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Subject: Building Valuation and Castaldi Report Analysis of HEC Annex Building of St. Petersburg College

SPC Project No.: SPJC-1 0000106319
ARC3 Project No.: 18009

Dear Diana:

As requested by the College, ARC3 Architecture, Inc. is pleased to submit an onsite review and building valuation calculation of the above referenced property. This report is based on the concepts outlined by author and Education Consultant, Basil Castaldi, in his book entitled "Educational Facilities – Planning, Modernization and Management," fourth edition.

ARC3 Architecture has been asked to evaluate and calculate the cost of modernizing / remodeling of the existing Annex 1 facility versus the cost to demolish and rebuild a similar facility.

We hope that this report meets your expectations.

Sincerely,

Steven J. Vinci, AIA
Principal
CC: File

Building Valuation and Castaldi Analysis of HEC Annex Building

CERTIFICATION
It should be noted that ARC3 Architecture, Inc. has reviewed the above referenced building and can hereby certify that neither the contract to engage the review, nor the subsequent compensation received as a result of the contract, is contingent upon the reviews and/or observations performed.

METHODOLOGY
Evaluation of the current state of the facility was conducted by utilizing the following methods:

- A walkthrough of the facility in order to gain firsthand knowledge through visual and tactile observation of the facility.
- A report prepared by ARC3 Architecture and Engineering Matrix evaluating the existing conditions of the facility.

QUALIFICATIONS
The primary objective of this evaluation is to establish an understanding of the ability to salvage the building as opposed to the construction of a new one. Field reviews of the building were limited to visual (and sensory) surface observation. We are confident that the combination of site observation along with the MEP systems evaluation will provide the information necessary to properly evaluate the status of the building.

In order to simplify the content of this report, it will be divided into the following sections:

SECTION I BUILDING HISTORY / CONSTRUCTION

The Health Education Center (HEC) Annex Building was acquired by St. Petersburg College, prior to a renovation that was conducted in 2010, to allow the college to use the first floor for educational purposes. The college does not currently occupy the top three floors.

The subject facility, constructed circa 1984, is a 4-story, approximately 48,000 square foot building with a steel frame structure and precast concrete and glass envelope. It was originally designed as an office and operations center.

SECTION II CONDITION OF THE EXISTING FACILITY

EXTERIOR (EXHIBITS A THROUGH H)

SITE AND ACCESSIBILITY
The site is bordered by public sidewalks and has vehicular drive access at four (4) locations. There are seven (7) accessible parking spaces located near the main building entry on the north side.

The route from public sidewalks and public transportation to the building entrance is not accessible (FBC-A 206.2.1). The entry drives are steeper than the maximum slope allowable 5% (1:20) and there is no sidewalk connecting to the public way. The south entrance is not on an accessible route.

PARKING
The property has (182) standard and (8) accessible spaces for a total of (190) parking spaces. For the range of 151 to 200, the accessibility code requires (6) accessible spaces per FBC T208.2. Parking lot striping is in average condition and should be addressed as part of long-term maintenance.

Minimum parking, as defined by SREF, is as follows:

- Faculty and Staff: one space for each member
- Visitors: one space for every 100 students
- College Students: one space for every two students

As an example analysis, using the SREF standards for parking, the building can support the following occupant load at any given time:

SITE PARKING CAPACITY EXAMPLE			
TYPE	OCCUPANTS	REQUIRED PARKING	REQUIRED RATIO
Students	300	150	2 per space
Faculty/Staff	26	26	1 space each
Visitors	3	3	1 space per 100 students
Totals:	329	*179	
	*The property currently has 190 spaces		

SITE LIGHTING
Site lighting is required for parking areas. Building perimeter and services drives/ loading areas, per SREF 453.10.3 as follows:

- Parking areas: 1-foot candle
- Building exterior entrances: 5-foot candles
- Building exterior surrounds: 1-foot candle

The east and west building lighting does not appear to provide 1-foot candle of illumination. This presents a safety hazard for students, faculty and staff. The entrance and site parking lot lighting need to have a photometric analysis performed in order to determine the illumination levels and provide recommendations for modification.

BUILDING STRUCTURE AND VERTICAL ENVELOPE
The building is a steel frame structure with precast concrete and fixed window exterior cladding.

The steel structure does not have an applied fireproofing and is exposed above ceilings and in concealed spaces. This gives the building an "unprotected" structural status under the Florida building Code.

The fixed windows are configured in a continuous ribbon wrapping the envelope on four sides. The ribbon windows are not impact rated and are leaking with badly deteriorated glazing seals,

The precast concrete wall panels appear sound with little signs of damage or deterioration.

ROOF
The roof consists of a modified bitumen roofing membrane over a low sloped Lightweight Insulating Concrete roof deck. The roof is configured with four internal drains and overflow scuppers through minimal height parapets. There is a peaked roof skylight over an interior atrium consisting of fiberglass sandwich panels in aluminum framing that is not impact rated (Exhibit G). The only items of mechanical equipment on the roof are exhaust fans with mushroom hoods. A lightning protection system is installed with lightning rods mounted atop the parapet and an all pieces of rooftop equipment.

