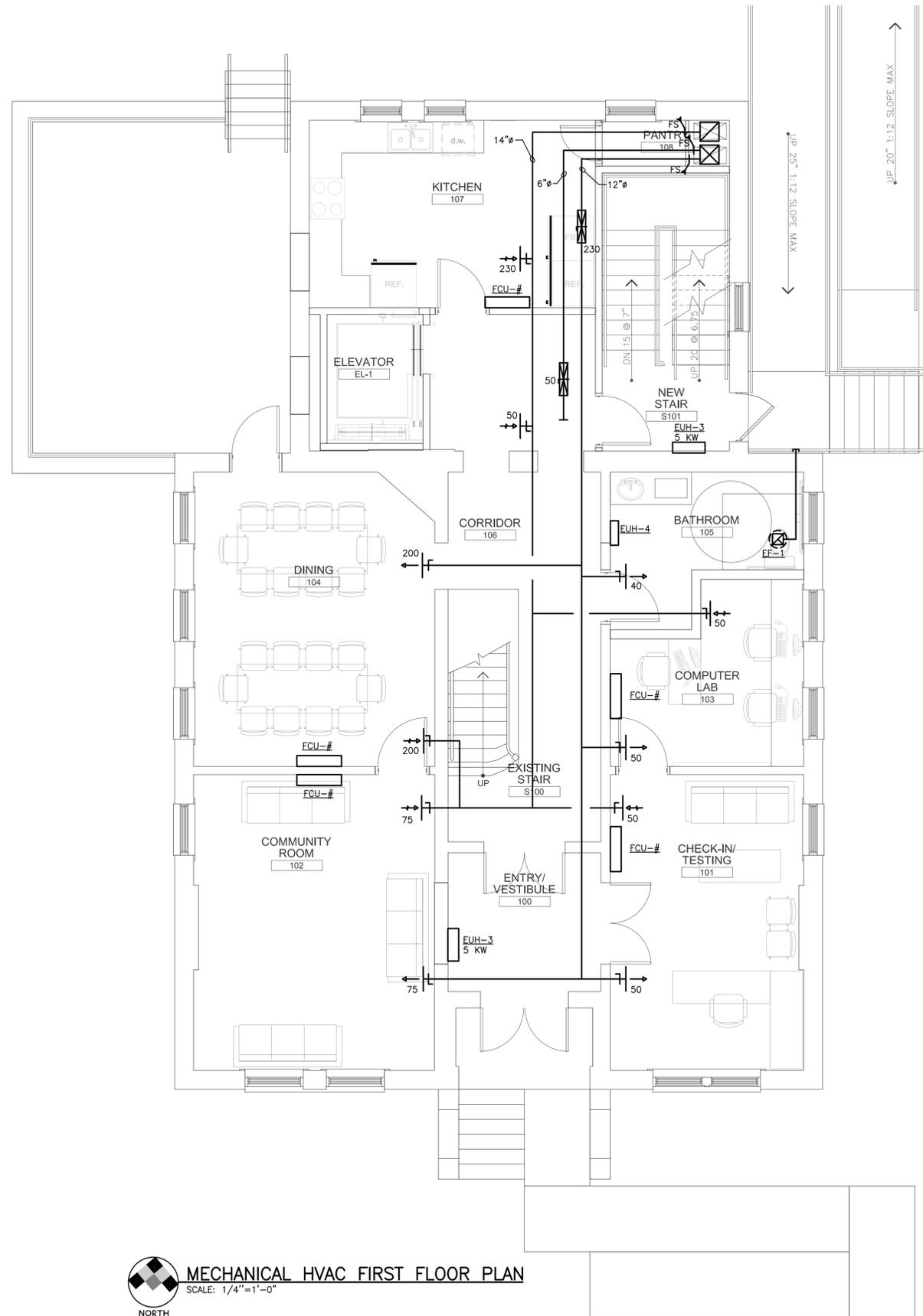
Project No. :

2018.111

Sheet No. :

MH-200

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MECHANICAL HVAC FIRST FLOOR PLAN
SCALE: 1/4"=1'-0"
NORTH

GENERAL NOTES:

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- GN2. SEE M-100 & M-101 FOR SCHEDULES, NOTES & LEGENDS.
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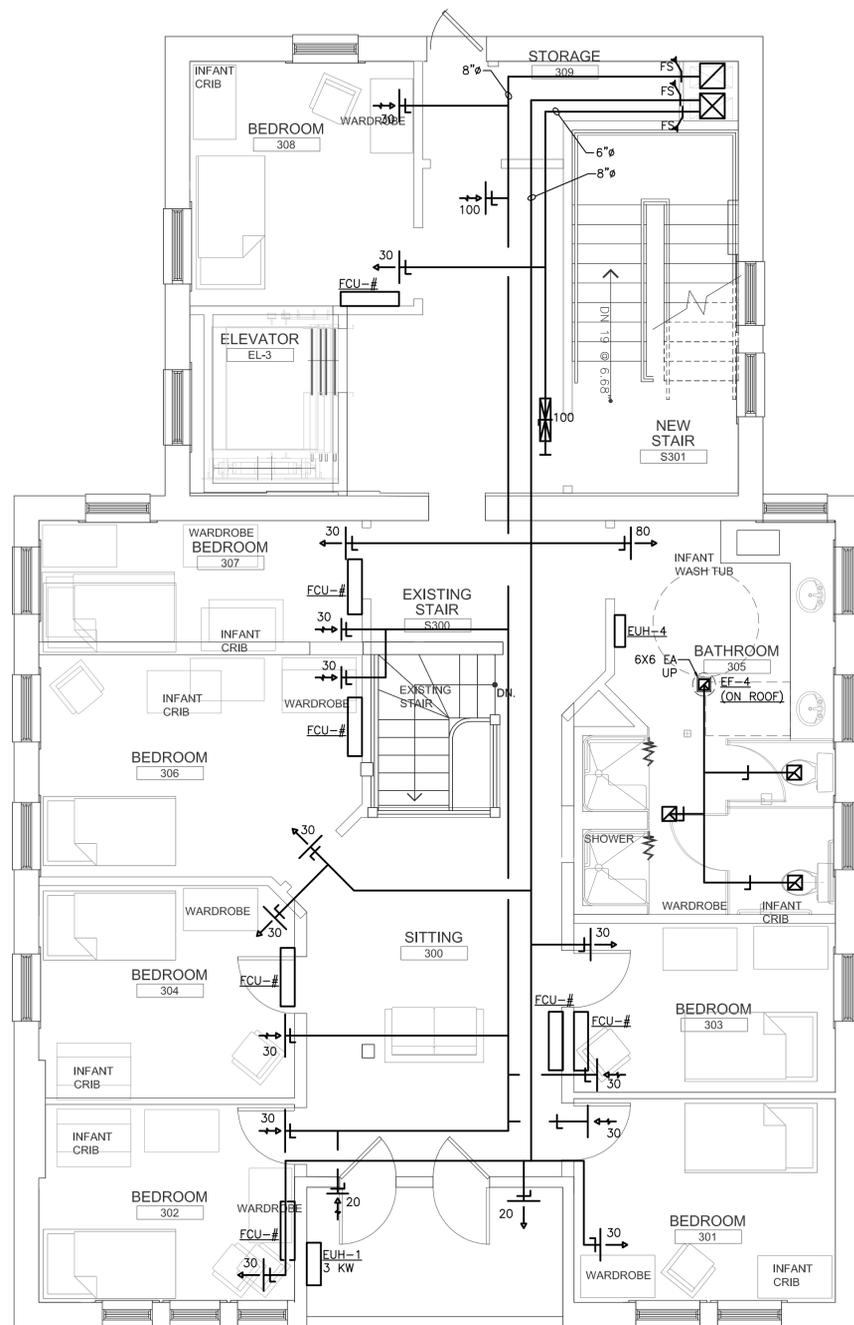


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FIRST FLOOR
PLAN

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2018.111

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MH-201

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MECHANICAL HVAC THIRD FLOOR PLAN
 SCALE: 1/4"=1'-0"
 NORTH

GENERAL NOTES:

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MECHANICAL HVAC
 THIRD FLOOR
 PLAN

Project No.:

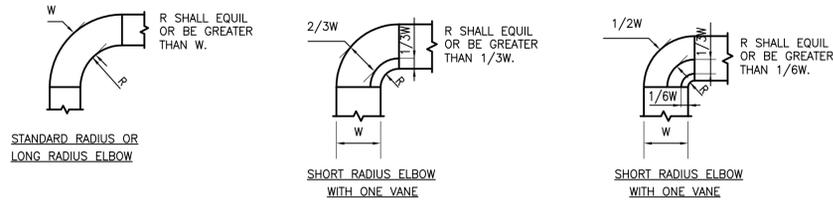
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MH-203

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REPORT

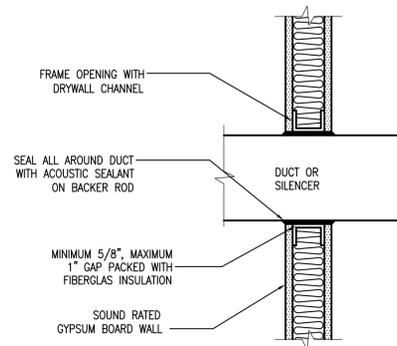


NOTES:

1. THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
2. ALL STANDARD RADIUS ELBOWS CAN BE SUBSTITUTED WITH SHORT RADIUS ELBOWS. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED, SUPPORTED AND FASTENED AS RECOMMENDED BY SMAcNA.

