Town of Farmington, CT
Office of the Town Manager
Regular Town Council Meeting

PLEASE NOTE THE MEETING WILL BE HELD IN PERSON BUT ALL ATTENDEES MUST JOIN VIRTUALLY

To access the meeting:

Please click the link below to join the webinar:

https://us02web.zoom.us/j/85407746442

Telephone Call in Information:

Dial: +1 312 626 6799

Webinar ID: 854 0774 6442

Date: May 11, 2021
(Council Members should call the Town Manager's Office if unable to attend.)

Time: 7:00 p.m.

Place: Town Hall Council Chambers/Online – Web Conference

Agenda

A. Call to Order

B. Pledge of Allegiance

C. Presentations and Recognitions
   1. Firefighter of the Year – John Driscoll
   2. Farmington High School Building Committee
   3. Apraxia Awareness Day

D. Public Hearing

E. New Items

F. Public Comments

G. Reading of the Minutes
   1. April 5, 2021 Regular Town Council Meeting

H. Reading of Communications and Written Appeals
1. Correspondence from Alan Coykendall

I. Report of the Committees
1. Land Acquisition Committee
2. Green Efforts Committee
3. Farmington High School Building Committee
4. Elderly Tax Relief
5. Racial Equality Taskforce

J. Report of the Council Chair and Liaisons
1. Chair
2. Board of Education Liaison
3. Economic Development Commission Liaison
4. Farmington Historic District Commission
5. Housing Authority
6. Human Relations Commission
7. Library Board
8. Town Plan and Zoning Liaison
9. Unionville Historic District Commission
10. Unionville Village Improvement Association Liaison
11. Water Pollution Control Authority
12. Other Liaisons

K. Report of the Town Manager —
a. Memorial Day Parade
b. Town Council Meeting Formats
c. Town Hall Opening
d. Historic Districts Preliminary Study Reports
e. Update on the Main Street Sidewalk Project
f. Affordable Housing Plan Update
g. Unionville Bridge Update

L. Appointments
1. Conservation & Inland Wetland Commissions (Wolf)
2. Green Efforts Commission (Barnes)
3. Housing Authority (Mergenthaler)
4. Human Relations Commission (Hall)
5. Plainville Area Cable TV Advisory Council (Bernier)
6. Lower Farmington River and Salmon Brook Wild & Scenic Management Plan (LFSWS) (Schlegel)
7. Bicycle Advisory Committee (Born)
8. Bicycle Advisory Committee

M. Old Business

N. New Business

1. To set the Property Tax Rate and Solid Waste Special Service Charge for the 2021-2022 Fiscal Year.

2. To approve the schematic drawings and project cost estimate for the Farmington High School Building Project as recommended by the Farmington High School Building Committee.

3. To approve a resolution and warning recommending the appropriation and authorizing the borrowing of $135,600,000 (an anticipated net project cost to the Town of $109,300,000) and to set a Special Town Meeting on May 24, 2021 and a referendum on June 3, 2021.

4. To set a Public Hearing on June 8, 2021 at 7:05 p.m. in the Town Hall Council Chambers to amend the Farmington Town Code, Chapter 176, "Taxation".

5. To waive the bidding requirements pursuant to Section 55-10 of the Town of Farmington Purchasing Ordinance under Section 55-1 so that the Town Manager's Office may contract with Authentic Post and Beam of Thomaston, CT to repair the Hein Barn, 303 Meadow Road at a cost of $35,925.00.

6. To waive the bidding requirements pursuant to Section 55-10 of the Town of Farmington Purchasing Ordinance under Section 55-1 so that the Town Manager's Office may contract with Authentic Post and Beam of Thomaston, CT to repair the Tinty Barns, at a cost of $34,225.00.

7. To approve a three-year Contract from July 1, 2021 to June 30, 2024 between the Town of Farmington and the East Farmington Volunteer Fire Department Inc., Farmington Volunteer Fire Department LLC, and Tunxis Hose Co. No. 1 Inc.

8. That unobligated CIP balances be transferred for the purpose of reappropriating surplus funds from closed projects in order to purchase a maintenance truck for the Public Works Department's Highway Division.

9. That unobligated CIP balances be transferred for the purpose of closing out various inactive CIP accounts and covering shortfalls in other CIP Accounts.

10. To approve the transfer of uncollectible property taxes to the Suspense Tax Book.

11. To cancel the May 25, 2021 Town Council Meeting.

12. To approve property tax refunds.

O. Executive Session
   1. Land Acquisition

P. Adjournment

From: ALAN COYKENDALL
To: Town Council Account for e-Mail
Subject: High School & Library
Date: Sunday, April 11, 2021 11:54:41 AM

Dear Council Members,

First, on the High School building proposal.

In the summary of the town-wide questionnaire that was presented to the Council and available on-line, the most highly prioritized objective (of those listed) was "other." This remarkable result was not remarked on, at least in the on-line report. One wonders what some of the "others" were. Then, in the newsletter sent to every address, this phenomenon was not mentioned at all!

Speaking of questions, it would have been valuable to have asked "If the referendum were held tomorrow, how would you vote?"

Back to the newsletter: In discussing the tax implications of paying for a new high school, it was claimed that after debts for previous capital projects were paid off, taxes would not rise. This assumes that the costs of operating Farmington, including education, will not increase. This is extremely unlikely.

Second, the Farmington Library:

Although Farmington's public libraries are privately owned, most of their operating expenses are paid by the Town. So, I hope that the Council will use its influence to urge our libraries to open to the public more fully, as those in neighboring towns have done. With current infection control procedures, plus expanding immunizations, I believe that more people should have more access at more times than currently.

Yours respectfully,

Alan L. Coykendall
15 Whispering Rod Road
Unionville

Sent from my iPad

PROCLAMATION

WHEREAS, John Driscoll has served the Town of Farmington as a volunteer fire fighter for over 4 years at the Tunxis Hose Fire Company No.1 joining on November 18, 2015, and

WHEREAS, John Driscoll, during his 4 years with Tunxis Hose Fire Company No.1 has already accomplished many training certifications to include Firefighter 1, Firefighter 2, Fire Instructor 1, Emergency Medical Technician Certification and Operational Level Hazardous Materials, and

WHEREAS, John Driscoll follows in his father's footsteps as a 2nd generation fire fighter continuing a legacy of dedication and commitment to the Town of Farmington and Town of Farmington Fire Department, and

WHEREAS, John Driscoll has achieved many notable recognitions to include top responder for 2019 where he responded to 571 calls for service which encompassed both fire and medical emergencies, and

WHEREAS, John Driscoll has made significant and lasting contributions in multiple ways that have fostered the well-being of the citizens of the Town of Farmington, mostly recently being instrumental in the COVID-19 pandemic response by supporting community events to include drive by "Birthday Parades" to help lift the community spirit, and

WHEREAS, John Driscoll has maintained a focus on the public good and acted to protect the public interest while donating countless hours of time, energy and personal commitment to better our community and enrich the lives of the residents of the Town of Farmington.

NOW, THEREFORE, the Farmington Town Council hereby commends John Driscoll for his excellent work on behalf of the community and we congratulate him on his 2020 Firefighter of the Year Award. The Farmington Town Council hereby proclaims May 12, 2021 as John Driscoll Day in Farmington, Connecticut.

DATED AT FARMINGTON, CONNECTICUT this 11th day of May 2021.

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C.J. Thomas, Chair

Farmington Town Council

PROCLAMATION

WHEREAS, May 14th marks Childhood Apraxia of Speech Day during which awareness will be raised throughout Connecticut about childhood apraxia of speech, an extremely challenging speech disorder that affects 1-in-1,000 children, and

WHEREAS, childhood apraxia of speech (CAS) causes children to have significant difficulty learning to speak and is among the most severe speech deficits in children, and

WHEREAS, the act of learning to speak comes effortlessly to most children, those with apraxia require early, appropriate, and intensive speech therapy, often for many years to learn to speak, and

WHEREAS, without appropriate speech therapy intervention, children with apraxia will have diminished communication skills, but are also placed at high risk for secondary impacts in reading, writing, spelling, and other school-related skills, and

WHEREAS, that such primary and secondary impacts diminish future independence and employment opportunities and challenge the ability to become productive, contributing citizens if not resolved or improved, and

WHEREAS, public awareness about childhood apraxia of speech in Connecticut is essential for families of children with this neurological disorder and the professionals who support them to achieve the needed services for those learning to use their own voice, and

WHEREAS, our highest respect goes to these children, as well as their families, for their effort, determination, and resilience in the face of such obstacles, and

Let it be resolved, that May 14th is "Apraxia Awareness Day" and citizens of Connecticut and surrounds are encouraged to work within their communities to increase awareness and understanding of childhood apraxia of speech.

DATED AT FARMINGTON, CONNECTICUT this 11th day of May 2021.

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C.J. Thomas, Chair
Farmington Town Council

MOTION: Agenda Item K

Report of the Town Manager—

a. Memorial Day Parade
b. Town Council Meeting Formats
c. Town Hall Opening
d. Historic Districts Preliminary Study Reports
e. Update on the Main Street Sidewalk Project
f. Affordable Housing Plan Update
g. Unionville Bridge Update

a. Memorial Day Parade

The Memorial Day Parade is scheduled for Monday, May 31, 2021. The Town is excited to bring back the parade after a one-year hiatus due to COVID-19. For this year, the Unionville and Farmington parades will be combined into one parade on a new route. Step off will be at 10:00 AM beginning at Sanford & Hawley and ending at the Farmington Town Hall Memorial. Any veteran or group interested in marching should contact Paul Krause at oifvet87@gmail.com. I will provide more information to the public and the Town Council as it becomes available.

b. Town Council Meeting Formats

The Governor's restrictions will be lifting on May 19th and the State's COVID-19 test positivity rate continues to decline steadily. After May 19th, in person Town Council meetings are allowed. This means that the Town Council may hold their Town Council meetings in person (with the public present) instead of the hybrid model we have been following. As of this date, masks will still be required indoors for all attendees. I would like to suggest that the Town Council consider moving away from the hybrid model and allow the public to be present at either our June or July Town Council meeting. Based on our public attendance history, I would suggest that we still require social distancing for all attendees and masks would be required based on the Governor's rules. I would recommend that for those who would like to watch the meeting virtually, the Town would continue to offer that option, but anyone wishing to speak must attend in person. I would like to discuss this and have consensus from the Town Council on how to proceed.

c. Town Hall Opening

It is my intent to fully open the Town Hall to the public on Monday, May 24, 2021. The public and employees will still be required to wear masks indoors based on the Governor's rules.

d. Historic District Preliminary Study Reports

For your information, the Study Committee of the Unionville Historic District & Properties Commission and the Study Committee for the Farmington Historic District & Property Commission have submitted the attached preliminary Study Reports.

The Unionville Study Report details and recommends two properties for the inclusion in Unionville's Lovely-Main Historic District and one property to be designated as a Historic Property. The property owners are in agreement with this recommendation.

The Farmington Study Report details and recommends three properties for the inclusion in Farmington's Historic District as Historic Properties. The property owners are in agreement with this recommendation.

It is anticipated that the Town Council will receive the final report in June. A public hearing will be scheduled for July.

e. Update on Main Street Sidewalk Project

As you are aware, Farmington was awarded a State grant for sidewalks on Main Street. I just wanted to alert the Town Council that even though the staff has submitted all the required paperwork to the State and has provided the State with our bid documents for their review and approval, we have not received comments or authorization to begin this project. We have reached out to the State, but, to date we do not know when we will receive their approval to enable the Town to go out to bid for this project.

f. Affordable Housing Plan Update

The Town of Farmington hosted an affordable housing planning workshop on March 30th. The objective was to share details of the planning process and receive feedback on potential strategies to reach 10% affordable housing units, as required by the State. We have updated the affordable housing website with the presentation from that meeting, details on the potential strategies, and new survey to gain community feedback. The survey is still open and can be accessed here – https://storymaps.arcgis.com/stories/f7f7e9bd17844b03b004d24c9727fb82

The Affordable Housing Plan team is in the process of developing a draft plan and aims to finalize the plan in July.

g. Unionville Bridge Update

The State of Connecticut Unionville Bridge project, 51-272 is starting. This project will replace the sidewalks and railings and perform some spot structural repairs and touch up painting of the structural repair areas. Most of the work will take place at night with alternating one lane of traffic. There will be some night work starting in May and then the bulk of the night work would be starting in July and go for 6-10 weeks. The state can start work at 7 pm but cannot go down to one lane with alternating traffic until 9 pm, and then the road needs to be open by 6 am. In mid-May there will be a jersey barrier on the shoulder of the bridge narrowing it by 2 feet, but two lanes will remain open in both directions, and the State will be working off the roadway during the day.

FARMINGTON HISTORIC DISTRICT STUDY REPORT

JUNE 2020

PROPOSED HISTORIC PROPERTIES

The Noadiah Hart House/Whittlesey Homestead
50 West District Road

Old Stone Schoolhouse/The Chapel
93 Coppermine Road

Meadow View
33 Waterville Road

FARMINGTON HISTORIC DISTRICT
Members
Evan Honeyman, Chair
John Bombara
James Calciano, Secretary
Sally Hatzenbuhler
Jaye O'Leary
Alternates
Elizabeth Gemski
John Renehan
Ted Sanford

Town Council Liaison
Brian F. X. Connolly
Town Historian
Lisa Johnson

REVISED April 2021

PROPOSED HISTORIC PROPERTIES

Name: Noadiah Hart/Whittlesey Homestead
50 West District Road, Farmington
Owners: Mark and Janice Riemer
Year Built: Original house built early 1700's; additional details added throughout the 18th century
Architectural Style: Colonial
Map Block Lot # 0046 37
Location: The house faces south onto West District Road

Architectural and Historical Significance
The Noadiah Hart/Whittlesey Homestead is architecturally significant as an exceptionally well preserved and restored 18th-century farmhouse typical of those built in the Connecticut River Valley. This five-bay, center chimney Colonial-period house is oriented ridge-to-street and the façade features a paneled double-leaf entry door with seven-pane transom (original), a double overhang typical of this style, and twelve-over-twelve and twelve-over-eight sash (replaced by the current owners). The house is set back on the street on a slightly elevated site that features large mature trees that shelter the house from the surrounding modern development. The building has been meticulously restored by its current owners.

Construction details indicate that the basic house was likely built in the early- to mid-18th century. Two of the original fireplaces have lugpole slots in use before cranes were introduced later in the 18th century. In addition, the current owners have extensively examined and documented the house's timber framing which shows a larger structure and a different framing style than is typical in other Farmington houses of the period. The framing is akin to extant period houses in the Wallingford-New Haven area. Land records list several owners of the property from Wallingford and New Haven, any of whom may have constructed the house: Jeremiah Hulls and Samuel Cook (Wallingford, owned the property in 1724), James Smith (New Haven, 1724), James Thomson (New Haven, 1751-7), Daniel Hubbard (New Haven, 1757-1765), and John Hubbard (1765-1773). Hubbard, in turn, sold this property to Elnathan Gridley, a prominent resident and landowner in Farmington, who later sold it to Noadiah Hart, another large landowner, in 1777.

The building is historically significant as one of the last 18th-century farmhouses in Farmington's outlying districts and for its association with the Hart and Whittlesey families. The house was originally built on a 74-acre parcel in the ninth allotment of the first division, three miles west of Farmington Village.

Noadiah Hart (1737-1817), who owned the house from 1777-8, was a direct descendant of Deacon Stephen Hart, an original proprietor of both Farmington and Hartford. In 1778, Hart sold the house and property to Abner Whittlesey (1746-1821) who came to Farmington from Washington, CT. In 1787, Whittlesey married Ruth Wadsworth (1747-1830). Abner's estate, in 1821, granted administration to Harvey Whittlesey of New Preston (1788-1861) who had

married Ruth Dolly, Abner's daughter, in 1814. It has been mentioned that during their occupancy the house functioned as a tavern and was called the Whittlesey Tavern. Further research is needed.

Harvey's estate sold the property to George North (1808-1876), a farmer, in 1864. When North died in 1876, his property was willed to his daughters, Francis M. Lewis and Ella North, with the stipulation that their mother Maria have life use of all property, both real and personal. A year later, Maria rented the farm to her son-in-law, John P. Lewis, with an agreement "to support Maria and provide for her in exchange for rent." Lewis acquired full title to the house later that year and, in 1923, the farm was purchased by Lewis' son, George. The house remained in the Lewis family until 1941.

The 20th century brought changes to the property as it shifted from a working farm with substantial acreage to the .91-acre parcel on which the house currently sits. In 1841, the house, with buildings attached, dominated other structures such as barns and a "cowhouse." The main house was insured that year for $750, while the barn and cowhouse (5 rods east of the house) were insured for $132 and two other barns for $113 (14 rods east of the house). The 1820's ell on the house burned in the 1960's, and other outbuildings were demolished as land was sold for the residential development that now surrounds the historic building. In addition to the historic house, the property currently includes a detached garage and two outbuildings added after 1976.

From 1941 onward, the house was owned in succession by the Wight, Olson and May families. The current owners, Mark and Janice Riemer, purchased the house in 1976.

The Noadiah Hart House/Whittlesey Homestead, 50 West District Road, Farmington CT.

Old Stone Schoolhouse/The Chapel
93 Coppermine Road, Farmington
Owner: The Farmington Historical Society
Year Built: 1790
Architectural Style: 18th-Century Vernacular
Map Block Lot 0060 4/3A
Location: The building sits on a triangular piece of land at the intersection of Coppermine Road and Red Oak Hill Road.

Architectural and Historical Significance
The Old Stone Schoolhouse/The Chapel is architecturally significant as a late 18th-century vernacular stone building constructed by local people using locally-sourced materials. The modest building is constructed of quarried brownstone. A narrow wood door with a five-paneled transom is located on the southeast elevation. Four windows on the main block, two on each side (east and west), feature twelve-over-eight sash and brownstone lintels. A later addition, constructed in 1912, is identical to the main block in style and materials.

The Old Stone Schoolhouse/The Chapel is historically significant as a surviving school building of the First Ecclesiastical Society; as the home of Simon Manus, an escaped slave; and as the West District Ecclesiastical Mission, a social and religious center.

In 1773, the First Ecclesiastical Society divided into twelve school districts, instructing each to build a schoolhouse at the location of their choice. The West District decided to build this school on a rectangular lot owned by John Seignore, bounded by two highways. This fieldstone building was constructed by local men in 1790, reportedly with stone transported by ox cart from a quarry off New Britain Avenue. The first teacher was Deacon Calvin Hatch, who taught seven students, among them Native American children. By 1872, enrollment exceeded 40 students, straining the capacity of the building. Accordingly, that year a new frame school was built further west and title to the stone schoolhouse passed to George North.

Sometime between 1872-75, North sold the building to Simon Manus. Manus escaped from slavery in Louisiana or Virginia and made his way behind the Union line, where he met Sgt. James E. Hamilton of Company K, 25th Regiment Connecticut Volunteers. Hamilton brought Manus home with him to Unionville in 1863 and the following January, Manus joined the newly-formed 29th Regiment Connecticut Volunteers, the state's first African-American regiment. The unit was honorably disbanded in November 1865. On July 6, 1866, Col. Simon Manus married Victoria Kelley at The First Presbyterian Church in Hartford. The couple had four children. Census and business directory records list Simon Manus as a laborer in Farmington and Hartford and Victoria as "keeping house." His military pension records list him as "disabled" in 1888. Simon died in 1904 and is buried in Hillside Cemetery in Unionville and Victoria died in 1905 in Middletown.

In 1876, Simon Manus sold the property to several neighbors: Alpheus Porter, William Porter, Mrs. H. Webster, W.A. and Allen Webster, I.N. Davis, W. Vickers, Henry Ibell, Robert Brown, and

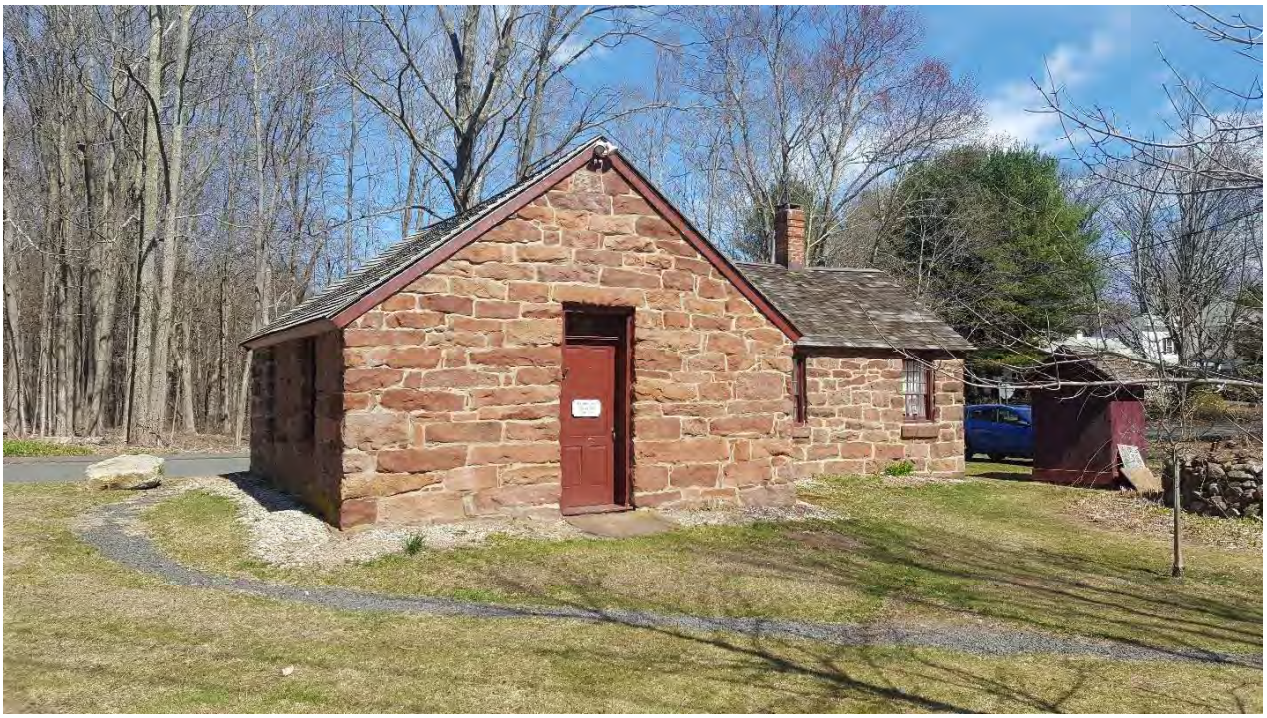
Robert Morley. The group, called the West District Ecclesiastical Mission, established a religious and social center in the building, naming it “West District Hall. “

In 1912, the group changed its name to the West District Evangelical Mission and the building was generally known as St. Simon’s Chapel. Ministers and deacons from the Farmington and Unionville churches, as well as students from the Theological Seminary in Hartford, were invited to conduct services. A Bristol evangelist held religious revivals on site from time to time.

The building was added onto and modernized in 1912 to provide more space for increasing membership. John Knibbs built the annex that year of brownstone from the same local quarry to match the original building. The interior was updated, a preacher’s platform built, and electricity installed. Members’ activities included a weekly women’s sewing society, suppers, plays, socials, food and song fests. Card playing and dancing were forbidden.

By 1956, the building had fallen into disrepair. Members of the West District Evangelical Mission proposed deeding the property to the two-year old Farmington Historical Society, which agreed to take ownership of the building. Neighbors stepped up to serve as volunteer caretakers and watch over the historic site. On the 200th anniversary of its construction (1990), the Old Stone Schoolhouse was opened on a regular basis as a museum reflecting its important role in the practice and progress of education and religion in Farmington. In 1993 a restoration project was undertaken to repair damage and deterioration, and return the schoolroom to its original appearance. Restoration work in 2011 and 2013 repaired and strengthened the building’s footings, floorboards and masonry.

Still owned and maintained by the Farmington Historical Society, the building is opened seasonally to interpret religion and education in early Farmington. The Old Stone Schoolhouse/The Chapel is listed on the State Register of Historic Places.



Old Stone Schoolhouse/The Chapel, 93 Coppermine Road, Farmington CT

"Meadow View"
33 Waterville Road, Farmington
Owner: Angela Munson
Year Built: 1903
Architectural Style: Colonial Revival
Map Block Lot: 0078 12
Location: The house faces east toward Waterville Road, with the façade facing north

Architectural and Historical Significance
"Meadow View" is architecturally significant for combining the broad massing of the Shingle Style and the classical detailing of the Colonial Revival style. The building once featured a full-length, Colonial Revival-style porch, which has been removed. An off-center entry door is flanked by multi-paned sidelights. The gable ends feature large overhanging eaves and numerous additions extend from the rear elevation.

"Meadow View" sits on 6.30 acres on the west side of Waterville Avenue, on a slightly elevated site surrounded by a large, open lawn trimmed with shade and fruit trees. The Farmington Country Club golf course borders the lot to the north and west. The Farmington River flows to the west. The yard is enhanced by a small pond and brook. Also on site are a garage (built 1910), a frame shed (1910) and a concrete pool (1940). The surrounding neighborhood contains similar turn-of-the-century houses.

The house is historically significant for its association with Noah Wallace, the builder, and Harry Ney, its owner from 1908 to 1947. Noah Wallace was arguably the most influential developer/builder during Farmington's Colonial Revival period. He constructed new houses, moved and restored historic structures, and tore down dilapidated buildings. He constructed a number of similar residences along Waterville Road in addition to Meadow View: "Brookside" at 9 a Waterville in 1898, "The Elms" at 11 Waterville in 1905, "Wallace-Whaples House" at 15 Waterville ca. 1905 and his own home "Rose Lawn" at 17 Waterville ca. 1905. In addition, he remodeled four historic houses on Main Street, south of Farmington Avenue, for rental income; moved historic structures to make way for Farmington's Village Green (corner of Main and Farmington); and was a key player in the establishment of the Farmington Country Club on the northeast corner of Farmington Avenue and Waterville Road (at the time in the late 18th-century 84-acre rebuilt Fisher Gay Homestead). He retained ownership of the clubhouse and its 84 acres until after a 1901 fire destroyed the building, selling the property to the club which then rebuilt it.

Wallace's work in development was a second career for him. He made his fortune in the sale and manufacturing of lightning rods in Waterbury. In 1887, he purchased a large tract of land in Farmington to build his own house. He also purchased the Pine Woods, a vast tract of close to 2,000 acres spreading across Farmington and neighboring Avon. There he built a hunting and fishing preserve, including kennels to raise hunting dogs. Investigations on the land, part which is now owned by non-profit Winding Trails, Inc., have uncovered numerous foundations, holding ponds and aquatic systems that formed the core of Wallace's preserve for

outdoorsmen. Wallace later sold a section of the property to Theodate Pope Riddle for her Avon Old Farms School. After his death in Florida in 1933, he bequeathed $250,000 to establish a fund for the operation of the Farmington schools. Because of this large gift, Center School in Farmington village was re-named Noah Wallace School in his honor.

Early occupants of “Meadow View” included Mrs. C.L. Munn and later Archibald G. McIlwaine and his family. In 1908 Harry Clinton Ney (1869-1947) purchased the house. Born in Wethersfield, Ney was the son of John M. and Sarah (Beckwith) Ney. His father was a native of France and president of the J.M. Ney Company, dealers in precious metals. The firm, located on Elm Street in Hartford, specialized in gold. Harry Ney was an executive in his father’s firm. He married Florence Schenherr (1883-1942) in 1906. Upon Mr. Ney’s death in 1947, the house was sold to H. Warren and Elizabeth Lawrence. The land has passed through a number of owners since 1956, including the Farmington Country Club and Dr. Nicholas J. Gross. The current owner, Angela Munson, came into possession of the house in 2020.

“Meadow View,” 33 Waterville Road, Farmington CT

UNIONVILLE HISTORIC DISTRICT AND PROPERTIES COMMISSION

STUDY REPORT

AUGUST 2020

PROPOSED ADDITIONS TO THE LOVELY-MAIN HISTORIC DISTRICT

Albert J. Brewer House
132 Lovely Street, Unionville

Eugene B. Ripley House
111 Lovely Street, Unionville

REVISED: April 2021

PROPOSED REVISED LOVELY-MAIN HISTORIC DISTRICT BOUNDARY DESCRIPTION

The Lovely-Main Historic District runs along Lovely Street, the eastern property lines of 111 and 99 Lovely Street, the southern property line of 99 Lovely Street, the eastern property line of 120 Main Street, the southern property line of 120 Main Street, the western property line of 120 Main Street (the Main Street frontage), the northern property line of 120 Main Street, the western property lines of 99 and 111 Lovely Street, and the northern property line of 111 Lovely Street. Cross to the east side of Lovely Street, along the frontage of 126 Lovely Street, to the southwest corner of 132 Lovely Street, along the southern property line of 132 Lovely Street, the eastern property line of 132 Lovely Street, the northern property line of 132 Lovely Street, and the western property line of 132 Lovely Street.

Name: Albert J. Brewer House
132 Lovely Street
Owners: John N. Kemper Jr. & Todd M. Fontanella
Year Built: ca. 1868
Architectural Style: 19th-Century Vernacular with Greek Revival Details
Map Block Lot # 0006 4
Location: Facing west on Lovely Street

Architectural and Historical Significance:
The Albert J. Brewer House is architecturally significant because it retains its original architectural character and is a well-preserved example of Unionville's mid- to third quarter 19th-century architecture. The house sits on a large lot with a frame garage, built in 2018, to the east. Historic residential buildings surround the house in all directions.

Reflecting the Greek Revival style, this two-story 19th-century building features an L-shaped plan and an open porch supported by square posts. Its most significant features are the heavy pedimented gable, which encloses a small arched gable window and wide entablature. A brick chimney and lattice foundation skirt complete its simple design. The house was renovated and restored in 2010 and a back room addition added in 2019. Most of the original windows were retained with a few replaced with single pane, true divided light to match the originals. New wood framed storm windows were matched to the originals, as well. The porch roof shingles were replaced with red tin sheathing.

The house is historically significant for its long association with the Brewer family. In May 1868, 24-year old Mary Jane (Graham) Brewer (1844-1931) purchased a half-acre lot for $350 from E.D. Preston (FLR 61:26) . Mary was the daughter of William Lord and Almira (Wilmot) Graham, and sister of Charles Graham (b. 1837), treasurer of the prestigious Upson Nut Company, who had built a house for himself in 1861 just across the street (Charles H. Graham House, 127 Lovely Street). One month later, she and her husband, Albert J. Brewer, a carpenter, mortgaged their "one-half acre…with new dwelling house in process of building" for $500, then $300, through Farmington Savings Bank (FLR 61:27, 67).

Tragedy struck in 1871 when their oldest child died. Three years later, Mary, then 30, was declared insane by the courts through testimony of Dr. E. A. Towne and an "indifferent person," George Dunham, a neighbor at 112 Lovely Street. She was taken to the State Hospital for the Insane in Middletown, CT. In 1878 J.A. Tryon and Truman Sanford granted the Brewers a third mortgage of $200 (FLR 65:344) which was released in 1880 (FLR 64:445). Others previously granted were released in 1910 (FLR 67:366). Albert died intestate in 1909, leaving Mary the property. At her death in 1931, three of her four children (Charles H., Olive J. and Frank S.) received partial interests in her estate (FLR 74:579), which they sold to John J. and Ellen G. Carson in 1945 (FLR 98:580).

Joseph F. and Frances O'Leary owned the house next and it stayed in the family until 2009. The house was purchased by John N. Kemper Jr. and Todd M. Fontanella, the current owners, in 2010.

Albert J. Brewer House, 132 Lovely Street, Unionville. Built ca. 1868.

Name: Eugene B. Ripley House
111 Lovely Street
Owners: Barbara F. Karsky
Year Built: 1874-76
Architectural Style: Italianate
Map Block Lot # 0005 11
Location: Facing east on Lovely Street

Architectural and Historical Significance

The Eugene B. Ripley House is architecturally significant for its distinct Italianate style and elegant detailing. The house is an excellent and well-preserved example of Unionville's most prevalent architecture, reflecting the prosperity that manufacturing brought the town in the 19th century. The secluded house faces east onto a large front lawn with a semi-circular driveway leading to Lovely Street. The eastern property line is marked by tall vegetation on a slight rise along the road. The house is obscured by large trees on the north, west and south.

The 3-story Eugene B. Ripley House displays the hallmarks of the Italianate style, with a hipped roof with overhanging eaves, a wide rim band and a center cross gable. Original one over one sash with shutters and low-pedimented window crowns are featured throughout. The three-bay east façade displays a full-arched attic-story window in the cross-gable, and a full-width, first story open porch with a low-pitched gable over entry, paired post supports and scroll-sawn brackets. The north elevation features an exterior brick chimney and a small one-story ell with an attached two-bay garage. The south elevation reveals an interior brick chimney and a large first-story, center bay window joining two end bay windows with quatrefoil design molding and smaller second story bay windows above them.