The membrane appears in sound condition with no evidence of blisters or deterioration and good coverage of the granular surfacing. There is one location of damaged parapet wall flashing where the flashing has pulled away from the top of the parapet (Exhibit H).

The skylight fiberglass panels have yellowed with age and the assembly is reported by Facilities Management to be leaking.

INTERIOR (EXHIBITS I THROUGH R)

CONFIGURATION
The interior was originally configured as an office building with a four-story atrium. The College has occupied the first floor with classrooms and administrative offices. The upper floors are unoccupied.

The building has two stairwells located on opposite sides of the buildings at the front and rear entries. The fire sprinkler riser is in the front stairwell (Exhibit I). There are two hydraulic elevators that are not in use and have been locked out. The first-floor houses an electrical room with main switchgear (Exhibit M), a chiller pump room (Exhibit L), a mechanical air-handler room (Exhibit N) and an elevator machine room with two hydraulic pumps (Exhibit O). Upper floors contain mechanical air handler rooms and electrical sub-panel rooms.

The upper floor interior build-out is the original office configuration from the period prior to acquisition by the College (Exhibit P). Vinyl wall covering on the exterior walls has delaminate in multiple locations throughout the upper floors (Exhibit Q). Damage caused by water infiltration at the ribbon windows has been addressed by performing selective demolition of the furred wall finish below the windows in multiple locations throughout the upper floors (Exhibit R).

LIFE SAFETY AND EGRESS CAPACITY
Limiting factors for life safety and egress include stairway capacity, floor egress capacity and exit capacity.

Summary of Egress Capacity:

Maximum Allowable Building Occupancy based on Stairway Egress:	1276
Maximum Allowable Building Occupancy based on Per Floor Capacity:	1897
Maximum Allowable Building Occupancy based on Exit Capacity:	2239
Maximum Allowable Building Occupancy based on Parking Capacity:	329

In order to take advantage of the maximum per floor capacity, a third stairway would need to be added to the building. While possible, we don't view this as a cost-effective solution. Additionally, the Exit Capacity load is unrealistic based on the given program area and will not be considered below. Taking these restrictions not account, it is likely the College's space programming will dictate a considerably lower occupancy than any of these calculations. Overall, we don't anticipate you will have egress capacity issues in the building. The following sections illustrate that the stairways are the most restrictive egress component for determining maximum building occupancy: save for the previously mentioned parking capacity restrictions.

STAIRWAY EGRESS CAPACITY
The existing stairways measure 44-inches between handrails. This is the minimum allowable based on FBC (1011.2). These stairways meet the minimum headroom clearance and tread riser dimensions. The minimum required egress width factor is (0.3) for stairways and (0.2) for all other egress components FBC (1005.1). The allowable occupants per floor based on the stairway capacity are as follows:

TOTAL BUILDING OCCUPANCY BASED ON STAIRWAY EGRESS CAPACITY				
FLOOR	USEABLE AREA	CAPACITY	EGRESS FACTOR	OCCUPANTS
	Programmable Space	Total Width of Egress per Floor	0.3 for Stairways	Capacity
1	7592	-		*397
2	10013	**88-inches	0.3	293
3	10013	**88-inches	0.3	293
4	10013	**88-inches	0.3	293
	Total:			1276
	* Maximum occupancy based on 20-net SF per occupant			
	** Total existing stair width (44-inches x 2)			

PER FLOOR EGRESS CAPACITY
The original building occupancy use classification was Business (FBC Group-B) and provided 100 gross square feet per occupant. The potential use classification for the College will be Educational (FBC Group-E), which requires 20-net square feet per occupant. The following table illustrates the maximum potential capacity for each floor:

TOTAL BUILDING OCCUPANCY BASED ON PER FLOOR CAPACITY					
FLOOR	GROSS	NET	CORE	USABLE	OCCUPANTS
	Overall Perimeter of Building	Interior Useable Space	Required Circulation & Mechanical	Program Space	Occupancy at 20-net per Person
	12,954	11,403	3,450	7,952	*397
2	12,954	12,764	2,751	10,013	*500
3	12,594	12,764	2,751	10,013	*500
4	12,954	12,764	2,751	10,013	*500
	Total:				***1897**
	*Shown to illustrate total capacity of each floor at 20-net per person. The current building stairways restrict the occupancy as outlined in the table above.				

The table presumes that the entire usable capacity of each floor would be programmed as a classroom and requires 20-net square feet per person. While this is unlikely, it provides a maximum allowable floor capacity for classroom use.

ELEVATOR CAPACITY
The building currently employs two hydraulic elevators located in the main atrium lobby. These elevators appear to be original to the building and have not been in use.

BUILDING RESTROOMS
Men's and Women's restrooms are located on each floor providing eight (8) toilets/urinals, five (5) lavatories and one (1) drinking fountain per floor. The restrooms were designed prior to accessibility laws and do not have a compliant toilet stall with the suggested lavatory (FBC-A 604.8.1.6). The ground floor restrooms were expanded in 2010 to provide space for a compliant stall.