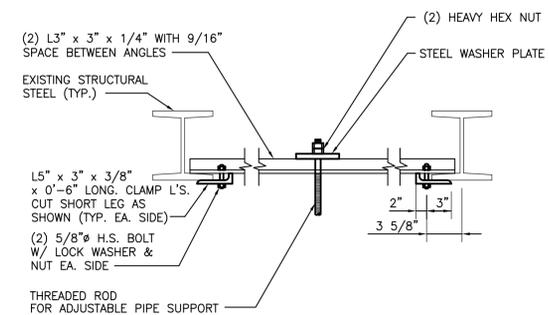
DUCTWORK RADIUS ELBOWS

SCALE: NONE



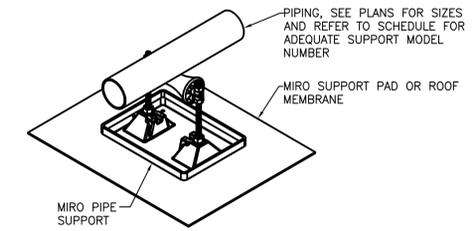
DUCT PENETRATION DETAIL

SCALE: NONE



BEAM ATTACHMENT DETAIL

SCALE: NONE

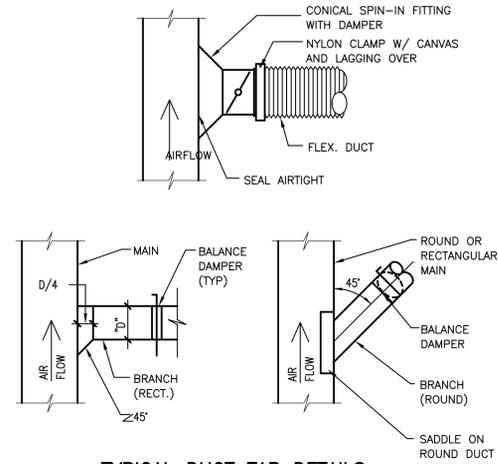


SUPPORT SIZING & MODEL NUMBER TABLE

PIPE SIZE	MODEL NO.	MAX. SPACING
3/4"	1.5	10'
1"	1.5	10'
1-1/4"	1.5	10'
1-1/2"	1.5	10'
2"	3-R OR 3-RAH	10'
2-1/2"	3-R OR 3-RAH	10'
3"	3-R OR 3-RAH	10'
4"	4-R OR 4-RAH	9'
6"	6-RAH	9'
8"	8-RAH	7'

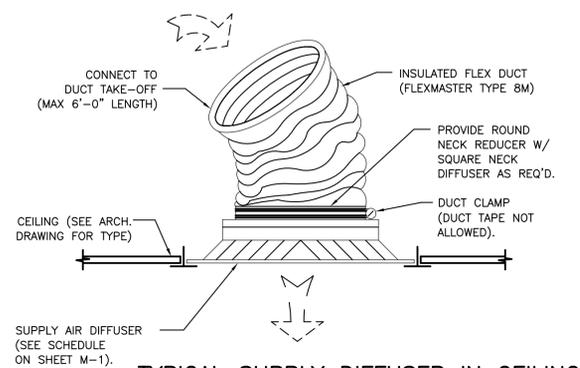
PIPE SUPPORT DETAIL

SCALE: N.T.S.



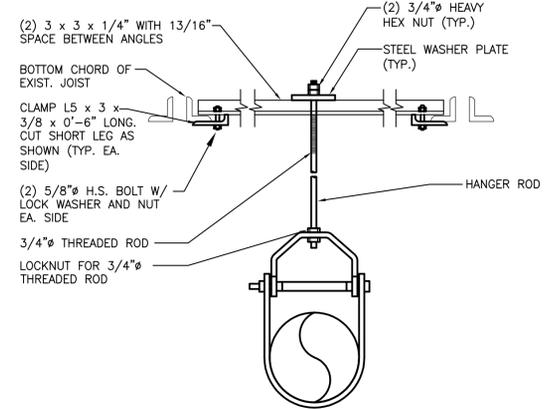
TYPICAL DUCT TAP DETAILS

SCALE: NONE



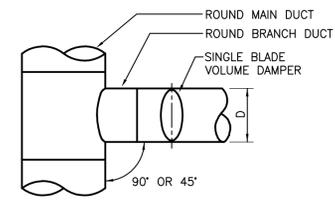
TYPICAL SUPPLY DIFFUSER IN CEILING

SCALE: NONE



DUCT HANGER DETAIL

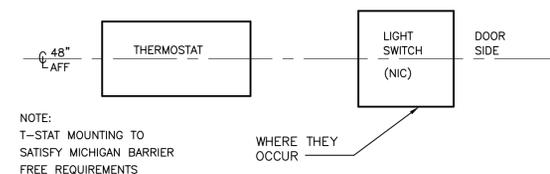
SCALE: NONE



- NOTES:
1. ROUND BRANCH FITTINGS MAY BE WELDED PREFABRICATED FITTINGS, FLANGED TAPS, OR SADDLE TAPS.

ROUND TO ROUND BRANCH

SCALE: NONE



- NOTE:
- T-STAT MOUNTING TO SATISFY MICHIGAN BARRIER FREE REQUIREMENTS

TYPICAL THERMOSTAT MOUNTING DETAIL

SCALE: NONE



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DETROIT, MI 48216

Issued for:

PERMITS 07.16.19



Drawn by: SSE

Checked by: M.MASIG

Sheet Title: MECHANICAL DETAILS

Project No.: 2018.111

Sheet No.: M-400

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MECHANICAL GENERAL

A. PROVIDE MATERIALS AND EQUIPMENT AND EXECUTE THE WORK, INCLUDING ALL TESTING AND INSPECTIONS, IN COMPLIANCE WITH THE APPLICABLE PROVISIONS OF FEDERAL, STATE AND LOCAL GOVERNMENT LAWS, ORDINANCES, REFERENCED CODES AND STANDARDS CURRENT AS OF THE ISSUE DATE OF THESE DRAWINGS INCLUDING THE GOVERNING LAWS, ORDINANCES, CODES AND STANDARDS CONSTITUTE MINIMUM REQUIREMENTS. ALL MORE STRINGENT REQUIREMENTS SHALL MODIFY, SUPPLEMENT AND SUPERCEDE APPLICABLE PORTIONS OF GOVERNING LAWS, ORDINANCES, CODES AND STANDARDS.

B. CONTRACTOR SHALL PRESENT CERTIFICATE TO THE OWNER'S REPRESENTATIVE THAT ALL APPLICABLE BUILDING PERMITS HAVE BEEN SECURED PRIOR TO STARTING ANY WORK AND PROVIDE THE OWNER WITH ALL REQUIRED CERTIFICATES OF FINAL APPROVAL FROM THE GOVERNING JURISDICTIONS AT COMPLETION OF THE WORK. PROVIDE ALL SHOP DRAWINGS AS REQUIRED IN FOLLOWING SECTIONS.

C. REFER TO ALL GENERAL NOTES ON DRAWING FOR ADDITIONAL REQUIREMENTS.

D. MECHANICAL EQUIPMENT SHALL HAVE DECALS AND TAGS TO INDICATE LIFTING AND RIGGING SERVICE AREAS AND CAUTION IDENTIFICATION FOR SAFETY TO ASSIST SERVICE PERSONNEL.

E. UNIT NAMEPLATE SHALL BE PROVIDED IN TWO LOCATIONS ON THE EQUIPMENT. AFFIX TO THE EXTERIOR OF THE EQUIPMENT AND TO THE INTERIOR OF THE CONTROL COMPARTMENT ACCESS DOOR.

SHOP DRAWINGS

A. NO APPARATUS OR EQUIPMENT SHALL BE SHIPPED FROM STOCK OR FABRICATED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND STAMPED "REVIEW COMPLETED", "APPROVED" OR "APPROVED AS NOTED".

B. PROVIDE DETAILED SHOP DRAWINGS (SEPIAS) OF ALL SHEET METAL DUCTWORK WITH NECESSARY SECTIONS, DETAILS, DIMENSIONS, ETC. SUBMIT AMCA CERTIFIED PERFORMANCE CURVES FOR EACH FAN INDICATING IT'S OPERATING POINT, EFFICIENCY, STARTING TIME, DATA RELATIVE TO SOUND LEVELS. ALL SHEET METAL SHOP DRAWINGS SHALL BEAR INDEPENDENT BALANCE AGENCY (AABC) APPROVAL STAMP BEFORE SHOP DRAWINGS ARE SUBMITTED TO THE ARCHITECT FOR APPROVAL.

C. SUBMIT FOR APPROVAL, SHOP DRAWINGS FOR ALL EQUIPMENT, INCLUDING MATERIALS, VALVES, HEATING SPECIALTIES, WIRING DIAGRAMS AND CONTROL DIAGRAMS INCLUDING, BUT NOT LIMITED TO THE ITEMS LISTED BELOW. WHERE ITEMS ARE REFERRED TO BY SYMBOL NUMBERS ON THE DRAWINGS AND SPECIFICATIONS, ALL SUBMITTALS SHALL BEAR THE SAME SYMBOL NUMBERS. ALL DRAWINGS SHALL CONTAIN THE PROJECT NAME AND PROJECT NUMBER. NO LOOSE SHEETS SHALL BE SUBMITTED UNLESS A COVER SHEET IS ATTACHED.

D. PROVIDE THE FOLLOWING EQUIPMENT SHOP DRAWINGS: VALVES, TEMPERATURE AND PRESSURE GAUGES, PACKAGED HVAC EQUIPMENT, EXHAUST FANS, UNIT HEATERS, GRILLES, REGISTERS, INSULATION, VIBRATION ISOLATORS, TEMPERATURE CONTROLS AND THERMOSTATS.

E. APPROVAL OF SHOP DRAWINGS DOES NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES TO CONFORM TO THE DESIGN INTENT OF THE CONTRACT DOCUMENTS. APPROVAL OF SHOP DRAWINGS IS INTENDED TO BE FOR GENERAL CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS ONLY. ANY INSTALLED EQUIPMENT WHICH REQUIRES WORK BY OTHER TRADES SHALL BE COORDINATED WITH THOSE TRADES. REFER TO OTHER TRADES BID DOCUMENTS.

CODES, PERMITS AND FEES

A. UNLESS OTHERWISE INDICATED, ALL REQUIRED PERMITS, LICENSES, INSPECTIONS, APPROVALS AND FEES FOR MECHANICAL WORK SHALL BE SECURED AND PAID FOR BY THIS CONTRACTOR. ALL WORK SHALL CONFORM TO ALL APPLICABLE CODES, RULES AND REGULATIONS.

B. RULES OF LOCAL UTILITY COMPANIES SHALL BE COMPLIED WITH.

C. ALL WORK SHALL BE EXECUTED IN ACCORDANCE WITH THE RULES AND REGULATIONS SET FORTH IN LOCAL AND STATE CODES. WHERE THE DRAWINGS AND OR SPECIFICATIONS INDICATE MATERIALS OR CONSTRUCTION IN EXCESS OF CODE REQUIREMENTS, THE DRAWINGS AND/OR SPECIFICATIONS SHALL GOVERN.