The house is historically significant for its association with New Britain and Unionville manufacturing through Eugene Bradford Ripley, the house's builder. Ripley was born in 1848 in Bentonsport Iowa to the Reverend Erastus and Harriet (Riggs) Ripley. The family moved to New Britain by 1861, the year Eugene established himself as a bookkeeper for the Stanley Rule and Level Company. Ripley had extensive business interests in Unionville. In 1871, he became a stockholder in John Bunnell's wood turning business. The following year, he established the Ripley Manufacturing Company, which became known for manufacturing heavy paper used in the production of binders' boards. In 1877 he and his brother in law, Frank Chamberlain, gained control of Platner and Porter Manufacturing Company, a paper product manufacturer, and Ripley became its president. In this capacity, he was involved in the Union Water Power Company where he was president from 1882 until 1890. After Ripley's death in 1901, the Ripley paper mills were purchased by Charles W. House and Sons, producers of felts.

In 1872, Ripley purchased two separate lots on Lovely Street from John and Mary Bunnell and Daniel Rourke (FLR 61:463, 465); he then resold the combined properties to his stepmother Anna (FLR 61:466). During the course of the following two years, Anna sold the parcels back to him (FLR 61:611; 65:16). In November 1874 Ripley mortgaged his property to Caleb Wheeler for

$2,000 and by spring 1876 a second mortgage reveals that “buildings” existed on the property, indicating that the house had been built.

Ripley’s first wife died in 1875 and in 1887 he married Mary Porter Chamberlain (1854-1888), daughter of John P. and Aurilla (McKillup) Chamberlain. Mary died in childbirth in 1888 and the property passed onto the couple’s first-born, Jennie Stanley Ripley (b. 1879). She retained ownership of the house until she sold it to Emily Devevo in 1962.

Emily Devevo sold the house to Gail Frese in 1989, who owned it at various times along with her brother and husband until 1996. That year, the current owner, Barbara F. Karsky, purchased the property.

Eugene B. Ripley House, 111 Lovely Street, Unionville. Built 1974-76.

UNIONVILLE HISTORIC DISTRICT AND PROPERTIES COMMISSION

STUDY REPORT

AUGUST 2020

PROPOSED HISTORIC PROPERTY

Asa Hawley House
796 Plainville Avenue, Farmington

UNIONVILLE HISTORIC DISTRICT AND PROPERTIES COMMISSION
Members
Lisa Johnson, Chair
Robert G. Hoffman, Vice-Chair
Sherryl Horton
Howard Martin
Alternates
Barbara Marsh
Matthew Ross
Ann Vibert Wuelfing

Staff Liaison
Shannon Rutherford
Town Council Liaison
Edward Giannaros

REVISED: OCTOBER 29, 2020

Name: Asa Hawley House
796 Plainville Avenue, Farmington
Owners: Joan R. and John Berry
Year Built: ca. 1800
Architectural Style:
Map Block Lot # 0125 6B
Location: Facing east on Plainville Avenue, Farmington

Architectural and Historical Significance

The Asa Hawley House is significant for its long history as a farmhouse, with an original early house that was expanded with distinct additions over the course of 150 years. The house is typical of houses that existed on working farms in Farmington's West District and Scott's Swamp areas. The house is on a site with mature trees, next to an historic 1783 mill to the south and a brook and large pond to the west. Directly south is Route 6/Scott Swamp Road, which is lined by commercial development. The 13-acre main campus of Tunxis Community College is situated at the southeast corner of Route 6 and Plainville Avenue. The property to the rear (798 Plainville) holds an easement on the property for a driveway.

The Asa Hawley House is one of the last remaining historic houses in the Scott Swamp division of Farmington. The original house, built early 19th century, anchors the current building at its east end. This section of the house features structural hand-hewn beams, post and beam construction, a rubblestone basement and a central chimney. In its original form, the building was likely a simple 2-story Georgian-style dwelling house, with a centrally-located door and symmetrically- placed windows on the south side. The first addition, built to its west sometime in the later 19th century, also features a central chimney stack. This section features frame construction and does not have a basement. The final and third addition to the west was likely added in the early to mid-20th centuries. At the same time, a wide porch with simple turned posts was added to the east section, flanked by small additions featuring decorative hexagonal windows. The main door was added to the east side and a second floor bump-out and porch were added to the south side.

The Asa Hawley House is historically significant for its long association with the Hawley family, original Farmington settlers, and the Byrant family, which owned the house from 1868 until 1943. Both families played significant roles in the farming and mill communities of the Scott's Swamp and West District divisions of Farmington.

In early 1806, Phineas Brownson of Farmington sold Asa Hawley five acres and three rods of land in "a place called Scott's swamp" "with the buildings thereon standing" for the sum of $150 (FLR 35:120). At this price, it's unlikely that the house currently on the site was part of the sale. Asa Hawley (1776-1858), a descendant of Captain Joseph Hawley, a founder of CT and of Farmington, probably built the house soon after purchasing the land. Over the course of the next few years, he purchased land from relatives and others to expand his farm. The large pond and stream to his west and south were owned at that time by his cousins Amos and Abell Hawley who built a saw mill on the brook in 1783. In 1823, Asa purchased a one-half interest in

the mill from Elijah Cowles (FLR 41:110), retaining that ownership until 1854 when Hiram Hills purchased all shares in the mill along with the rights to the pond (FLR 59:614).

At Asa's death in 1858, his wife Diadema (1780-1870) continued to own the house and the farm and their son Ara Hawley (1822-94) worked the farm and raised his family there. When Diadema died in 1870, the house and farm acreage associated with it was sold to George W. Bryant (1834-1894), who also purchased the pond (FLR 61:332; FLR 61:91). Byrant, a stonemason, and his wife Susan were immigrants from England, and Bryant had served in the Civil War. Bryant and his family farmed, and cut and sold ice from the pond. At his death, his wife Susan inherited the property and served as executrix of his estate(FLR 70:463). The property is listed in probate documents as including one house, two barns, and 56 acres.

George N. Bryant (1862-1942), their son, ran the farm after his father's death and raised his family in the house. The younger Bryant sold sections of the farm and, in 1908 gained ownership of the grist mill through a quit claim from his sister, Katherine Kenneally, "for a valuable sum in dollars…" "…all buildings also its sawmill, water rights and privileges appertaining…" (FLR 77:177). His wife Minnie (1870-1944) sold the property to Joseph P. and Constance S. Vetrano in 1936, holding the mortgage for "…dwelling house, mill and other buildings and improvements, thereon, together with water rights." The $11,500 purchase price was to be paid in regular installments, with these conditions: (1) do not pollute the pond or stream and (2) her daughter Ellen Bryant of Farmington and her heirs could use the pond for drawing water as long as she and her heirs own the adjacent property. Minnie Bryant foreclosed on the property when the Vetranos fell behind on their payments in 1939 (FLR 91:229).

In 1939, Millie (Mildred) Bryant, George and Minnie's daughter, a teacher who lived in West Hartford, sold the foreclosed house and property to W. Churchill and Lilly Richtmyer "with dwelling house, mill…subject to right of Ellen Q. Bryant et. Al. to take water from the pond." (FLR 92: 264.) The Richtmyers divided the land between the house (Parcel A) and the pond (Parcel B) ("Property of W. Churchill Richtmyer, Sep. 1956, survey by Harold R. Sanderson, rev. 1970. TC map #2802 cabinet #45), selling both parcels to John C. and Judy Unger Clark. The Clarks sold Parcel B in 1979 to Joseph and Maureen White including an easement for a driveway through the Parcel A property (FLR 198:303). The Whites sold the house to Kathy L. and Richard K. Labranche in 1986. Joan R. Campbell purchased the house in 1997. Joan and John Berry recorded the house in their names in 2001.

Asa Hawley House, 796 Plainville Avenue, built ca. 1800. East elevation.

Asa Hawley House, 796 Plainville Avenue, built ca. 1800. South elevation.

MOTION: Agenda Item L-1

That _____ be appointed to the Conservation & Inland Wetlands Commission for the balance of a four-year term beginning immediately and ending September 30, 2021. (Wolf)

MOTION: Agenda Item L-2

That _____ be appointed to the Green Efforts Commission beginning immediately for an indefinite term. (Barnes)

MOTION: Agenda Item L-3

That _____ be appointed to the Housing Authority for the balance of a five-year term beginning immediately and ending September 30, 2021. (Mergenthaler)

MOTION: Agenda Item L-4

That _____ be appointed to the Human Relations Commission for the balance of a two-year term beginning immediately and ending June 30, 2022. (Hall)

MOTION: Agenda Item L-5
That _____ be appointed to the Plainville Area Cable TV Advisory Council for the balance of a two-year term beginning immediately and ending June 30, 2023. (Bernier)

MOTION: Agenda Item L-6

That _____ be appointed to the Lower Farmington River and Salmon Brook Wild & Scenic Management Plan (LFSWS) for an indefinite term. (Schlegel)

MOTION: Agenda Item L-7

That _____ be appointed to the Bicycle Advisory Committee for an indefinite term. (Born)

MOTION: Agenda Item L-8

That _____ be appointed to the Bicycle Advisory Committee for an indefinite term.

MOTION: Agenda Item N-1

That a property tax rate of 28.81 mills be levied on the net taxable Grand List of October 1, 2020 in the amount of $3,733,221,458 to meet the appropriations of the Town of Farmington for the fiscal year beginning July 1, 2021 through June 30, 2022,

And,

That such taxes shall be payable in equal installments on July 1, 2021 and January 1, 2022 except that property taxes as defined in Section 12-141 of the Connecticut General Statutes in an amount not in excess of one hundred dollars shall be due and payable in a single payment on July 1, 2021 as provided by Section 12-144 of the Connecticut General Statutes, and except that any tax on any motor vehicle shall be due and payable in full on July 1, 2021 as provided in Section 12-144(a) of the Connecticut General Statutes,

And,

That the Solid Waste Service Charge be set at $254.00 for the fiscal year beginning July 1, 2021.

MOTION: Agenda Item N-2

To approve the attached schematic drawings and project cost estimate for the Farmington High School Building Project as recommended by the Farmington High School Building Committee.

NOTE: The Farmington High School Building Committee approved the schematic design and project cost estimate at their March 10, 2021 meeting. The full schematic design report and appendices are attached for your review.

In accordance with Chapter 53, Public Buildings, of the Town Code, the FHS Building Committee must submit the completed schematic drawings and project cost estimates to the Town Council for approval. Upon Town Council (and Board of Education for school projects) approval of the project cost estimates, the Town Council shall:

a. Set a Town Meeting and Referendum for the total project cost based on the cost estimates prepared by the architect and/or construction manager; and
b. Refer the project to the Town Plan and Zoning Commission for a report under C.G.S. §8-24.

Representatives from the Farmington High School Building Committee and their professional partners will present the schematic drawings and project cost estimate at the meeting. There will be an opportunity for questions and answers from the public as a part of this presentation.

Below is a summary of Town Council actions regarding the FHS Building project since 2018:

- May 15, 2018- Appointed two Ad Hoc Committees; FHS Facility and Financial Ad Hoc Committee and the FHS Community Survey Ad Hoc Committee
- January 22, 2019-Joint Town Council and Board of Education meeting to approve the findings and recommendations from the Ad Hoc Committees.
- February 12, 2019- Approved the Statement of Needs
- March 26, 2019- Appointed the FHS Building Committee
- September 10, 2019- Approved a transfer and appropriation of funds for expenses related to the committee's charge of hiring two architects for conceptual design, and for related expenses, including marketing materials and schematic design costs.
- January 28, 2020- Financial Forecast Presentation

- February 4, 2020- Presentation of Building Committee's Recommended Option; Town Council voted to set the net municipal project cost range ($105-$110M) and set the overall project scope for the FHS Building Project (new building by TSKP Studio)
- May 12, 2020- Project placed on "pause" due to the current economic conditions and uncertainties related to COVID-19.
- January 12, 2021- Removed the FHS Building Committee from "pause" to initiate their communications plan and continue their work in accordance with the committee charge.
- January 26, 2021- Presentation of Schematic Design and Project Cost Estimate for the FHS Building Committee
- February 16, 2021-Survey Results Presentation & Financial Forecast Presentation
- February 25, 2021- Discussion of the 1928 Building; Town Council directed the FHS Building Committee to remove the 1928 building from the project scope and that a Town Council committee will be established to study the options for the 1928 building upon a successful referendum.

In addition, a document titled "FHSBC Pre-Referendum Timeline," which outlines the steps the FHS Building Committee completed to meet their charge, is attached.

/Attachments

FHSBC Pre-Referendum Timeline

Conceptual Option Phase - Complete

Evaluate conceptual design options from multiple architects to provide Town Council with the information they need to set the net municipal project cost range and overall project scope.

- ✓ **3/19:** Establish FHSBC and Sub-Committees
- ✓ **5/19**: Begin Communications Planning
- ✓ **9/19:** Complete Site Analysis
- ✓ **6/19**: Select firm for Owner's Representative Services (RFP & Interviews)
- ✓ **9/19**: Select firms for Architect Services (RFP & Interviews)
- ✓ **10/19:** Review Educational Specifications
- ✓ **12/19:** Create Conceptual Design Options (Maintain/Renovate/New)
- ✓ **1/20:** Review and Analyze Conceptual Design Options
- ✓ **2/20**: Present Conceptual Design Options to Town Council

2/20: Town Council Unanimous Decision
TSKP New Build
Net Municipal Cost Target Range: $105M - $110M

Preliminary Plan Phase

Design a comprehensive solution to address the BOE Statement of Needs that falls within the net municipal project cost range and overall project scope set by Town Council

- ✓ **2/20:** Select Project Architect
- ✓ **2/20:** Schematic Design Development
- ✓ Collaboration with Stakeholders
- ✓ Schematic Design Review and Analysis

***5/20**: PAUSE*
✓ *FHSBC Monthly Meetings to Evaluate New Info*

- ✓ **1/21**: Schematic Design and Budget Presented to Town Council
- ✓ **2/21 – 5/11/21:** Continued Community Education and Communication
- **5/11/21**: Schematic Design and Budget Approved by Town Council Referendum Date Set

We are here (5/21)

Town Meeting: May 24, 2021
Estimated Referendum: June 3, 2021

DRAFT: This is a planning document that represents high-level tasks and will be updated continually based on new information.

Please visit www.fhsbuildingproject.org or enter zoom links listed below.

CALENDAR OF FHS BUILDING COMMITTEE SCHEDULE

Date	Event	Zoom Link
	MARCH	
March 29, 2021 @ 6:30 P.M.	East Farms Neighborhood Presentation	https://us02web.zoom.us/j/89713306139
March 31, 2021 @ 6:30 P.M.	Noah Wallace Neighborhood Presentation	https://us02web.zoom.us/j/82312713625
	APRIL	
April 1, 2021 @ 12:00 P.M.	Topic Thursday: Side-by-Side Facility Comparison Presentation	https://us02web.zoom.us/j/89437072259
April 5, 2021 @ 10:00 A.M.	Presentation to Senior Community Residents	https://us02web.zoom.us/j/89039098042
April 7, 2021 @ 5:30 P.M.	Communications Subcommittee Meeting	https://us02web.zoom.us/j/85671572635
April 7, 2021 @ 6:30 P.M.	FHS Building Committee Meeting	https://us02web.zoom.us/j/82622463947
April 8, 2021 @ 12:00 P.M.	Topic Thursday: Project Timeline Presentation	https://us02web.zoom.us/j/89437072259
April 15, 2021 @ 12:00 P.M.	Topic Thursday: External Building/ Site Plan Presentation	https://us02web.zoom.us/j/89437072259
April 20, 2021 @ 6:30 P.M.	Union Neighborhood Presentation	https://us02web.zoom.us/j/84714459779
April 21, 2021 @ 9:15 A.M	Communications Subcommittee Meeting	https://us02web.zoom.us/j/81736631902
April 21, 2021 @ 6:30 P.M.	FHS Building Committee Meeting	https://us02web.zoom.us/j/89612929695
April 22, 2021 @ 12:00 P.M.	Topic Thursday: Building Interior Presentation	https://us02web.zoom.us/j/89437072259
April 23, 2021 @ 1:00 P.M.	Presentation to Senior Community	https://us02web.zoom.us/j/88008471303
April 27, 2021 @ 6:30 P.M.	Community Presentation	https://us02web.zoom.us/j/83429911759
April 28, 2021 @ 6:30 P.M.	West District Neighborhood Presentation	https://us02web.zoom.us/j/86334402596
April 29, 2021 @ 12:00 P.M.	Topic Thursday: Project Cost Presentation	https://us02web.zoom.us/j/89437072259
	MAY	
May 4, 2021 @ 6:30 P.M.	Community Presentation	https://us02web.zoom.us/j/83429911759
May 5, 2021 @ 5:30 P.M.	Communications Subcommittee Meeting	https://us02web.zoom.us/j/84599697251
May 5, 2021 @ 6:30 P.M.	FHS Building Committee Meeting	https://us02web.zoom.us/j/89863516146

Farmington High School

Schematic Design Report

Prepared for the Farmington High School Building Committee - 16 July 2020
Amended on 11 January 2021
Amended on 10 March 2021

TSKP STUDIO

Farmington High School Schematic Design Report

16 July 2020 Amended 10 March 2021

I. Acknowledgments

This Schematic Design Package is a product of collaboration with many professionals and volunteers. A partial list of those individuals is below. Many thanks for your insights and efforts. We look forward to the next stage.

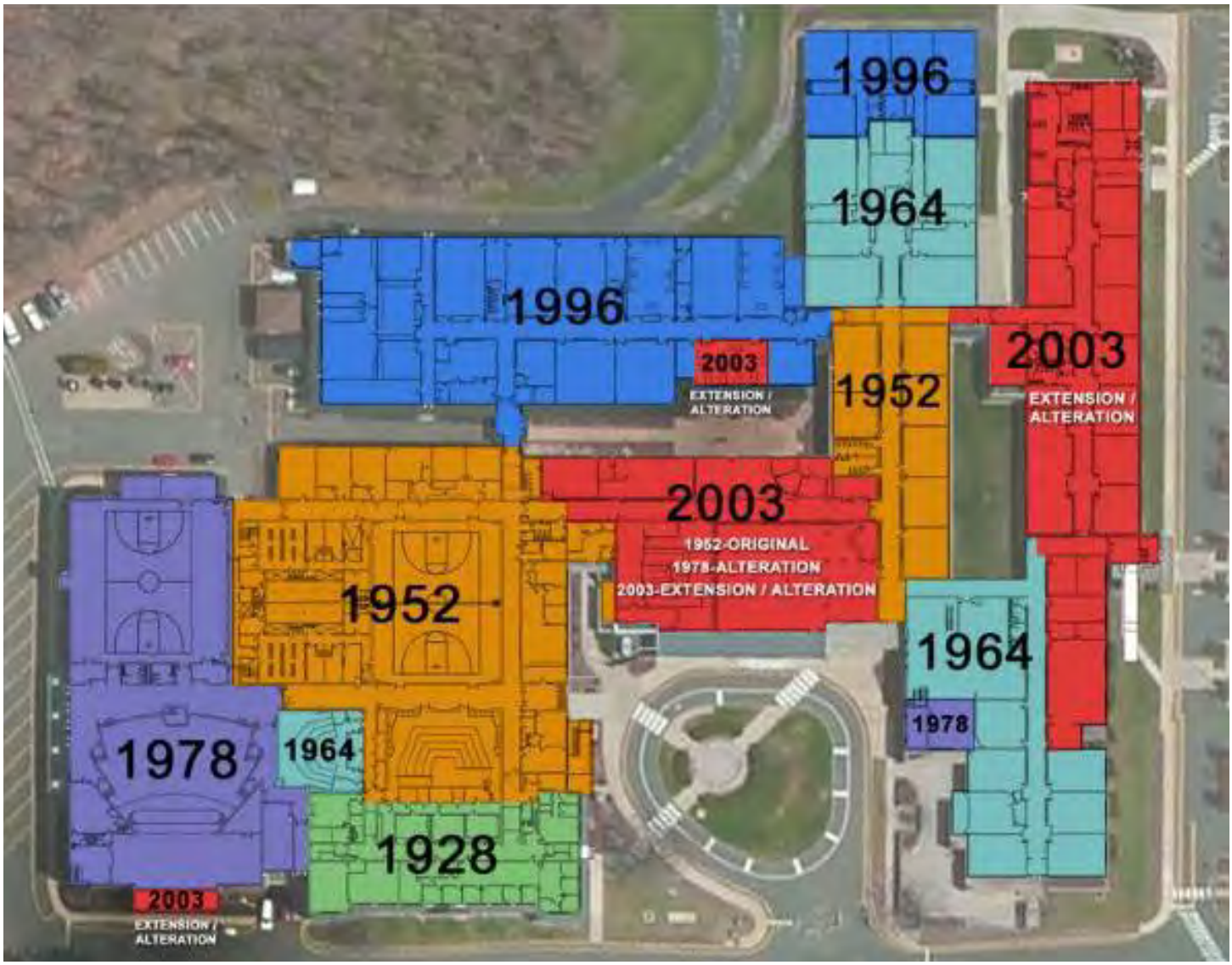
FHS Building Committee

Meghan Guerrera, Chair
Chris Fagan, Town Council Member
Ellen Siuta, Board of Education Member
Johnny Carrier, Resident
Sharon Mazzochi, Resident
Garth Meehan, Resident
Michael Smith, Resident

Beth Kintner, Board of Education Liaison
Kathleen Blonski, Town Manager
Kathleen Greider, Superintendent
Scott Hurwitz, Farmington High School Principal
Alicia Bowman, Assistant Superintendent of Finance and Operations
Kathryn Krajewski, Assistant Town Manager
Tim Harris, Farmington Public Schools Director of Facilities
Other Town and Board of Education Staff as needed
Devon Aldave, Clerk of the Committee

Consultant Team

Construction Solutions Group, Construction Management
TSKP STUDIO, Architects
Kohler Ronan Consulting Engineers, MEP, FP, and IT Systems
Michael Horton Associates, Inc., Structural Engineering
Milone & MacBroom, Civil Engineering, Landscape Design
Food Service Design Collaborative, Kitchen Consultant
PM&C, Cost Estimators



Existing building with vintages of each addition

II. Introduction and Guiding Principles

Returning to concern over the Farmington High School (FHS) Facilities, on March 26, 2019, Farmington's Town Council appointed and charged the Farmington High School Building Committee (FHSBC) with a two-part task. Part One was to develop three distinct schemes with two competing design teams. The FHSBC then was to select a scheme from a team, making a recommendation to the Town Council to move forward to Part Two in which that design team would develop with the FHSBC a more complete Preliminary Design. This Schematic Design report constitutes the design team's portion of Part Two and recaps the findings and decision-making which led to its development.

During Part One, two competing design teams worked with the FHSBC and the Town's professional staff to independently design three distinct schemes:

1. Maintaining the existing Farmington High School (FHS) facilities

2. Renovate as New the existing facilities with selected demolition and additions at the current location

3. New Building on the existing site

A fourth scheme, new building on a new site, was eliminated prior to the engagement of the design teams in Part One. The FHSBC approached Part One using the Town's approved Summary of Needs (SON) and previous committee's reports and findings as guidance.

The SON identified the following concerns:

Accreditation and Accessibility

Security Compliance

Sprawling Layout

Educational Programming

Building Envelop Code Compliance and Energy Efficiency

A holistic summary, the SON identified the concerns and deficiencies requiring remediation with the goal of providing a comprehensive solution to the Town's and High School's needs. Each team produced three complete and costed schemes for a total of six schemes. The FHSBC then weighed the Town's priorities against the possibilities presented by each scheme. The FHSBC scored each scheme across seven criteria closely based on the SON:

- Local, State, and Federal Requirements – the schemes' ability to address Accessibility, Security, and NEASC Deficiencies
- Programmatic Needs – the schemes' ability to satisfy the Educational Specifications and provide flexible and Collaborative environments for new or enhanced programming
- Consolidation of Space – The schemes' ability to reduce sprawl, efficiently use space, and include program elements currently located off-site
- Building Systems – the scheme's ability to provide efficient systems and envelop that comport with the Town's maintenance culture and sustainability goals
- Site Improvements – the scheme's ability to provide good and secure flow of traffic, provide for the athletic field requirements, and to be ADA compliant
- Benefits to the Community – the scheme's ability to provide community use of the facilities and possible shelter services
- Fit and Feel of Farmington – the scheme's ability to satisfy the Town's expectation of internal and external design.

Cost was an additional factor but reported separately to the Town Council alongside the schemes' scoring. After considering and scoring these criteria, the FHSBC selected TSKP Studio's New Building scheme. This report focuses on the elements of TSKP Studio's New Building option and references the other schemes if they contain findings material to this design's development.

The Town Council accepted FHSBC's selection and urge the Committee to move into Part Two. They charged the Committee to investigate reducing the ultimate cost to town in so far is it did not impact the SON or other key selection factors. Section VI provides a summary of the Project Cost.

The FHSBC and TSKP Studio team moved into Part 2 using the Committee's criteria and scoring as its guiding principles.

Aerial of existing campus

III. Site Design

During Part One, the design team worked with the Committee to evaluate construction sites for a new building. The New Building's site needs to provide ample building pad area, good access, clear circulation, and sufficient buffer from adjacent parcels, all the while minimizing disruption of the existing school's population and learning. Building on or adjacent to the existing building is out of the question. A site below the main school and adjacent to the library is too steeply sloped to provide good, flexible building floor plates. A site above the main building on the upper field does provide good, level ground but is difficult to access due to its remoteness and steep grade changes. It is tight against regulated natural diversity habitat zones and abutting residential neighbors. Ultimately, two potential sites remained - atop the football stadium or along the parcel's eastern edge. Both sites provide large, flexible building pads, good access, are well buffered for circulation, and are shifted sufficiently from the existing circulation and education spaces. However, each site impacts the adjacent parcels differently.

Site layout for football field

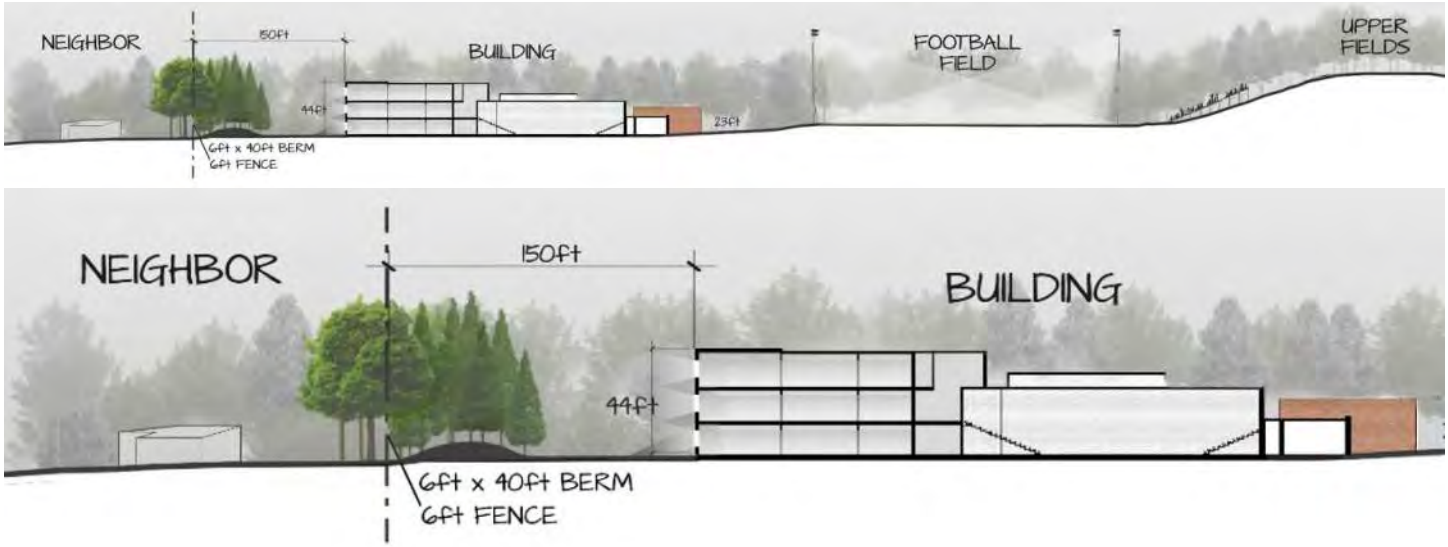
Building on the football field will necessarily shift that site athletic elements to the eastern edge of the parcel. In addition to the cost of rebuilding the field, stands, and track, the group felt the football field is a much too intrusive neighbor to the abutting parcels, bringing with its evening noise and lights.

Site layout for east edge of property

Conversely, building along the eastern edge of the parcel, the new building can be moved far enough from the existing school and still provide an ample setback from the adjacent parcels. Additionally, the building will buffer those abutters from the lights and noise of the fields. As a group, the site along the eastern edge was deemed as the best location for the New Building.

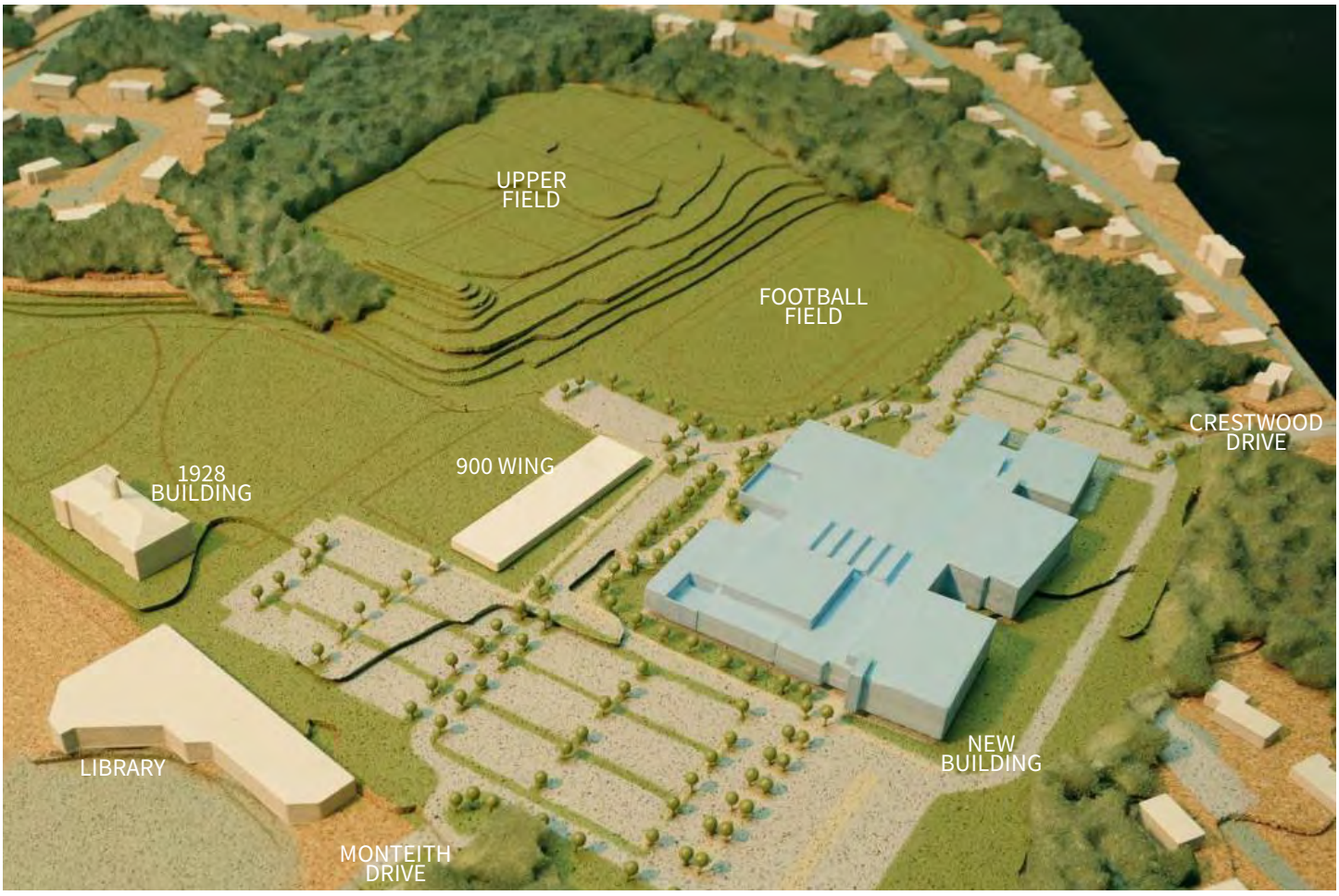
Both sites' scheme make use of a 6 feet high, 40 feet wide landscape buffer, heavily planted with evergreens, to insulate the adjacent parcels from sight-lines, lights, and noise.

