

# HVAC RENOVATIONS TO LIFT ACADEMY

Charlotte Mecklenburg Schools

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Existing Front Elevation

Charlotte Mecklenburg Schools commissioned Professional Engineering Associates, PA to lead a design team to replace existing split system heating and air conditioning units in their L.I.F.T. Academy at 1400 N. Graham Street.

The existing HVAC systems consisted of eight split system units and two mini splits.



Existing First and Second Floor Windows (notice security screens on the first floor)

A summary of the reasons for the split system replacements are as follows:

1. The systems were installed in 1982/1983. They are over 30 years old and have exceeded their typical life span.
2. Indoor units are located in the original closets, exposed and suspended with bottoms at ceiling level and allow no proper ability to service the equipment. (See existing plans accompanying this report)
3. Existing refrigerant is not environmentally friendly, is expensive and not readily available.
4. The systems are not up to current energy efficiency standards.

The current design includes seven packaged classroom systems that sit inside the classroom and duct to the outside through a louver. All heating/cooling and code mandated ventilation air is provided through the packaged unit and louver. Administration Areas on the first and second floors are to be served by split system heat pumps.

Our original design (and any currently shown on the plans) includes replacing a single exterior window in each classroom with a custom sized louver to match the existing openings. The louvers are to be white to match the existing window colors.

We are now proposing an alternative for review and approval that will more closely match the existing exterior. We can provide new custom aluminum window frames to match the existing windows, without glass and locate the louvers behind the frames; please see the accompanying pictures. The louver shown is bronze but can be white to simulate blinds.



Example of Custom Window (Frame Only-No Glass) on left with Louver in Rear Compared to Existing First Floor Security Window (center) and Second Floor Window (right)



Typical Existing Classroom Interiors

Typical Existing Classrooms are very similar to most recent School designs, with the exception of the exterior windows. All existing classrooms have tile floors and acoustical tile ceilings.

The proposed new units will look similar to the picture below.



The units will take up approximately 48” x 36” of floor space and will include supply plenum extensions to the ceiling.

Advantages of the renovation include:

1. Removal of four split system heat pumps and fencing along the sides of the building and three more heat pumps in the rear.
2. Greater comfort.
3. Higher efficiencies.
4. Increased serviceability and better maintenance.

We have strived to modify our design to be more in keeping with the intentions of the Historical Landmarks Commission and will update our plans for resubmission per the above proposals if approved.

Thank you for your consideration.

G. Karl Buddenbaum, Jr PE  
President  
Professional Engineering Associates, PA