FIRE SEPARATION ANALYSIS
Required Fire Separations for this building include shafts and the atrium. The existing building design included 1-hour fire rated walls surrounding the core atrium and 2-hour walls surrounding the stairs, elevator shafts and mechanical shafts. The mechanical and electrical rooms also have existing 1-hour rated walls. The existing atrium separation includes multiple doors and frames that are not currently fire labeled.

MECHANICAL
The Building is presently serviced by a single, air cooled, screw chiller located at the southwest corner of the Building. A new 125-ton chiller was installed in 2013 as a replacement for an existing aged chiller. Additionally; the existing, chilled water piping system was reconfigured to accommodate a second, 125-ton air cooled chiller. The central chiller plant has 125 tons cooling capacity. The piping and pumping infrastructure has been configured to seamlessly increase to 250 tons with the addition of a second, 125-ton air cooled chiller. It is estimated that the peak cooling load to be roughly 200 tons, based on the building being occupied primarily with office and classroom type spaces.

The Chiller Plant is configured in a primary-only pumping scheme, which utilizes a single, constant volume, primary chilled water pump for the chiller. The primary, chilled water pump circulates return water from the Building's airside equipment through the chiller, anytime the chiller operates. This primary pump provides the means to circulate water to the various air handling units (i.e., AHUs). All of the AHUs are equipped with three-way, fully-modulating control valves. The majority of the chilled water piping consists of above-ground piping, located in the ceiling spaces. This chilled water piping was fabricated using a steel chilled water carrier pipe covered with insulation and an all service jacket.

Variable Air Volume (VAV) AHU with Electric Terminal Reheat
Most of the building is serviced by this type of air handling system type. Each of the four floors is equipped with, at least, one chilled water, variable air volume air handling unit. Each unit is housed in a dedicated, mechanical equipment room located on the floor that it serves.

Air Moving Equipment
The above areas are conditioned with central station, VAV AHUs. These AHUs are housed within dedicated mechanical rooms that are located on each floor. The typical AHU assembly consists of a filter section (presently housing 2" pleated filters), a cooling coil section, and a supply fan section. The supply fans are configured to operate at a constant speed and airflow is regulated with the use of a motorized supply air damper.

Ductwork
The conditioned air is circulated to each of the spaces within the building through a network of galvanized supply air ductwork, located above the suspended ceilings. The galvanized ductwork is insulated with internally-lined fiberglass insulation. Various remodeling efforts have been completed over the years and fiberboard ductwork was observed in several areas above ceiling. The space above the suspended acoustic tile ceilings is being utilized as a return air plenum.

Ventilation (Outside Air)
Typically, outside air is introduced into the Central Station AHU through an airflow measuring device connected to a single, vertical, outside air intake chase. This ventilation chase extends from the roof of the Building down to the first-floor air handler equipment room. Roughly, 36" of galvanized

ductwork extends from the ventilation shaft into each air handler equipment room. This short run of duct houses the outside air flow measuring device. This ventilation duct is not connected to the AHU but rather terminates inside the air handler room. Consequently, the AHU equipment room serves as a mixed air plenum since there is, also, no return duct system.

The primary means of heating is provided by electric, terminal reheat coils installed within select VAV boxes, which regulate the amount of conditioned air supplied into each zone. Typically, only heating coils are provided in those VAV boxes, which serve perimeter zones. The perimeter zones are serviced by fan powered VAV boxes that house both a recirculation fan and electric heating coils. The heating coils would be energized anytime the VAV box has reached its minimum air volume set point, the VAV recirculation fan is operating, and the room's temperature sensor falls below its heating set point.

ATRIUM SMOKE CONTROL

The air handler units and five (5) roof mounted Atrium exhaust fans are all part of an engineered smoke control system.

CONTROLS

The Campus HVAC system is controlled with the use of a combination of original, Barber Coleman pneumatic controls along with limited electrically actuated control valves and dampers from Honeywell control panels. None of the equipment may be monitored and/or adjusted remotely through the use of modem or network equipment. The airside control hardware consists of devices, such as room temperature sensors, duct static pressure sensors, control- valves, dampers and actuators, and the necessary contactors required to automatically start and stop all of the HVAC equipment in the building. The current controls system only allows for the most basic start/stop scheduling and zone temperature set point adjustments.

ELECTRICAL

Electrical Power Distribution

The Campus is provided with a 2,000-amp, main service entrance-rated switchgear. This equates to roughly, 15 watts per square foot of incoming power available to be distributed throughout the site. The Duke Energy, pad mounted utility transformer, which feeds the main switchgear, is located on the west side of the Building. The main switchgear distributes power to multiple electrical rooms throughout the Building. The electrical rooms are provided with three phase, 208-volt panels, which service the lighting loads, HVAC loads, and receptacle loads.