Site section for football field



Site section for eastern edge of property

The proposed site design provides clear precincts and circulation between those precincts. The New Building faces the existing approach, Monteith Drive. Student drop-off, by car or bus, are split into two loops., connected by a wide hardscaped access path. Visitor and student parking is provided up front. Building services and deliveries are kept internal to the parcel by a straightforward service road to a rear service yard. Faculty and staff utilize this service road to access a rear parking lot. Off this same service road, there is an after-hours building entrance, oriented towards the interior of the property, to receive and gather the large populations who will come to the school for evening sporting or performance



Site model of preferred scheme

events. The New Building is the main structure on the site and is contained within these access paths and drives. It is an efficient and compact focus with distinct connections to the other site elements. Those elements, all located to the west across the service drive are site athletic amenities and other programmatic elements affiliated, but not directly connected, with most students' daily lives.

The existing school is to be demolished to provide space for additional parking and relocated fields. The existing building's 900 Wing (built in 2003) remains and is renovated to provided additional Field House space and an Administrative Suite for Central Office which will be relocated from Town Hall. Beyond the 900 wing are a new practice baseball field and tennis courts, both displaced by the New Building. The site design provides for the original 1928 wing to remain in place should the Town decide to do so. The 1928 building is discussed in more detail in Section VI.

Additional site improvements include accessibility improvements to the upper fields, football field stands and press box. The entire length of Monteith Drive, the existing access drive, is widened to provide two full lanes for both ingress and egress. For a second access point, emergency and Town vehicle access is provided at the end of Crestwood. There is an existing gate here. The proposed site design improves this gate and extends the emergency access road with a wide paved road along the New Building's eastern edge. This road too will be gated, used as a pedestrian walkway except in times of emergency. During Part One, the design team looked at the viability of creating a second site access point through a Town open space parcel at the far western edge of the site. The scheme was deemed unsuitable, requiring too much cut and fill to safely descend from the property down to Highwood Road.

Illustrative site plan

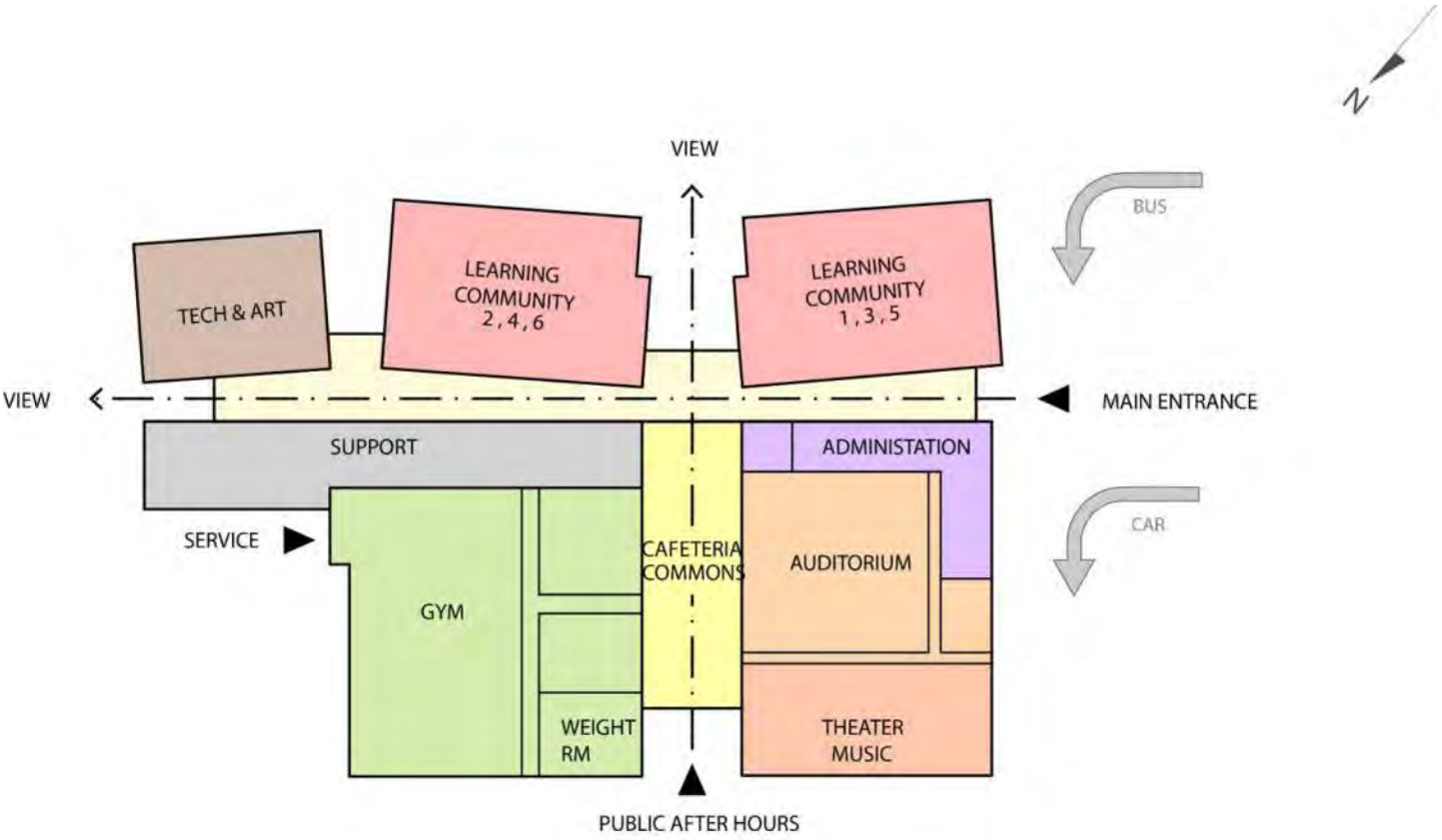
View of main entrance

View along renovated 900 Wing of after hours entrance

View along eastern edge of property

View of eastern classroom wings

IV. Building Layout and Education Specifications



Plan diagram

The New Building's layout takes it cues from the Site Design (Section III) and similarly provides clear precincts and circulation. The plan divides across two main axes. The first axis, running north-south, connects the main entrance, facing the drop-off loops and Monteith, to the rear staff entrance. It provides wide circulation and clear sight-lines separating the core educational classrooms to the east from the larger group educational spaces (auditorium, music rooms, gymnasia) to the west.

View along main north-south axis

The rooms that have doors along this axis can be opened up to the corridor with interior storefronts. It is thought that "seeing in" and "being seen" can activate the corridor and engage these rooms into the life of the school. The degree of direct visual connection remains to be studied.

This north-south axis is bisected by an east-west axis running from the after-hours entrance. It is sufficiently wide to provide all the seating capacity for the cafeteria. Outside of lunch hours, it is available as a common space or lobby space for the Auditorium and Gymnasia populations.

View along east-west axis looking down on cafeteria

Administrative spaces are clustered along the New Building's main entry at the drop off loops, providing good "eyes on the street" for the school's comings and goings. Primary administration is located along the ground floor. Counseling is located along the second floor. The Learning Communities are grouped in pairs and stacked three stories. Section V discusses the Learning Communities in detail. The long north-south axis ends with a two-story career education and visual arts cluster. Performing arts, theater and music spaces are clustered to one side of the Cafeteria and indoor athletic spaces, including the Gymnasia, are clusters to the other side. The Media Center, or Learning Commons sits on the second floor overlooking this gathering space.

Main building - First Floor Plan

Main building - Second Floor Plan

Main building - Third Floor Plan

Plan of renovated 900 Wing

The rework at the 900 wing renovates the existing field house and expands that program to provide Title IX parity. These spaces maintain good adjacency and access to the field site amenities. The existing glass tower used for student entry is renovated to be a dedicated entrance to the Central Office administrative suite. This new office use will provide staff and support space for Farmington Public School. It includes a large conference room suitable for Board of Education meetings.

Complete floor plans and pricing specifications of primary spaces and building systems are included in Section VIII.

V. Learning Communities

Learning Communities are a key concept in the Education Specifications and consequently a key feature of the New Building. Conceived as multidisciplinary clusters of classroom and teaming spaces, the six Learning Communities provide the core learning environments in the program and the New Building. Each Learning Community contains a range of classrooms environments and support spaces. These spaces are designed to be centrally focused to increase interdisciplinary learning and to promote the co-educational mission. The Learning Communities consists of 8 standard classrooms and two science classrooms with their associated prep rooms. These are arranged around the perimeter to afford each classroom with windows. Each classroom has interior glazing opening to a break-out space in which each Community can gather for co-educational programs. The interior of each Community contains additional small and large group teaming rooms, a central faculty workroom and office space, and support rooms for toilets, IT, and resources. Two classrooms for each Community are outfitted with a demountable partition allowing them to be combined onto a single room for larger team work. The design provides a flexible and engaging environment to promote collaborative and creative learning spaces.

Prototypical classroom environment

Prototypical Break-out space

Typical components of a Learning Community demonstrating indicative of the range in classroom environments

VI. Cost and Alternates

The cost target for the project was established in Part One of the FHSBC's process. The cost was framed in two terms, Total Project Cost and Cost to the Town. Total Project Cost includes all monies associated with the project, inclusive of construction, equipment, fees, and contingencies. Cost to the Town is the Total Project Cost less grants and monies available from state or other programs.

The recommendation the FHSBC made to Town Council at the conclusion of Part One included the following cost projection:

The Town Council's charge to the FHSBC was to pursue and develop the selected scheme looking to reduce the ultimate Cost to Town to $105M to $110M. The Council caveated this charge requesting the FHSBC return and advise them should such a reduction impact the Summary of Needs or other key selection factors.

On January 22, 2020:

	Detailed Estimate	In Millions
1. Arch./Eng. Design Fee	$ 5,690,000	$ 5.7
2. Professional Fees	$ 3,018,487	$ 3.0
3. Construction Costs	$ 120,640,036	$ 120.6
4. Alternates	$ 0	$ 0
5. FF&E and Technology	$ 5,591,000	$ 5.6
6. Owner Contingency (5%)	$ 7,100,000	$ 7.1
7. Grand Total	**$ 142,039,523**	**$ 142.0**
8. Est. State Reimbursement	- 28,007,905	- 28.0
9. Net Town Share	**$ 114,031,618**	**$ 114.0**

On February 4, 2020:

10. Target Net Town Share	**$105 to $110**

The design team revised the scheme in pursuit of this targeted reduction. Working with the FHSBC, educators, and Town staff, TSKP Studio refined the scheme's scope, improving its content and detail and identifying several areas where savings could be made without impacting the project's priorities. Targeted reductions in April 2020 included:

After Est. State Reimbursement	Detailed Estimate	In Millions
9. Net Town Share	**$ 114,031,618**	**$ 114.0**
Potential Cost Reductions Discussed On March 4, 2020:		
	Est. Reductions	
a. Reduce Building (7,100 SF x $480/SF)	$ 3,400,000	
b. Delete Green Roof (Per Estimate)	425,000	
c. Delete Additional Ballfield (Per Estimate)	620,000	
d. Delete Relocation of Cupola (Per Est.)	150,000	
e. Reduce FF&E and Technology	651,000	
f. Reduced Contingency on Savings	300,000	
g. Total Cost Reductions	**$ 5,546,000**	**($ 5.5)**
h. Revised Net Town Share		**$108.5**
On February 4, 2020:		
10. Target Net Town Share		**$105 to $110**

After discussion with the Building Committee, TSKP Studio and the engineering team produced Schematic Design drawings and specifications reflecting a further refined scope and understanding of the New Building Scheme. A new construction cost estimate was developed in May 2020. In February 2021, the estimated State reimbursement rates for the New Building and the 900 wing were adjusted. The initial Total Project Costs and the subsequent revisions are tabulated in the chart below:

	Feb 2020 original	May 2020 adjusted	Feb 2021 Rate adjusted	
			900 Wing	New Bldg
1. Arch./Eng. Design Fee	$ 5.7	$ 5.7	$ .3	$ 5.3
2. Professional Fees	$ 3.0	$ 3.0	$ .1	$ 2.8
3. Construction Costs	$ 120.6	$ 117.0	$ 5.1	$ 110.4
4. Alternates *	$ 0	$ 0		$ 0
5. FF&E and Technology	$ 5.6	$ 5.1	$ .2	$ 4.9
6. Owner Contingency (5%)	$ 7.1	$ 6.5	$ .3	$ 6.1
7. Grand Total	**$ 142.0**	**$ 137.3**	**$ 6.0**	**$ 129.6**
8. Est. State Reimbursement	- 28.0	- 27.5	-1.7	- 24.6
9. Net Town Share	**$ 114.0**	**$ 109.8**	**$ 4.3**	**$ 105.0**
			$ 109.3	

On February 4, 2020:

10. Target Net Town Share	**$105 to $110**

* *see potential alternates on page 27*

What were the design revisions? The team identified several items that could be eliminated in the base design, and added as alternates for the projects. These items fit the project's goals but are not necessarily essential to the project. These alternate items were priced and presented to the FHSBC. Ultimately, the FHSBC can choose one of four actions for each alternate: include the scope into the base project, remove the scope from the project, continue to track the scope as an alternate as the project develops, include the scope as a separate line item in the referendum, allowing the Town to make the value decision as to whether to include the scope. The alternate items and their description are as follows:

	Description	Cost to Town (rounded)	ACTION
* 1	Motorized partition between gyms	$ 90,600	Potential add alternate
* 2	Stone in lieu of masonry	$ 541,500	Potential add alternate
3.1	Mothball 1928 building	$ 1,042,300	Exclude from base project
3.2	Renovate as New 1928 building	$ 9,821,700	Exclude from base project
4	Additional ballfield	$ 275,700	Exclude from base project
5.1	Additional energy saving initiative	$ 676,300	Exclude from base project
5.2	Net-Zero physical plant	$ 9,144,800	Exclude from base project
6	Route 4 improvements	$ 763,300	Exclude from base project
7	Universal Design Consultant	$ 12,600	Included in A/E fee
* 8	Additional FFE allowance	$ 420,000	Potential add alternate
* 9	Anti-graffiti sealer	$ 351,600	Potential add alternate
*10	Vert. aluminum sunshades	$ 449,300	Potential add alternate
*11	Reduce wood ceiling at Atrium	$ 320,000	Potential add alternate
*12	Other signage and graphics	$ 64,000	Potential add alternate

* *Recommended Add Alternates*
Total Add Alternates = $2.2 million net to Town in Construction and FFE costs.

Alternate Item 1 – Motorized partition between Gymnasia

The base scope for the New Building includes the Large and Small Gymnasia called for in the Educational Specifications. The large Gymnasium is sized for high school tournaments and includes seating for 1400 spectators. This alternate will provide a demountable partition between the two Gymnasia allowing it to be combined for larger school or community events, adding flexibility and an additional community asset. TSKP Studio's recommendation is to continue to track this scope as an alternate as the project develops through its phases.

Alternate Item 2 – Stone in lieu of masonry

The base scope for the New Building is a brick exterior wall accented with precast decorative bands. This alternate scope substitutes a stone veneer of large (2'x4') blue stone units. The addition of stone expands the design and brings the project closer to the material palette of other adjacent Town buildings. TSKP Studio's recommendation is to reduce this stone substitution to the areas where it will be most impactful and continue to track it as an alternate as the project develops through its phases.

Exclude Item 3.1 - Mothball 1928 building and Item 3.2 - Renovate as New 1928 building

A 3-story, hipped-roof, neo-Georgian structure, the 1928 building is the oldest High School building on the site. It is a distinct and memorable element of the current campus. Nevertheless, it sits too remote from the proposed New Building to have an effective role in the Educational Programming of the project. The base scope for the project excludes mothballing the 1928 building. The project also excludes any hazardous material abatement, demolition, or renovation of the 1928 building. In February 2021, the Town Council decided that, if a referendum for the high school project is approved, then a building committee should be formed specifically to study the potential reuse and renovation of the 1928 building as a separate project.

Exclude Item 4 - Additional Ballfield

The base project includes the athletic field program that closely mirrors the existing campus. This alternate tracks adding an additional ballfield. As the design team developed the site plan with the stakeholders, it became increasingly clear that the competing goals of maximizing parking, keeping the 1928 building, rebuilding the tennis courts, and adding a ballfield creates congestion in the west portion of the site. If all elements are to be included in full, significant regrading and retaining walls are required to provide adequate flat area. This additional ballfield may not be achievable if the 1928 building remains.

Exclude Item 5.1 - Additional energy saving initiatives and Item 5.2 - Net-Zero physical plant

The base project includes an energy efficient envelop and physical plant compliant with Connecticut's High Performance Building Standards. It is anticipated that the New Building, while both larger and fully air-conditioned, will operate at less annual utility cost than the existing building. Scope 5.1 could include modular chillers and ice-storage in the physical plant. It is anticipated that these features will pay back their initial investment is less than twenty years. Scope 5.2 could include an upgraded central plan with the goal of making the project "net-zero", meaning it generates as much energy as it consumes annually, by utilizing renewable energy sources, such as a geothermal field and a large photo-voltaic array. However, these items are excluded from the project because of their long payback period.

Exclude Item 6 - Route 4 improvements

The project excludes widening Route 4 to incorporate a dedicated right-hand turn lane west-bound, a dedicated left-hand turning east-bound, and required re-signalization. Note that this scope requires separate State approvals and is unlikely to be reimbursed by state school construction grants.

Alternate Item 7 – Universal Design

The base scope for the new Building includes a design fully compliant with Federal accessibility standards, state building code guidelines, and the Town's Universal Design ordinance. This alternate adds third-party oversight and consultation. TSKP Studio's recommendation is to add this consultant fee to the base scope of the project.

Alternate Item 8 – Additional FFE allowance

This alternate scope adds back the reduced FFE/IT budget from Part Two of the project's development. TSKP Studio recommends tracking this as an alternate as the project develops through its phases.

Alternate Item 9 - Anti-graffiti Sealer

Adding an anti-graffitti sealer to the interior masonry walls in public spaces may not be necessary if these walls are constructed with ground-face CMU or glazed masonry.

Alternate Item 10 - Vertical Aluminum Sunshades

The vertical aluminum sunshades, or mullion cap extensions, will be further evaluated when an energy model is created and when the payback period can be calculated for these additional architectural elements.

Alternate Item 11 - Reduce Wood Ceiling at Atrium

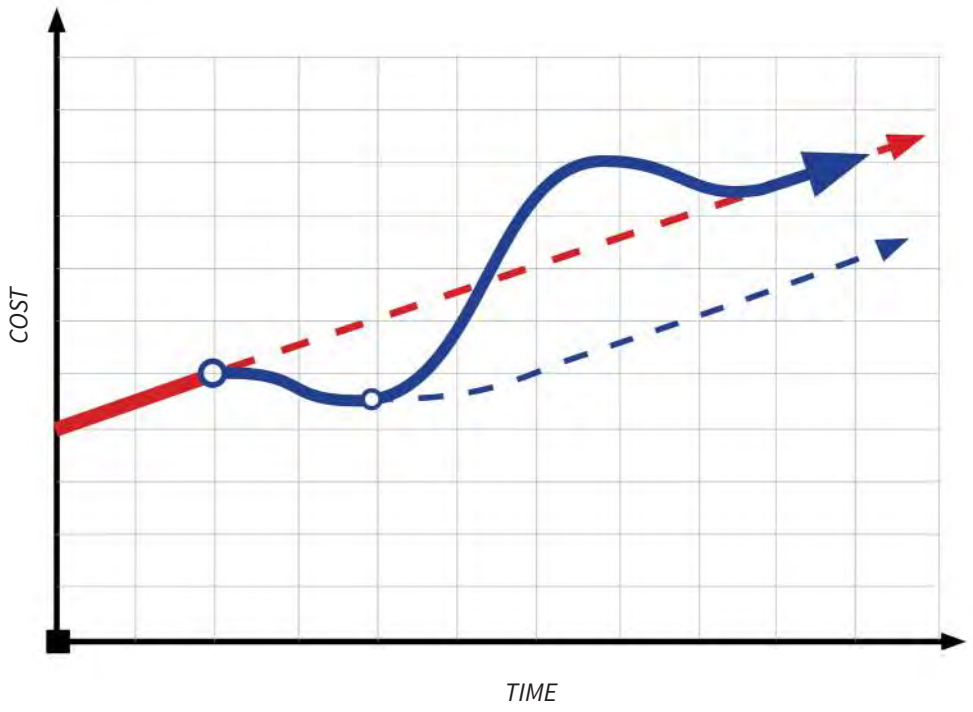
If bidding is favorable, adding more wood acoustical tile can provide color and warmth to the interior of the Atrium. The decision to add more can be made after bids are recieved.

Alternate Item 12 - Other signage or graphics

Additional signage and accent graphics can be added if they are required.

Impact of COVID-19 Outbreak on Construction Costs

After the Town Council voted to place the FHS Building Project on a temporary pause, the Building Committee asked TSKP Studio to provide updates on the construction industry. The Committee wanted to know specifically if the COVID-19 outbreak has affected cost. TSKP Studio reported that, from their experience, there has been an increase in the number of bids they received on projects in the public sector, such as public schools and libraries because work on commercial projects such as offices, retail businesses and restaurants had suddenly stopped. At the end of 2020, the bids TSKP Studio recieved on a public school project were 20% lower than expected. Nevertheless, TSKP Studio advised the Building Committee that this change in the industry is most likely temporary and that the budget for the FHS Building Project should not be changed at this time. However, escalation will likely resume, or even increase, at some point in the future when the industry rebounds.



Cost over Time
Red line represents the pre-pandemic escalation trend.
Blue line represents the projected impact of COVID -19 on cost .

VII. Conclusion

The New Building represents a holistic approach to the FHSBC's charge. It improves upon the recommended scheme from Part 1 to provide a flexible and engaging environment for the school and its community. With the FHSBC, the design team has refined the layout and scope to address each of the Committee's selection criteria. The New Building offers a comprehensive solution to the Town of Farmington.

View of main entrance

View of main axis

VIII. Appendices

A. Renderings

View of main entrance

View along existing 900 wing

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View of after-hours entrance

View along eastern edge of property

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View along eastern edge of property - evening

View of eastern classroom wings

View along main north-south axis

View along east-west axis looking down on cafeteria

VIII. Appendices

B. Illustrative Plans

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Main Building - First Floor Plan

Main Building - Second Floor Plan

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TSKP STUDIO

Main Building - Third Floor Plan

Renovated 900 Wing

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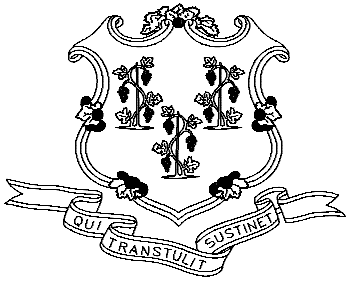
VIII. Appendices

C. Technical Drawings

STATE OF CONNECTICUT



DANIEL P. MALLOY, GOVERNER

DEPARTMENT OF PUBLIC WORKS
JAMES T. FLEMING
COMMISSIONER

DEPARTMENT OF CONSTRUCTION SERVICES
DONALD DEFRONZO
COMMISSIONER

FARMINGTON HIGH SCHOOL

STATE PROJECT NUMBER XXX

27 MAY 2020
SCHEMATIC DESIGN
VOLUME 1 OF 1

XXXX - CONSULTANT

XXXX - CONSULTANT

XXXX - CONSULTANT

XXXX - CONSULTANT

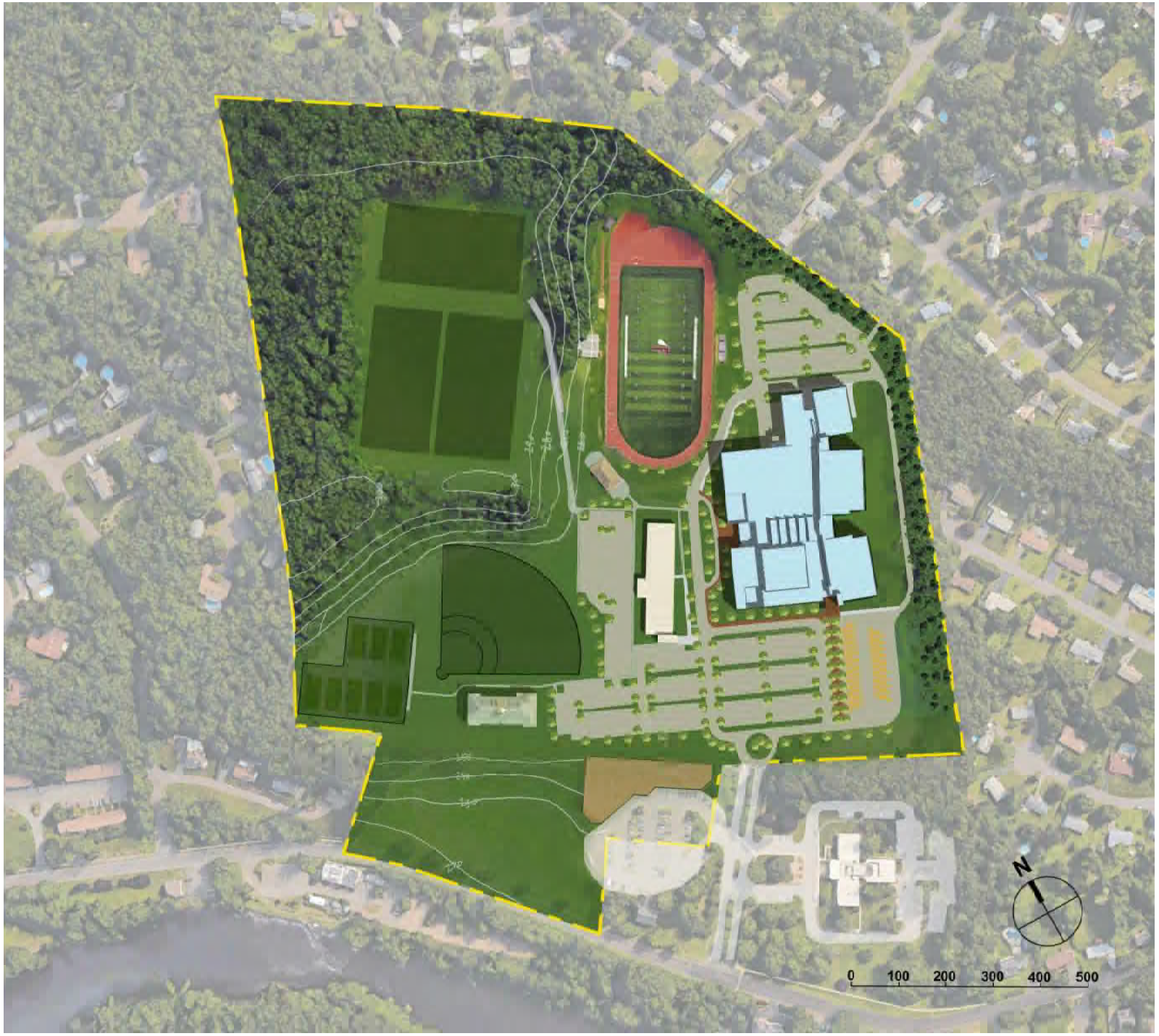
DRAWING LIST

LOCATION PLAN

APPROVALS

PUBLIC WORKS DATE

AGENCY DATE



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SCHEMATIC DESIGN DOCUMENTS

KEY PLAN

DRAWING TITLE

ILLUSTRATIVE SITE PLAN

STATE PROJ. NO.	
PROJ. NO.	19070/1
SCALE	
DATE	27 MAY 2020
DRAWN BY	Author
APPROVED BY	Approver

ISSUE DATES

NO.	DATE	PURPOSE

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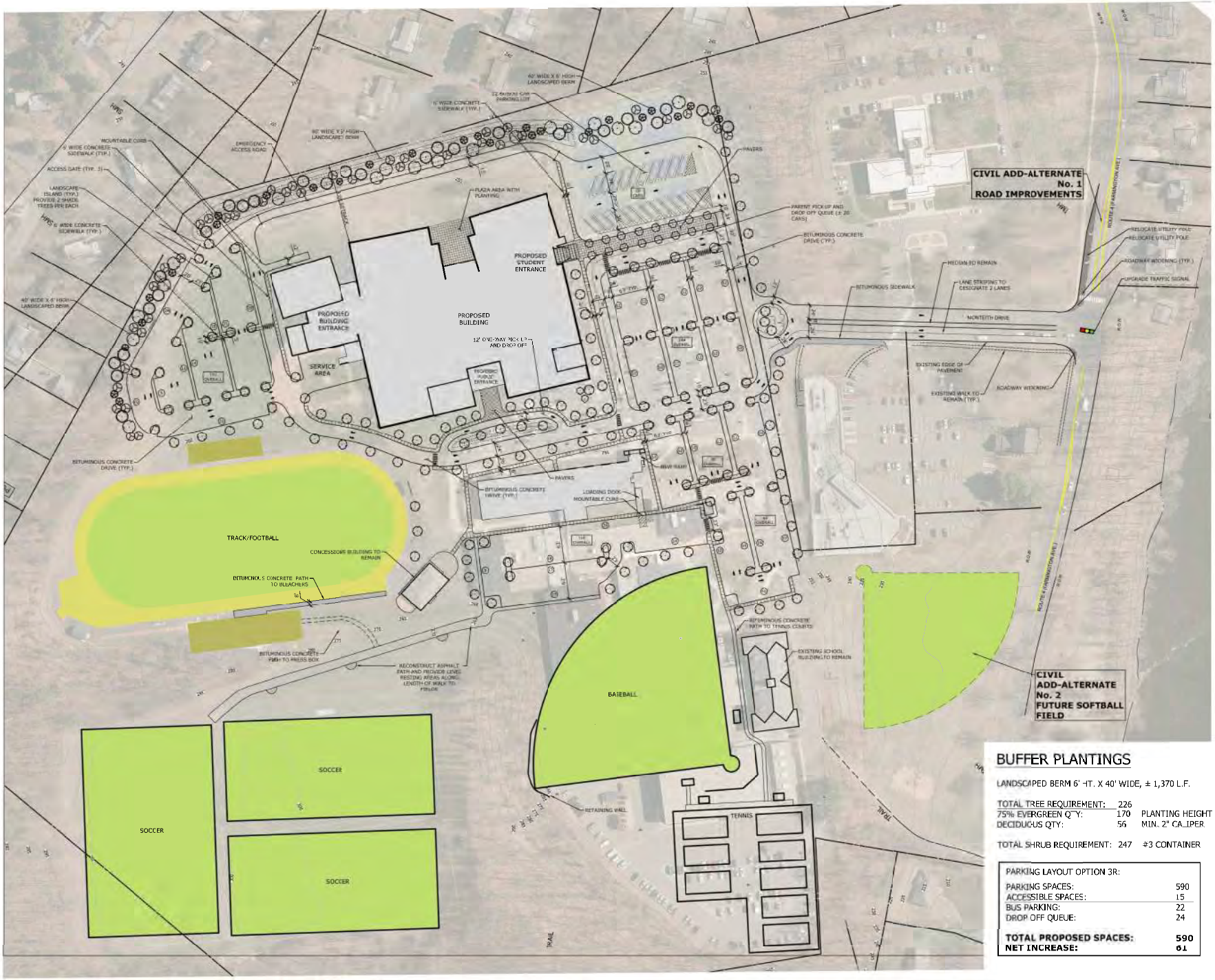

BUFFER PLANTINGS

LANDSCAPED BERM 6' HT. X 40' WIDE, ± 1,370 L.F.