BASIC MATERIALS AND METHODS

A. PROVIDE ALL ITEMS, ARTICLES, MATERIALS, OPERATIONS AND METHODS LISTED, MENTIONED OR SCHEDULED ON DRAWINGS AND/OR HEREIN, INCLUDING ALL LABOR, MATERIALS, EQUIPMENT AND INCIDENTALS NECESSARY AND REQUIRED FOR THEIR COMPLETION. THE WORK SHALL INCLUDE INSTALLATION, CLEANING AND TESTING OF COMPLETE AND OPERATING HVAC, TEMPERATURE CONTROL, AND OTHER SPECIAL SYSTEMS.

MECHANICAL SPECIFICATIONS

HEATING AND VENTILATING

A. GENERAL

REFER TO SCHEDULES FOR CAPACITIES, ACCESSORIES AND LEVEL OF QUALITY.

B. CONTROLS

UNITS SHALL BE ORDERED AND INSTALLED WITH MANUFACTURED STANDARD CONTROLS. SCOPE OF CONTROLS WORK SHALL BE COORDINATED WITH MECHANICAL CONTRACTOR, CONTROLS CONTRACTOR AND GENERAL CONTRACTOR.

REFER TO SCHEDULES FOR EQUIPMENT REQUIREMENTS.

SYSTEM TESTING AND BALANCING

A. ALL HVAC SYSTEMS SHALL BE TESTED AND BALANCED TO DEMONSTRATE THAT SPECIFIED CAPACITIES AND PROPER CONTROL FUNCTIONING HAS BEEN ATTAINED. FAN SYSTEMS ARE NOT TO BE COMPLETED PRIOR TO RUNNING PERFORMANCE TESTS, AND PRIOR TO TRAINING AND INSTRUCTION OF THE OWNER'S PERSONNEL IN SYSTEM OPERATION.

B. ENGAGE THE SERVICES OF AN INDEPENDENT CERTIFIED TEST AND BALANCE AGENCY THAT SPECIALIZES IN AND WHOSE BUSINESS IS LIMITED TO THE TESTING AND BALANCING OF AIR CONDITIONING SYSTEMS AND IS NOT AFFILIATED IN ANY WAY WITH MANUFACTURER, SUPPLIER, OR INSTALLATION CONTRACTOR. THE AGENCY SELECTED SHALL BE CERTIFIED BY ASSOCIATED AIR BALANCE COUNCIL (AABC) OR NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB).

C. TAKE CHARGE OF AND DIRECT THE PERFORMANCE TESTS AND SUBMIT A COMPLETE REPORT ON SAME TO THE ARCHITECT. REFER TO "PERFORMANCE TESTS" IN THIS SECTION OF THE SPECIFICATIONS.

D. EXAMINE THE AIR HANDLING SYSTEMS TO SEE THAT THEY ARE FREE FROM OBSTRUCTIONS. DETERMINE THAT ALL DAMPERS AND REGISTERS ARE OPEN, THAT MOVING EQUIPMENT IS LUBRICATED, THAT FILTERS ARE FUNCTIONING, AND PERFORM OTHER INSPECTION AND MAINTENANCE ACTIVITIES NECESSARY FOR PROPER OPERATION OF THE SYSTEMS.

E. DEMONSTRATE THAT THE AIR HANDLING EQUIPMENT PERFORMS AS SPECIFIED. ADJUST VARIABLE TYPE PULLEYS AND VOLUME DAMPERS, WHERE NECESSARY TO ACHIEVE DESIGN AIR VALUES.

F. PERFORM THIS WORK IN ACCORDANCE WITH THE PROCEDURES AND STANDARDS DESCRIBED IN THE SMACNA "BALANCING AND ADJUSTMENT MANUAL". REPORTS ARE TO BE MADE ON SMACNA FORMS OR FACSIMILIES THEREOF.

G. TESTING AND BALANCING OF ALL AIR SYSTEMS SHALL BE PERFORMED BY A SINGLE AGENCY IN COMPLETE ACCORDANCE WITH THE AABC "STANDARDS AND INSTRUMENTATION'S FORM NUMBER 81266" AND "TESTING AND BALANCING MANUAL" AS PUBLISHED BY AABC, INCLUDING ALL CURRENT REVISIONS THERETO OR BY NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB).

PERFORMANCE TESTS

A. A PERFORMANCE TEST SHALL BE RUN ON ALL MECHANICAL SYSTEMS IN THE PRESENCE OF THE ARCHITECT OR THE OWNER'S REPRESENTATIVE, THE OWNER'S OPERATIONS PERSONNEL, AND UNDER THE DIRECTION OF THE TESTING AND BALANCING TRADE. THE DURATION OF THE TEST SHALL BE A MINIMUM OF 8 HOURS OF CONTINUOUS SUCCESSFUL OPERATION (WITH NO DOWN TIME) IN WEATHER SUCH THAT A REASONABLE LOAD IS PLACED ON THE EQUIPMENT. AIR TEMPERATURES, VOLTAGES, AMPERAGES RPM'S, ETC., SHALL ALL BE TAKEN AND RECORDED HOURLY. AT THIS TIME, ANY ADJUSTMENTS TO AIRFLOW, ETC. SHALL BE MADE.

B. WHERE THE TIME OF YEAR PRECLUDES WEATHER TESTING OF EITHER SYSTEM, THEN SYSTEM OPERATION SHALL BE SIMULATED TO FACILITATE TESTING AT REQUIRED AIR TEMPERATURES, RESULTS RECORDED AND ANY ADJUSTMENTS SHALL BE PERFORMED AT THIS TIME.

SHEET METAL

A. ALL DUCTWORK SHALL BE GALVANIZED SHEET METAL AS INDICATED ON THE DRAWINGS OR AS DIRECTED HEREIN. ALL SHEET METAL WORK SHALL BE IN ACCORDANCE WITH LATEST EDITIONS OF SMACNA "HANG DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE" MANUALS, NFPA 90A AND 96, AND THE LATEST EDITION OF THE ASHRAE GUIDE AND DATA BOOKS. ALL DUCTWORK SIZES INDICATED ON THE PLANS ARE THE INTERNAL DIMENSIONS.

B. ALL DUCTWORK SHALL BE SEALED AIR TIGHT AND SHALL NOT ALLOW MORE THAN 10M AIR LEAKAGE THROUGHOUT THE ENTIRE SYSTEM.

C. SHEET METAL DUCTWORK SHALL BE SMOOTH INSIDE AND TRUE TO SIZE.

D. DUCTWORK FITTINGS SHALL BE PER SMACNA STANDARDS. RADIUS TURNS ON SUPPLY AIR DUCTS SHALL BE 1 1/2 TIMES THE DUCT WIDTH, MINIMUM. WHERE SPACE OR CLEARANCES REQUIRES THE USE OF MITERED TURNS, PROVIDE HIGH PERFORMANCE DOUBLE THICKNESS TURNING VANES EQUAL TO AERODYNE "HEP".

E. PROVIDE FACTORY MANUFACTURED TEST HOLE UNITS IN DUCTWORK WHERE REQUIRED TO FACILITATE AIR BALANCE.

F. DUCT CONSTRUCTION AND SUPPORT DESIGN SHALL BE PER SMACNA. MINIMUM DUCT DESIGN IS PRESSURE CLASS 2" WG. ALL DUCTWORK FROM THE AIR HANDLING UNIT FAN AND OR STAND-ALONE FAN (EXHAUST) TO A MAIN DUCT DAMPER (CONTROL) SHALL BE DESIGNED FOR THE MAXIMUM TOTAL FAN OUTPUT PRESSURE. (THIS IS TO PREVENT DUCT FAILURE IN CASE WHERE A MAIN DUCT DAMPER CLOSES BY DESIGN OR MALFUNCTION). ALL OTHER DUCTWORK SHALL BE DESIGNED FOR THE MAXIMUM SYSTEM EXTERNAL FAN OUTPUT PRESSURE.

G. ALL RECTANGULAR DUCTWORK SHALL BE IN ACCORDANCE WITH THE LATEST SMACNA STANDARDS WITH REGARD TO DUCT GAGE THICKNESS, REINFORCEMENT SPACING, BRACING, HANGERS, AND SUPPORTS, ALL LONGITUDINAL SEAMS SHALL BE MADE WITH A PITTSBURGH LOCK (TYPE L-1). TRANSVERSE JOINTS SHALL BE MADE WITH A POCKET LOCK (TYPE T-17) FOR DUCTWORK UP TO 3" WG.

H. CONTRACTOR SHALL USE DEGREASER, CLEAN AND PREP ALL EXPOSED DUCTWORK TO HAVE PAINT APPLIED. COORDINATE WITH ARCHITECTURAL TRADES.

I. AT EACH POINT OF CONNECTION OF DUCTWORK TO FANS, PROVIDE A FLEXIBLE CONNECTION EQUAL TO VENTFABRICS, INC. "VENTGLAS L.A.", NOT LESS THAN 6" IN LENGTH AND MADE OF HEAVY GRADE FABRIC DOUBLE COATED WITH NEOPRENE AND PROVIDED WITH A SUITABLE FRAME AT EACH END, ARRANGED FOR BOLTING TO THE INLET OR OUTLET OF FAN AND DUCTWORK, RESPECTIVELY.

J. FLEXIBLE CONNECTORS ON DUCTWORK TO AIR HANDLING EQUIPMENT SHALL HAVE A MAXIMUM FLAME/SMOKE DEVELOPED RATING NOT TO EXCEED 25N50.

K. PROVIDE VOLUME DAMPERS IN THE DUCT SYSTEMS WHERE SHOWN ON PLANS AND WHERE REQUIRED TO INSURE PROPER SYSTEM BALANCING.

L. PROVIDE FACTORY FABRICATED VOLUME DAMPERS IN ALL SUPPLY AND EXHAUST BRANCH DUCTS AND OTHERS WHERE INDICATED ON DRAWINGS. VOLUME DAMPERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH APPLICABLE SMACNA STANDARDS.