Typically, power distribution has been configured as follows on each floor:

- "P-x" Panels – services General Purpose Power
- "AC-x" Panels – services VAV Electric Heat
- "L-x" Panels – services Lighting Loads

The building was, previously, serviced by a single, 100 KW, diesel emergency generator located outside the west end of the Building. The emergency generator was connected to the electric distribution system through a single automatic transfer switch. The emergency generator was, primarily, used to feed the life safety emergency and exit lights, in addition to the AHUs and Atrium exhaust fans; since all of these fans are part of the Atrium smoke control system.

The emergency generator has been removed from the Building. As a result of the emergency generator being removed from the building, none of the building's original emergency loads are connected to an emergency back-up power source. This includes the Atrium smoke controls fans, original emergency egress light fixtures; exit light fixtures, the elevators, and the fire sprinkler pump.

The first floor's occupied portion of the building has since been retrofitted with battery back-up style light fixtures for both emergency egress lighting and exit lighting, since an emergency generator power source is no longer available. However, the Atrium smoke control equipment and the fire sprinkler pump remain without an emergency back-up power source.

Lighting

Lighting is primarily accomplished in the dropped ceiling areas with the use of 2'x4' fluorescent fixtures equipped with parabolic or acrylic lenses. The primary lamp type is a T-8, 32-watt, fluorescent lamp controlled with electronic ballast. None of the areas observed were controlled with the use of occupancy sensors.

Low Voltage Systems

As discussed previously, the first floor of this four-story building was built out and has been occupied by SPC. Therefore, the other three floors are the subject of this report.

Data/Voice

The other three floors (Floors 2, 3, and 4) housed various tenants. These various tenants had their own telecommunication closets for their particular needs and spaces. Upon moving out, these tenants cut horizontal cabling, moved racks and equipment out, and, generally did not leave anything of value.

Television

There was no television headend or coaxial cable distribution system observed.

Intercom/Zone Paging

There was no intercom/zone paging system observed.

Fire Alarm

The Fire Alarm System (FAS) is by Fire Lite Alarm by Honeywell. It is a Sensiscan 100, which has been discontinued and parts are no longer available.

The current system is an older, zoned style configuration that does not have addressable device capability. The existing system provides basic fire alarm coverage for the building and consists of horn/strobes, smoke detectors, pull stations, sprinkler flow and tamper switches. The fire alarm devices on the upper level floors are not currently installed at heights required by ADA.

PLUMBING

Generally, the plumbing infrastructure consists of toilet room fixtures (i.e., water closets, lavatories, sinks, etc.). The typical toilet room is furnished with floor-mounted water closets and wall-mounted urinals, equipped with manual flush valves.

Hot water demand is serviced primarily by small (i.e., 2 to 4.5 kW), 20-gallon tank-type, electric water heaters located in each floor's custodial equipment rooms.

Cast iron, no hub piping has been used for the above ground, sanitary vent piping system. Copper piping is being used for the domestic hot and cold-water piping systems within the building. The hot water piping is insulated with fiberglass style piping insulation.

The roof drainage is accomplished with four roof drains. The roof drain piping is directed to vertical, rain water leaders located in each of the two, main stairwells. The underground roof drainage piping exits the building on the south side.

FIRE PROTECTION

The building is protected throughout with a wet pipe sprinkler system. The riser is located in a Fire Pump Room that is accessible from the North stairwell. The system has been configured with four separate zone control valves (one per floor). No major deficiencies were identified with the installed system with the exception that the fire pump is not provided with a secondary emergency power supply since the emergency generator has been removed.

A few areas on the fourth floor apparently were computer areas that were protected with a clean agent fire suppression system instead of the wet pipe sprinkler system. The tenant removed the clean agent canisters upon move out and those spaces are, presently, not protected with any type of suppression system.

LIGHTNING PROTECTION SYSTEM
The building has been provided with a Lightning Protection System. The system consists of lightning rods, aluminum cable, and a grounding system.

SECTION III REQUIREMENTS FOR MODERNIZATION/REMODELING OF THE FACILITY

EXTERIOR - SITE

Site Parking
The existing parking count of 190 spaces limits the building occupancy for classroom use to 329 persons. The existi8ng building is capable of supporting an occupant load of 1,276 persons (limited by stair egress capacity). Parking is the greatest single impediment to the expanded use of the existing facility. To provide minimum required parking for an expanded use of all floors of the existing building would require either the acquisition of additional land for surface parking or the construction of a parking garage.

Site Accessibility
The lack of an accessible route from public sidewalks and transportation must be addressed as a component of a renovation of building replacement. This deficiency could be resolved by adding a ramp and will require the loss of one parking space.

EXTERIOR - BUILDING

Roof
The roofing membrane and perimeter parapet metal flashings, although in overall sound condition, have been in place for the bulk of their expected service life and should be replaced as a component of a general building renovation with a requirement for a twenty (20) year warranty.

The condition of the low sloped lightweight insulating concrete deck should be assessed prior to the application of a new roofing membrane and remedial action taken to address any deterioration of the deck.

The insulation value of the deck should also be assessed in comparison with current code requirements to determine if additional insulation is required.