TOTAL TREE REQUIREMENT:	226	
75% EVERGREEN QTY:	170	PLANTING HEIGHT MIN. 6'
DECIDUOUS QTY:	56	MIN. 2" CALIPER
TOTAL SHRUB REQUIREMENT:	247	#3 CONTAINER

PARKING LAYOUT OPTION 3R:	
PARKING SPACES:	590
ACCESSIBLE SPACES:	15
BUS PARKING:	22
DROP OFF QUEUE:	24
TOTAL PROPOSED SPACES:	**590**
NET INCREASE:	**61**

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99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773
WWW.MMINC.COM

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NEW CONSTRUCTION PRICING DOCUMENTS

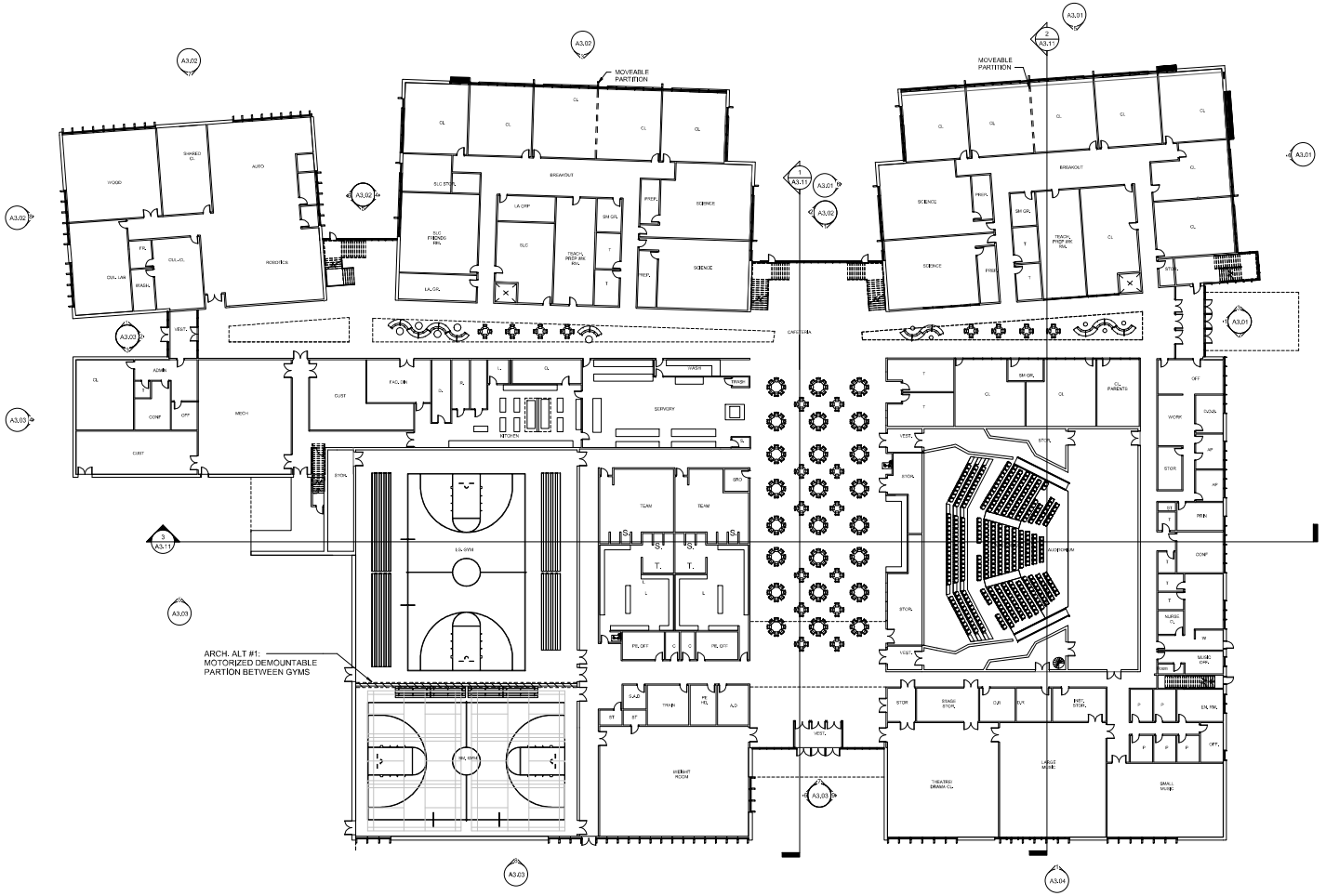
KEY PLAN

DRAWING TITLE

CONCEPTUAL SITE PLAN

STATE PROJ. NO	-
PROJ. NO	TSKP # 19201
SCALE	1" = 50'
DATE	15 Apr 2020
DRAWN BY	SAS
APPROVED BY	MTD

SP-3R



1 FIRST FLOOR PLAN
1" = 20'-0"

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SCHEMATIC DESIGN DOCUMENTS

KEY PLAN

DRAWING TITLE
FIRST FLOOR PLAN

STATE PROJ. NO.	
PROJ. NO.	19070/1
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DRAWN BY	Author
APPROVED BY	Approver

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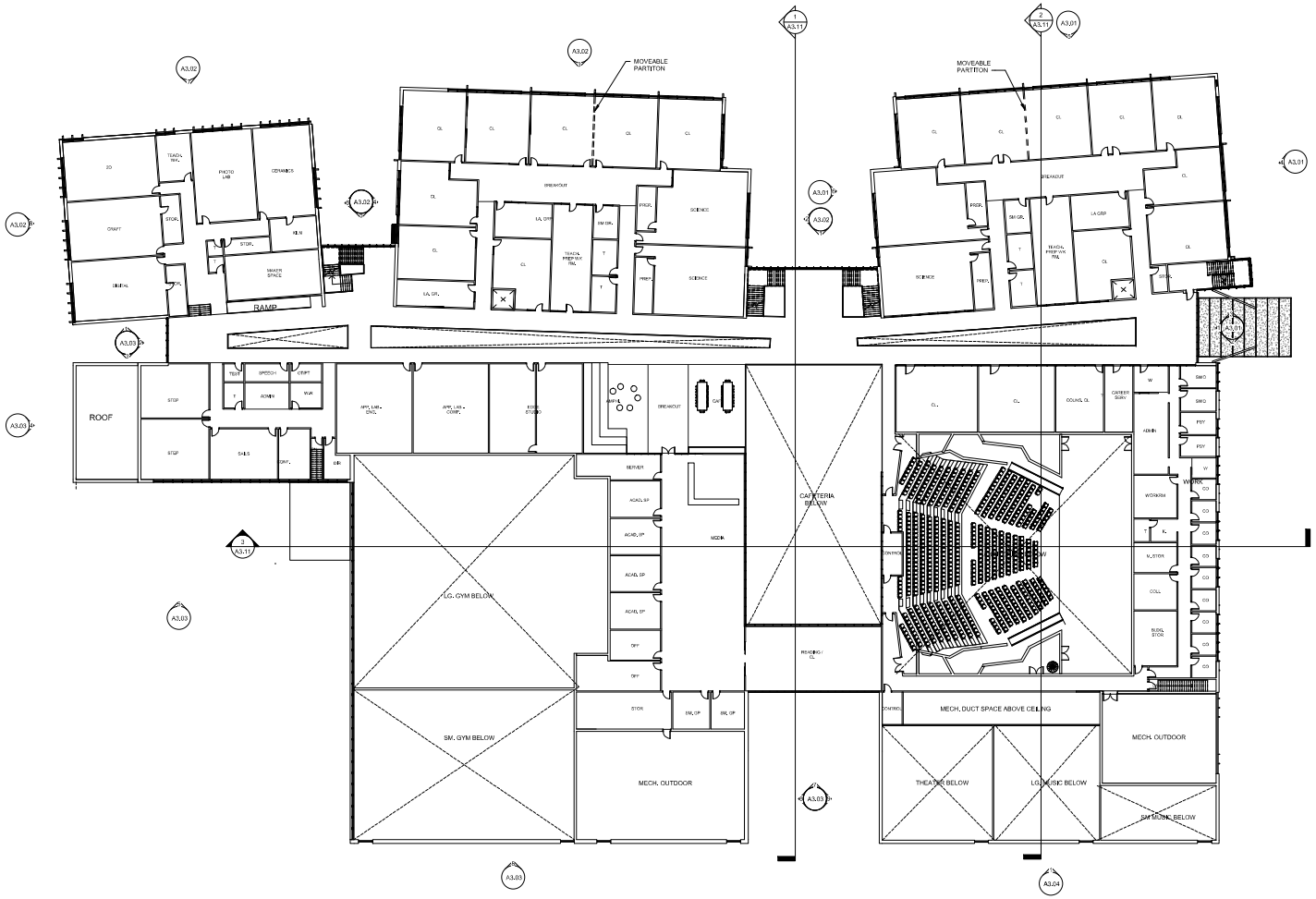

1 SECOND FLOOR PLAN
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SCHEMATIC DESIGN DOCUMENTS

KEY PLAN

DRAWING TITLE
SECOND FLOOR PLAN

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APPROVED BY	Approver

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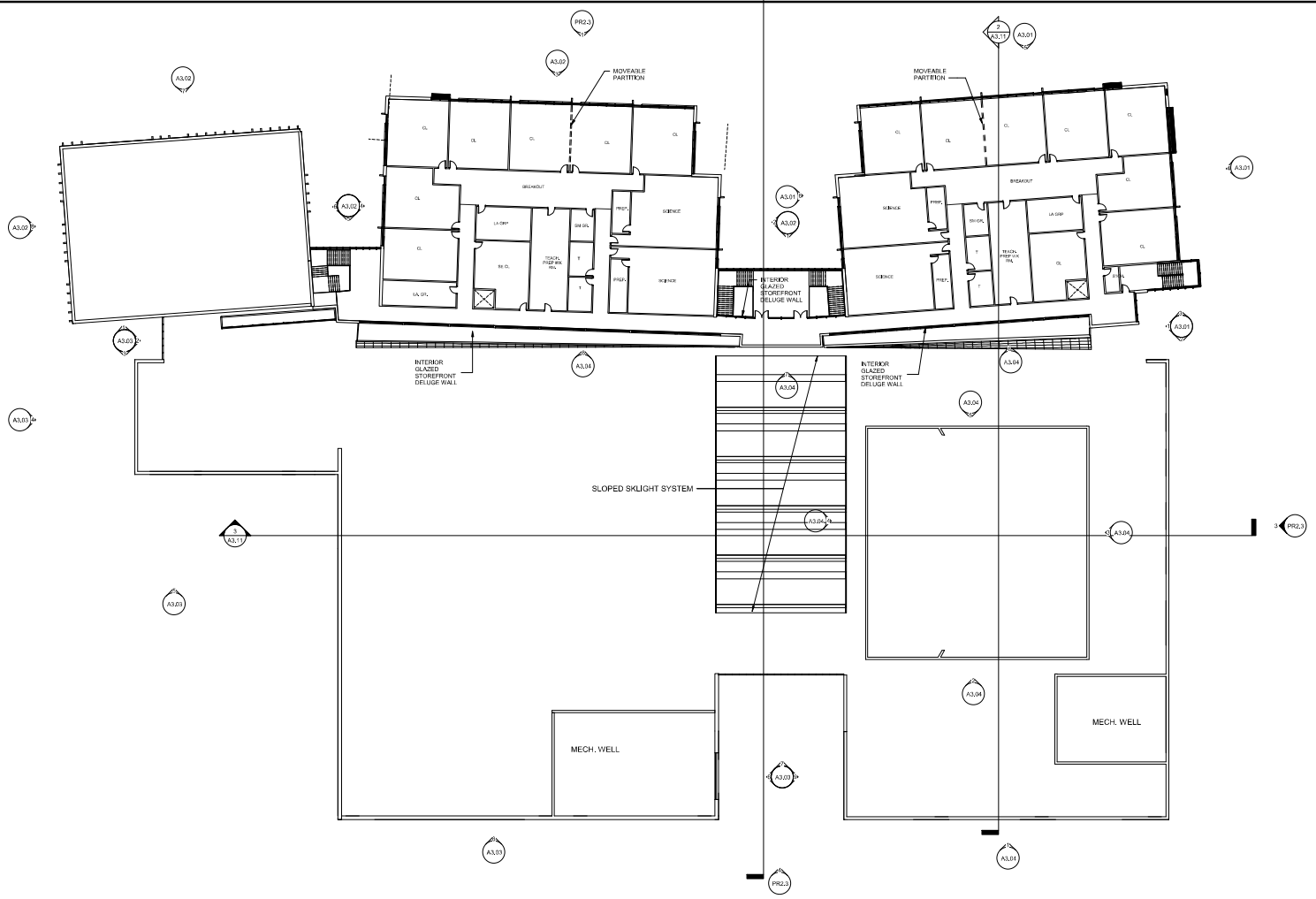

1 THIRD FLOOR PLAN
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KEY PLAN

DRAWING TITLE

THIRD FLOOR PLAN

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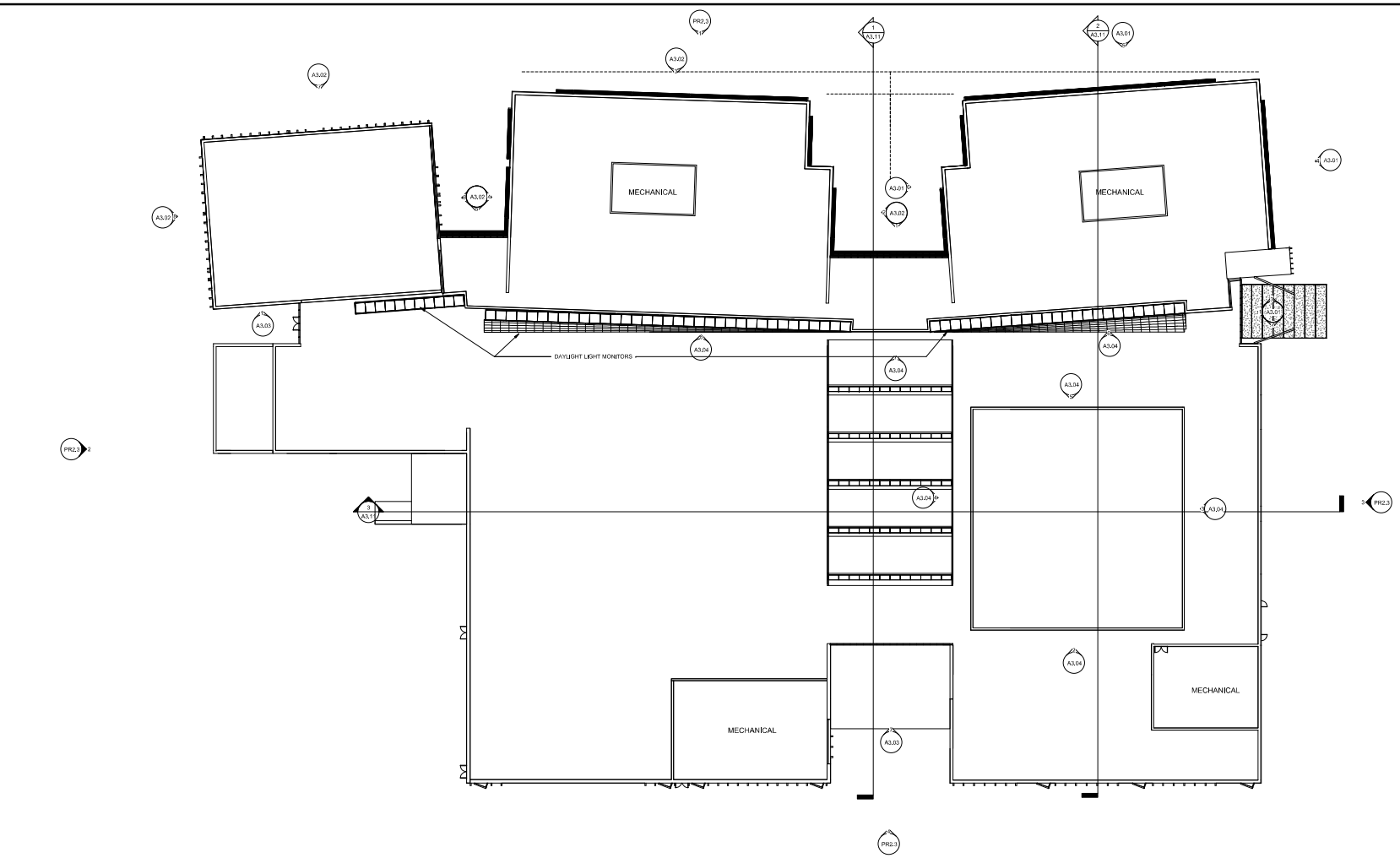

1 ROOF
1" = 20'-0"

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Farmington, CT

SCHEMATIC DESIGN DOCUMENTS

KEY PLAN

DRAWING TITLE
ROOF PLAN

STATE PROJ. NO.	
PROJ. NO.	19070/1
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DATE	27 MAY 2020
DRAWN BY	Author
APPROVED BY	Approver

ISSUE DATES

NO.	DATE	PURPOSE

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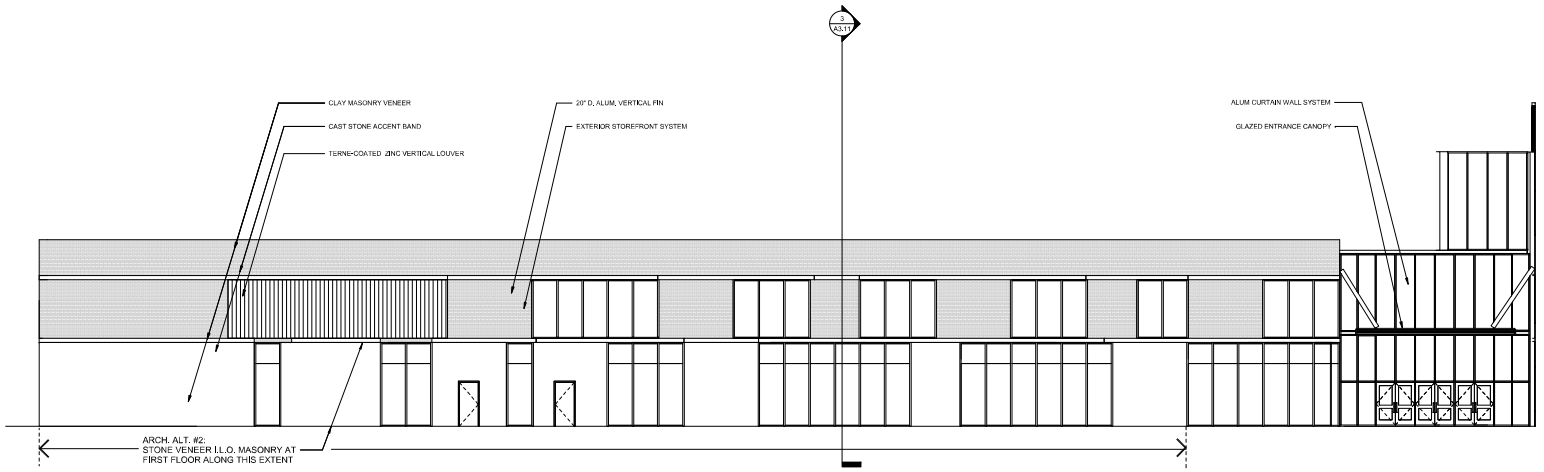

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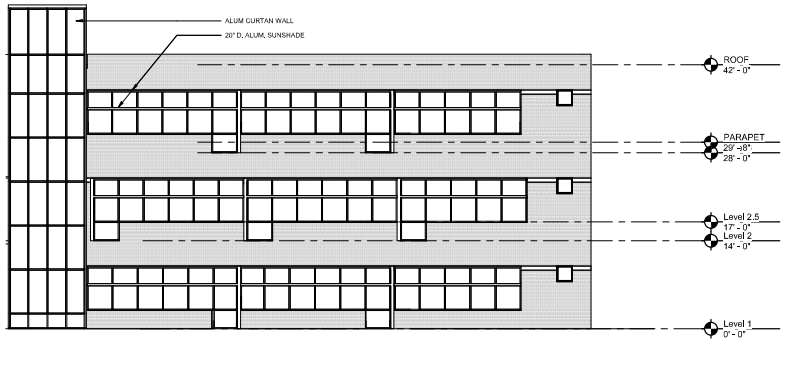

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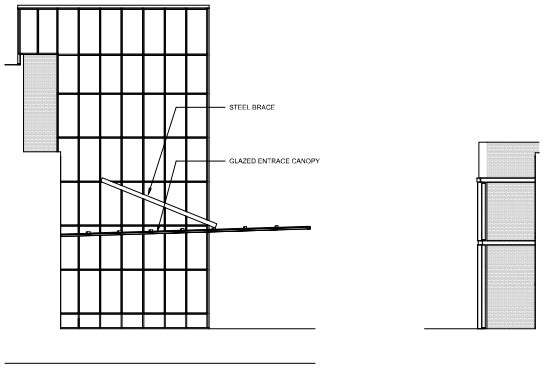

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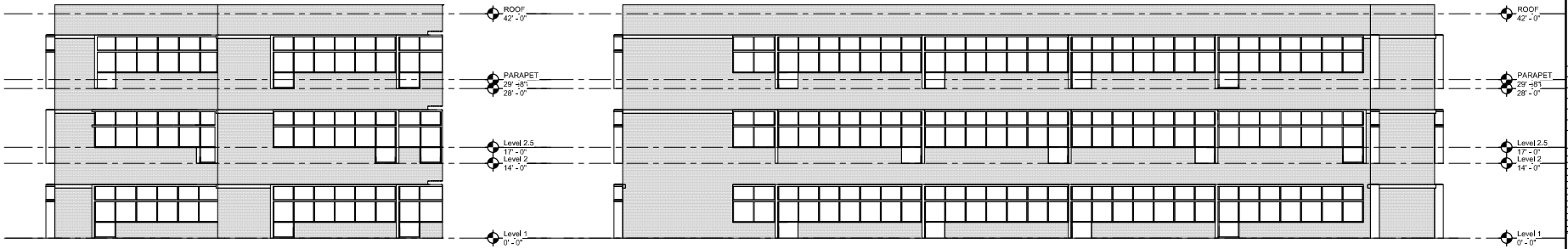
2 SOUTH ELEVATION 4
1/8" = 1'-0"



6 EAST ELEVATION 2
1/8" = 1'-0"

5 EAST ELEVATION 1
1/8" = 1'-0"

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SCHEMATIC DESIGN DOCUMENTS

KEY PLAN

DRAWING TITLE
EXTERIOR ELEVATIONS

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DRAWN BY	Author
APPROVED BY	Approver

ISSUE DATES

NO.	DATE	PURPOSE

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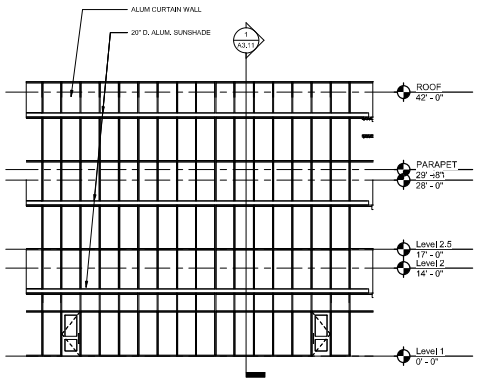

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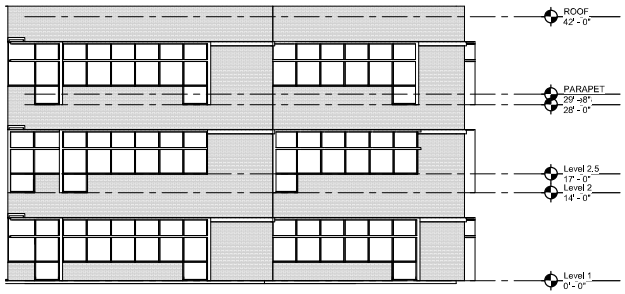

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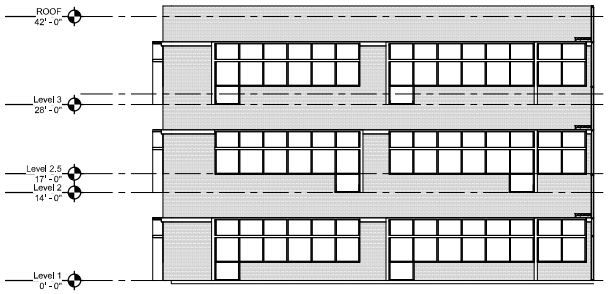

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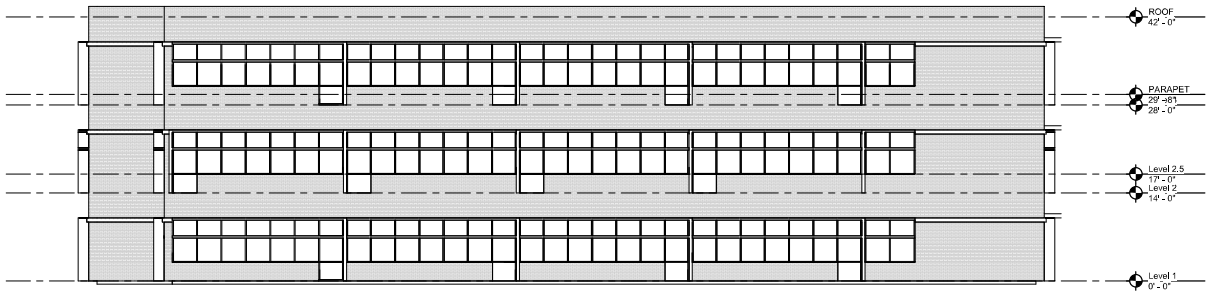

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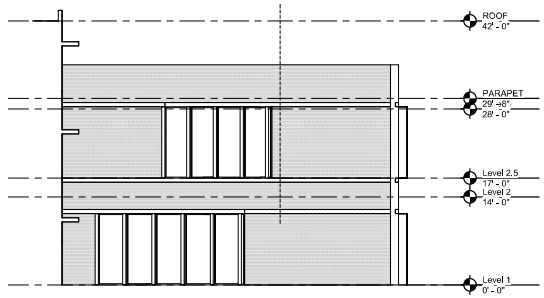

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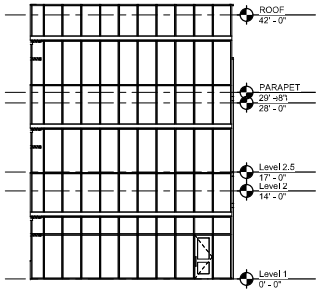

5 EAST ELEVATION 8
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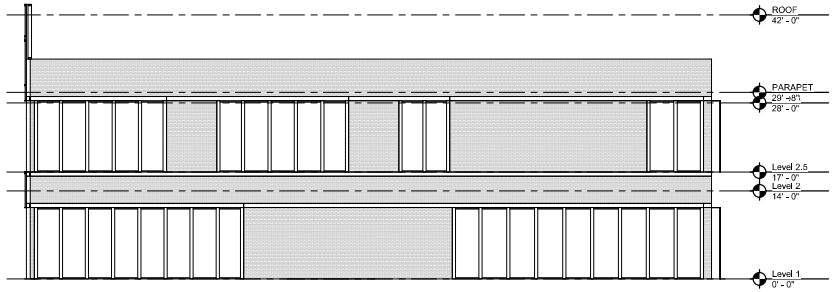
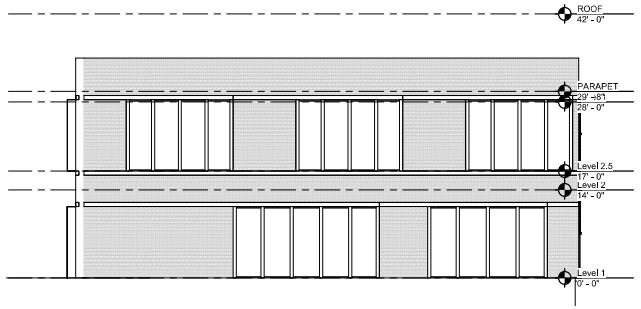


7 EAST ELEVATION 9
1/8" = 1'-0"



8 NORTH ELEVATION 1
1/8" = 1'-0"

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Farmington, CT

SCHEMATIC DESIGN DOCUMENTS

KEY PLAN

DRAWING TITLE

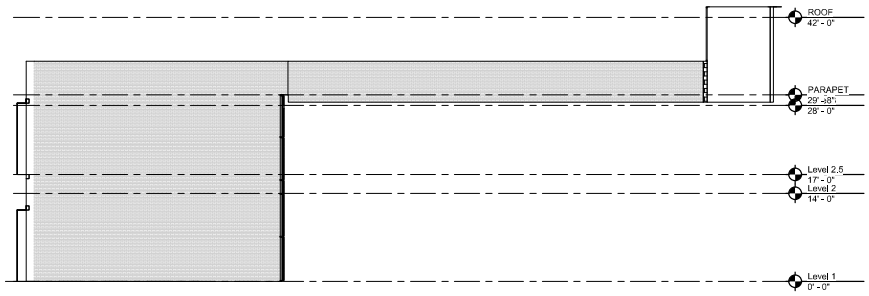
BUILDING ELEVATIONS

STATE PROJ. NO.	
PROJ. NO.	19070/1
SCALE	1/8" = 1'-0"
DATE	10 April 2020
DRAWN BY	Author
APPROVED BY	Approver

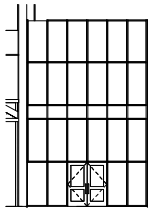
ISSUE DATES

NO.	DATE	PURPOSE

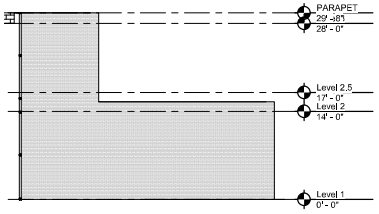
A3.02



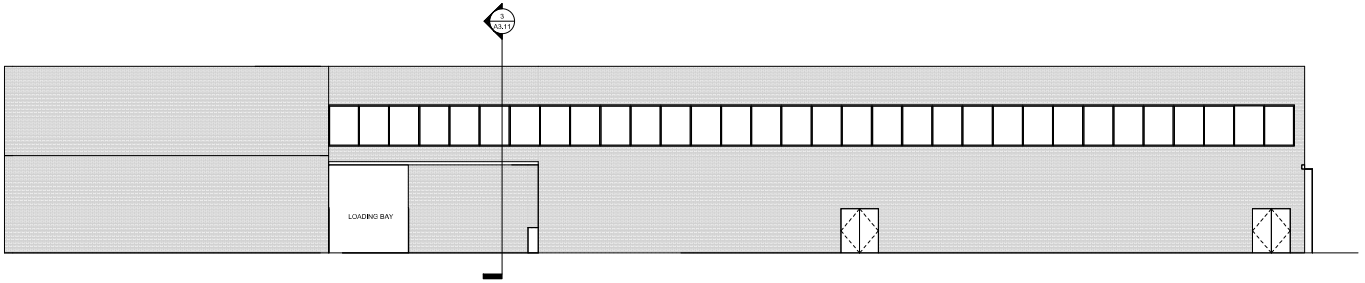
1 NORTH ELEVATION 2
1/8" = 1'-0"



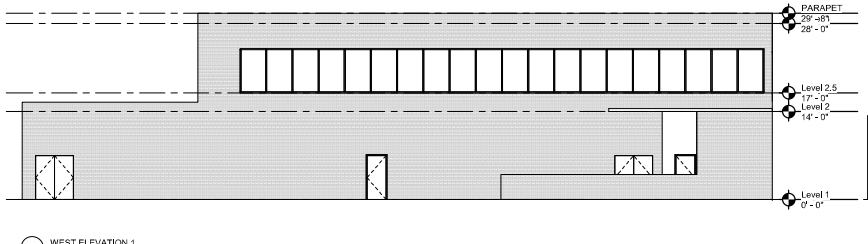
2 NORTH ELEVATION 3
1/8" = 1'-0"



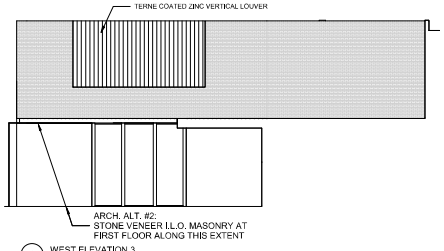
3 NORTH ELEVATION 4
1/8" = 1'-0"



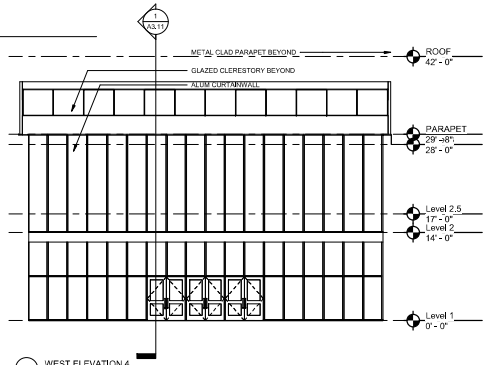
4 NORTH ELEVATION 5
1/8" = 1'-0"



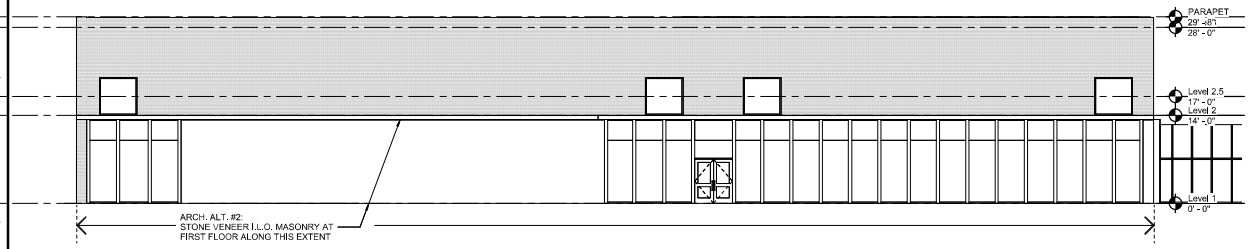
5 WEST ELEVATION 1
1/8" = 1'-0"