M. MANUAL VOLUME DAMPERS SHALL BE MADE OF GALVANIZED STEEL 18 GAUGE OR HEAVIER. DAMPERS FOR DUCTWORK UP TO 12 INCHES DEEP SHALL BE ONE BLADE CARRIED ON A 3/8 INCH SQUARE STEEL ROD MOUNTED IN THE SIDE OF DUCT WITHOUT FRAME AND FITTED WITH A LOCKING TYPE QUADRANT. SINGLE BLADE HAND DAMPERS UP TO 12 INCHES WIDTH MAY BE USED. DAMPERS FOR DUCTS OF GREATER DEPTH SHALL BE MULTI-BLADE TYPE, MAXIMUM BLADE WIDTH 12 INCHES UP TO 30 INCHES BLADE LENGTH, 8 INCHES MAXIMUM WIDTH OVER 30 INCHES LENGTH. BLADES SHALL BE MOUNTED IN FRAME AND INTERCONNECTED FOR OPERATION FROM ONE LOCKING TYPE HAND QUADRANT.

FIRE DAMPERS AND FIRE/SMOKE COMBINATION DAMPERS

A. FIRE DAMPERS

FIRE DAMPERS SHALL BE LABELED ACCORDING TO UL 555.

FIRE RATING: 1 1/2 HOURS (MINIMUM). COORDINATE WITH ARCHITECTURAL PLANS.

FRAME: CURTAIN TYPE WITH BLADES OUTSIDE AIRSTREAM; FABRICATED WITH ROLL-FORMED, 0.034" THICK GALVANIZED STEEL; WITH MITERED AND INTERLOCKING CORNERS.

MOUNTING SLEEVE: FACTORY OR FIELD INSTALLED, GALVANIZED SHEET STEEL.

MINIMUM THICKNESS: 0.052 THICK AS INDICATED AND OF LENGTH TO SUIT APPLICATION.

EXCEPTIONS: OMIT SLEEVE WHERE DAMPER FRAME WIDTH PERMITS DIRECT ATTACHMENT OF PERIMETER MOUNTING ANGLES ON EACH SIDE OF WALL OR FLOOR, AND THICKNESS OF DAMPER FRAME COMPLIES WITH SLEEVE REQUIREMENTS.

MOUNTING ORIENTATION: VERTICAL OR HORIZONTAL AS INDICATED.

BLADES: ROLL-FORMED, INTERLOCKING, 0.034" THICK, GALVANIZED SHEET STEEL. IN PLACE OF INTERLOCKING BLADES, USE FULL-LENGTH, 0.034" THICK, GALVANIZED-STEEL BLADE CONNECTORS.

HORIZONTAL DAMPERS: INCLUDE BLADE LOCK AND STAINLESS-STEEL CLOSURE SPRING.

FUSIBLE LINKS: REPLACEABLE, 165 DEG F RATED.

B. FIRE/SMOKE COMBINATION DAMPERS

COMBINATION FIRE AND SMOKE DAMPERS SHALL BE LABELED ACCORDING TO UL 555.

FIRE RATING: 1 1/2 HOURS (MINIMUM). COORDINATE WITH ARCHITECTURAL PLANS.

FRAME AND BLADES: 0.064" THICK, GALVANIZED SHEET STEEL.

MOUNTING SLEEVE: FACTORY-INSTALLED, 0.052" THICK, GALVANIZED SHEET STEEL; LENGTH TO SUIT WALL OR FLOOR APPLICATION.

DAMPER MOTORS: TWO-POSITION ACTION.

MOUNTING ORIENTATION: VERTICAL OR HORIZONTAL AS INDICATED.

HORIZONTAL DAMPERS: INCLUDE BLADE LOCK AND STAINLESS-STEEL CLOSURE SPRING.

FUSIBLE LINKS: REPLACEABLE, 165 DEG F RATED.

MOTORS: OIL-IMMERSED AND SEALED GEAR TRAINS.

SPRING-RETURN MOTORS: EQUIP WITH AN INTEGRAL SPIRAL-SPRING MECHANISM WHERE INDICATED. ENCLOSE ENTIRE SPRING MECHANISM IN A REMOVABLE HOUSING DESIGNED FOR SERVICE OR ADJUSTMENTS. SIZE FOR RUNNING TORQUE RATING OF 150" E LB E FT AND BREAKAWAY TORQUE RATING OF 150" E LB FT.

ELECTRICAL CONNECTION: 115 V, SINGLE PHASE, 60 Hz. COORDINATE WITH CONTROLS AND ELECTRICAL CONTRACTORS.

C. DUCT-MOUNTING ACCESS DOORS

GENERAL DESCRIPTION: FABRICATE DOORS AIRTIGHT AND SUITABLE FOR DUCT PRESSURE CLASS.

DOOR: DOUBLE WALL, DUCT MOUNTING, AND RECTANGULAR; FABRICATED OF GALVANIZED SHEET METAL WITH INSULATION FILL AND THICKNESS AS INDICATED FOR DUCT PRESSURE CLASS. INCLUDE 1"x1" BUTT OR PIANO HINGE AND CAM LATCHES.

FRAME: GALVANIZED SHEET STEEL, WITH BEND-OVER TABLES AND FOAM GASKETS.

PROVIDE NUMBER OF HINGES AND LOCKS AS FOLLOWS:

LESS THAN 12" SQ.: SECURE WITH TWO SASH LOCKS.
UP TO 18" SQ.: TWO HINGES AND TWO SASH LOCKS.
UP TO 24"x48": THREE HINGES AND TWO COMPRESSION LATCHES WITH OUTSIDE HANDLES.
SIZES 24"x48" AND LARGER: ONE ADDITIONAL HINGE.

ACCESS POINTS SHALL BE PERMANENTLY IDENTIFIED ON THE EXTERIOR BY A LABEL HAVING LETTERS NOT LESS THAN 0.5" IN HEIGHT READING: FIRE/SMOKE DAMPER OR FIRE DAMPER.

FLEXIBLE AIR DUCTWORK

A. INSULATED FLEXIBLE AIR DUCTS SHALL BE U.L. 181 LISTED WITH TRILAMINATE OF ALUMINUM FOIL, FIBERGLASS AND POLYESTER INNER LINER ON GALVANIZED STEEL HELIX WITH R-5.0 RATING. FIBERGLASS INSULATION SHALL HAVE 25R50 FLAME/SMOKE FIRE RETARDANT VAPOR BARRIER JACKET.

B. ALL CONNECTIONS TO DIFFUSERS ARE TO BE MADE WITH ADJUSTABLE CLAMPS AND TIGHTENED AIRTIGHT.

C. MANUFACTURERS: CLEVALEX OR FLEXMASTER TYPE 5.

DUCTWORK CONSTRUCTION

A. LOW PRESSURE DUCTWORK:

LONGITUDINAL JOINTS SHALL BE PITTSBURGH TYPE AND SHALL BE SEALED WITH MINNESOTA MINING & MANUFACTURING COMPANY'S (3M) EC-800 OR AS APPROVED SEALING COMPOUND AS SHOWN ON DRAWING.

TRANSVERSE JOINTS SHALL BE STANDING "S" SLIP TYPE FOR HORIZONTAL JOINTS UP TO AND INCLUDING 40" WIDTH, AND REINFORCED BAR SLIP (CLEAT) JOINT FOR 41" TO 84" WIDTH; AND 1-1/2" ANGLE REINFORCED SLIP TYPE JOINT FOR DUCTS OVER 84".

DRIVE SLIP TYPE FOR VERTICAL JOINTS.

ALL DUCTS WIDER THAN 48" SHALL BE PROVIDED WITH 1-1/2" x 1-102" x 1/8" ANGLE IRON STIFFENERS ON ALL SIDES ON MAXIMUM OF 48" CENTER.

B. HANGERS FOR DUCTWORK:

ALL SHEET METAL DUCTWORK SHALL BE SECURELY SUPPORTED ON APPROVED HANGERS OR SADDLES AS REQUIRED.

RECTANGULAR HORIZONTAL DUCTWORK SHALL BE SUPPORTED BY ROUND STEEL RODS, THREADED AT BOTH ENDS AND BOLTED THROUGH THE SUPPORTING STEEL ACROSS THE DUCT.

SUPPORTING STEEL SHALL BE AS FOLLOWS:

DUCT SIZE (MAXIMUM DIMENSION) SUPPORT STEEL SPACING

UP TO 26" 2" X 3 1/4" STRAP 8'-0"
27" TO 48" (INCLUSIVE) L 1-1/2" X 1-1/2" X 158' 8'-0"
49" TO 59" (INCLUSIVE) L 2" X 2" X 118'
OVER 60" L 2-1/2" X 2-1/2" X 3216' 5'-0"

ALL DUCTWORK AND PIPING INSIDE THE BUILDING SHALL BE SUSPENDED FROM THE TOP CHORD OF BAR JOIST AT PANEL POINTS ONLY. DO NOT CONNECT TO THE ROOF DECK. DUCTWORK AND PIPES LOCATED ON THE ROOF ARE TO BE MOUNTED ON "PATE" EQUIPMENT OR PIPE SUPPORTS. EQUIPMENT CURBS SHALL BE TYPE ES-1 OR ES-5 FOR INSULATED ROOFS. CONTRACTOR HAS THE OPTION TO USE "MIRO INDUSTRIES" EQUIPMENT OR PIPE SUPPORTS.

ALL SHARP ENDS AND EDGES SHALL BE GROUND DOWN SMOOTH OR COVERED TO PREVENT INJURY TO PERSONNEL.

HANGER RODS, ANGLES AND STRAPS SHALL BE ATTACHED TO BEAM CLAMPS, CONCRETE INSERTS, AND APPROVED ANCHORS. ALL SUCH DEVICES SHALL BE UNDERWRITER'S LABORATORIES APPROVED. INSERTS AND ANCHORS SHALL BE SET IN COOPERATION WITH ALL TRADES INVOLVED.

C-CLAMPS SHALL NOT BE USED FOR ATTACHING HANGERS.

INSULATION -- GENERAL

A. THE CONTRACTOR SHALL FURNISH ALL LABOR AND MATERIALS NECESSARY FOR THE INSTALLATION OF THERMAL INSULATION ON ALL HOT AND COLD SURFACES WHICH REQUIRE INSULATION FOR HEAT OR COLD CONSERVATION, COMFORT OF OCCUPANTS, EFFICIENCY OR EASE OF OPERATION OR TO PREVENT CONDENSATION OR DRIPPING. THE INSULATION SHALL BE COMPLETE AND EFFECTIVE THROUGHOUT THE BUILDING.