The non-impact rated skylight that is leaking should be replaced with a new watertight impact rated unit.

The lightning protection system should be removed to facilitate reroofing and reinstalled and re-certified following completion of the roofing installation.

Exterior Walls
The existing precast concrete wall cladding is in overall good condition requiring only the application of new paint and sealants.

The ribbon window system is not impact rated and has deteriorated seals allowing water infiltration. The window system would need to be replaced with new watertight, impact rated assemblies.

The ground level storefront entries are not impact rated and would need to be replaced with impact rated assemblies that provide accessible entrances.

INTERIOR

First Floor Interior Build-Out

Unless programming dictates a new interior configuration of the first floor, the existing configuration is useable for the current occupancies of classroom and staff/faculty offices. As outlined below, mechanical, electrical and systems warrant upgrades and the plumbing fixture count must be increased. Interior finishes must be assessed in regard to current code requirements for flames spread and smoke development indices and upgraded as required.

Upper Floor Interior Build-Outs

The upper floors remain in the original office building configuration. This build-out would need to be demolished to facilitate installation of classrooms and staff/faculty offices as programmed. Electrical and mechanical systems would need to be upgraded as outlined below. The restrooms would need to be renovated to be made accessible and potentially increase the fixture count as outlined below.

Elevators

The hydraulic elevators and associated hydraulic pumps are original to the building, circa 1984, and have been unused and locked down for the duration of the occupancy of the building by the College. This equipment should be evaluated to determine condition and refurbished/replaced as recommended by the firm performing the evaluation.

Restrooms

The following calculations represent the number of fixtures required based on the maximum occupancy per the stairway egress limitations. This is the worst-case scenario and should only be modified after each floor program has been designed. We do not anticipate the College will need to add toilet or lavatory fixtures once a program layout is devised.

Fixture	Floor	Occupants	Factor	Required	Provided	Deficient
Toilets		From Stairway Capacity	From Plumbing Code	Number of Fixtures per Calculation	Current Number of Fixtures	Fixtures required for Compliance
	1	397	1 per 50+1	9	8	*1
	2	293	1 per 50+1	7	8	
	3	293	1 per 50+1	7	8	
	4	293	1 per 50+1	7	8	
					Total:	*1
	* 1 additional fixture will be required if the first floor occupancy exceeds 350					
Fixture	Floor	Occupants	Factor	Required	Provided	Deficient
Lavatories		From Stairway Capacity	From Plumbing Code	Number of Fixtures per Calculation	Current Number of Fixtures	Fixtures required for Compliance
	1	397	1 per 80+1	6	5	*1
	2	293	1 per 80+1	5	5	
	3	293	1 per 80+1	5	5	
	4	293	1 per 80+1	5	5	
					Total:	*1
	* 1 additional fixture will be required if the first floor occupancy exceeds 320					

Restroom renovations will require the reconfiguration of fixtures to provide accessible toilet stalls. This will result in a small expansion of the restrooms to avoid losses in fixture counts. One urinal in each Men's room will need to be replaced or reinstalled at an accessible height. Existing restroom finishes consist of ceramic tile floors and wall covering finished walls. The wall coverings should be replaced with an impervious surface material complying with current code requirements.

Mechanical
A new, 125-ton, air cooled chiller was installed as a replacement before the end of summer 2013.

Provisions were made for expansion of the chiller capacity by the future addition of a second 125-ton chiller. The second, 125-ton chiller would be required when the second through fourth floors become occupied and operational.

The existing AHUs are in poor condition and showing significant amounts of rust and degradation both inside and out. These units are at the end of their useful life and should be expected to be replaced.

The majority of the main supply ductwork throughout the Building is internally lined with fiberglass insulation. This duct liner creates an environment conducive to supporting mold growth and is not considered a product which promotes good indoor air quality. Replacement of main ductwork runs is recommended. Also, there are areas that have been remodeled and have been equipped with fiberboard duct.

The Atrium smoke control system equipment is nearly 30 years old and was designed according to the code in effect at the time. Atrium smoke control system codes have changed over the years and a new system should be installed compliant with current codes, if the Atrium is to remain.

The existing, primary only pumping configuration is not an efficient means of distributing chilled water throughout the Campus. The primary pumps are required to operate at a constant speed any time the chiller operates. This is due to the fact that the existing AHUs are controlled with 3-way modulating valves that require full flow to the units regardless of cooling load.

The new chiller and pumps are capable of operating in a variable flow pumping scheme and should be converted upon replacement of the existing AHUs and installation of a new, DDC controls system.

Electrical
The basic electrical infrastructure appears to be in fair condition, given its age of roughly 30 years. Although the equipment has been kept in fair condition, the panels and breakers are an older style no longer manufactured (Westinghouse). The availability of parts would continue to become increasingly difficult.

Current code stipulates that any non-life safety loads, which are serviced by an emergency generator, are required to have a separate dedicated automatic transfer switch. Since the original life safety emergency generator has been removed, all life safety devices on the first floor (only occupied floor) have been converted to battery style devices.