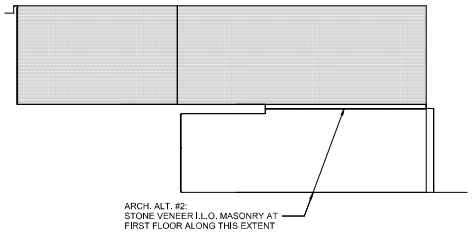
6 WEST ELEVATION 3
1/8" = 1'-0"



7 WEST ELEVATION 4
1/8" = 1'-0"



8 WEST ELEVATION 2
1/8" = 1'-0"



9 WEST ELEVATION 5
1/8" = 1'-0"

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Farmington, CT

SCHEMATIC DESIGN DOCUMENTS

KEY PLAN

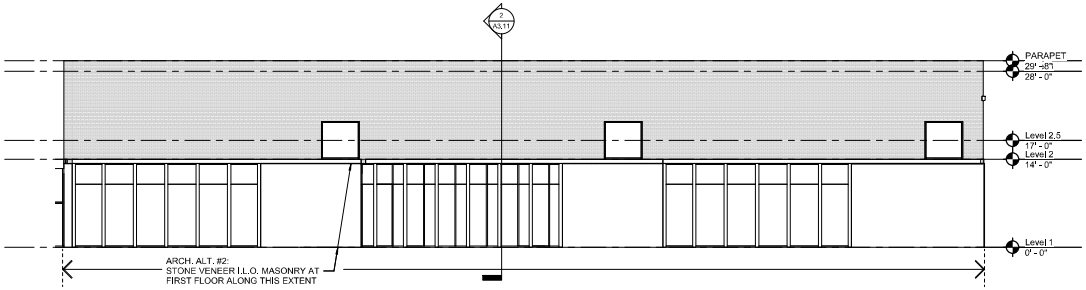
DRAWING TITLE
BUILDING ELEVATIONS

STATE PROJ. NO.	
PROJ. NO.	19070/1
SCALE	1/8" = 1'-0"
DATE	10 April 2020
DRAWN BY	Author
APPROVED BY	Approver

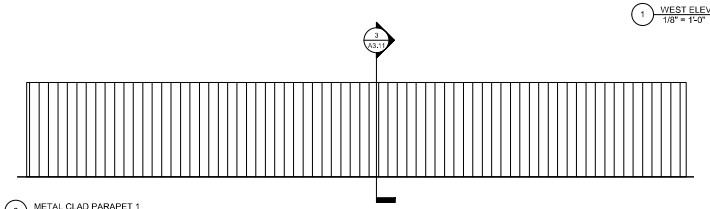
ISSUE DATES

NO.	DATE	PURPOSE

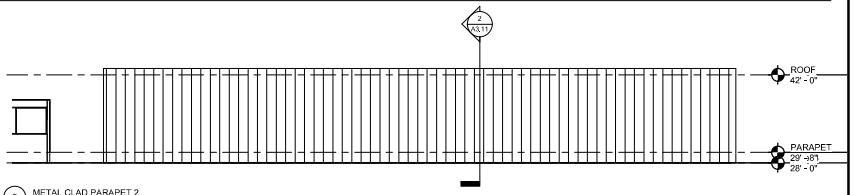
A3.03



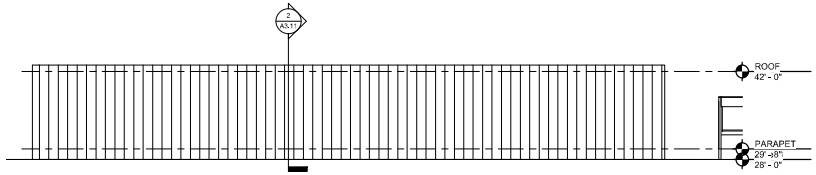
1 WEST ELEVATION 6
1/8" = 1'-0"



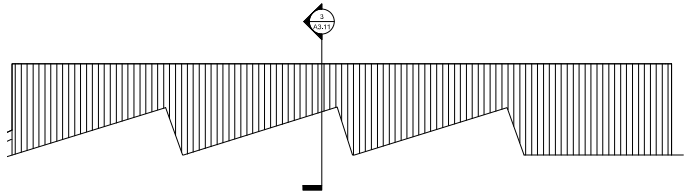
3 METAL CLAD PARAPET 1
1/8" = 1'-0"



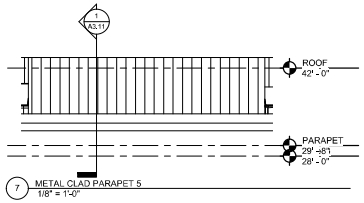
2 METAL CLAD PARAPET 2
1/8" = 1'-0"



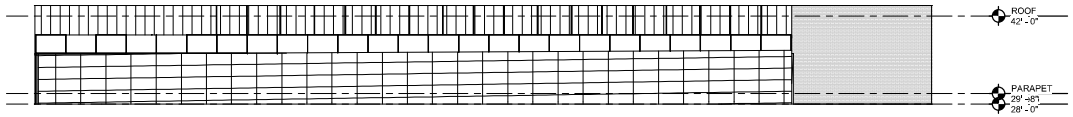
5 METAL CLAD PARAPET 3
1/8" = 1'-0"



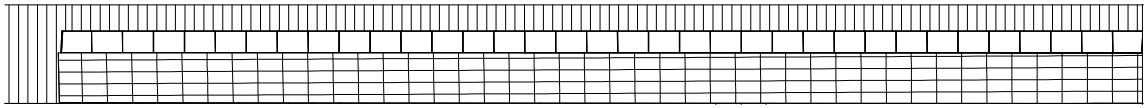
4 METAL CLAD PARAPET 4
1/8" = 1'-0"



7 METAL CLAD PARAPET 5
1/8" = 1'-0"



6 SLOPED GLAZING AT THIRD FLOOR B
1/8" = 1'-0"



8 SLOPED GLAZING AT THIRD FLOOR A
1/8" = 1'-0"

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SCHEMATIC DESIGN DOCUMENTS

KEY PLAN

DRAWING TITLE

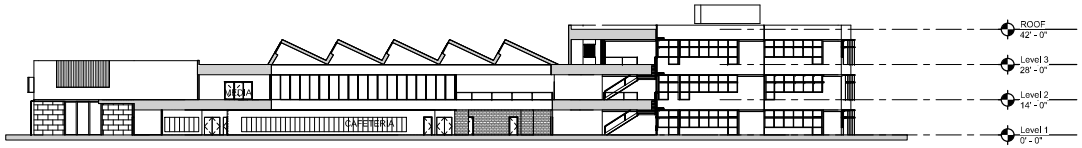
BUILDING ELEVATIONS

STATE PROJ. NO.	
PROJ. NO.	1907/01
SCALE	1/8" = 1'-0"
DATE	10 April 2020
DRAWN BY	Author
APPROVED BY	Approver

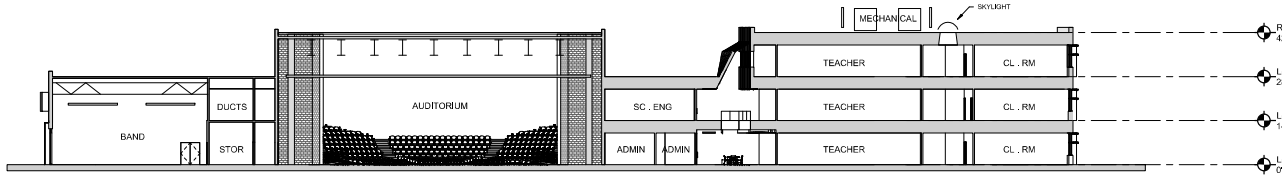
ISSUE DATES

NO.	DATE	PURPOSE

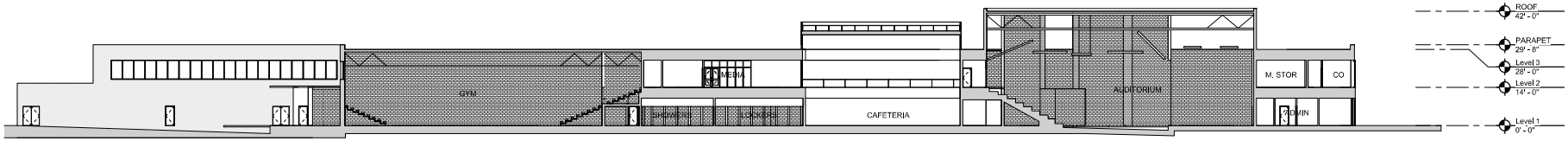
A3.04



1 Section A
1" = 20'-0"



2 Section B
1/16" = 1'-0"



3 Section C
1/16" = 1'-0"

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SCHEMATIC DESIGN DOCUMENTS

KEY PLAN

DRAWING TITLE

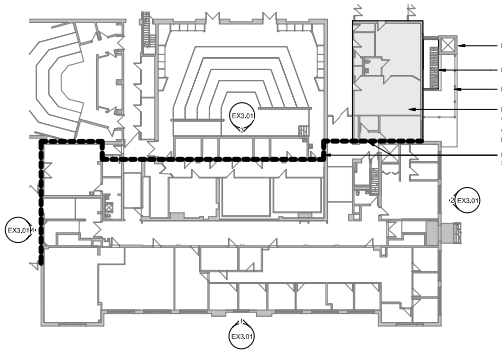
BUILDING SECTIONS

STATE PROJ. NO.	
PROJ. NO.	19070/1
SCALE	As indicated
DATE	27 MAY 2020
DRAWN BY	Author
APPROVED BY	Approver

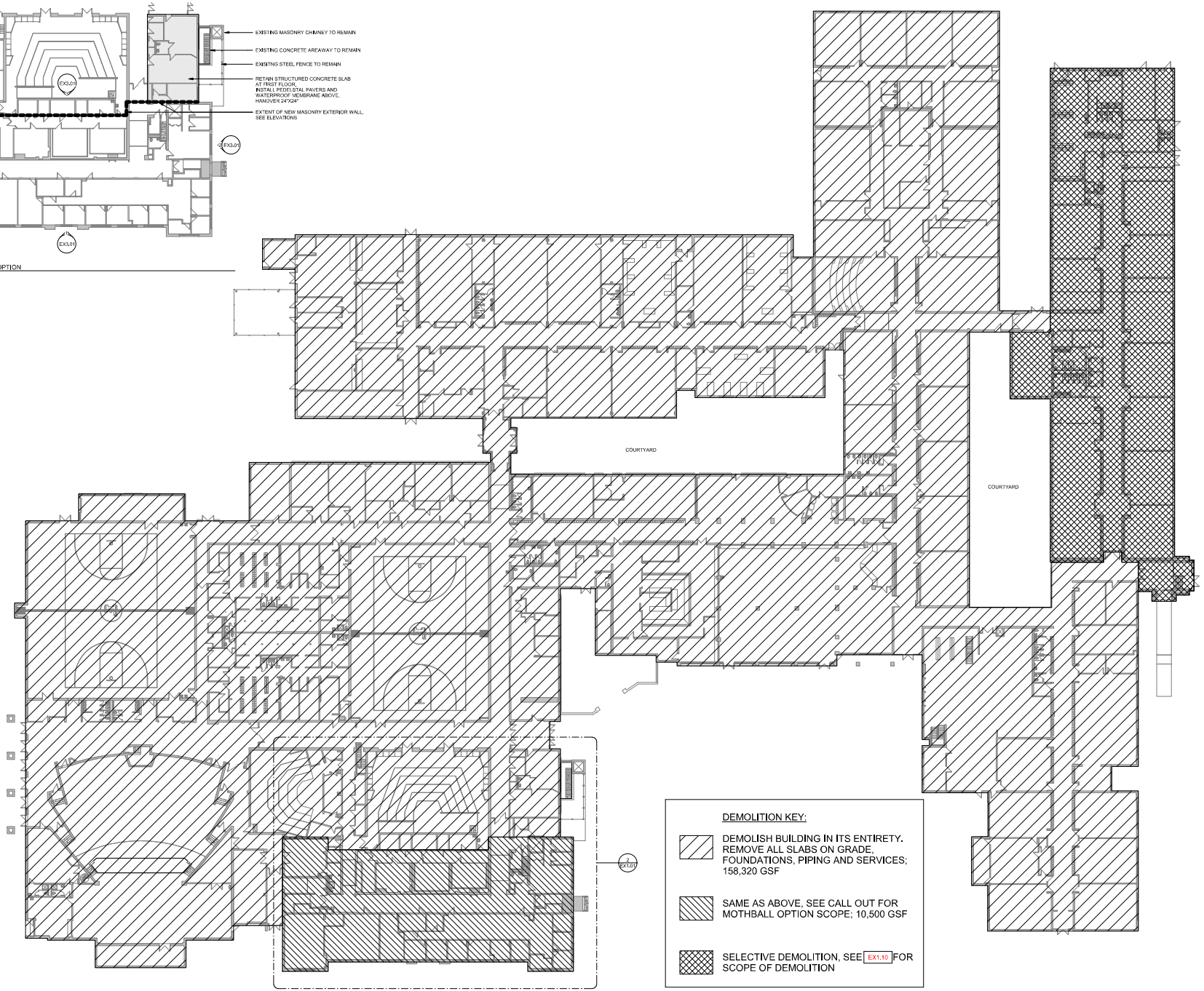
ISSUE DATES

NO.	DATE	PURPOSE

A3.11



2 MAIN LEVEL - MOTHBALL OPTION
1" = 20'-0"



DEMOLITION KEY:

DEMOLISH BUILDING IN ITS ENTIRETY. REMOVE ALL SLABS ON GRADE, FOUNDATIONS, PIPING AND SERVICES; 158,320 GSF

SAME AS ABOVE, SEE CALL OUT FOR MOTHBALL OPTION SCOPE; 10,500 GSF

SELECTIVE DEMOLITION, SEE EX1.10 FOR SCOPE OF DEMOLITION

1 MAIN LEVEL - EXISTING
1" = 20'-0"

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PROJECT

SCHEMATIC DESIGN PRICING

KEY PLAN

DRAWING TITLE

FIRST FLOOR PLAN - EXISTING BUILDING DEMOLITION

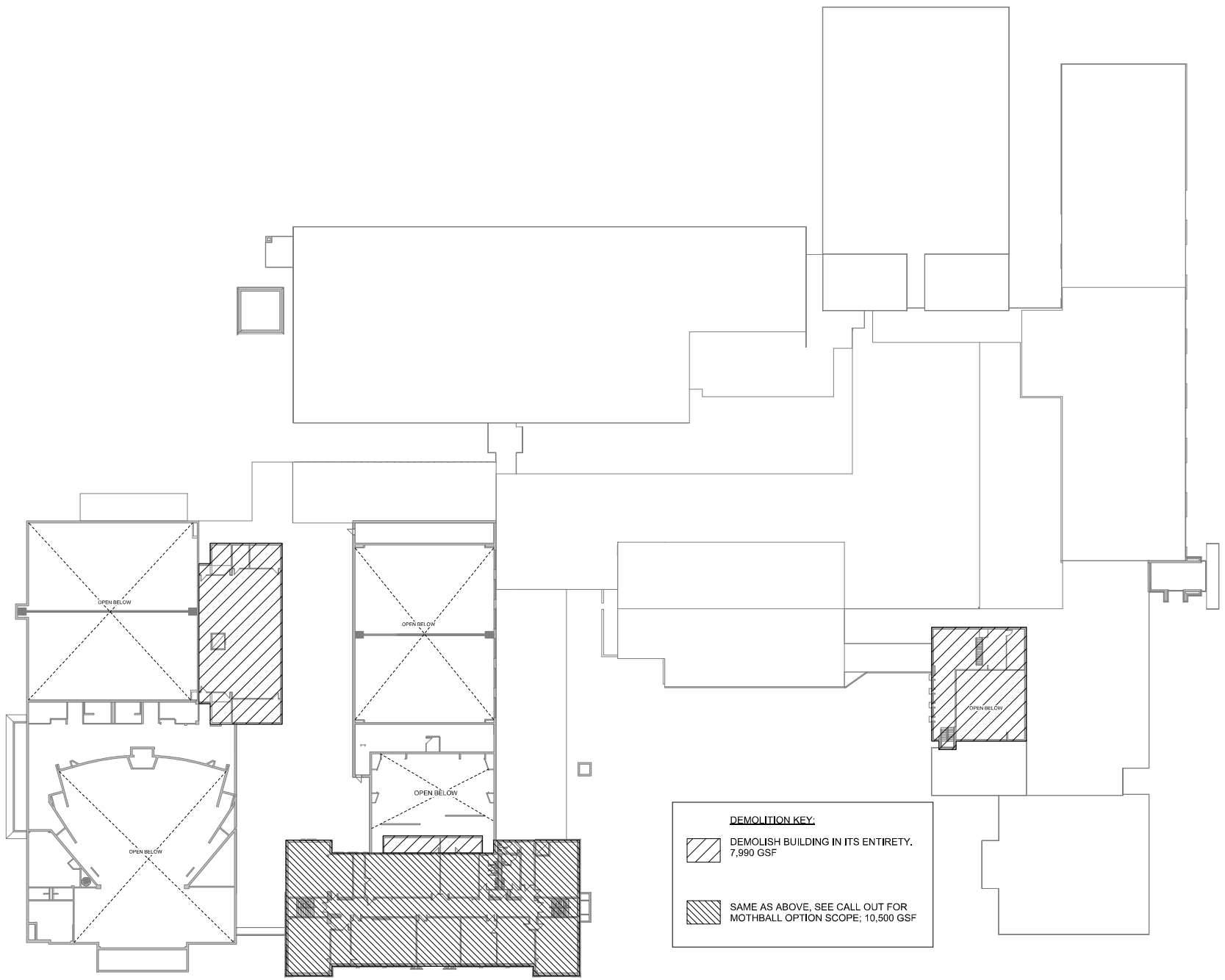
STATE PROJ. NO.	-
PROJ. NO.	TSKP #190701
SCALE	1" = 20'-0"
DATE	15 APRIL 2020
DRAWN BY	Author
APPROVED BY	Approver

ISSUE DATES

NO.	DATE	PURPOSE

EX1.01

4/15/2020 5:54:03 PM F:\Farmington High School\190701_DRAWINGS\REVIT\190701-Farmington High school\EXISTING.rvt



1 SECOND LEVEL 1928 - EXISTING
1" = 20'-0"

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PROJECT

SCHEMATIC DESIGN PRICING

KEY PLAN

DRAWING TITLE
SECOND FLOOR PLAN- EXISTING

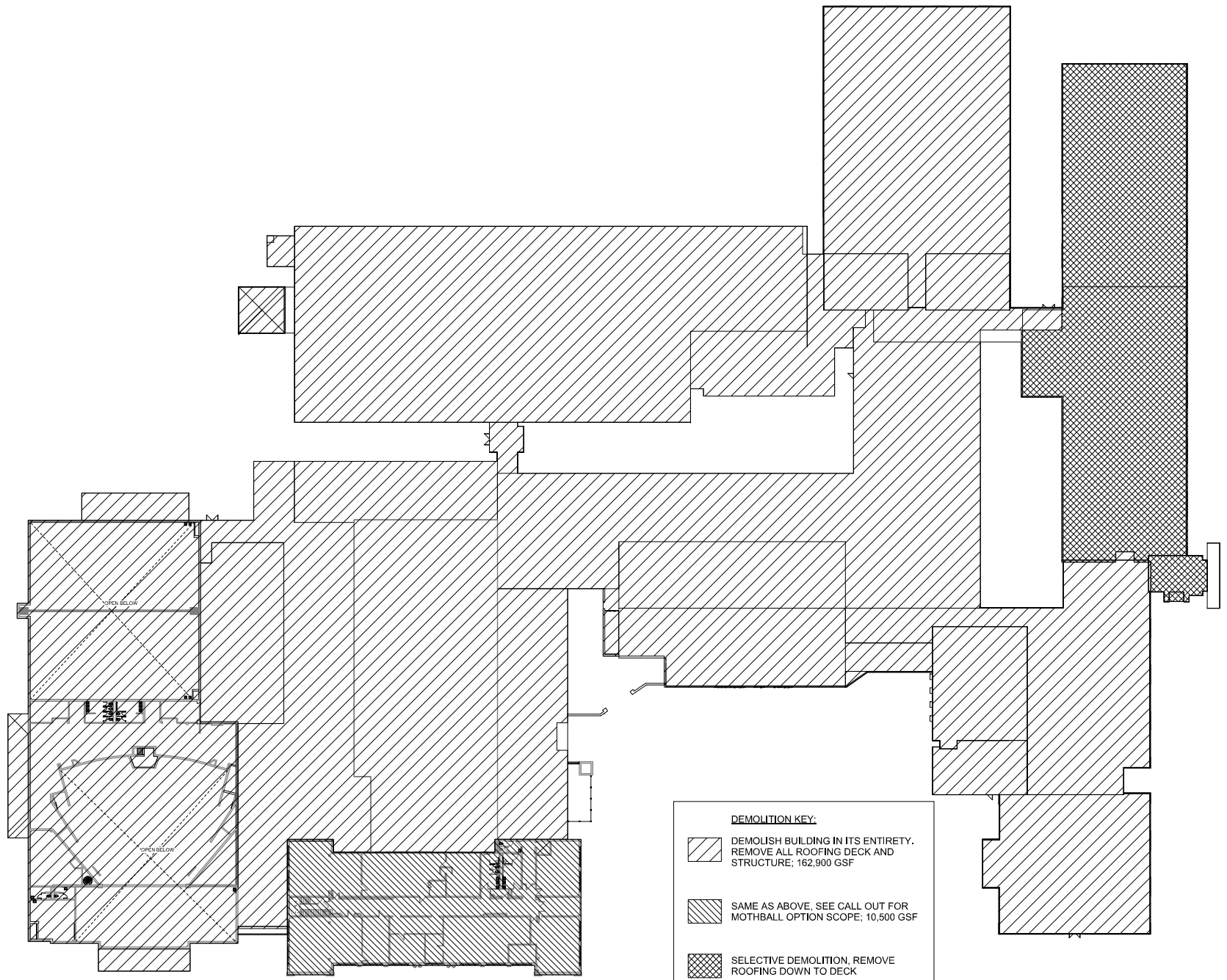
STATE PROJ. NO.	-
PROJ. NO.	TSKP #190701
SCALE	1" = 20'-0"
DATE	15 APRIL 2020
DRAWN BY	Author
APPROVED BY	Approver

ISSUE DATES

NO.	DATE	PURPOSE

EX1.02

4/15/2020 5:54:04 PM F:\Farmington High School\190701_DRAWINGS\REVIT\190701-Farmington High-central-EXISTING.rvt



1 THIRD LEVEL 1928- EXISTING
1" = 20'-0"

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PROJECT

SCHEMATIC DESIGN PRICING

KEY PLAN

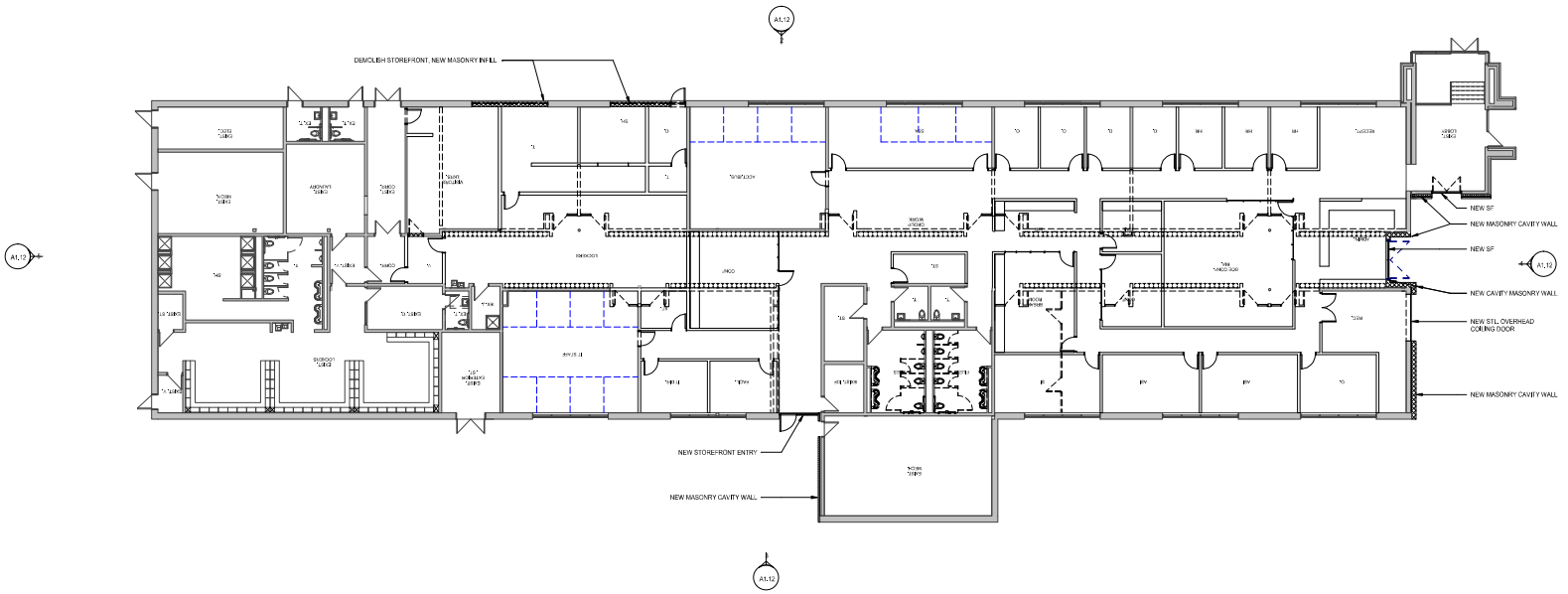
DRAWING TITLE
THIRD FLOOR PLAN - EXISTING

STATE PROJ. NO.	-
PROJ. NO.	TSKP #190701
SCALE	1" = 20'-0"
DATE	15 APRIL 2020
DRAWN BY	Author
APPROVED BY	Approver

ISSUE DATES

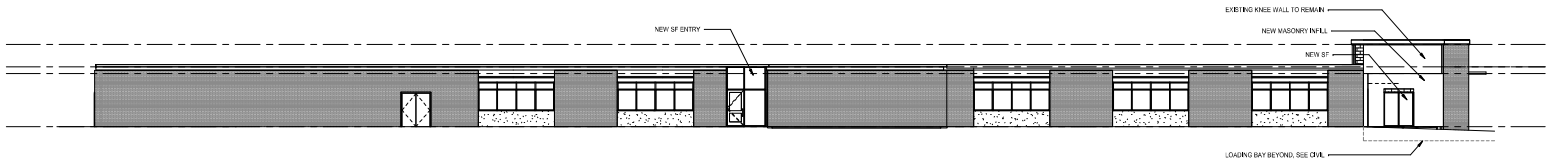
NO.	DATE	PURPOSE

EX1.03

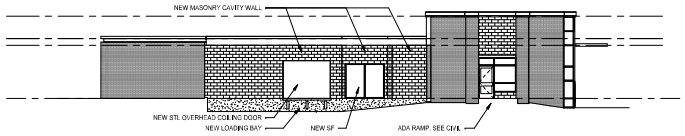


1 MAIN LEVEL - NEW
3/32" = 1'-0"

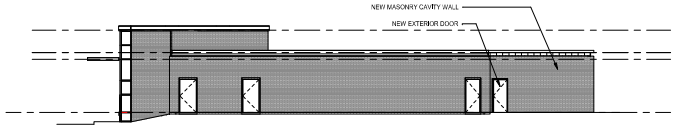
2 RENOVATED EAST ELEVATION
3/32" = 1'-0"



3 RENOVATED WEST ELEVATION
3/32" = 1'-0"



5 RENOVATED SOUTH ELEVATION
3/32" = 1'-0"



4 RENOVATED NORTH ELEVATION
3/32" = 1'-0"

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KEY PLAN

DRAWING TITLE
RENOVATED 900 WING

STATE PROJ. NO.	
PROJ. NO.	19070/1
SCALE	3/32" = 1'-0"
DATE	10 APRIL 2020
DRAWN BY	Author
APPROVED BY	Approver

ISSUE DATES

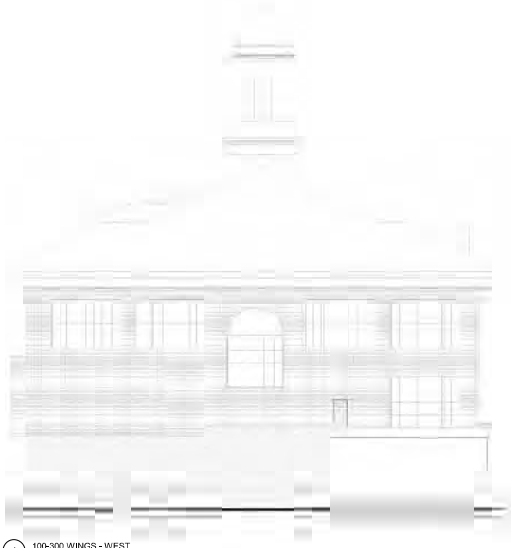
NO.	DATE	PURPOSE

EX1.10

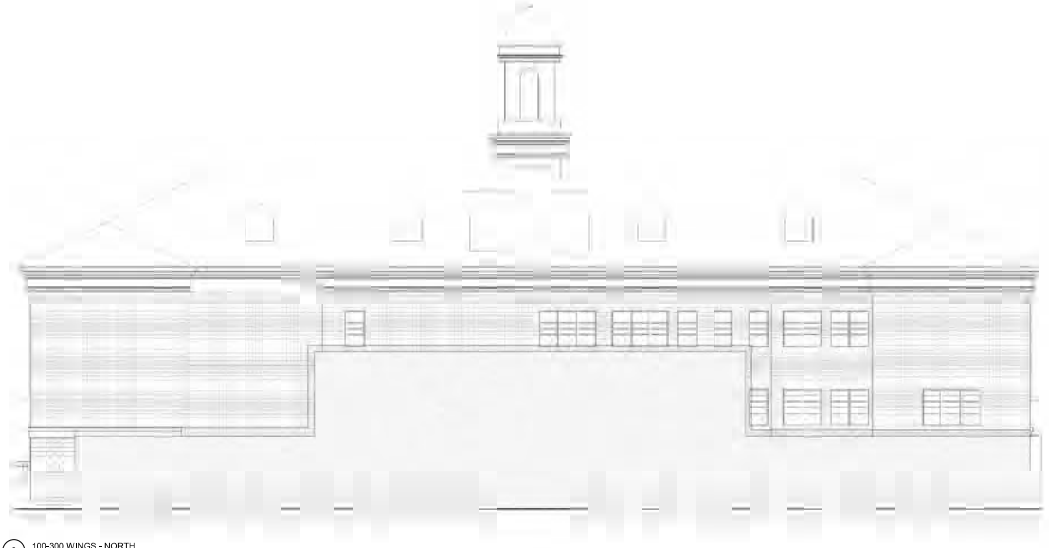
DEMOLITION KEY:

BASE SCOPE - DEMOLISH BUILDING IN ITS ENTIRETY. REMOVE ALL SLABS ON GRADE, FOUNDATIONS, PIPING AND SERVICES

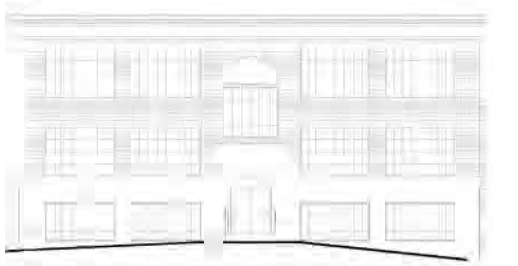
FOR MOTHBALL OPTION SCOPE, PROVIDE NEW CLAY MASONRY CAVITY WALL AT AREAS OF ADJACENT DEMOLTION. RELIEVE MASONRY ABOVE AT LINEOF DEMOLITION