INSULATION -- MATERIALS

A. ALL INSULATION MATERIALS SHALL BE CLASS A BY UNDERWRITER'S LABORATORIES. STANDARD FIBERGLASS INSULATION SHALL BE MINIMUM 5 LB DENSITY AND SHALL HAVE UL RATING NOT EXCEEDING 25 FLAME SPREAD, 35 FUEL CONTRIBUTED AND 50 SMOKE DEVELOPED. ACCESSORIES SUCH AS ADHESIVE, MASTICS, CEMENTS AND CLOTH FOR FITTINGS SHALL BE PERMANENTLY FIRE AND SMOKE RESISTANT. CHEMICALS USED FOR TREATING PAPER IN JACKET LAMINATES SHALL BE UNAFFECTED BY WATER OR HUMIDITY.

B. MANUFACTURERS: CERTAIN TEED SAINT GOBAIN, OWENS CORNING, JOHNS-MANSVILLE, ARMSTRONG CORP COMPANY.

DUCT INSULATION

A. ALL CONCEALED SUPPLY AND RETURN AIR DUCTS SHALL BE INSULATED PER ASHRAE STANDARD 90.1, GENERAL REQUIREMENTS.

B. CONCEALED DUCTWORK SHALL BE INSULATED WITH FACED DUCTWRAP 1" THICK, ONE (1) LB.DCU.FT. DENSITY WITH FACTORY-APPLIED "FRK" VAPOR BARRIER JACKET OR LAMINATED ALUMINUM FOIL, OPEN MESH GLASS FIBER REINFORCING MESH SCRM AND FLAMEPROOF KRAFT PAPER. INSULATION SHALL BE EQUAL TO OWENS-CORNING FIBERGLASS COMMERCIAL GRADE TYPE 100.

ENSURE INSULATION IS CONTINUOUS THROUGH INSIDE WALLS, PACK AROUND DUCTS WITH FIRE PROOF SELF-SUPPORTING INSULATION MATERIAL, PROPERLY SEALED.

FINISH INSULATION NEATLY AT HANGERS, SUPPORTS AND OTHER PROTRUSIONS.

LOCATE COVER SEAMS IN LEAST VISIBLE LOCATIONS.

C. ALL SUPPLY AND RETURN AIR DUCTWORK SHALL BE INSULATED ACCORDING TO THE ASHRAE 90.1 ENERGY STANDARDS. GENERAL REQUIREMENTS FOR INSULATION SHALL BE R-6 FOR SUPPLY AND RETURN DUCTS IN AN UNCONDITIONED SPACE OR R-8 OUTSIDE THE BUILDING, R-8 INSULATION INSTALLED BETWEEN SUPPLY AND RETURN DUCTS AND BUILDING EXTERIOR WHEN DUCTS ARE PART OF THE BUILDING ASSEMBLY.

GRILLES, REGISTERS AND CEILING DIFFUSERS

A. REFER TO SCHEDULE ON DRAWINGS FOR CAPACITIES, SIZES AND TYPES.

B. GRILLES AND REGISTERS PERFORMANCE SHALL BE BASED ON TESTS CONDUCTED IN ACCORDANCE WITH ADC STANDARDS 1062 A2, "AIR DIFFUSING EQUIPMENT TEST CODE" AND ASHRAE STANDARD 330B "METHOD OF TESTING FOR RATING THE ACOUSTIC PERFORMANCE OF AIR CONTROL AND TERMINAL DEVICES AND SIMILAR EQUIPMENT."

C. GRILLES, REGISTERS AND DIFFUSERS SHALL BE MANUFACTURED BY PRICE, TITUS, CARNES, OR KRUEGER. PROVIDE DAMPERS AT EACH DIFFUSER AND REGISTER. PROVIDE OPTIONS PER SCHEDULE ON DRAWINGS.

EXHAUST AIR FANS

A. FANS SHALL BE AS SCHEDULED WITH ACCESSORIES ON DRAWINGS. FANS SHALL BEAR AMCA SEAL FOR RATED SOUND AND AIR PERFORMANCE. ALL UNITS TO BE VANDAL-PROOF AND COVERS TO BE BOLTED SECURE.

AFTER THE VISUAL INSPECTION, ALL FANS SHALL BE TESTED AT FULL SYSTEM STATIC PRESSURES BY OPERATING THE SYSTEM FANS.

ALL TESTS SHALL BE CONDUCTED IN THE PRESENCE OF THE TESTING AND BALANCING TRADES.

ALL REPAIRS MUST BE DONE IN A MANNER SATISFACTORY TO THE ENGINEERS FIELD REPRESENTATIVE.

B. THE CONTRACTOR SHALL GUARANTEE THE ENTIRE INSTALLATION OF THE DUCT SYSTEMS TO FUNCTION SATISFACTORILY AGAINST THE SPECIFIED SYSTEM TOTAL STATIC PRESSURE. DEFECTS DUE TO IMPROPER MATERIALS, WORKMANSHIP, AND LEAKS SHALL BE CORRECTED WITHOUT ADDITIONAL COST TO THE OWNER. OTHER WORK AFFECTED AS A RESULT OF THE ABOVE MENTIONED DEFECTS SHALL ALSO BE MADE GOOD WITHOUT COST TO THE OWNER. THE ENTIRE SYSTEM SHALL BE LEFT IN PROPER OPERATING CONDITION, ACCEPTABLE TO THE ENGINEER'S FIELD REPRESENTATIVE. OIL CANNING OF DUCTS WILL NOT BE ACCEPTABLE.

SMOKE DETECTORS (SYSTEMS OVER 2000 CFM):

A. WHERE REQUIRED BY LOCAL CODE, FURNISH AND INSTALL IN THE RETURN AIR DUCT OF EACH AIR HANDLING UNIT, A SELF-CONTAINED, IONIZATION-TYPE DUCT SMOKE DETECTOR DESIGNED TO MOUNT TO A DUCT USING SAMPLING TUBES ACROSS THE DUCT TO SENSE THE AIR. UNIT SHALL BE MANUALLY RESET AND SHALL HAVE A SET OF CONTACTS FOR FAN SHUT DOWN AS WELL AS FOR REMOTE ALARMING. SMOKE DETECTORS SHALL BE IN ACCORDANCE WITH THE LATEST ADOPTED EDITIONS OF NFPA 90A AND THE INTERNATIONAL MECHANICAL CODE OF THE LOCAL AUTHORITY HAVING JURISDICTION.

B. SMOKE DETECTORS SHALL HAVE SAMPLING TUBES AND AUXILIARY CONTACTS FOR FAN SHUTDOWN. SMOKE DETECTORS SHALL BE CONNECTED TO THE BUILDING FIRE ALARM SYSTEM.

C. SMOKE DETECTORS THAT ARE NOT VISABLE SHALL HAVE REMOTE INDICATION DEVICE (LIGHT OPTION) FOR UNIT STATUS CONDITION.

WIRING

A. ALL WIRING SHALL COMPLY WITH LOCAL AND NATIONAL ELECTRIC CODES AND THE MANUFACTURER'S PUBLISHED INSTALLATION MANUAL.

B. PROVIDE LAMINATED COLOR CODED WIRING DIAGRAM TO MATCH FACTORY INSTALLED WIRING AND BE PROVIDED IN BOTH POINT TO POINT AND LADDER DIAGRAM FORMAT AND AFFIXED TO THE INTERIOR OF THE CONTROL COMPARTMENT ACCESS DOOR.

THERMOSTATS

A. IN GENERAL, ALL THERMOSTATS, INCLUDING SENSORS, ETC. SHALL BE PROVIDED BY THE HVAC EQUIPMENT MANUFACTURER PROVIDED.

B. MECHANICAL TRADES SHALL FURNISH AND INSTALL ALL REQUIRED AUTOMATIC TEMPERATURE CONTROLS, INCLUDING WIRING, TRANSFORMERS, 7-DAY PROGRAMMABLE THERMOSTATS FOR PROPER OPERATION OF THE HVAC SYSTEM. WIRING SHALL BE IN ACCORDANCE WITH N.E.C. STANDARDS. COORDINATE WITH CONTROLS AND ELECTRICAL CONTRACTORS.

CONTROLS INSTALLATION

A. PROVIDE WALL MOUNTED PROGRAMMABLE THERMOSTAT FOR ALL ROOF TOP UNITS.

B. TOILET/LOCKER ROOM EXHAUST FANS SHALL BE TIMER CONTROL.

C. ELECTRIC UNIT HEATER SHALL BE BUILT IN THERMOSTATIC CONTROL.

D. ELECTRIC PERIMETER HEATER SHALL BE BUILT IN THERMOSTATIC CONTROL.

E. EXHAUST FAN (EF-2 AND EF-4) SHALL BE WALL SWITCH CONTROL.



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Issued for :
PERMITS 07.16.19



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SSE
Checked by :
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Sheet Title :
MECHANICAL
SPECIFICATIONS

Project No. :
2018.111

Sheet No. :
M-500

ELECTRIC HEATER					
TAG	KW	POWER	MANUF./ MODEL (DESIGN BASIS)	MODEL	REMARKS
EUH-1	3.0	208V-1Ø	Q-MARK	WALL MOUNTED AWH SERIES	①②③④⑤
EUH-2	5.0	208V-1Ø	Q-MARK	CEILING MOUNTED EFF SERIES	①②③④⑤
EUH-3	5.0	208V-1Ø	Q-MARK	WALL MOUNTED AWH SERIES	①②③④⑤
EUH-4	1.5	120V-1Ø	Q-MARK	WALL MOUNTED GFR1500T2F	①②③④⑤

① BUILT IN STARTER & DISCONNECT
 ② PROVIDE MOUNTING HARDWARE
 ③ THERMOSTATIC CONTROL COMPATIBLE WITH DDC
 ④ VERIFY SEMI RECESSED/RECESSED UNITS FROM PLANS (BASED ON SITE CONDITION)
 ⑤ PROVIDE DOUBLE POLE THERMOSTAT.