In order to occupy the upper floors, the fire pump must become operational. This would require a new emergency generator to be provided to support the fire pump. In the event that SPC desires to add any non-life safety equipment to the emergency generator (i.e back up DX style AC equipment, refrigerators, etc.); then, a second automatic transfer switch (dedicated to the non-life safety equipment) would be required.

Most of the lighting fixtures appear to be roughly 20 years old. It should be expected that new lighting fixtures would be required in remodeled spaces, in order to comply with current SPC lighting fixture types and switching arrangements.

There were no isolated clean power panels dedicated to serving computer loads. New clean power panels should be expected to be provided to service new receptacles supporting computer equipment loads.

Low Voltage Systems

A new structured cabling system compliant with SPC's standards (CAT 6A horizontal and single/multi-mode fiber optic cable) should be expected to be provided to support new voice and data devices installed as part of any proposed interior remodel efforts.

Television

A new structured cabling system compliant with SPC's standards should be expected to be provided to support television devices installed as part of any proposed interior remodel efforts.

Intercom/Zone Paging

A new CAT 6A cabling system, compliant with SPC's standards, should be expected to be provided to support new devices (for Informacast) installed as part of any proposed interior remodel efforts

Security

A new card access system infrastructure should be provided consisted with SPC's standards.

A new surveillance system infrastructure should be provided consistent with SPC's standards.

Fire Alarm

The existing fire alarm system does not meet the ADA requirements and does not comply with St. Petersburg College's Standards, National Fire Alarm and Signaling Code (NFPA 72) and Life Safety Code (NFPA 101) NFPA 101. Therefore, it must be replaced as required.

Plumbing

The overall plumbing piping systems appear to be in adequate condition and appeared to be suitable for its original intended purpose.

The plumbing fixtures, also, appear to be in relatively good condition. It should be expected that the existing plumbing infrastructure would need to be modified, as dictated by any interior remodel efforts and the associated addition of new plumbing fixtures

The existing water heaters, located in each floor's custodial closet, appear to be at the end of their useful life and should be expected to be replaced with new.

Fire Protection

Replace all sprinkler heads with "quick response" type heads. The existing fire pump appears to be nearly 30-years old, is showing signs of deterioration and should be replaced.

Lightning Protection

The Lighting Protection System was observed in several instances to be inadequately attached to the building or its roof mounted equipment. The adhesive appears to have degraded to the point where the system components are no longer securely attached to the building.

SECTION IV BRIEF DESCRIPTION OF THE CASTALDI METHOD FOR SCHOOL MODERNIZATION

According to Basil Castaldi, the term *modernization* "is a process whereby an existing school facility is brought up-to-date structurally, educationally, and environmentally." He goes on to say "Modernization also includes the installation of more efficient mechanical and electrical equipment and the addition of energy efficient materials to the exterior walls and roof."

This report deals with comparing the cost of modernization as described above versus replacement of the structure with a new building.

In order to determine whether it is financially advantageous to modernize a school building rather than replace it, he has developed a formula commonly referred to as the "Castaldi Method". Generally, the author states that if the cost of modernization exceeds 40% of a cost to construct a comparable new building, it is more economically feasible to replace the building when all elements are factored in such as cost of safety improvements, educational adequacy, life cycle costs and maintenance.

In addition, according to Castaldi, there are 7 questions which *must* be answered affirmatively to justify modernization of an existing building. A negative answer to **any** one of these items suggests replacement of the building:

1. Is the school building under consideration needed in its present location for at least 75 percent of its useful life after modernization? **This is a policy question for the Board and Facilities Department. Long-range plans anticipate demolition. We assume no.**

2. Is it impractical to distribute the student load of the school considered for modernization among other nearby adequate schools? **The building is currently unoccupied so there is no student load to distribute. We assume no.**

3. Does the structure lend itself to improvement, alteration, remodeling and expansion? **Yes.**

4. Does the modernization building fit into a well-conceived long range plan? **No.**

5. Can the site of the school considered for modernization be expanded to meet minimum standards for the ultimate enrollment envisioned on the site? **This is a policy question for the Board and Facilities Department. We assume no.**

6. In accordance with Castaldi Generalized Formula, is the annual cost of capital outlay for modernization less than it would be for a replacement building? **No. Please refer to the individual building calculations.**

7. Has a blue-ribbon committee concluded that educational obsolescence of a given building can be substantially eliminated through the process of modernization? **This is a policy question for the Board and Facilities Department. We assume no.**

SECTION V COMPARATIVE COST ANALYSIS

The following shows cost comparisons of modernization versus replacement. It also itemizes what would be involved in the modernization versus the construction type proposed for replacement.

A. Modernization Valuation, Budget Estimate of Probable Cost.
   Modernization of 48,000 SF at $252.17 per SF = $12,104,160
   Modernization includes:
   - Completely remove all interior partitions, finishes, equipment, etc...
   - Reconfigure floor plan for appropriate program
   - Structural upgrades for wind loading.
   - Complete plumbing upgrades including ADA.
   - Complete roof replacement.
   - Complete HVAC replacement.
   - Complete electrical system upgrade.
   - Complete replacement of windows.
   - Complete replacement of fire alarm system.
   - Partial replacement of fire sprinkler system.