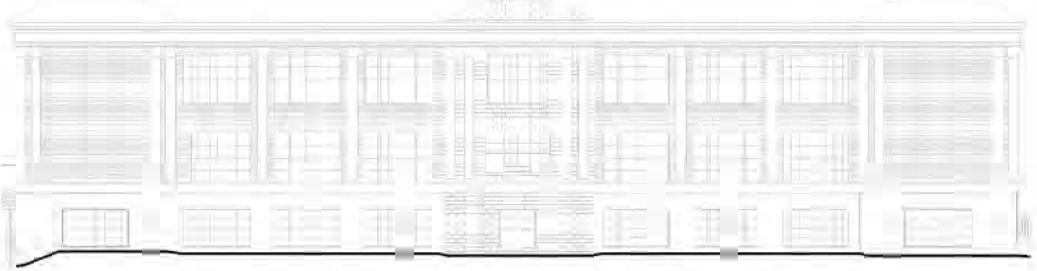
4 100-300 WINGS - WEST
1/8" = 1'-0"



3 100-300 WINGS - NORTH
1/8" = 1'-0"



2 100-300 WINGS - EAST
1/8" = 1'-0"



1 100-300 WINGS - SOUTH
1/8" = 1'-0"

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PROJECT NORTH

SCHEMATIC DESIGN PRICING

KEY PLAN

DRAWING TITLE

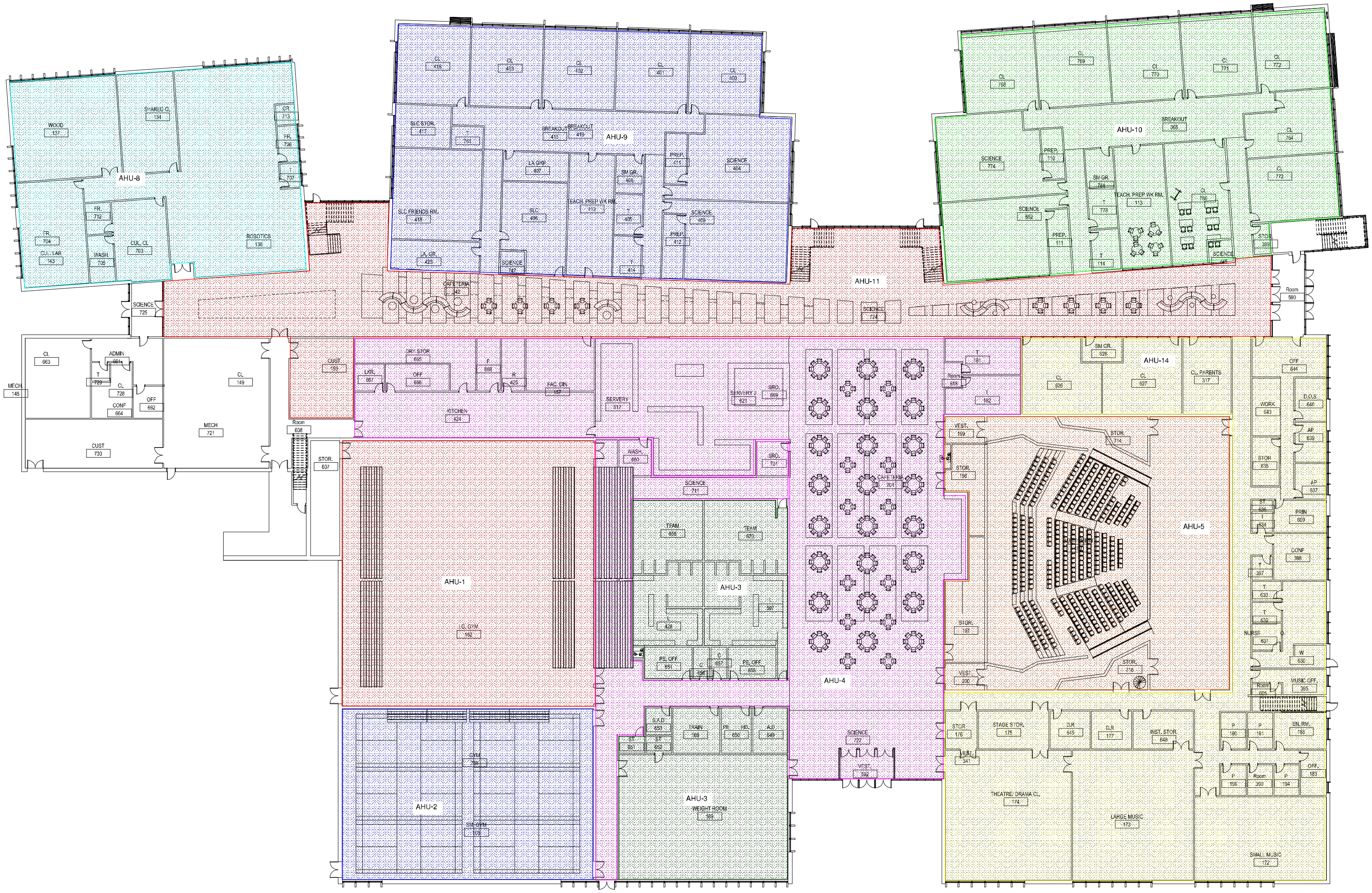
EXTERIOR ELEVATIONS

STATE PROJ. NO.	-
PROJ. NO.	TSKP #190701
SCALE	1/8" = 1'-0"
DATE	15 APRIL 2020
DRAWN BY	Author
APPROVED BY	Approver

ISSUE DATES

NO.	DATE	PURPOSE

EX3.01



1 MEP-0.11 FIRST FLOO PLAN
SCALE: 1/16" = 1'-0"

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NEW CONSTRUCTION PRICING DOCUMENTS

KEY PLAN

DRAWING TITLE

FIRST FLOOR ZONING PLAN - MEP

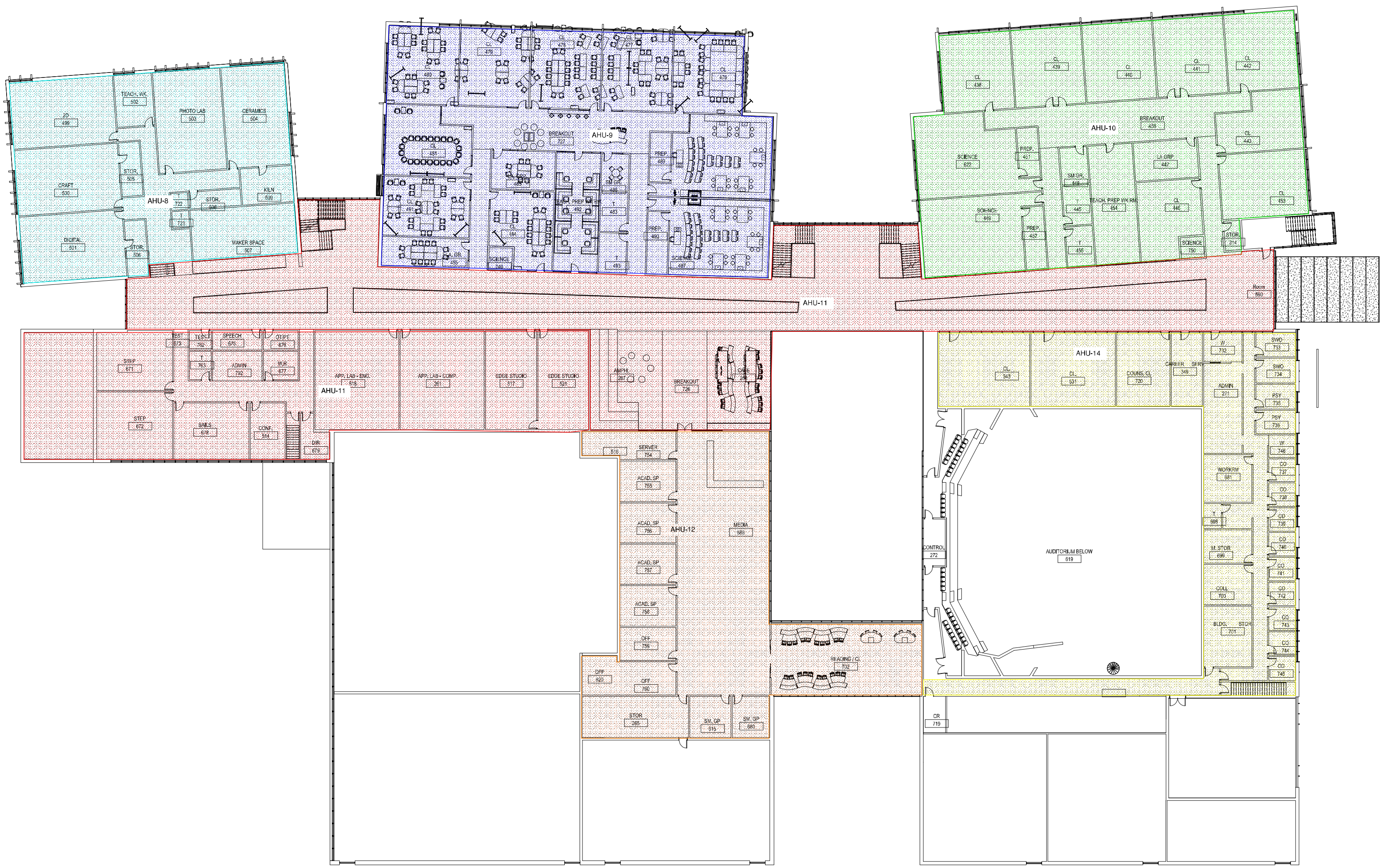
STATE PROJ. NO.	
PROJ. NO.	19120
SCALE	1/16" = 1'-0"
DATE	4/15/2020
DRAWN BY	KR
APPROVED BY	KR

ISSUE DATES

NO.	DATE	PURPOSE

MEP-0.11

4/15/2020 4:01:59 PM



1 MEP-0.21 SECOND FLOOR PLAN
SCALE: 1/16" = 1'-0"

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KEY PLAN

DRAWING TITLE

SECOND FLOOR ZONING PLAN - MEP

STATE PROJ. NO.	
PROJ. NO.	19120
SCALE	1/16" = 1'-0"
DATE	4/15/2020
DRAWN BY	KR
APPROVED BY	KR

ISSUE DATES

NO.	DATE	PURPOSE

MEP-0.21

1 MEP-0.31 THIRD FLOOR PLAN
SCALE: 1/16" = 1'-0"

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DRAWING TITLE

THIRD FLOOR ZONING PLAN - MEP

STATE PROJ. NO.	
PROJ. NO.	19120
SCALE	1/16" = 1'-0"
DATE	4/15/2020
DRAWN BY	KR
APPROVED BY	KR

ISSUE DATES

NO.	DATE	PURPOSE

MEP-0.31

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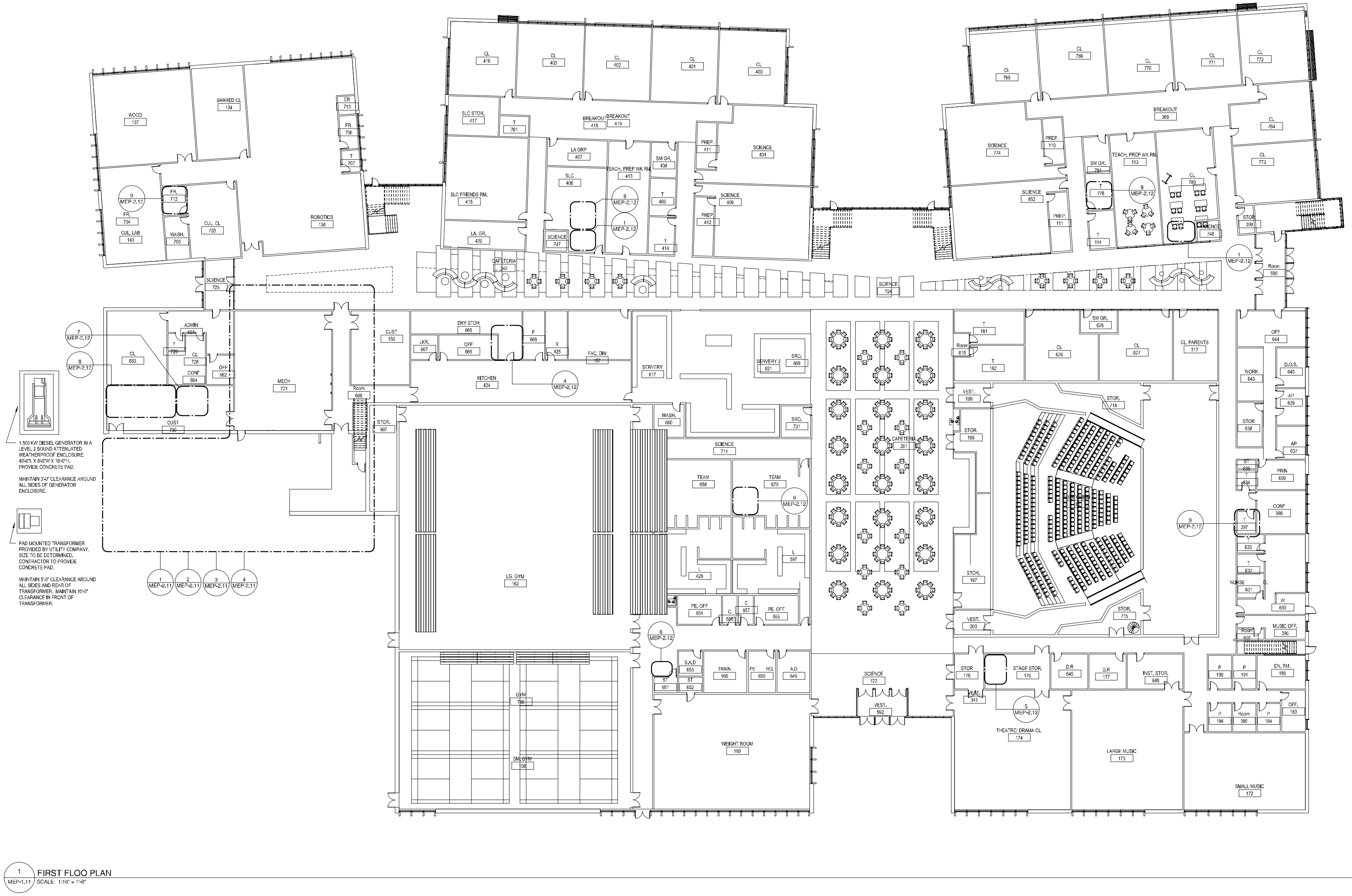

1 MEP-1.11 FIRST FLOO PLAN
SCALE: 1/16" = 1'-0"

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NEW CONSTRUCTION PRICING DOCUMENTS

KEY PLAN

DRAWING TITLE

FIRST FLOOR PLAN - MEP

STATE PROJ. NO.	
PROJ. NO.	19120
SCALE	1/16" = 1'-0"
DATE	4/15/2020
DRAWN BY	KR
APPROVED BY	KR

ISSUE DATES

NO.	DATE	PURPOSE

MEP-1.11

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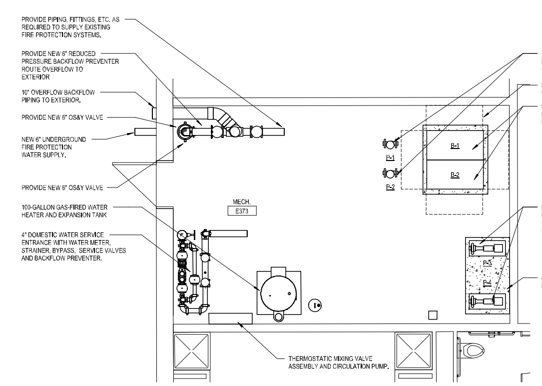
1
MEP-1.12

FIRST FLOOR PLAN - 900 WING

SCALE: 1/8" = 1'-0"



2
MEP-1.12

FIRST FLOOR MECHANICAL ROOM PART PLAN - 900 WING - MEP

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

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KEY PLAN

DRAWING TITLE

FIRST FLOOR PLAN - 900 WING - MEP

STATE PROJ. NO.	
PROJ. NO.	19120
SCALE	As indicated
DATE	4/15/2020
DRAWN BY	KR
APPROVED BY	KR

ISSUE DATES

NO.	DATE	PURPOSE

MEP-1.12

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1 MEP-1.21 SECOND FLOOR PLAN
SCALE: 1/16" = 1'-0"

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NEW CONSTRUCTION PRICING DOCUMENTS

KEY PLAN

DRAWING TITLE

SECOND FLOOR PLAN - MEP

STATE PROJ. NO.	
PROJ. NO.	19120
SCALE	1/16" = 1'-0"
DATE	4/15/2020
DRAWN BY	KR
APPROVED BY	KR

ISSUE DATES

NO.	DATE	PURPOSE

MEP-1.21

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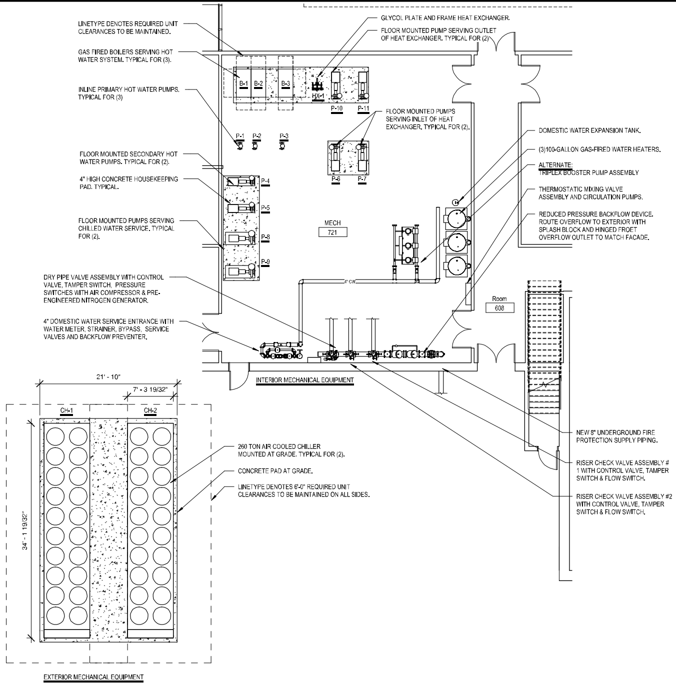
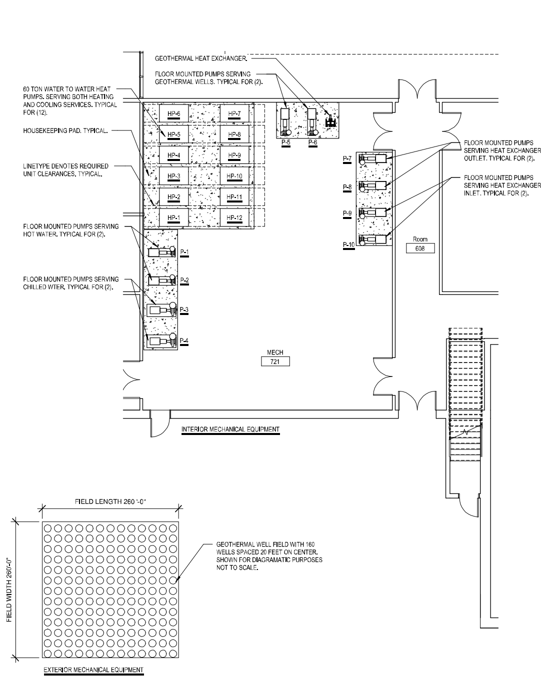
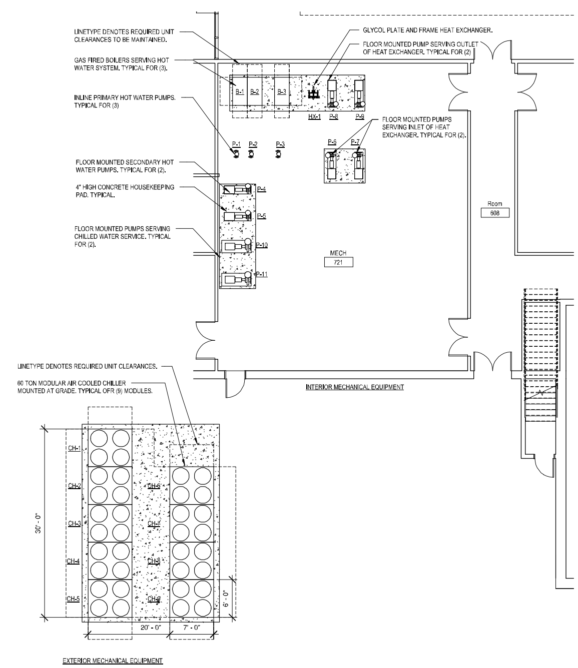


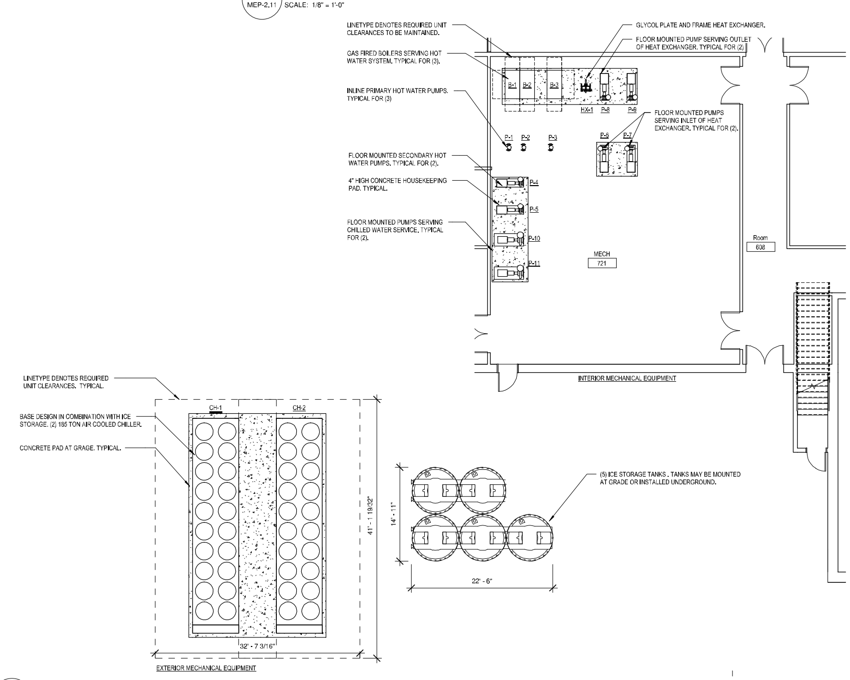
1 MEP-2.11 MECHANICAL ROOM PART PLAN - BASE MEP DESIGN
SCALE: 1/8" = 1'-0"



2 MEP-2.11 MECHANICAL ROOM PART PLAN - MECHANICAL ALTERNATE 1
SCALE: 1/8" = 1'-0"



3 MEP-2.11 MECHANICAL ROOM PART PLAN - MECHANICAL ALTERNATE 2
SCALE: 1/8" = 1'-0"



4 MEP-2.11 MECHANICAL ROOM PART PLAN - MECHANICAL ALTERNATE 3
SCALE: 1/8" = 1'-0"

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NEW CONSTRUCTION PRICING DOCUMENTS

KEY PLAN

DRAWING TITLE

PARTIAL FLOOR PLANS - MEP

STATE PROJ. NO.	
PROJ. NO.	19120
SCALE	1/8" = 1'-0"
DATE	4/15/2020
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ISSUE DATES

NO.	DATE	PURPOSE

MEP-2.11

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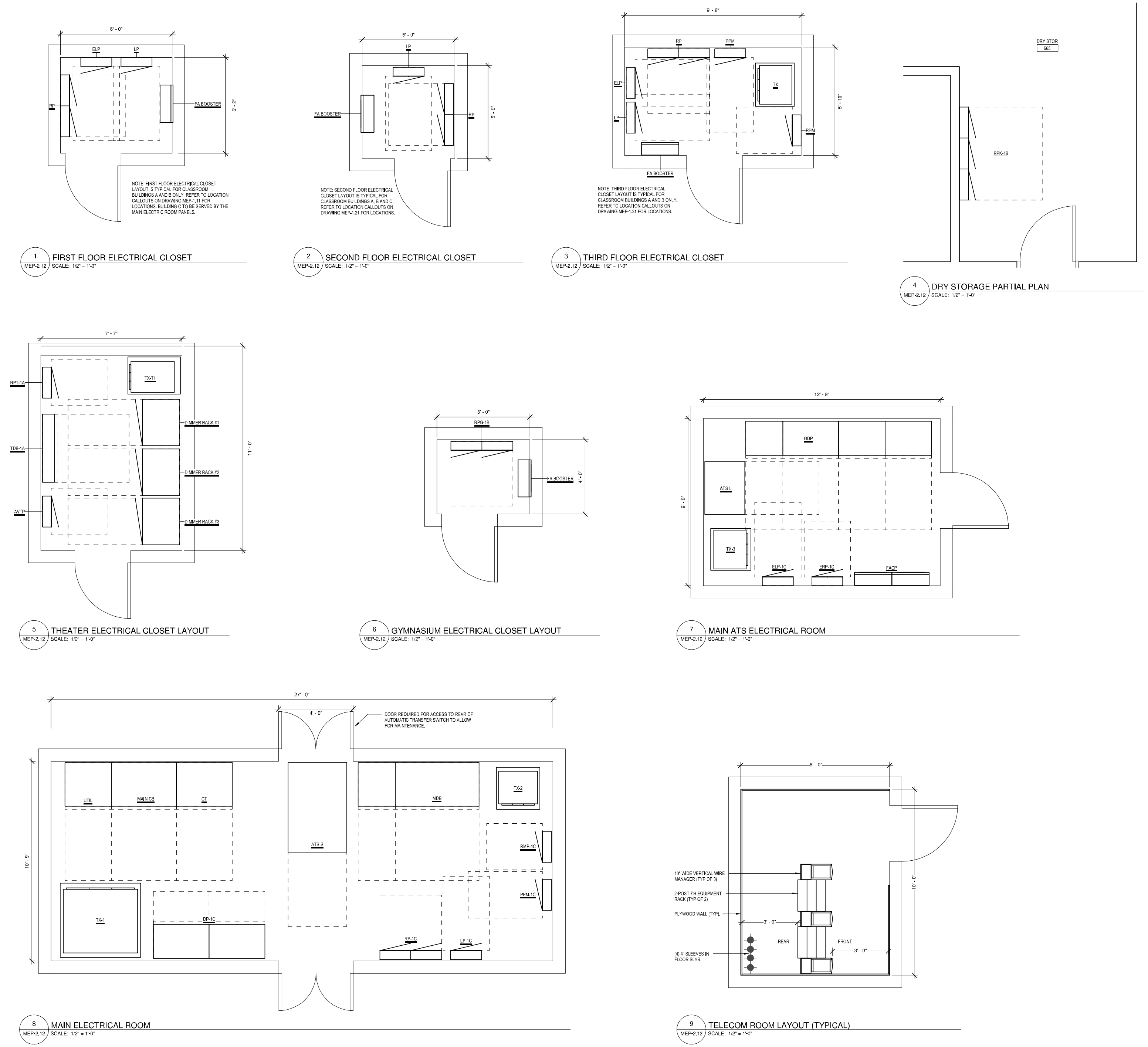

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NEW CONSTRUCTION PRICING DOCUMENTS

KEY PLAN

DRAWING TITLE

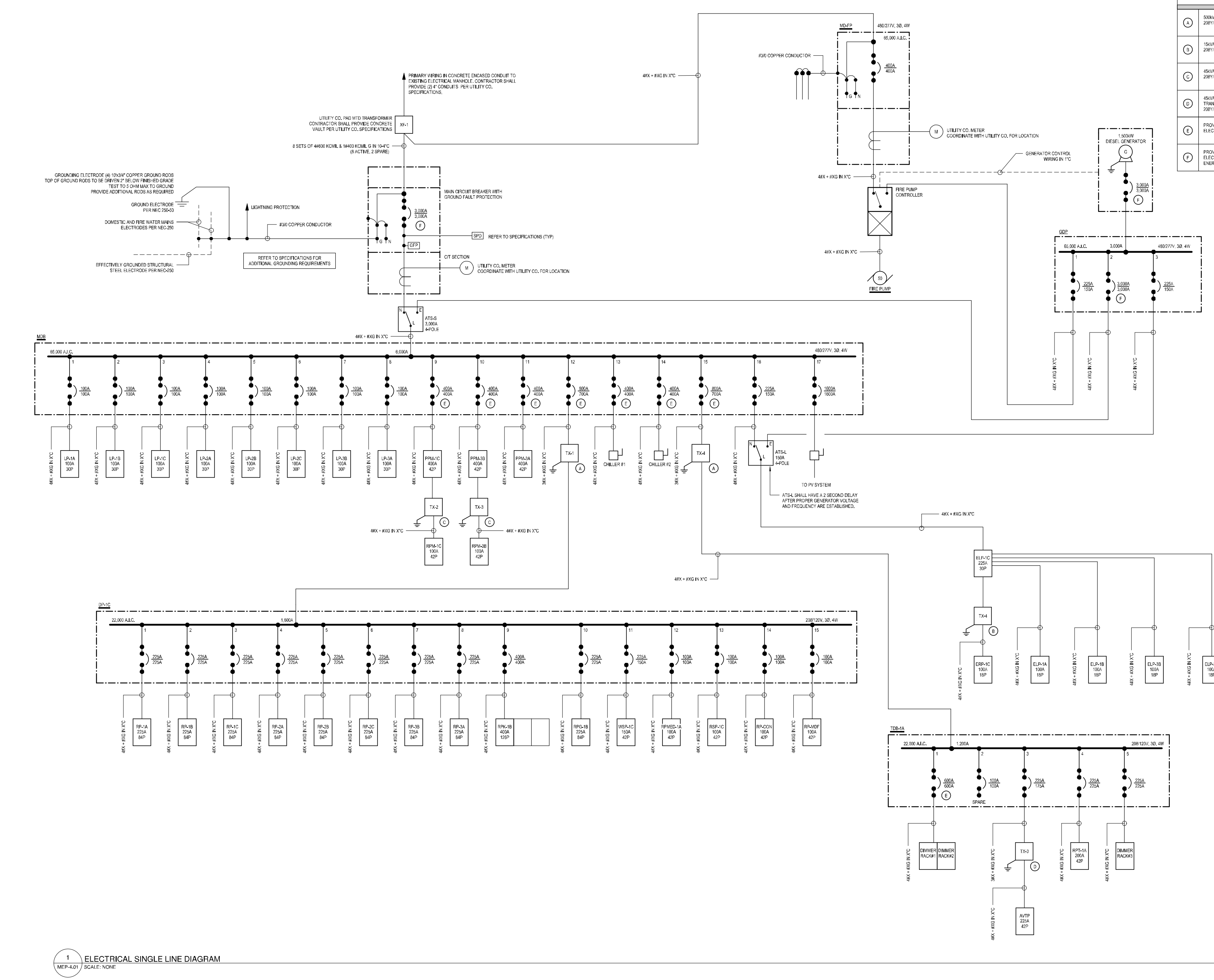
PARTIAL PLANS - MEP

STATE PROJ. NO.	
PROJ. NO.	19120
SCALE	1/2" = 1'-0"
DATE	4/15/2020
DRAWN BY	KR
APPROVED BY	KR

ISSUE DATES

NO.	DATE	PURPOSE

MEP-2.12



1
MEP-4.01

ELECTRICAL SINGLE LINE DIAGRAM

SCALE: NONE

EQUIPMENT SCHEDULE

A	500kVA TRANSFORMER 480V PRIMARY 208Y/120V. SECONDARY 115°C TEMP. RISE
B	15kVA TRANSFORMER 480V PRIMARY 208Y/120V. SECONDARY 115°C TEMP. RISE
C	45kVA TRANSFORMER 480V PRIMARY 208Y/120V. SECONDARY 115°C TEMP. RISE
D	45kVA HIGH HARMONIC ISOLATION TRANSFORMER 480V PRIMARY 208Y/120V. SECONDARY 115°C TEMP. RISE
E	PROVIDE CIRCUIT BREAKER WITH ELECTRONIC TRIP UNIT
F	PROVIDE CIRCUIT BREAKER WITH ELECTRONIC TRIP UNIT AND INTEGRAL ENERGY REDUCTION MAINTENANCE SWITCH

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NEW CONSTRUCTION PRICING DOCUMENTS

KEY PLAN

DRAWING TITLE

ELECTRICAL SINGLE LINE DIAGRAM - MEP

STATE PROJ. NO.	
PROJ. NO.	19120
SCALE	NONE
DATE	4/15/2020
DRAWN BY	KR
APPROVED BY	KR

ISSUE DATES

NO.	DATE	PURPOSE

MEP-4.01

VIII. Appendices

D. Pricing Narratives

TABLE OF CONTENTS

PART I: GENERAL NOTES

Basis of design products and finishes where required by outlined scopes

A. QT flooring – AMERICAN OLEAN 6x6
B. VCT flooring – JOHNSONITE “iQ Optima” 24x24
C. PT flooring – STONE SOURCE “Chrometech”
D. CT flooring – AMERICAN OLEAN 6x6
E. Carpet – Tile 2x2, Karastan “Groovin II” unless otherwise noted
F. Rubber Base – ROPPE 6”
G. Rubber Tile and Tread – ROPPE, circular, low profile
H. CT walls – AMERICAN OLEAN 2x2
I. Toilet Partitions – GLOBAL “9200”
J. ACT ceilings – ARMSTRONG “Ultra” 2x2
K. Roller shades – 99% sun shading fabric roller shades, motorized on all exterior windows. Mechoshade or equal

Include new room and wayfinding signage throughout. Include digital flat panels displays called out in later sections

PART II: NEW CONSTRUCTION

EXTERIOR ENVELOPE

A. Masonry exterior walls will be masonry veneer on metal stud backup. The assembly will consist of 6" metal studs with dens glass sheathing, fluid applied moisture barrier, polystyrene insulation and either clay masonry or cast stone trim on masonry anchors. New walls over 2 stories high will be relieved at the third-floor slab with continuous steel angles tied back to perimeter steel framing elements.