ENERGY RECOVERY UNIT SCHEDULE																					
TAG	EER	FAN						COOLING CAPACITY @ 90°F AMBIENT				HEATING CAPACITY @ 0°F AMBIENT			MANUF.	MODEL	FLA (A)	MFS (A)	ELECT.	WEIGHT LBS	REMARKS
		TYPE	CFM	E.S.P (INH2O)	QTY.	HP	OUTDOOR		INDOOR		CAPACITY (TONS)	AIR TEMP. (DRY BULB) ENFTRING/LEAVING	INPUT (MBH)	OUTPUT (MBH)							
							DB	WB	DB	WB											
MAU-1	-	SUPPLY	1500	0.25	1	-	90	73	75	62	3	-10/90	-	-	-	-	-	208V/1Ø	-	①②③④⑤⑥	

NOTES:
 ① PROVIDE STARTER & DISCONNECT.
 ② INSTALLATION, VIBRATION, ISOLATION & CLEARANCE PER MANUFACTURER'S RECOMMENDATION.
 ③ PROVIDE DISCHARGE AIR TEMPERATURE CONTROL.
 ④ STAINLESS STEEL HEAT EXCHANGER.
 ⑤ PROVIDE MERV-8 FILTRATION FILTER SECTION AND WEATHER HOOD.
 ⑥ ROOM TEMP. SENSOR FOR LEAVING AIR TEMP. RESET.

VRF UNIT SCHEDULE (OUTDOOR)											
TAG	SERVES	EER	MANUF. (DESIGN BASIS)	MODEL	RATED COOLING CAPACITY (BTUH)	RATED HEATING CAPACITY (BTUH)	ELECTRICAL			DIMENSION (H X W X D)	WEIGHT (lbs)
							POWER	MOP (A)	MCA (A)		
ACCU-1	1ST FLOOR	-	-	-	-	-	208V/1Ø	-	-	-	-
ACCU-2	SECOND FLOOR	-	-	-	-	-	208V/1Ø	-	-	-	-
ACCU-3	THIRD FLOOR	-	-	-	-	-	208V/1Ø	-	-	-	-

① PROVIDE FACTORY MOTOR STARTER & DISCONNECT.
 ② CONDENSATE DRAIN KIT.
 ③ REFRIGERANT PIPING PER MANUFACTURER'S RECOMMENDATION.
 ④ PROVIDE REFRIGERANT R-410A, SYSTEM SHOULD BE DESIGNED FOR 11 FLOORS.
 ⑤ SEE FLOOR PLANS FOR NON DUCTED OR DUCTED UNIT.
 ⑥ EQUIPMENT MOUNTING RAILS AT LEAST 18" HIGH.
 ⑦ PROVIDE 10 YEAR COMPRESSOR PARTS WARRANTY ON CONDENSING UNIT
 ⑧ PROVIDE 10 YEAR PARTS WARRANTY ON CONDENSING UNIT
 ⑨ DISCONNECT SWITCH BY MECHANICAL.
 ⑩ THE INSTALLING CONTRACTOR MUST ATTEND A FACTORY AUTHORIZED INSTALLATION CLASS BEFORE COMMENCING INSTALLATION
 ⑪ SYSTEM HEATING AND COOLING CAPACITY MUST INCLUDE THE OUTDOOR TEMPERATURE DERATE, DEFROST DERATE AND PIPING ELEVATIONS DERATE PER THE SYSTEM LAYOUT AND DESIGN CONDITIONS (95F SUMMER/ OF WINTER)
 ⑫ EQUIPMENT TO MEET AHRI 1230 STANDARDS.

EXHAUST FAN SCHEDULE										
TAG	SERVES	TYPE	CFM	ESP	HP	FAN RPM	DRIVE TYPE	ELEC. VLT./PH.	MANUFACTURER/ MODEL (DESIGN BASIS)	REMARKS
EF-1	1ST FL.	CEILING MOUNTED	50	0.375	-	-	BELT	120V 1Ø	GREENHECK SP--	
EF-2	2ND FL.	CEILING MOUNTED	70	0.375	-	-	BELT	120V 1Ø	GREENHECK SP--	
EF-3	2ND FL.	CEILING MOUNTED	50	0.375	-	-	BELT	120V 1Ø	GREENHECK SP--	
EF-4	ROOF	ROOF MOUNTED	100	0.5	-	-	BELT	120V 1Ø	GREENHECK GB--	

NOTES:
 ① PROVIDE STARTER AND DISCONNECT.
 ② PROVIDE ALL MOUNTING HARDWARE, FLEXIBLE CONNECTOR.
 ③ VERIFY FAN MOTOR LOCATION AT SITE.
 ④ MAXIMUM SONES 13.
 ⑤ INTERLOCK WITH ASSOCIATED MAU. GREENHECK
 ⑥ PROVIDE VFD.
 ⑦ IF ANY FAN BRAKES VISUAL AND AUDIO ALARM SHALL BE SHOWN ON PANEL.

HEAT PUMP UNIT:										
TAG	AIR FLOW CFM	MAX COOLING BTUH	MAX HEATING BTUH	POWER		BREAKER SIZE AMP	RATED AMP/ POWER INPUT (W)	(DESIGN BASIS)		REMARKS
				VOLTS	PHASE			MANUF.	MODEL	
FCU-1	-	6000	6000	208V	1Ø	-	-	-	-	
FCU-2	-	9000	9000	208V	1Ø	-	-	-	-	
FCU-3	-	12000	12000	208V	1Ø	-	-	-	-	
FCU-4	-	15000	15000	208V	1Ø	-	-	-	-	

NOTES:
 ① PROVIDE EVAPORATOR INSTALLATION HARDWARE, CEILING MOUNTED.
 ② PROVIDE EXTENDED PIPE AS PER MANUFACTURER RECOMMENDATION.
 ③ WALL MOUNTED T-STAT.
 ④ DISCONNECT SWITCH BY MECHANICAL.
 ⑤ ALL CONTROL WIRING BY INSTALLING CONTRACTOR (18-2 AWG NO POLARITY STRANDED, NON-SHIELDED)
 ⑥ PROVIDE DUCT KIT FOR DUCTED UNIT.
 ⑦ SEE PLAN FOR EXACT CFM.
 ⑧ PROVIDE 10 YEAR PARTS WARRANTY ON FAN COIL UNITS.
 ⑨ PROVIDE VENTILATION KIT.

APARTMENT VENTILATION SCHEDULE		
TAG	OUTSIDE AIR	
	REQUIRED	PROVIDED
ONE BEDROOM	30	30
TWO BEDROOM	45	45

CONDENSING UNIT SCHEDULE								
TAG	MANUF.	MODEL NO.	COOLING CAPACITY (BTUH)	HEATING CAPACITY (BTUH)	MAX FUSE	MCA	VOLTAGE	REMARKS
ACCU-4	DAIKIN	RXL09QMJVJU	9.000	10.900	15	9.5	230/1/60	A, B, C, D

A. PROVIDE ALL REFRIGERANT PIPING DEVICES AND ACCESSORIES AS REQUIRED AND CHARGED REFRIGERANT.
 B. SUCTION SERVICE VALVE AND PRESSURE GAUGES.
 C. 5-YR COMPRESSOR WARRANTY.
 D. PROVIDE STARTER & DISCONNECT.

HEAT PUMP UNIT (INDOOR):												
TAG	MAXIMUM AIR FLOW CFM	RATED COOLING BTUH	RATED HEATING BTUH	ELECTRICAL DATA				TON	(DESIGN BASIS)		WEIGHT (lbs.)	REMARKS
				VOLTS	PHASE	MCA AMP	MOP AMP		MANUF.	MODEL		
HP-1	250	9.000	10.900	208V	1Ø	9.5	15	0.75	DAIKIN	FTX09NMVJU	23	①②③④⑤⑥⑦⑧

NOTES:
 ① PROVIDE EVAPORATOR INSTALLATION HARDWARE, WALL MOUNTED.
 ② PROVIDE CONDENSATE PUMP AND DRAIN KIT TO NEAREST INDIRECT WASTE (PIPING INSTALLED BY PLUMBER).
 ③ PROVIDE PROGRAMMABLE THERMOSTATIC CONTROL. VERIFY THERMOSTAT (WALL/CEILING) LOCATION ON PLAN.
 ④ PROVIDE INSULATED DRAIN PAN.
 ⑤ ALL CONTROL WIRING BY INSTALLING CONTRACTOR (18-2 AWG NO POLARITY STRANDED, NON-SHIELDED)
 ⑥ SEE PLAN FOR EXACT CFM.
 ⑦ PROVIDE 10 YEAR PARTS WARRANTY ON FAN COIL UNITS.
 ⑧ DISCONNECT SWITCH BY MECHANICAL.



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Issued for:
PERMITS 07.16.19



Drawn by:
 SSE
Checked by:
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Sheet Title:
 MECHANICAL LEGENDS, NOTES AND SCHEDULES

Project No.:
2018.111

Sheet No.:
M-101

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REPORT

SAFETY DATA SHEET PROSOCO, Inc.

Distributed By:
The Chas. E. Phipps Company
Cleveland 1-800-362-9267
Canton 1-877-258-7601
Toledo 1-800-860-3352
www.chasehipps.com



PROSOCO
Version 1.01

Issue Date 18-Nov-2014

Revision Date 17-Jul-2015

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Name Enviro Klean® 2010 All Surface Cleaner

Other means of identification

Product Code 41065

Recommended use of the chemical and restrictions on use

Recommended Use Restricted to professional users.

Uses advised against No information available

Details of the supplier of the safety data sheet

Manufacturer Address

PROSOCO, Inc.
3741 Greenway Circle
Lawrence, Kansas 66046

Emergency telephone number

8:00 AM – 5:00 PM CST Monday-Friday 785-865-4200
NON-BUSINESS HOURS (INFOTRAC) 800-535-5053

2. HAZARDS IDENTIFICATION

Classification

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Label elements

Emergency Overview

The product contains no substances which at their given concentration, are considered to be hazardous to health

Appearance clear

Physical state Liquid

Odor Fresh

Hazards not otherwise classified (HNOC)

Other Information

No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No	Weight-%	Trade Secret
Water	7732-18-5	60 - 100	*
Chelating Agent	Proprietary	3 - 7	*
Poly(oxy-1,2-ethanediyl), a-undecyl-w-hydroxy-	34398-01-1	1 - 5	*
B-alanine, N-2-carboxyethyl-N-(3-decyloxy)propyl-	64972-19-6	1 - 5	*

monosodium salt			
-----------------	--	--	--

* The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

First aid measures

General advice	If symptoms persist, call a physician.
Eye contact	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing. If symptoms persist, call a physician.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash contaminated clothing before reuse. If skin irritation persists, call a physician.
Inhalation	Move to fresh air in case of accidental inhalation of vapors or decomposition products. If breathing is difficult, give oxygen. If symptoms persist, call a physician.
Ingestion	Do NOT induce vomiting. Rinse mouth. Drink plenty of water. Never give anything by mouth to an unconscious person. Call a physician.
Self-protection of the first aider	Use personal protective equipment as required.