B. Build new HEC Annex

Construction of approximately 48,000 SF of new building @ $315.21 per SF = $15,130,080

New Construction includes:

- Demolition of Existing Building including disposal of all hazardous materials.
- Remove all construction including foundations.
- Dispose of all debris.
- Construction of replacement facility

Construction Type considered for this evaluation:

- Standard spread poured in place concrete foundations.
- Stucco on exterior standard concrete block.
- Steel beams and columns.
- Steel trusses.
- Modified bitumen roof system.
- HVAC system tied into existing chilled water system.
- Electric per code.
- Plumbing per code.
- Gypsum board on metal framing.
- Interior doors – solid wood core.
- Wall finishes – paint.
- Floor finishes – VCT.
- Ceiling finishes – ACT.
- Plumbing fixtures.
- Electric Water Heater.
- Energy Supply.
- Electrical Service/Distribution.
- Lighting and Branch Wiring.
- Communications and Security.
- Cabinets and Countertops.
- New Windows.
- Complete automatic fire sprinkler system with fire alarm call system.

SECTION VI CASTALDI FORMULA CALCULATION

$$\frac{(CE + CH + CS)}{(LM)(IA)} < \frac{R}{LR}$$

CE = Total cost of education improvements
CH = Total cost for improvements in healthfulness (physical, aesthetic and psychological)
CS = Total cost for improvements in safety
IA = Estimated index of educational adequacy (0-1)
LM = Estimated useful life of the modernized school
R = Cost of replacement of school considered for modernization
LR = Estimated life of new building

$$\frac{\text{(Rehabilitation Cost)}}{\text{Useful Life} \times .75} < \frac{\text{(New Construction Cost)}}{\text{Useful Life}}$$

$$\frac{48{,}000 \text{ SF} \times 252.17}{31 \times .75 \text{ years}} < \frac{48{,}000 \text{ SF} \times 315.21}{65 \text{ years}}$$

$$\$520{,}609.32 > \$232{,}770.46$$

SECTION VII CONCLUSIONS
R was calculated based on new school construction costs of $315.21 per square foot per DOE.
(CE + CH + CS) was calculated based on establishing remodeling costs as 80 percent of the cost of new construction, which is the baseline as recommended by DOE.
(LM) was calculated by taking the structure's existing life and then subtracting from 65.
65 years – 34 years = 31 years useful life

RULES OF THUMB
RULE 1: If the cost of modernization is 40% or more of replacement, then the decision to modernize is questionable.
In accordance with the Castaldi Formula, the cost of modernization is 223% of replacement.

RULE 2: If any 2 of the following items are required, modernization should be questioned.

A. Major replacement of plumbing and air conditioning systems.
   This would be required for modernization.

B. Total replacement of electrical wiring.
   This would not be required for modernization.

C. Basic structural changes involving space arrangements.
   This would be required for modernization.

D. Complete replacement of roofing.
   This would be required for modernization.

E. Complete revamping of the fenestration pattern.
   This would not be required for modernization.

Both rules of thumb are more related to the expenditures required for modernization. Rule 1 identifies the actual expenditures that may be required, and although Rule 2 does not require a conversion to dollars, it does compare direct costs as a percentage of the total cost involved in modernizing a facility.

In accordance with the rules of thumb, modernization for the Annex 1 facility would be inappropriate.

CASTALDI MODERNIZATION FORMULA

To justify modernization, the left side of the formula should be less than the right. The result of the above calculation does not meet this requirement.

Although some of the responses to the seven questions listed in Section IV are contingent on Board and Facilities Department policies, the answers to at least 3 of the questions regarding modernization are negative.

Therefore, in accordance with the Castaldi Formula for modernization and the Rules of Thumb the razing and replacement of the HEC Annex building is justified.

Should you have any questions or comments regarding the conclusions reached in this report, please do not hesitate to contact this office.