B. Metal panel exterior wall will be cladding on metal stud backup. The assembly will consist of 6" metal studs with dens glass sheathing, fluid applied moisture barrier, polystyrene insulation and 18" w. panels, tern-coated zinc, on phenolic substrate clipped to rain screen system.

C. Exterior windows and doors will be aluminum storefront and curtainwall, thermally broken. EFCO or equal. 2" w. mullions. 1" insulated, low-E glazing with integral impact resistant film.

D. Horizontal Sunshades to be an aluminum system compatible with glazing manufacturer. 20" deep from face of wall. EFCO Xtherm E-Shade or equal. Vertical Sunshades to be plate aluminum on welded aluminum C channel frame. 20" deep from face of wall. All aluminum mullions, shade, and plates to be Kynar finished – custom color.

E. Roofing will be light gray EPDM, .060" thick typically. Fully adhered and mechanically fastened as required. Hot fluid applied rubberized asphalt roofing will be used under terraces and green roofs.

F. Standing seam metal roofing at gable-roofed clerestory with rosin slip sheet. Tern-coated zinc.

G. Skylights as shown on plans and sections.
    1 Custom Sloped units - aluminum, thermally broken. Wasco or equal. 1" insulated, low-E glazing with 50% white frit.
    2 Domed unit – double glazed dome with curb by manufacturer. Wasco or equal

H. Glazed Entrance Canopy
    1 Architecturally exposed structural steel, custom Colorgalv coating
    2 Laminated glass panels 1 ¼" th. w/ integrated frit (75%)
    3 Internal gutters and downspouts

DOORS

Interior doors to be solid core maple veneer in hollow metal frames, typical.

FINISHES

A. Lobbies and Corridors
   1 Finishes in lobbies and corridors will be durable and low maintenance to withstand heavy institutional usage.
   2 Flooring: Thin set porcelain tile.
   3 Walls: Ground Faced CMU with anti-graffiti clear sealer.
   4 Porcelain tile base.
   5 Interior glazing to be laminated glass.
   6 Ceilings: Acoustical tile with gypsum board soffits (assume 15% gyp bd).
      i Wood acoustical ceiling tile, Rulon or equal, at main circulation spine at floors 1 and 2 (underside of second and third floor deck).
      ii Ceiling of circulation spine at third floor is 60% GWB and 40% ACT.

   7 Miscellaneous:
      i 100’ of display case in Student Dining.
      ii 40’ of display case outside of Tech/Art.
      iii 30’ of display case outside of Administration.
      iv Electronic display board in Main Lobby, Student Dining, and Auditorium Lobby.
      v Recessed entry mat in vestibules.

   8 Third Floor Interior Storefront
      i Third Floor circulation spine separated from lower levels with Interior storefront deluge wall.
      ii Interior aluminum storefront with ¼” laminated glazing in gasketed frames
      iii Sprinkler heads 6’ o.c., 12” of face of framing along each INTERIOR face. No exterior sprinkler heads required.

B. Typical Classrooms
   1 Flooring: Vinyl composition tile.
   2 Walls: Two layers 5/8” gypsum board both sides of 3-5/8” metal stud with acoustic batt insulation, painted. All walls extend to underside of deck above.
   3 Vinyl base.
   4 Ceilings: Suspended acoustical tile typical.
   5 Miscellaneous:
      i 30’ of whiteboard.
      ii 12’ of tackboard.
      iii Built-in, lockable, shelving along exterior wall below windows with solid surface top.
      iv 4’ of tackboard outside of each classroom door.
      v Allow for 6’ full height glazed sidelight at all classrooms
      vi Blinds on interior and exterior glazing.
   6 (6) full height movable partitions, one per House. See locations on drawings. Manually operated, fabric wrapped finish, STC = 55.

C. Science Rooms
    1 As above
    2 (6) four person lab stations.
    3 Full gas and RO distribution, eyewash and emergency shower
    4 Fume Hood and waste water neutralization
    5 PPE cabinet and specialized FEC

D. Administration and Guidance
    1 Flooring: Vinyl composition tile in Work Rooms and Storage Rooms.
    2 Carpet in General Offices.
    3 Walls: Two layers 5/8” gypsum board both sides of 3-5/8” metal stud with acoustic batt insulation, painted. All walls extend to underside of deck above.
    4 Vinyl base.
    5 Ceramic tile in Toilet Rooms.
    6 Ceilings: Suspended acoustical tile typical.
    7 Gypsum board soffits.

E. Library/Media Center
    1 Flooring: Vinyl composition tile in Work Rooms, Storage Rooms and Computer Lab.
    2 Carpet in remaining spaces.
    3 Walls: Painted gypsum board typical.
    4 Vinyl base.
    5 Ceilings: Suspended acoustical tile typical.

F. Locker Rooms/Toilet Rooms
    1 Flooring: Vinyl composition tile in Offices and Storage Rooms.
    2 Ceramic tile typical.
    3 Walls: Epoxy painted CMU.
    4 Ceilings: Gypsum board typical.
    5 Suspended acoustical tile in offices.
    6 Miscellaneous:
        i Welded steel lockers, 3-tier in PE locker rooms, 2-tier in team rooms.
        ii Oversize lockers (18” wide x 24” deep) are full height, open front.

G. Kitchen/Servery
    1 Quarry tile floor and base
    2 PT wall finish
    3 Food service grade ACT
    4 New food service equipment throughout
    5 Millwork for serving counters, tray slides and stations

H. Cafeteria
   1. Quarry tile floor and base
   2. Millwork allowance for recycling and service stations.

I. Auditorium Performing Arts
   1. Typical interior finishes in the performing arts areas are as follows:
      i. Flooring: Carpet (In Theater aisles only. Stage to be masonite).
      ii. Walls: Painted concrete block with vinyl base typical.
      iii. Acoustic wall panels (assume 50% of walls).
      iv. Vinyl base.
      v. Ceilings: Suspended acoustic tile typical. Theater to have suspended veneer plywood acoustic reflectors. Assume 75% of ceiling.
   2. 650 upholstered folding seats.: sloped main level for approximately 300 seats and tiered stadium seating for 350 seats
   3. Control Booth to support performance and recording functions
   4. Front projection system with motorized screen
   5. Multicam video recording
   6. Dedicated IDF for high speed 10GB data
   7. New Theater lighting and theater arts package
   8. New steel catwalks and rigging

J. Gymnasium
   1. Flooring: Wood athletic flooring w/ steel angle base.
   2. Walls: Painted CMU.
   3. Ceilings: Exposed painted structure, acoustic metal deck.
   4. One high school competition main basketball court (50'x84') Two cross courts (50'x84' as well)
   5. Misc:
      i. 6 folding basketball backboards, electrically operated.
      ii. 1400 person bleacher seating in Main Gym. 200 person seating in Aux Gym.
      iii. Overhead storage of wrestling mats and batting cage.
      iv. 6' tall wall pads on all walls of fitness room
      v. AV system in Main Gym

K. Stairs
   1. Flooring: Rubber.
   2. Walls: Ground faced CMU.
   3. Ceilings: Acoustic tile.
   4. Painted metal guardrails with vertical pickets. All fully welded, all welds ground smooth. Brushed stainless handrail and top rail.

L. Railings
   1 Openings between floors and at vertical circulation to be 42” painted steel guard rails, AESS standard all welds ground smooth.
   2 Steel pickets 4” O.C.
   3 Hardwood top rail, Hard wood, brushed stainless hand rail where required.

ELEVATOR

Two new elevators Otis GEN 2 or equal, three stops at circulation spine.

ARCHITECTURAL ALTERNATE #1

Motorized demountable partition between Large Gym and Small Gym- 22’ high, PANELFOLD or equal

ARCHITECTURAL ALTERNATE #2

Stone veneer I.l.o. masonry along first floor where indicated on building elevations. 1 ½” thick granite panels, 24” x 48” wide, flame finished. Relocate masonry relieving angle to second floor slab where stone veneer is used.

PART III: RENOVATION

EXISTING BUILDING

Demolish existing building in its entirety as depicted in EX drawings. This includes capping and removal of all utilities and removal of all sub surface structure.

MOTHBALL ALTERNATE

Retain original 3 story 1928 building, its attic, and partial basement as depicted in EX drawings. At portion of basement that extend beyond exterior wall, retain structure concrete first floor deck. Install membrane water proofing and pedestal pavers at grade.

Install new clay masonry cavity wall at area of adjacent building demolition along two sides. See EX 3.01.

900 WING

Originally constructed in 2003, this one story classroom wing includes many stand-alone systems. The structure contains one field house and numerous classrooms. In its new configuration, interior partitions and finishes will be demolish to accommodate another twin field house and administrative offices for the Board of Education.

A. Demolition
    1 Remove roofing down to deck
    2 Demolish partitions as shown
B. Concrete – no scope
C. Masonry
    1 Clean masonry
    2 New Masonry cavity wall cladding at where shown
D. Framing and Partitions – Brace south wall elevation for sheer
E. Thermal/Moisture – Roofing will be light gray EPDM, .060” thick typically. Fully adhered and mechanically fastened as required.
F. Doors and Windows – Ballistic film on all exterior glazing, #4 surface. 3M “Ultra” or equal
G. Finishes – New finishes throughout
    1 New LVT flooring in circulation spaces
    2 New CPT flooring in office and meeting spaces
    3 New PT flooring in toilet rooms
    4 New CT on toilet room walls
    5 New ACT ceilings
H. Elevator – no scope

PART IV: PHASING AND LOGISTICS

New Option will be constructed in 29 months.

Design & Approvals	12 mo.	Dec. 2020 – Nov. 2021
Bidding & Award	3 mo.	Dec. 2021 – Feb. 2022
Phase 1 New Construction	18 mo.	Mar. 2022 – Aug. 2023

Phase 2 Demo and Renovate 900 wing	11 mo.	Sept. 2023 – Jul. 2024
Phase 3 Site Work and Fields	6 mo.	Feb. 2024 – Jul. 2024

STRUCTURAL SCOPE OF WORK – OUTLINE SPECIFICATIONS

The following outlines the scope of work for the proposed construction:

GENERAL

All structures will be designed in accordance with the 2015 International Building Code/2018 Connecticut Supplement. The minimum design criteria as provided by the code, includes dead, live, and gravity loads, and wind and seismic loads. Dead loads consist of the weight of architectural, structural, mechanical and electrical systems. Live, wind and seismic loads are outlined in the "Design Criteria" following this narrative. The proposed structure shall be designed in accordance with the International Building Code (IBC) and Connecticut State Building Codes to withstand the applicable wind loads and roof loading from drifting of snow.

DESIGN BASIS

Soils Conditions: A geotechnical report providing recommendations for the proposed foundation system, excavation and backfilling requirements is required prior to commencing with the design of the building foundations. For the purposes of this narrative, suitable soils with a minimum bearing capacity of 3,000 psf has been assumed for this project.

New foundation walls (excluding retaining walls): New foundation walls are assumed to consist of 12" reinforced concrete walls on continuous 3'-0" wide x 1'-0" thick spread wall footings. Cast in place concrete walls and footings shall be constructed using 4,500 psi concrete. The wall reinforcing is assumed to consist of #5@16"o.c. vertical with matching footing dowels and #4@12"o.c. horizontal with (2)-#5 continuous horizontal bars top and bottom. The longitudinal footing reinforcing shall be (3)-#5 continuous. All wall reinforcing shall have Class "B" laps at splices and corner bars. New exterior columns will be supported on reinforced concrete piers supported on reinforced concrete spread footings. Interior columns will be supported on isolated reinforced concrete piers and isolated reinforced concrete spread footings.

New Floor Slabs on Grade: The typical floor slabs on grade are assumed to be 5" thick normal weight concrete slab (3,500 psi) reinforced with 6x6-W2.9xW2x.9 welded wire fabric supported on continuous steel wire chairs and (2)-#5 at re-entrant slab corners. The slabs shall be placed over a 15 mil vapor retarder on a compacted processed aggregate base material. All concrete for the slabs on grade shall include a moisture vapor reducing admixture to control the transmission of moisture vapors thru the slab. Floor depressions, as well as any areas of specialized floor finishes shall be located and specified by the Architect. Control joints shall be installed at a maximum grid of 12 feet on center.

Typical Supported Floor Construction: The typical supported floor construction is assumed to be 3 1/4 inches of light weight concrete (3,500 psi) on a 2 inch, 18 gage, galvanized composite metal floor deck (total slab depth = 5 1/4 inches) reinforced with 6x6-W2.9xW2x.9 welded wire fabric supported on continuous steel wire chairs and (2)-#5 at re-entrant slab corners and floor openings. The metal decking

shall be supported on steel framing consisting of composite steel beams and girders supported by steel columns. The concrete mix for the supported slabs shall include a moisture vapor reducing admixture. Floor depressions, as well as any areas of specialized floor finishes shall be located and specified by the Architect.

Shop Areas (Robotics/Auto/Wood): The supported floor construction located directly above these shop areas shall be exposed and consist of 3 1/4 inches of light weight concrete (3,500 psi) on a 2 inch, 18 gage, galvanized composite acoustic metal floor deck (total slab depth = 5 1/4 inches) reinforced with 6x6-W2.9xW2x.9 welded wire fabric supported on continuous steel wire chairs and (2)-#5 at re-entrant slab corners and floor openings. The metal decking shall be supported on steel framing consisting of composite steel beams and girders supported by steel columns. The concrete mix for the supported slabs shall include a moisture vapor reducing admixture.

It should be noted that the roof over the Special Education wing, located to the northeast of the Gymnasium, shall be designed as a future floor. For the purposes of this narrative, the construction should be assumed similar to the Typical Supported Floor Construction indicated herein. It will need to be determined if the concrete will be placed during the current construction project or at a future date.

Stairwells: Stairwell walls shall consist of reinforced 8” concrete masonry units. All masonry cores containing reinforcing shall be grouted solid. Continuous reinforced bond beams shall be installed at each floor and roof level with steel lintels installed for all wall openings.

Elevator Shaft: The elevator shaft is assumed to be constructed over a reinforced 4ft deep cast in place concrete pit foundation with sump. The shaft walls above shall consist of reinforced 8” concrete masonry units (full height). All masonry cores containing reinforcing shall be grouted solid. Continuous reinforced bond beams shall be installed at each floor and roof level with steel lintels installed for all wall openings. Provide a W8x21 hoist beam with bearing plates at each end bearing on reinforced and grouted masonry cores at beam bearing plates.

Typical Roof Construction: The typical roof construction, shall consist of 20 gage, 1.5 inch galvanized metal roof deck on steel beams and/or joists, supported by steel girders, supported by steel columns.

Gymnasium Roof Construction: The Large and Small Gymnasium roof construction shall consist of a 20 gage, 3” deep galvanized acoustic metal roof deck supported on steel joists supported on steel girders, supported by steel columns. The two gymnasiums shall be separated by an operable partition over which a deep steel girder shall be installed clear span the spaces to allow for a single large gymnasium. A deep steel girder shall also be installed over the bleachers on the south side of the large gymnasium to allow the bleachers to extend over the small academic offices in the Media space.

Cafeteria Roof Construction: The Cafeteria roof construction shall consist of 20 gage, 1.5 inch galvanized metal roof deck on steel beams and/or joists, supported by steel girders, supported by steel columns.

Auditorium Roof Construction: The roof construction shall consist of a 20 gage, 3” deep galvanized metal roof deck supported on steel joists supported on steel girders, supported by steel columns.

Structural steel roof frames shall be required for all roof mounted equipment and roof deck openings. All structural steel and miscellaneous metals exposed to weather shall be hot dip galvanized.

Structural Steel: Shall be fabricated and erected in accordance with the current AISC Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings. During this early design phase, we would estimate the steel tonnage for the structure to be approximately 13 lbs. per square foot.

Lateral Load Resisting System: Based on the current architectural design, laterally stability shall be achieved utilizing either concentric steel braced frames or moment frames. The braced frames are assumed to consist of structural steel rectangular HSS sections spanning between steel columns at strategic locations to be coordinated during the design development and construction document phases.

DESIGN CRITERIA

1. 2015 International Building Code/2018 Connecticut Supplement.

2. Design Live Loads: Town of Farmington

   Minimum Live Loads:

Offices	50 psf
Cafeteria	100 psf
Classrooms	40 psf
Corridors (First floor)	100 psf
Corridors (above First Floor)	80 psf
Gymnasium	100 psf
Lobbies	100 psf
Stairs	100 psf
Partitions	15 psf

   Snow Loads:

   Roof, Flat Snow Load,

   Pf = 0.7 Ce Ct I Pg = 22.05 psf= 30 psf min.

   (Pg= 35 psf, Ce= 0.9, Ct = 1.0, I = 1.1

   Snow Drift Load:

   In accordance with Section 1608.7

3. Wind Load Criteria: Refer to ASCE 7-10, "Minimum Design Loads for Buildings and Other Structures"

   P = q GCp – qi (G Cpi)

Basic Wind Speed, V*ult*:	135 mph
V*asd*:	105 mph
Exposure Category:	B
Risk Category:	III
Mean Roof Height, h	TBD

4. Earthquake Load Criteria: Refer to Chapter 9 of ASCE 7-10, "Minimum Design Loads for Buildings and Other Structures"

   Seismic framing system – Ordinary Composite Braced Frames or Steel Moment Frames

   S_s = 0.183

   S_1 = 0.064

   S_{ds} = 0.192

   S_{d1} = 0.101

   Risk Category III

   Seismic Design Category B (Typical)

   Importance Factor, Is (Category III) = 1.25

   Soil Site Class = TBD

Response Modification Factor, R=3.0
Deflection Amplification Factor, C_d = 4.5

Division 03 30 00 – Cast-In-Place Concrete:

All cast-in-place concrete shall conform to ACI 301 "Specifications for Structural Concrete for Buildings", and ACI 318 "Building Code Requirements for Reinforced Concrete".

1. Reinforcing bars: ASTM A615, Grade 60
2. Welded wire fabric: ASTM A185
3. Portland cement: ASTM C150, Type I.
4. Aggregates: ASTM C33
5. Water: clean, free from deleterious amounts of acid, alkalis and organic materials.
6. Admixtures:
   - Air-entraining admixture: ASTM C260
   - Water reducing, accelerating, high range water reducing admixtures: ASTM C494
7. Concrete:
   - Slabs on grade: 3500 psi (no air entrainment) at 28 days. Water-cement ratio shall not exceed 0.50 by weight. Air content 6 percent by volume. Include moisture vapor reducing admixture in design mix.
   - Elevated slabs: Lightweight 3500 psi (no air entrainment) at 28 days. Include moisture vapor reducing admixture in design mix
   - Other interior concrete: 3000 psi at 28 days.
   - Exterior concrete: 3000 psi at 28 days, with air-entraining admixture. Concrete subject to de-icers shall have water-cement ratio not exceeding 0.40.

Division 05 12 00 – Structural Steel:

1. Structural steel: in accordance with the current AISC Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings.
2. All welding: by welders holding active welding certificates only.
3. Structural steel: ASTM A36
4. Welding electrodes: E70XX
5. High strength bolts: ASTM A325
6. Shop welding, field welding, and high strength bolting: laboratory controlled.

Division 05 21 00 – Steel Joists:

1. Steel joists: designed, fabricated and erected in accordance with Steel Joist Institute Standard Specifications and Recommendations.
2. Joist manufacturer: Member of SJI, approved for joist types specified.
3. Field welding: laboratory controlled, performed by welders holding active welding certificates only.
4. Shop paint: fabricators standard lead-free shop paint. Touch up shop paint after installation.

Division 05 30 00 – Metal Deck:

1. Metal roof deck: 1 1/2" deep, 20 gage, galvanized steel roof deck with nesting side seams.

2. Acoustic Metal Roof Deck: 3” deep, 20 gage, galvanized acoustic metal roof deck
3. Composite floor deck: 2" deep, 20 gage galvanized steel deck with interlocking type side laps produced with integral locking lugs to provide mechanical lock between concrete and steel.
4. Manufacture and install in accordance with Steel Deck Institute Design Specifications and Code of Recommended Standard Practice. Manufacturer: Member of SDI.
5. Form metal from hot dipped galvanizing sheet conforming to ASTM A446-76, Grade A, with zinc coating conforming to ASTM A525-76, Coating Designation G-60.
6. Installation and fastening: Conform to SDI Tentative Recommendations for Design of Steel Deck Diaphragms.
7. Shear connectors: stud type conforming to ASTM A 108, Grade 1015 or 1020. Dimensions and tolerances in accordance with figure 4.22.1 of the AWS "Structural Welding Code - Steel".
    - An arc shield (ferrule) of heat resistant ceramic or other suitable material shall be furnished with each shear connector.
    - A suitable deoxidizing and arc stabilizing flux for welding shall be furnished with each shear connector.

Division 05 51 00 – Cold Formed Metal Framing:

1. Structural Performance: Provide cold-formed metal framing capable of withstanding design loads within limits and under conditions indicated.
    - Design Loads: Wind Loads: per ASCE-07-10
    - Cold-Formed Steel Framing, General: Design according to AISI's "Standard for Cold-Formed Steel Framing - General Provisions.
2. Recycled Content of Steel Products: Provide products with an average recycled content of steel products so post-consumer recycled content plus one-half of pre-consumer recycled content is not less than 25 percent.
    - Steel Sheet: ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of grade and coating weight as follows.
        a. Grade: As required by structural performance
        b. Coating: G60.
3. Exterior Non-Load-Bearing Wall Framing
    - Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:
        a. Minimum Base-Metal Thickness: 0.0428 inch.
        b. Flange Width: 1-5/8 inches.

PART VI: MECHANICAL SYSTEMS NARRATIVE

A. GENERAL

Comply with all current Federal, State, and local codes, standards and ordinances including:

- 2018 Connecticut State Building Code
- 2015 International Building Code
- 2015 International Mechanical Code
- 2015 International Energy Conservation Code
- 2015 International Plumbing Code
- 2015 International Fire Code
- 2015 NFPA 101 Life Safety Code
- 2009 ANSI A117.1 Accessible and Useable Building and Facilities
- 2017 NFPA 70 National Electric Code (NEC)
- ASHRAE 90.1 - 2013

Comply with all requirements of the State of Connecticut High Performance Buildings and LEED Version 4.

The contractor will be responsible to give all necessary notices, obtain all permits and pay all taxes and fees necessary to obtain approvals and complete the work herein. Obtain all required certificates of inspection and deliver same to Owner.

The Mechanical systems will be designed to comply with all current State and Local Codes including associated supplements.

The work includes all labor, materials, equipment and services necessary to complete the work as shown on the drawings, specified herein, and that is required to provide complete and functional systems.

B. COORDINATION

Coordinate the work, with work of other trades and field conditions. Carefully check space requirements and utilities to ensure all equipment can be installed in the spaces allotted thereto and coordinate all necessary utility service requirements. Coordinate, protect and schedule work with work of other trades in accordance with the required construction sequence. Install all work in accordance with equipment manufacturer's installation instructions.

C. ENERGY CONSERVATION

Energy conservation requirements as set forth in the 2015 International Building Code with Local Amendments, 2015 International Energy Conservation Code with Local Amendments and ASHRAE 90.1 will be included. Additional energy conserving methods will be considered to further affect higher energy savings.

D. LEED

The project is pursuing LEED Silver. The following credits and requirements indicated within, involving the mechanical systems are to be incorporated as part of the design:

Energy & Atmosphere

- Prerequisite 1: Fundamental Commissioning of Building Energy Systems
- Prerequisite 2: Minimum Energy Performance
- Prerequisite 3: Building Level Energy Metering
- Prerequisite 4: Fundamental Refrigerant Management
- Optimize Energy Performance (Minimum of 21% above baseline.)
- Enhanced Refrigeration

Indoor Environmental Quality

- Prerequisite 1: Minimum Indoor Air Quality Performance
- Prerequisite 2: Environmental Tobacco Smoke (ETS) Control
- Enhanced Indoor Air Quality Strategies
- Low Emitting Materials
- Indoor Air Quality Assessment
- Thermal Comfort
- Interior Lighting

E. WARRANTY

The Contractor warrants that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted, and that the work will conform to the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. Contractor shall warranty all work for a period of one year from Owner acceptance unless specified otherwise in which case longer equipment warranties may apply.

Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace the following components of equipment that fail in materials or workmanship within specified warranty period:

Warranty Period, Commencing on Date of Substantial Completion:

- Refrigeration Compressors: 10 years.
- Evaporator and Condenser Coils: 5 years.
- Heat Exchangers: 5 years.
- Air Handling Units & Components: 5 years.
- All equipment minimum 18 months

F. SUBMITTALS

Contractor shall submit; shop drawings, product data, samples, record documents (as-builts) and operation and maintenance manuals in accordance with the Contract requirements and particular specification section requirements.

G. RECORD DRAWINGS

Provide a complete set of as-built drawings reflecting as installed conditions. As-built drawings shall indicate all installed conditions of systems within this discipline. Drawings shall be of similar scale as the construction documents and include details as necessary to clearly reflect the installed condition. Drawings shall be bound in a complete and consecutive set. Supplemental sketches and loose paperwork will not be acceptable and will be returned for revision. The contractor shall comply with the engineer's comments to produce a clear and concise set of drawings. Drawings shall be submitted in both hard copy and electronic (Auto-CAD or Revit version as required by the owner) version. Number of copies of each as requested by the owner.

Indicate the following installed conditions:

- All changes and an accurate record, on reproductions of the contract drawings or appropriate shop drawings, of all deviations, between the work shown and work installed.
- Mains and branches of piping systems, with valves and control devices located and numbered, concealed unions located, and with items requiring maintenance located (i.e., traps, strainers, expansion compensators, tanks, etc.). Valve location diagrams, complete with valve tag chart.
- Equipment locations (exposed and concealed), dimensioned from prominent building lines.
- Approved substitutions, contract modifications, and actual equipment and materials installed.
- Contract modifications, actual equipment and materials installed.

Submit for review bound sets of the required drawings, manuals and operating instructions.

Submit a complete maintenance manual of all equipment installed under this contract.

H. COMMISSIONING

This project will include commissioning of mechanical systems by an approved Commissioning Authority (CA). All sub-contractors shall provide necessary support for demonstration of start-up and operation including all required system adjustments. Personnel shall be available as indicated in the CA schedule.

I. ACCEPTABLE MANUFACTURERS

Acceptable Manufacturers. Provide the specified product or submit the equal product from the list of acceptable manufacturers for approval.

Air Filters: Camfil Farr, AAF Flanders, Tri-Dim
Air Separators: Caleffi, Spirotherm, Honeywell
Air Handling Units: Carrier, York, Trane, Daikin/McQuay
Modular Chillers: Multistack, Aermec, Arctic Chillers
Conventional Chillers: Carrier, McQuay/Daikin, Trane, Johnson Controls/York
Water to Water Geothermal Heat Pumps: ClimateMaster, Bosch, Daikin
Chilled Beams: Price, Dadanco, Trox
Dedicated Outside Air Units: Munters, Semco
Gas Fired Boilers: Aerco, Patterson Kelly, Thermal Solutions
Diffusers and Grilles: Price, Nailor, Kreuger
Fans: Loren Cook, Greenheck, Twin City Fans
Flexible Ductwork: Flexmaster
Insulation: Owens-Corning, Certainteed, Knauf
Pumps: Taco, Grundfos, Bell&Gossett
Sound Attenuators: Vibro-Acoustics, VAW, Price
Vibration Isolation/Seismic Restraints: Mason Industries, Amber Booth, Vibration Mountings.
Cabinet Heaters, Unit Heaters, Radiation: Sterling, Vulcan, Runtal
Terminal Boxes: Price, Anemostat, Nailor
Building Controls: Automated Logic WebCTRL, Siemens Insight Software
Heat exchangers: Mueller, Bell & Gossett, Alfa Laval, APV
Thermal Ice Storage: Calmac, BAC, Evapco
Variable Frequency Drives: ABB, Yaskawa

J. DESIGN CONDITIONS

Outdoor Design Conditions (Based on Hartford, CT):

Winter design dry bulb	8.5°F (ASHRAE 99.6%)
Summer design dry bulb	88.2°F (ASHRAE 1%)
Coincident wet bulb	72.4°F (ASHRAE 1%)

Indoor Design Conditions:

Space Temperature Design Conditions				
Space Type	Summer		Winter	
	DB °F	RH %	DB °F	RH %
Administrative	75	50±5	68	NC
Classrooms	75	50±5	68	NC
Toilet rooms	75	50±5	68	NC
Storage Rooms	80	50±5	65	NC

Space Temperature Design Conditions				
Space Type	Summer		Winter	
	DB °F	RH %	DB °F	RH %
Auditorium	75	50±5	68	NC
Cafeteria	75	50±5	68	NC
Gymnasium	75	50±5	68	NC
Mechanical Rooms	NC	NC	60	NC
Electrical Rooms/Mechanical Rooms	85	NC	NC	NC
MDF	74	45	74	NC
Media Center	74	50±5	68	NC
Computer Lab	74	50±5	68	NC
Entrance Vestibules	NC	NC	55	NC
Lobby/Circulation	75	50±5	68	NC
Stairs	NC	NC	65	NC

NC – indicates no control over conditions will be provided.

K. HVAC SYSTEMS

1928 Building – Central Heating Plant

The existing 1928 Building will remain as a free-standing building as part of this project. Located in a sub-basement, outside the footprint of the 1928 Building, is a boiler room that contains dual fuel cast iron boilers that produces low pressure steam directly and heating hot water indirectly via a heat exchanger. The boiler plant also serves a portion of the 600 Building, portions of the 800 Building, and the 400 Building, all which are scheduled to be demolished as part of the project. As part of this project, the boiler plant will remain functional to serve the 1928 Building. All steam and hot water distribution serving buildings scheduled to be demolished shall be capped within the boiler room. Existing equipment within the boiler room that serves the to be demolished buildings shall remain abandoned in place.

900 Building – Central Heating Plant

The existing boiler currently serving the 900 Building shall be removed in its entirety, including all associated piping, pumps, controls, etc. As part of this project a new heating plant shall be provided consisting of two (2) fully modulating condensing boilers served by natural gas. The boilers shall be similar to Aerco Modulex BMK750 with a heating output of 720 MBH each. Each boiler shall be provided with a primary hot water pump. Pumps shall be similar to Bell & Gossett Series e90. Primary pumps shall be sized based on minimum flow rates required by the boiler manufacturer. Secondary heating hot water from the shall be circulated via end suction pumps similar to Bell & Gossett Series e1510 series in lead/standby configuration with variable frequency drives. Each secondary pump shall be sized for approximately 95 GPM @ 75 FTHD.

Heating hot water shall serve building perimeter finned tube radiation or radiant ceiling panels, hot water reheating coils, cabinet/unit heaters and other supplemental heating systems.

New High School - Central Heating Plant

Gas Fired Boiler (Base Heating Plant)

A mechanical room will be provided to accommodate the heating plant. The heating plant shall consist of three (3) fully modulating condensing boilers served by natural gas. The boilers shall be similar to Aerco Modulex BMK2500 with a heating output of 2360 MBH each. Each boiler shall be provided with a primary hot water pump. Pumps shall be similar to Bell & Gossett Series e90. Primary pumps shall be sized based on minimum flow rates required by the boiler manufacturer. Secondary heating hot water from the shall be circulated via end suction pumps similar to Bell & Gossett Series e1510 series in lead/standby configuration with variable frequency drives. Each secondary pump shall be sized for approximately 750 GPM @ 75 FTHD.

Heating hot water shall serve building perimeter finned tube radiation or radiant ceiling panels, hot water reheating coils, cabinet/unit heaters and other supplemental heating systems.