Most important symptoms and effects, both acute and delayed

Symptoms May cause eye irritation. May cause skin irritation.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media Caution: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical

Keep away from heat.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Use personal protective equipment as required. Ensure adequate ventilation, especially in confined areas. Slippery when spilled.

Environmental precautions

Environmental precautions See Section 12 for additional ecological information. Do not flush into surface water or sanitary sewer system. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Use personal protective equipment as required. Do not breathe dust/fume/gas/mist/vapors/spray. Use with local exhaust ventilation.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a cool, well-ventilated place. Keep away from heat. Keep in properly labeled containers.

Incompatible materials Strong acids. Strong oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Appropriate engineering controls

Engineering Controls None under normal use conditions.

Individual protection measures, such as personal protective equipment

Eyeface protection Wear safety glasses with side shields (or goggles).

Skin and body protection Wear protective gloves and protective clothing.

Respiratory protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General Hygiene Considerations Wash contaminated clothing before reuse. When using do not eat, drink or smoke. Regular cleaning of equipment, work area and clothing is recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid	Odor	Fresh
Appearance	clear	Odor threshold	No information available
Color	green		
<u>Property</u>		<u>Values</u>	
pH	10.5	<u>Remarks • Method</u>	
Melting point/freezing point	0 °C / 32 °F		
Boiling point/boiling range	No information available		
Flash point	> 100 °C / > 212 °F		ASTM D 3278

Evaporation rate	No information available
Flammability (solid, gas)	No information available
Flammability Limits in Air	
Upper flammability limits	No information available
Lower flammability limit	No information available
Vapor pressure	No information available
Vapor density	No information available
Specific Gravity	1.07
Water solubility	completely soluble
Solubility in other solvents	No information available
Partition coefficient	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available
Kinematic viscosity	No information available
Dynamic viscosity	No information available

10. STABILITY AND REACTIVITY

Reactivity

No data available

Chemical stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to avoid

Heat.

Incompatible materials

Strong acids. Strong oxidizing agents.

Hazardous Decomposition Products

Carbon monoxide. Unidentified organic compounds.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information	Avoid contact with skin, eyes and inhalation of vapors
Inhalation	Avoid breathing vapors or mists.
Eye contact	Avoid contact with eyes. May cause irritation.
Skin Contact	Avoid contact with skin. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons.
Ingestion	Do not taste or swallow.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Water 7732-18-5	> 90 mL/kg (Rat)	-	-

Information on toxicological effects

Symptoms See Section 11: TOXICOLOGICAL INFORMATION.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization May cause sensitization by skin contact.

Germ cell mutagenicity	No information available.
Carcinogenicity	This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.
Reproductive toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Aspiration hazard	No information available.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral) 26664 mg/kg mg/l

12. ECOLOGICAL INFORMATION

Ecotoxicity

Persistence and degradability

No information available.

Bioaccumulation

No information available.

Other adverse effects

No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging Do not reuse container.

This product contains one or more substances that are listed with the State of California as a hazardous waste.

14. TRANSPORT INFORMATION

DOT

Not Regulated for all modes of transportation.

15. REGULATORY INFORMATION

International Inventories

TSCA Complies
DSL/NDSL Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

REPORT

41065 Enviro Klean® 2010 All Surface Cleaner

Revision Date 17-Jul-2015

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

Acute health hazard	No
Chronic Health Hazard	No
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

16. OTHER INFORMATION

<u>NFPA</u>	Health hazards 1	Flammability 0	Instability 0	Physical and Chemical Properties -
<u>HMIS</u>	Health hazards 1	Flammability 0	Physical hazards 0	Personal protection X

Prepared By Regulatory Department
Issue Date 18-Nov-2014
Revision Date 17-Jul-2015

Revision Note
SDS sections updated
6 16

Disclaimer

The information contained on the Material Safety Data Sheet has been compiled from data considered accurate. This data is believed to be reliable, but it must be pointed out that values for certain properties are known to vary from source to source. PROSOCO, Inc. expressly disclaims any warranty express or implied as well as any liability for any injury or loss arising from the use of this information or the materials described. This data is not to be construed as absolutely complete since additional data may be desirable when particular conditions or circumstances exist. It is the responsibility of the user to determine the best precautions necessary for the safe handling and use of this product for his unique application. This data relates only to the specific material designated and is not to be used in combination with any other material. Many federal and state regulations pertain directly or indirectly to the product's end use and disposal of containers and unused material. It is the purchaser's responsibility to familiarize himself with all applicable regulations.

End of Safety Data Sheet

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2010 All Surface Cleaner

Enviro Klean® 2010 All Surface Cleaner is a next-generation product for cleaning and degreasing light-to-heavily soiled stone, tile, masonry and much more. Powerful enough for industrial use, flexible enough for jobs around the home, space-saving EK 2010 replaces a host of individual cleaning agents. It's concentrated for the toughest industrial cleaning jobs on concrete, metal and many other plant and warehouse surfaces. It's dilutable for home-use on windows, bathroom tub and tile, counter tops and more.

Easy-to-use EK 2010 All Surface Cleaner is water-rinsable and contains no harsh acids, caustics or solvents. EK 2010 also removes Sure Klean® Weather Seal Siloxane PD over spray from windows.

ADVANTAGES

- Cleans and degreases light-to-heavily soiled stone, tile, masonry and much more.
- Effectively removes moderate biological staining.
- Dilutable for jobs around the home.
- Replaces a host of individual cleaning agents.
- Effective cleaner for windows, bathroom tub and tile, counter tops and more.
- Easy-to-use and water-rinsable.
- Contains no harsh acids, caustics or solvents.

Limitation

- Repeated use may dull polished carbonate surfaces, including but not limited to limestone, marble and travertine.

REGULATORY COMPLIANCE

VOC Compliance

Enviro Klean® 2010 All Surface Cleaner is compliant with all national, state and district VOC regulations.

TYPICAL TECHNICAL DATA

FORM	Clear, green liquid Fresh odor
SPECIFIC GRAVITY	1.070
pH	10.5 7.8–8.2 Typical Rinse water
WT/GAL	8.90 lbs
ACTIVE CONTENT	not applicable
TOTAL SOLIDS	not applicable
VOC CONTENT	not applicable
FLASH POINT	>200° F (>93° C) ASTM D 3278
FREEZE POINT	32° F (0° C)
SHELF LIFE	3 years in tightly sealed, unopened container

SAFETY INFORMATION

Always read full label and SDS for precautionary instructions before use. Use appropriate safety equipment and job site controls during application and handling.

24-Hour Emergency Information:
INFOTRAC at 800-535-5053

Product Data Sheet Enviro Klean® 2010 All Surface Cleaner

PREPARATION

Before use, test all substrates not intended to be treated with 2010 All Surface Cleaner. If testing indicates adverse effects, the substrate must be protected before full scale application.

Best practices are to protect people, vehicles, property, plants and all surfaces not set for cleaning from the product, splash, rinse, residue, fumes and wind drift. Rinse non target materials with large quantities of water. Grass and plantings may be protected with sprinklers.

Divert pedestrian and auto traffic if necessary. Best practices are to clean when traffic is at a minimum.

Recommended for these substrates. Always test. Coverage is in sq.ft./m. per gallon of concentrate.			
Substrate	Type	Use?	Coverage
Architectural Concrete Block	Burnished	yes	50–150 sq.ft. 5–14 sq.m.
	Smooth	yes	
	Split-faced	yes	
	Ribbed	yes	
Concrete	Brick	yes	50–150 sq.ft. 5–14 sq.m.
	Tile	yes	
	Precast Panels	yes	
	Pavers	yes	
	Cast-in-place	yes	
Fired Clay	Brick	yes	150–500 sq.ft. 14–46 sq.m.
	Tile	yes	
	Terra Cotta (unglazed)	yes	
	Pavers	yes	
Marble, Travertine, Limestone	Polished	yes	500–1000 sq.ft. 46–93 sq.m.
	Unpolished	yes	150–500 sq.ft. 14–46 sq.m.
Granite	Polished	yes	500–1000 sq.ft. 46–93 sq.m.
	Unpolished	yes	150–500 sq.ft. 14–46 sq.m.
Sandstone	Unpolished	yes	150–500 sq.ft. 14–46 sq.m.
Slate	Unpolished	yes	150–500 sq.ft. 14–46 sq.m.
Always test to ensure desired results. Coverage estimates depend on surface texture and porosity.			

Surface and Air Temperatures

Best air and surface temperatures for cleaning are 50°F (10°C) or above. Cleaning when temperatures are below freezing or will be overnight may harm masonry. If freezing conditions exist before application, let masonry thaw.

Equipment

Apply with low-pressure sprayer, brush or heavy nap roller. Scrub heavily soiled surfaces with a nonabrasive brush or synthetic scrubbing pad.

Rinse with enough water and pressure to flush spent cleaner and dissolved soiling from the masonry surface and surface pores without damage. Masonry-washing equipment generating 400–1000 psi with a water flow rate of 6–8 gpm is the best water/pressure combination for rinsing porous masonry. Use a 15–45° fan spray tip. Heated water (150–180°F; 65–82°C) may improve cleaning efficiency.

Use adjustable equipment for reducing water flow rates and rinsing pressure for sensitive surfaces. Rinsing pressures greater than 1000 psi and fan spray tips smaller than 15° may permanently damage sensitive masonry. Water flow rates less than 6 gpm may reduce cleaning productivity and contribute to uneven cleaning results.

Storage and Handling

Store in a cool, dry place. Always seal container after dispensing. Do not alter or mix with other chemicals. Published shelf life assumes upright storage of factory-sealed containers in a dry place. Maintain temperature of 45–100°F (7–38°C). If product freezes, allow to thaw and mix well. Do not double stack pallets. Dispose of in accordance with local, state and federal regulations.

APPLICATION

Read “Preparation” and the Safety Data Sheet before use.

ALWAYS TEST a small area of each surface to confirm suitability, coverage rate and desired results before beginning overall application. Test with the same equipment, recommended surface preparation and application procedures planned for general application. Let surface dry thoroughly before inspection.