Sincerely,

Steven J. Vinci, AIA
Principal

Exhibit A: Main Entrance Facade

Exhibit B: Precast Concrete and Ribbon Window Facade

Exhibit C: Rear Entrance Façade

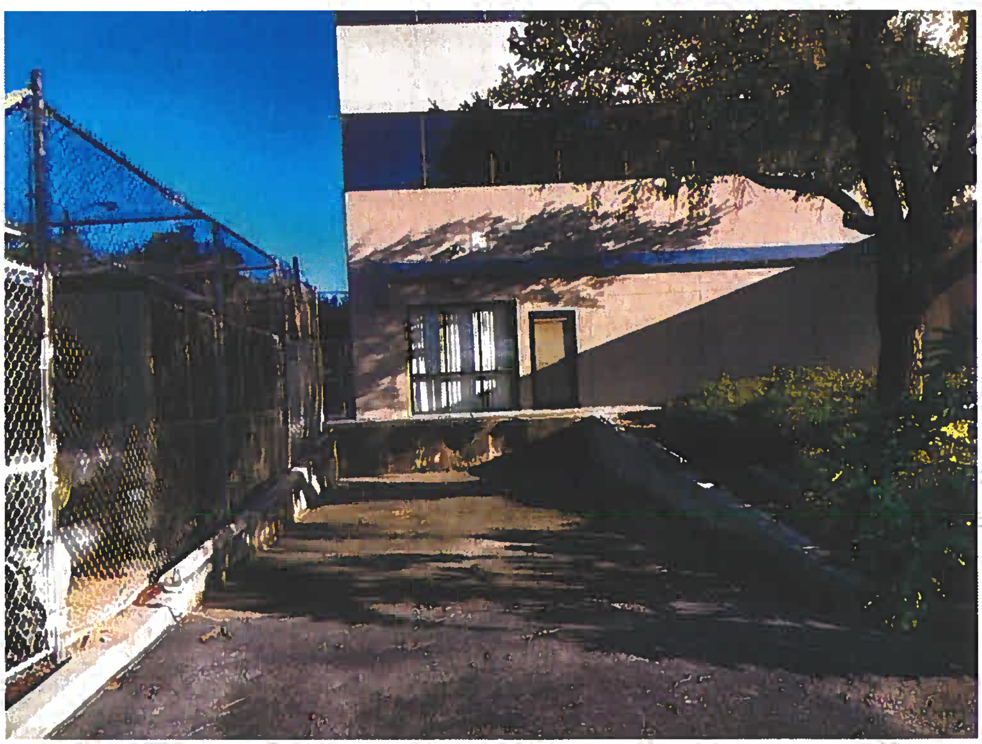

Exhibit D: Rear Loading Dock

Exhibit E: Chiller Yard

Exhibit F: Roof Field Area with Skylight

Exhibit G: Roof Skylight

Exhibit H: Damaged Parapet Flashing

Exhibit I: First Floor Lobby

Exhibit J: Atrium

Exhibit K: Fire Sprinkler Riser in Stairwell

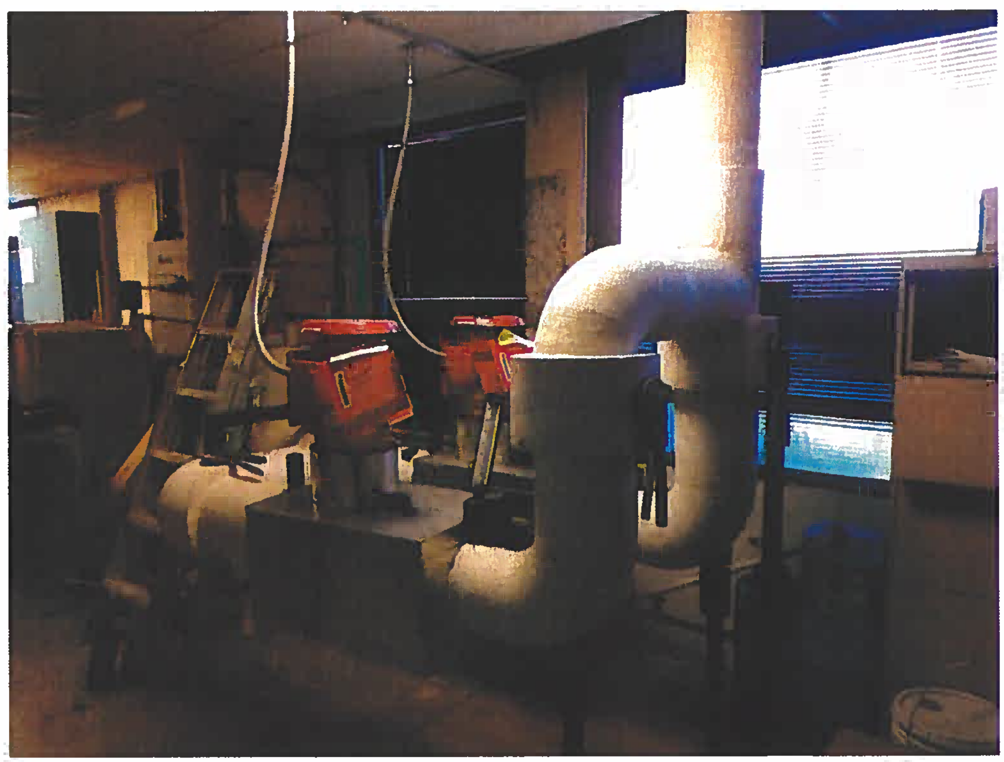

Exhibit L: Chiller Pump Room

Exhibit M: Main Switch Gear

Exhibit N: Typical Air Handler

Exhibit O: Elevator Hydraulic Pumps

Exhibit P: Typical Upper Floor Office Build-Out

Exhibit Q: Typical Example of Vinyl Wall Covering Delamination at Point of Water Infiltration

Exhibit R: Typical Example of Minor Demolition at Locations of Water Infiltration