Product Data Sheet Enviro Klean® 2010 All Surface Cleaner

Dilution & Mixing

When removing heavy soiling, use in concentrate.

When used as a light-duty cleaner, dilute up to 1 part cleaner to 10 parts clean water.

Application Instructions

1. Working from the bottom to the top, prewet the surface with clean water.
2. Apply the appropriately diluted solution to the masonry surface using a brush or low-pressure spray.
3. Let the cleaner stay on the surface 1–10 minutes, based on testing. Gently scrub heavily soiled areas.
NOTE: Do not let EK 2010 dry on the surface. If drying occurs, lightly wet surfaces with fresh water and reapply the cleaner in a gentle scrubbing manner.
4. Working from the bottom to the top, rinse the surface thoroughly with clean water.
5. Repeat steps 1 through 4 if necessary.

Cleanup

Clean tools and equipment using fresh water.

WARRANTY

The information and recommendations made are based on our own research and the research of others, and are believed to be accurate. However, no guarantee of their accuracy is made because we cannot cover every possible application of our products, nor anticipate every variation encountered in masonry surfaces, job conditions and methods used. The purchasers shall make their own tests to determine the suitability of such products for a particular purpose.

BEST PRACTICES

Apply with low-pressure sprayer, brush or heavy nap roller. Scrub heavily soiled surfaces with a nonabrasive brush or synthetic scrubbing pad.

Rinse with enough water and pressure to flush spent cleaner and dissolved soiling from the masonry surface and surface pores without damage. Masonry-washing equipment generating 400–1000 psi with a water flow rate of 6–8 gpm is the best water/pressure combination for rinsing porous masonry. Use a 15–45° fan spray tip. Heated water may improve cleaning efficiency.

PROSOCO, Inc. warrants this product to be free from defects. **Where permitted by law, PROSOCO makes no other warranties with respect to this product, express or implied, including without limitation the implied warranties of merchantability or fitness for particular purpose.** The purchaser shall be responsible to make his own tests to determine the suitability of this product for his particular purpose. PROSOCO's liability shall be limited in all events to supplying sufficient product to re-treat the specific areas to which defective product has been applied. Acceptance and use of this product absolves PROSOCO from any other liability, from whatever source, including liability for incidental, consequential or resultant damages whether due to breach of warranty, negligence or strict liability. This warranty may not be modified or extended by representatives of PROSOCO, its distributors or dealers.

CUSTOMER CARE

Factory personnel are available for product, environment and job-safety assistance with no obligation. Call 800-255-4255 and ask for Customer Care – technical support.

Factory-trained representatives are established in principal cities throughout the continental United States. Call Customer Care at 800-255-4255, or visit our web site at www.prosoco.com, for the name of the PROSOCO representative in your area.

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Do not let EK 2010 dry on the surface. If drying occurs, lightly wet surfaces with fresh water and reapply the cleaner in a gentle scrubbing manner.

Repeated use may dull polished carbonate surfaces, including but not limited to limestone, marble and travertine.

Never go it alone. If you have problems or questions, contact your local PROSOCO distributor or field representative. Or call PROSOCO technical Customer Care, toll-free, at 800-255-4255.

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Enviro Klean[®] 2010 All Surface Cleaner Cleaning Specification

Specifier Note: The information provided below is intended to guide the Architect in developing specifications for products manufactured by PROSOCO, Inc. and should not be viewed as a complete source of information about the product(s). The Architect should always refer to the Product Data Sheet and MSDS for additional recommendations and for safety information

Specifier Note: Paragraph below is for PART 1 GENERAL, Quality Assurance.

Test Area

Test a minimum 4 ft. by 4 ft. area on each type of masonry. Use manufacturer's application instructions. Let the test panel dry 3 to 7 days before inspection. Keep test panels available for comparison throughout the cleaning project.

Specifier Note: Paragraphs below are for PART 2 PRODUCTS, Manufacturers and Products.

Manufacturer: PROSOCO, Inc., 3741 Greenway Circle, Lawrence, KS 66046. Phone: (800) 255-4255; Fax: (785) 830-9797. E-mail: CustomerCare@prosoco.com

Product Description

Enviro Klean[®] 2010 All Surface Cleaner is a mildly alkaline product for cleaning and degreasing light-to-heavily soiled stone, tile, and masonry. It contains no harsh acids, caustics or solvents. It's concentrated for the toughest industrial cleaning jobs on concrete, metal and many other plant and warehouse surfaces but dilutable for home-use on windows, bathroom tub and tile, countertops and more.

Technical Data

FORM: Clear Green liquid

TOTAL SOLIDS: N/A

SPECIFIC GRAVITY: 1.070

pH: 10.5 Typical Rinse water 7.8 - 8.2

WT./GAL.: 8.90 lbs.

FLASH POINT: > 200 degrees F (> 93 degrees C) ASTM D 3278

FREEZE POINT: 32 degrees F (0 degrees C)

Limitation

- Repeated use may dull polished carbonate surfaces, including but not limited to limestone, marble and travertine.

Specifier Note: Paragraphs below are for PART 3 EXECUTION, Installation.

Application

Before applying, read "Preparation" and "Safety Information" sections in the Manufacturer's Product Data Sheet for 2010 All Surface Cleaner. Use in concentrate or dilute 2010 All Surface Cleaner concentrate with 1-10 parts water. Refer to Product Data Sheet for recommended dilution for intended use.

1. Working from bottom to top, prewet the surface with clean water.
2. Apply the diluted cleaning solution to the masonry surface using a brush or low-pressure spray.
3. Let the cleaner stay on the surface 1-10 minutes, based on testing. Gently scrub heavily soiled areas.
4. Working from bottom to top, rinse the surface thoroughly with clean water. The best combination of rinsing pressure and water volume is provided by masonry washing equipment generating 400-1000 psi with a water flow rate of 6-8 gallons per minute

REPORT

delivered through a 15-45 degree fan spray tip. Equipment should be adjustable to reduce water flow rate and rinsing pressure as required for controlled cleaning of more sensitive surfaces. See also "Equipment" section of the Product Data Sheet.

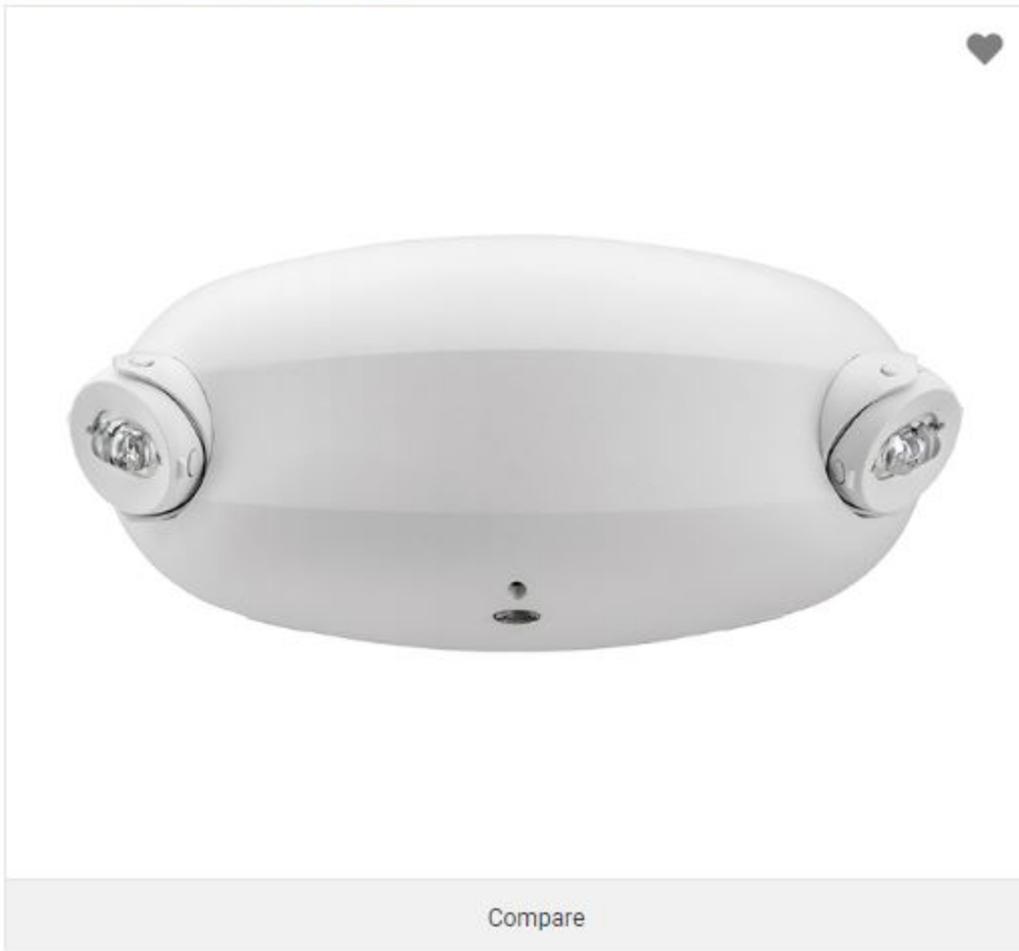
5. Repeat steps 1 through 4 if necessary.

Note: Do not let cleaning solution dry on the surface. If drying occurs, lightly wet surfaces with fresh water and reapply the cleaner in a gentle scrubbing manner.

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ELM2L Emergency Light

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Quantum® LED Adjustable Optics 220 Lumens Emergency Light

by Lithonia Lighting

The ELM2L from Lithonia Lighting® is an aesthetically pleasing emergency LED light fixture. It provides a minimum of 90 minutes of illumination when there is a loss of power. Unique track and swivel arrangement permits full range of direction for lamp head aiming for wall and ceiling mount applications (mounting heights range from 7.5' to 10'), making installation easy while maintaining the maximum path of egress coverage. The linear pattern provides wide uniform distributions that deliver broad spacing up to 33' and low max to min ratios that far exceed code requirements.

The ELM2L optional Lithium platform comes standard with universal input voltage (120-347 Volt). The upgraded Lithium Iron Phosphate battery provides a 3 hour run-time or 2.4 watts of remote capacity. Also, remote testing and self-diagnostics that meet and exceed code required testing while significantly reducing the time and cost of compliance. Plus, constant light output over the full discharge period.