Glycol heating solution via a plate and frame heat exchanger shall be circulated via end suction pumps similar to Bell & Gossett Series 1510 in a lead/standby configuration with variable frequency drives. Glycol shall serve air handling unit pre-heating coils only.

Water to Water Heat Pumps (Heating Plant - Alternate 1)

Refer to Geothermal Heat Exchanger (Heating/Cooling Plant – Alternate 1) for additional information.

A mechanical room will be provided to accommodate the heating plant. The heating plant shall consist of twelve (12) water to water heat pumps capable of producing both heating hot water and chilled water. For the purpose of the heating plant, all twelve (12) heat pump modules will be required to operate. The heat pumps shall be similar to ClimateMaster Model TMW840 with a heating output of 630 MBH each. Heating hot water shall be circulated via end suction pumps similar to Bell & Gossett Series e1510 series in lead/standby configuration with variable frequency drives. Each pump shall be sized for approximately 750 GPM @ 75 FTHD.

Heating hot water shall serve building perimeter finned tube radiation, hot water reheating coils, cabinet/unit heaters and other supplemental heating systems.

Glycol heating solution via a plate and frame heat exchanger shall be circulated via end suction pumps similar to Bell & Gossett Series 1510 in a lead/standby configuration with variable frequency drives. Glycol shall serve air handling unit pre-heating coils only.

Geothermal Heat Exchanger (Heating/Cooling Plant - Alternate 1)

The geothermal system shall consist of approximately 160, 6” diameter boreholes at 495’ deep spaced 20 feet apart. Each vertical borehole shall consist of a 1 ¼” polyethylene piping with a u-bend assembly and shall be filled with a thermally enhanced bentonite-based grouting material with a minimum solids content of 20%

The geothermal piping shall have a geothermal vault located below grade outside the mechanical room. From the vault, geothermal piping shall enter the mechanical room and circulate via (2) base mounted end suction pumps. The pumps shall be similar to Bell & Gossett Series e1510 series in lead/standby configuration with variable frequency drives. Each pump shall be sized for approximately 1,600 GPM @ 100 FTHD.

A brazed plate heat exchanger will be provided to separate the geothermal loop (25% propylene glycol solution), from the condenser water loop serving the water to water heat pumps. Condenser water shall be circulated via end suction pumps similar to Bell & Gossett Series e1510 series in lead/standby configuration with variable frequency drives. Each pump shall be sized for approximately 1,600 GPM @ 40 FTHD.

1928 Building – Central Cooling Plant

The existing 1928 Building will remain as a free-standing building as part of this project. The building is currently not air conditioned and will remain without air conditioning as part of this project.

900 Building – Central Cooling Plant

Existing air-cooled DX rooftop condensing units serving the 900 Building shall be removed in their entirety, including all associated indoor air handling equipment, ductwork, controls, etc. As part of this project cooling shall be provided by packaged rooftop air handling equipment. Refer to the air handling section of this narrative for additional information.

New High School - Central Cooling Plant

Standard Air-Cooled Chiller Plant (Base Cooling Plant)

The cooling plant will consist of standard air-cooled chillers located at the roof or grade. A mechanical room will be provided to accommodate the chilled water pumps. The chillers shall be similar to Daikin Model AWV. A total of 2 chillers will be provided, each chiller will have a nominal cooling capacity 265 Tons, with a combined cooling capacity of 530 tons. Two base mounted pumps configured as primary/standby shall circulate chilled water (30% Glycol) to cooling coils at all air handling units. Pumps shall be similar to Bell & Gossett Series e1510, each sized for 1060 GPM each @ 125FT HD.

Water to Water Heat Pumps (Cooling Plant - Alternate 1)

Refer to Geothermal Heat Exchanger (Heating/Cooling Plant – Alternate 1) for additional information.

A mechanical room will be provided to accommodate the cooling plant. The cooling plant shall consist of twelve (12) water to water heat pumps capable of producing both heating hot water and chilled water. For the purpose of the cooling plant, nine (9) heat pump modules will be required to operate. The heat pumps shall be similar to ClimateMaster Model TMW840 with a cooling output of 60 Tons each, with a combined cooling capacity of 540 tons. Two base mounted pumps configured as primary/standby shall circulate chilled water to cooling coils at all air handling

units. Pumps shall be similar to Bell & Gossett Series e1510, each sized for 1060 GPM each @ 125FT HD.

Modular Air-Cooled Chiller Plant (Cooling Plant – Alternate 2)

The cooling plant will consist of modular air-cooled chillers located at grade or on the roof. A mechanical room will be provided to accommodate the chilled water pumps. The chillers shall be similar to Multistack Model ASP060X. A total of nine (9) modules will be provided, each module will have a nominal cooling capacity 60 Tons, with a combined cooling capacity of 540 tons. Two base mounted pumps configured as primary/standby shall circulate chilled water to cooling coils at all air handling units. Pumps shall be similar to Bell & Gossett Series e1510, each sized for 1060 GPM each @ 125FT HD.

Thermal Ice Storage (Cooling Plant – Alternate 3)

Thermal ice storage shall be considered as a possible alternate. This alternate can be utilized with the base cooling plant and alternate cooling plants. Thermal ice storage shall consist of a system capable of making ice during off-peak hours for partial storage. In partial storage, the system shall be capable of producing 2,500 Ton hours of ice. A partial storage system shall consist of five (5) Calmac Model 1500C tanks.

If this alternate is selected, the base (water cooled) and alternate (air cooled) cooling plant can be reduced. Under partial thermal storage, the chiller cooling capacity will be reduced to 370 Tons. This would reduce the equipment as follows:

Central Cooling Plant	Number of Chillers/Modules	Capacity (Each Chiller/Module)
Base Cooling System – Air Cooled Chiller	Two	185 Tons
Alternate 1 -Water to Water Heat Pumps	Six	60 Tons
Alternate 2 – Air Cooled Chiller Plant	Six	60 Tons

L. AIR HANDLING EQUIPMENT

1928 Building – Air Handling Equipment

The existing 1928 Building will remain as a free-standing building as part of this project. Existing equipment currently serving the building will remain operational, no additional improvements or air handling equipment shall be provided as part of this project.

900 Building – Air Handling Equipment

Air Handling Units to Overhead Distribution

Provide factory-assembled and tested air conditioning unit consisting of hot water heating, chilled water cooling, fans, temperature controls, filters and dampers.

All components shall be mounted in a weather resistant steel cabinet with corrosion resistant coating and exterior finish suitable for exterior installation. Provide minimum of 2-inch-thick thermal insulation, and exterior condensate drain connection, lifting lugs and removable panels or access doors for access to all internal equipment.

Provide two-inch MERV 8 prefilters and four-inch MERV 13 final filters.

Provide direct drive fan wall for supply and return sections. Provide unit completely factory wired with necessary controls and with connections for power wiring. Provide programmable thermostat

For roof mounted units, provide roof curb for ductwork connection directly to the curb. Coordinate curb size with structural framing modifications.

Unit casing shall be 2" double wall with 2" of insulation and a perforated interior panel.

SYSTEM	AREA SERVED	SYSTEM TYPE	COOLING CAPACITY (TONS)	AIRFLOW (CFM)	COMPONENTS
AHU-1	Board of Education	Variable Volume	25	10,000	1, 2, 3, 4, 5, 6, 7, 8, 9
AHU-2	Locker Rooms	Variable Volume	15	5,000	1, 2, 3, 4, 6, 7, 8, 9, 10

Air Handling Unit Components:

1. Pre and Final Filters.
2. Minimum Outside Air Dampers.
3. Hot Water Pre-heat Coil.
4. DX-Cooling Coil.
5. Hot Water Pre-heating Coil.
6. Supply Fan.
7. Variable Speed Drive Unit(s).
8. Return Fan.
9. Pressure independent electronically controlled VAV boxes with hot water reheat
10. Energy Recovery Wheel

New High School – Air Handling Equipment

Air Handling Units to Overhead Distribution (Base system)

Provide factory-assembled and tested air conditioning unit consisting of hot water heating, chilled water cooling, fans, temperature controls, filters and dampers.

All components shall be mounted in a weather resistant steel cabinet with corrosion resistant coating and exterior finish suitable for exterior installation. Provide minimum of 2-inch-thick thermal insulation, and exterior condensate drain connection, lifting lugs and removable panels or access doors for access to all internal equipment.

Provide two-inch MERV 8 prefilters and four-inch MERV 13 final filters.

Provide direct drive fan wall for supply and return sections. Provide unit completely factory wired with necessary controls and with connections for power wiring. Provide programmable thermostat

For roof mounted units, provide roof curb for ductwork connection directly to the curb. Coordinate curb size with structural framing modifications.

Unit casing shall be 2" double wall with 2" of insulation and a perforated interior panel.

REFER TO HVAC ZONING PLANS (BASE SYSTEM)

SYSTEM	AREA SERVED	SYSTEM TYPE	COOLING CAPACITY (TONS)	AIRFLOW (CFM)	COMPONENTS
AHU-1	Gymnasium	Variable Volume/ Variable Temperature	40	20,000	1, 2, 3, 4, 5, 6, 7, 8, 10
AHU-2	Auxiliary Gym	Variable Volume/ Variable Temperature	20	8,500	1, 2, 3, 4, 5, 6, 7, 8, 10
AHU-3	Weight Room/Locker Room	Variable Volume	17 1/2	7,500	1, 2, 3, 4, 6, 7, 8, 9, 10
AHU-4	Cafeteria	Variable Volume	27 1/2	12,500	1, 2, 3, 4, 6, 7, 8, 9, 10
AHU-5	Auditorium	Variable Volume/ Variable Temperature	40	20,000	1, 2, 3, 4, 5, 6, 7, 8, 10

SYSTEM	AREA SERVED	SYSTEM TYPE	COOLING CAPACITY (TONS)	AIRFLOW (CFM)	COMPONENTS
AHU-6	Band, Vocal, Administration	Variable Volume	30	15,000	1, 2, 3, 4, 6, 7, 8, 9, 10
AHU-7	Cafeteria, Main Corridor	Variable Volume	30	12,000	1, 2, 3, 4, 6, 7, 8, 9, 10
AHU-8	1st & 2nd Floor Classrooms	Variable Volume	60	24,000	1, 2, 3, 4, 6, 7, 8, 9, 10
AHU-9	1st, 2nd & 3rd Floor Classrooms	Variable Volume	70	30,000	1, 2, 3, 4, 6, 7, 8, 9, 10
AHU-10	1st, 2nd & 3rd Floor Classrooms	Variable Volume	70	30,000	1, 2, 3, 4, 6, 7, 8, 9, 10
AHU-11	SLC, Multimedia Prod. & 2nd Floor Corridor	Variable Volume	70	30,000	1, 2, 3, 4, 6, 7, 8, 9, 10
AHU-12	2nd Floor Media	Variable Volume	25	10,000	1, 2, 3, 4, 6, 7, 8, 9, 10
AHU-13	2nd Floor Offices and Classrooms	Variable Volume	25	10,000	1, 2, 3, 4, 6, 7, 8, 9, 10

Air Handling Unit Components:

1. Pre and Final Filters.
2. Minimum Outside Air Dampers.
3. Hot Water Pre-heat Coil.
4. Chilled Water-Cooling Coil.
5. Hot Water heating Coil.
6. Supply Fan.
7. Variable Speed Drive Unit(s).
8. Return Fan.
9. Pressure independent electronically controlled VAV boxes with hot water reheat
10. Energy Recovery Wheel

Dedicated Outside Air Systems to Chilled Beams (Alternate #1)

Regardless of the cooling plant provided, with Alternate #1 a primary chilled water loop shall be provided to serve air handling unit cooling coils. A secondary chilled water loop shall be provided to serve building chilled beam systems.

The primary chilled water loop shall be configured as a variable primary pump system. Chilled water shall be circulated via end suction pumps similar to Bell & Gossett Series 1510 in a lead/standby configuration with variable frequency drives.

The secondary chilled water loop shall be configured as a variable primary pump system with plate and frame heat exchanger. Chilled water shall be circulated via end suction pumps similar to Bell & Gossett Series 1510 in a lead/standby configuration with variable frequency drives. The secondary chilled water loop shall be limited to classrooms, and administration areas. Refer to room HVAC Zoning Plans – Alternate #1.

Spaces such as Classrooms and Administrative Office shall consist of four pipe active chilled beams and hot water panel radiators at the perimeter, as required. Chilled beams will be located at the ceiling level with outside air ducted to each beam. Each outside air branch serving a classroom and offices shall be provided with a variable air volume box which will modulate the outside air based on the carbon dioxide level within the classroom. Outside air will be provided from dedicated outside air units. The dedicated outside air units will be configured as follows: exhaust fan, exhaust filter section, active desiccant wheel with reaction air DX section, outside air filter section, hot water coil, chilled water coil and supply fan. Exhaust air will be ducted back to the units from each classroom and office via a ceiling mounted grille. Units shall be similar to Munters Model HCU.

The dedicated outside air handling units shall be scheduled as follows:

REFER TO HVAC ZONING PLANS (BASE SYSTEM)

SYSTEM	AREA SERVED	AIRFLOW (CFM)
DOAS-1	1st & 2nd Floor Classrooms	4,500
DOAS-2	1st, 2nd & 3rd Floor Classrooms	10,500
DOAS-3	1st, 2nd & 3rd Floor Classrooms	10,500
DOAS-4	1st & 2nd Floor Administration & Classrooms	3,000
DOAS-5	2nd Floor Classrooms & Media	4,750

All perimeter spaces shall be provided with hot water panel radiators located at the ceiling to take care of building skin losses. The panel radiators shall be 18 inches in width and run the entire length of the exterior envelope within the space it serves. Panel radiators shall be similar to Rittling Steel Panel Radiators.

Miscellaneous Systems:

Commercial kitchen: The commercial kitchen shall be served by an exhaust fan (UL 762 rated) for the commercial kitchen hood and a makeup air system capable of delivering conditioned air to the kitchen. Dishwasher exhaust shall be ducted to the outdoors via aluminum or stainless-steel ductwork with the ductwork pitched back toward the dishwasher. Dishwashing shall be exhausted via a Type II hood to a roof curb mounted exhaust fan.

Science & Prep Rooms: Science Classrooms and Prep Rooms with fume hoods will be designed such that no air is recirculated back to the central air handling unit. Fume hoods will be exhausted via a variable air volume laboratory exhaust system. Where possible multiple hoods will be connected to a central exhaust fan. Laboratory exhaust fans shall be similar to Greenheck Model Vektor-H.

Wood Shop: The wood shop will be furnished with a wood dust extraction and collection system. Dust collector shall be located outdoors and will be similar to Donaldson UMA 750. An ambient room dust filtration system similar will also be suspended in the space to continuously filter the air, ambient collection system shall be similar to Donaldson AT-3000.

Mechanical equipment & electric rooms: These spaces shall be provided with unit heaters for heating. Thermostatically controlled exhaust fans shall be provided for ventilation in mechanical and electrical rooms.

Copy Rooms/Janitors Closets: All janitor closet and copier exhaust shall be ducted to the outdoors via inline or roof mounted fans and continuously exhausted.

Toilet Rooms and Locker Rooms: All toilet and locker rooms shall be continuously exhausted and ducted to the outdoors via inline or roof mounted fans.

IT Server Rooms: These spaces shall be conditioned via dedicated split AC units. Condensing unit locations to be coordinated with the architect. Spaces shall be conditioned year-round and shall be on standby power.

Elevator Machine Rooms: The machine room shall be continuously exhausted via an independent system. Pending the environmental condition requirements for the room and heat dissipated off the equipment, space shall be air conditioned via a split AC unit. Condensing unit location to be coordinated with the architect. Space shall be conditioned 24/7 on standby power.

M. BUILDING CONTROL SYSTEM

The building control system will be a complete Direct Digital Control system including control panels, sensors, thermostats, CO2 sensors, humidity sensors, temperature and pressure transmitters, gauges, valves, dampers, operators, relays, and other equipment and appurtenances, including electrical wiring. Building control system shall control fan coil units, air handling units, pumps, VAV Boxes, lighting, etc., serving the building.

The building control system will be a complete MS Windows Server-based Energy Management System utilizing Automated Logic (ALC) WebCTRL or Siemens Insight system.

N. MISCELLANEOUS EQUIPMENT

Galvanized ASME Chilled Water and Hot Water Amtrol or Equal Diaphragm Type Expansion Tanks.

O. ELECTRIC COMPONENTS

Electric motors shall comply with NEMA standards premium efficiency type IEEE standard 112, test method B.

Enclosure type shall be open drip proof for indoor use, guarded drip proof where indoors and exposed to contact by personnel or weather protected type totally enclosed fan cooled for outdoor use.

Motors below ½ HP shall be ECM type and shall be 120-volt, single phase, 60 Hz, AC service factor 1.35. Motors 1/2 HP and larger shall be 208 or 480-volt, three phase 60 Hz, AC and service factor 1.15.

Motor Controllers: Comply with NEC, NFPA 70 and UL. FVNR for motors 1/3hp and less, 120 volt, 1-phase, 60hz, AC with pilot light, toggle switch, thermal overload and lockout type disconnect switch.

FVNR magnetic across-the-line combination type with fused disconnect switch for motors 1/2hp and greater, 208 or 480 volt, 3-phase, 60hz, AC with hand-off-auto switch, 120 volt control transformer and control circuit, pilot light, two sets of auxiliary contacts, 3-phase ambient temperature compensated thermal overload relays with manual reset push button.

Enclosures shall be NEMA type 1A for indoor applications, NEMA type 3x Stainless or 4x for outdoor applications and NEMA type 4x for locations subject to water spray or high humidity.

Motor Efficiency: All motors shall be premium efficiency and shall comply with local utility company requirements.

Variable Frequency Drives: All VFD's shall be provided with an input disconnect switch or circuit breaker with door mounted and interlocked switch (pad lockable in the OFF position), a bypass starter, electronic motor overload protection, a door mounted control panel with graphical display for local control, provisions for external control connections, and serial communications capability.

P. DUCTWORK

Submit sheet metal shop standards for review. Construct of galvanized steel, minimum 24 gage, ASTM A 527 with G90 coating, in accordance with SMACNA HVAC Duct Construction Standards Metal and Flexible, latest version. Seal all joints with approved low off-gassing sealer per Class A SMACNA.

Ductwork shall be sized not to exceed 800 FPM (Variable Air Volume/Variable Temperature systems) and 1200 FPM (Variable Air Volume Systems with Reheats) in mains and 500 FPM max velocity in branch runs to outlets. The use of flex duct shall be limited to 6'-0" and used for

alignment purposes only. Flex ductwork shall not be used to create a change of direction or elbows.

Install volume dampers upstream of all supply air outlets and inlets, volume dampers shall have locking quadrants and two end bearings. Provide cable operated dampers where damper is located above an inaccessible ceiling.

Acoustic duct liner shall be installed on interior of ducts a minimum of 15 feet on inlet and discharge side of air handling equipment, fans, and 10 feet downstream of all terminal boxes. Duct liner, shall have perforated internal liner with mold resistant acrylic coating on airstream side.

Air chambers and plenums shall be double wall 20-gauge galvanized steel with 4" thick 6 lb. density fiberglass insulation board.

Q. INSULATION

Insulation shall be provided on all ductwork and piping. Duct wrap insulation shall be provided with a vapor barrier and thickness in compliance with 2015 International Energy Conservation Code. All piping valves and fittings shall be insulated with pre-formed fibrous glass fittings and per the requirements set forth in 2015 International Energy Conservation Code including all state amendments and supplements, or ASHRAE 90.1-2013. All pipe insulation shall be provided with a vapor barrier. Provide continuous PVC or aluminum jacketing for piping installed less than 2 feet above the floor and subject to damage.

All ductwork exposed to weather shall be provided with Ventureclad insulation system. Exposed ductwork in mechanical spaces or areas of heavy traffic shall be provide with insulated fiberglass board with minimum 4.2 pcf density.

R. PIPING

Comply with ASME standard 31.9 "Building Services Piping" ANSI standard B31.1 Standard for "Power Piping" and B16.5 for welding.

Pipe and tubing materials, fittings and joints:

- Copper tubing: ASTM B-88, Type K with wrought copper fittings ANSI B16.22, solder joints ASTM B32 95-5 tin-antimony. Copper shall be used for pipe sizes 2” and below.
- Steel piping: ASTM A-120 or ASTM A-53 grade B, schedule 40, seamless, black steel pipe with cast iron threaded fittings ANSI B16.4 class 125 or 250, malleable iron threaded fittings ANSI B16.3 class 150 or 300, steel welding fittings ASTM A234, flanged fittings ANSI B16.5, or flanged fittings. Steel pipe shall be used for piping 2 ½” and above.
- Refrigerant piping: Copper type ACR with silver soldered or brazed joints.

Comply with MSS-90 requirements for support of piping and International Building Code for seismic requirements.

Pipe hanger spacing and support loading shall be in accordance with Table 305.4 of the 2015 International Mechanical Code. Where concentrated loads of valves, fittings and components occur space hangers closer as necessary based on the weight to be supported and the maximum recommended loads for the hanger support system.

Pipe hangers shall be of the clevis type, unless piping fluid is above 215°F where axial movement occurs use roller type hangers.

Hydro statically test piping in accordance with ANSI B31.9 requirements at 1-1/2 times system working pressure.

S. EXECUTION

Examination:

- Inspect site conditions before starting preparatory work and verify that actual conditions are known and acceptable before starting work. Inspect areas where equipment will be installed and verify adequate space is available for access, service, and removal of equipment. Coordinate with the Work of other Sections and Divisions.

Sheet Metal Work:

- All sheet metal work shall be done in a neat and workmanlike manner with ductwork following building lines and in straight lines with smooth transitions and offsets as required to suit actual installation. Sheet metal work, which does not conform to Drawings and/or Specifications or is poorly done shall be repaired and/or replaced as directed by the Architect at no cost to the project.
- All pre-fabricated duct sections shall be cleaned prior to storage on the site and be provided with protective covering on all openings to maintain the interior of the ductwork clean and free of dust and other materials prior to installation. Field-assembled duct sections shall be cleaned during assembly and similarly protected until installation.

Piping Systems Installation:

- Install piping straight, plumb and form right angles on parallel lines with building walls. Locate groups of pipes parallel to each other. Provide sufficient spacing for insulation and valve access.
- Hangers shall be sized to accommodate insulation.
- Pipe shall be free from scale and dirt. Protect open ended pipe ends to prevent debris from entering. All piping shall be reamed free of burrs.
- Joining and bending of copper tubings shall be in accordance with the Copper Development Association Copper Tube Handbook.
- Piping shall be worked into place without springing or forcing.
- Water systems piping shall be pitched in direction of flow. Drain valves shall be located at all system low points. Provide manual air vents at all system high points.
- Locate valves for easy access and operation. Valve stems shall be above horizontal.
- Provide complete dielectric isolation between ferrous and non-ferrous metals.

- Piping connections to coils and equipment shall be made with offsets provided with unions of flanges arranged so that equipment can be serviced or removed without dismantling.
- Provide for expansion and contraction in all piping systems to prevent undue strains on piping or equipment. Provide double off-sets at risers to take up expansion.
- Run piping concealed above ceilings and within furred spaces. Piping in mechanical rooms shall be exposed.
- Support vertical piping at every floor independently of connected horizontal piping. Pipe hangers shall be placed within 12 inches of each horizontal elbow.

Insulation Application Requirements:

- Install insulation, mastics, adhesives, coatings, covers, and weather-protection in accordance with manufacturer's recommendations.
- Remove dirt, scale, oil, rust, and other foreign matter from surfaces to be insulated. All surfaces shall be clean and dry prior to installation of insulation.
- Insulation shall not be applied to piping systems and related equipment until the completion of pressure testing.
- Insulation shall not be applied to duct systems and related equipment until ductwork has been sealed in accordance with specifications.
- Piping and ductwork insulation shall be continuous and full thickness through all penetrations of non-fire-rated construction and through all hangers.
- Equipment nameplates, labels, and access doors shall be exposed with insulation edges finished.
- Valves shall be insulated to top of bonnets.
- Anchors, hangers, and other projections shall be insulated and vapor-sealed to prevent condensation. All openings and punctures shall be sealed with vapor barrier compound.
- Flexible blanket insulation shall be installed with ends tightly butted. Install so that insulation is not excessively compressed at duct corners. Seams shall be stapled 6 inches on-center with outwardly clinching staples. Seal with pressure-sensitive vapor barrier tape. Where rectangular ducts are 24 inches in width or greater, duct wrap insulation shall be secured to bottom of duct with mechanical fasteners such as pins and speed clip washers, spaced on 12-inch centers and not over 3 inches from edges of insulation joints.
- Duct insulation liner shall be adhered to sheet metal with 90 percent coverage of adhesive and all exposed leading edges and transverse joints coated with adhesive and be provided with metal nosing. Duct liner shall be additionally secured with mechanical fasteners. Fasteners shall be impact driven or weld secured with mechanical fasteners. Fastener spacing shall be in accordance with manufacturer instructions. Refer to SMACNA HVAC DUCT CONSTRUCTION STANDARDS.

Protection and Clean-up:

- The Contractor shall be responsible for maintenance and protection of all materials and equipment furnished by him during the construction period from loss, damage or deterioration until final acceptance by the Owner. All materials and equipment on the job site shall be stored and protected from the weather. All piping and equipment openings shall be temporarily closed during construction to prevent obstruction and damage.
- All equipment with damaged finished surfaces shall be cleaned and repainted with the same paints as were factory applied.
- Keep the job site free from the accumulation of waste materials and rubbish daily. At the completion of the work, remove all rubbish, construction equipment and surplus materials from the site and leave the premises in a clean condition.

Test, Adjust and Balance:

- Test, adjust and balance all air and water systems/equipment in accordance with AABC or NEBB requirements.
- Tab agency to be certified by AABC or NEBB.
- Submit typed report of final measurements and equipment operational performance.
- Pressure test all ductwork systems with pressure class greater than or equal to 3” pressure class.

PART VII: ELECTRICAL SYSTEMS NARRATIVE

A. GENERAL

This narrative describes the schematic electrical scope of work and specifications; refer to architectural floor plans for additional information.

Comply with all current Federal, State, City and local codes, standards and ordinances, the International Building Code, the Connecticut Building Code including supplements, NFPA, utility company standards, insurance carrier requirements, and local authorities. The Electrical systems will be designed to comply with all state and local codes including the following codes adopted by the authority having jurisdiction:

- 2018 Connecticut State Building Code
- 2017 National Electric Code
- 2015 International Energy Conservation Code
- 2013 NFPA 72 National Fire Alarm and Signaling Code
- 2010 ADA Standards for Accessible Design

B. SUSTAINABILITY

Systems incorporating sustainable elements will be investigated for proper application throughout the design process. Refer to other Consultant sections.

C. COORDINATION

Coordinate the work, with work of other trades and field conditions. Carefully check space requirements and utilities to ensure all equipment can be installed in the spaces allotted thereto and coordinate all necessary NPS service requirements. Coordinate, protect and schedule work with work of other trades in accordance with the required construction sequence. Install all work in accordance with equipment manufacturer's installation

D. ELECTRICAL SERVICES

1928 Building

The existing 1928 building's utility transformer is existing to remain and shall remain connected to the existing medium voltage cables. The existing electrical distribution system, in the basement space adjacent to the 1928 shall be existing to remain. This is required because it provides the power to the 1928 building. Feeders to the portions of the building being demolished can be removed back to the main distribution system as required.

900 Building

The existing medium voltage pad mounted utility transformer, adjacent to building 900, is existing to remain and shall continue to accommodate the existing building 900 wing.

New High School

A new utility transformer shall be connected to existing medium voltage primary underground wiring in the general vicinity of the building 900 service transformer. The contractor shall provide a concrete pad for the transformer. Pad-mounted transformer shall be provided by Utility Company.

Provide underground concrete encased ductbank and manhole system and secondary wiring from the new pad mounted transformer to electric service equipment located in the new high school's main electric room. Include a red dye marker within ductbank backfill.

E. SECONDARY ELECTRICAL SERVICE AND DISTRIBUTION

New High School

The main switch and distribution switchboard shall be rated for 3,000A MCB-480/277 volt, 3-phase, 4-wire. Provide with SPD system rated for 240kA per phase. Provide a utility approved meter and separate customer electronic power monitoring multimeter.

Alternate: Contractor shall provide pricing for a main service switch dedicated to the fire pump. The fire pump switch shall be rated for 400A MCB-480/277 volt, 3-phase, 4-wire.

The distribution switchboard shall be 3,000A MLO-480/277 volt, 3-phase, 4-wire.

The 480-volt switchboard shall have the following 3Ø circuit breakers for the indicated loads:

Chiller (2) 400A

RTUs (10) 200A
Lighting Panelboards (8) 100A, one per pair of Science wing for a total of (3); one for auditorium wing; one for gymnasium wing.
Mechanical Rooms (3) 400A
Theater Lighting Panelboard (1) 800A

The 208-volt switchboard shall have the following 3Ø circuit breakers for the indicated loads:

Gymnasiums (2) 225A

Kitchen (1) 400A
Mechanical Rooms (1) 225A
Receptacle Panelboards (8) 225A
Wood Lab, (1) 225A. Provide a receptacle panelboard for this area.
Robotics wing (1) 225A. Provide a receptacle panelboard for this area.
Photo Lab, Ceramics, SLC Friends wing (1) 225A. Provide a receptacle panelboard for this area.
Media (1) 225A. Provide a receptacle panelboard for this area.
Concessions, (1) 100A. Provide a receptacle panelboard for this area.

Lighting panels shall generally be 480/277V rated 100A, 42 poles.

Receptacle panels shall generally be 208/120V rated 225A, 84 poles.

Kitchen panelboard shall be 400A, 208/120V 3Ø, 4W, 3 section, 126 pole, stainless steel.

Mechanical room panels shall generally be 480/277V rated 400A, 42 poles and 208/120V rated 225A, 42 poles as applicable.

Theater switchboard shall be 208/120V, rated 1,200A, 42 pole.

Gymnasium panelboard shall be 225A, 208/120V 3Ø, 4W, 42 pole.

MDF room receptacle panel shall be 208/120V rated 100A, 42 poles.

Switchboard and panelboards shall have copper bus and bolt on circuit breakers, surface or flush mounting.

Transformers shall have copper windings and shall be rated for 115°C rise.

F. EMERGENCY POWER SYSTEM

New High School

Provide 1,500kW diesel fired emergency generator to serve the entire school's electrical loads. Two automatic transfer switches (ATS) shall be provided, one for life safety loads and the other for the remaining standby building loads. The life safety ATS shall be 150A, 480/277V, 3Ø, 4W and the other ATS shall be 3,000A, 480/277V, 3Ø, 4W. The emergency loads including but not limited to emergency lighting, fire alarm, and controls, fire pump. Generator shall be located outdoors at the rear of the building in a sound attenuating, aluminum enclosure. A skid mounted fuel tank with double wall construction shall be located within the generator base. Provide tank with capacity for 72 hours of operation at full load. The generator shall have a 150A and a 3,000A circuit breakers to energize the ATSs.

G. HVAC WIRING

Provide all necessary disconnects, wiring/raceways for all exhaust fans, pumps, and air units including air conditioning. Motor controllers for HVAC equipment are by mechanical. Provide electrical service to all mechanical control transformers and control panels.

H. FIRE ALARM SYSTEM

1928 Building

The existing main fire alarm panel in the existing high school will need to be relocated to the 1928 building to maintain fire alarm service to the 1928 building.

900 Building

The 900 building, because most of the building is being renovated, will be provided with a new sub system, to the new high school system, containing a fire alarm annunciator at the 900 building main entrance and new devices throughout. The new high school will be connected to the 900 building and the third party monitor to reduce the connections to the third party monitor and thereby reduce monthly charges.

New High School

Provide an addressable type fire alarm system with voice evacuation. The system shall consist of a control panel, battery cabinet, annunciator panel, printer and all necessary peripheral devices, including but not limited to pull-stations, area smoke detection, flow switches, tamper switches, speaker/strobes, duct smoke detectors and magnetic door release devices. The system shall be connected to the campus fire alarm system. The fire alarm system shall be as manufactured by Notifier.

I. CALL FOR AID

Provide complete call for aid signaling system in all handicap bathrooms and stalls including pull cord and hall dome light.

J. RECEPTACLE DEVICES

Provide a minimum of four (4) duplex receptacles for each office and a minimum of four (8) duplex receptacles for each classroom.

Provide exterior weather resistant GFI receptacles with weatherproof covers on the building exterior and within 25’ of mechanical equipment.

K. WIRE AND INSULATION APPLICATIONS

Service Entrance: Type XHHW, in raceway.

Feeders: Type THHN/THWN, in raceway.

Branch Circuits: Type THHN/THWN, in raceway.

Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-THWN, single conductors in raceway or metal-clad cable, Type MC. Homeruns shall be THHN-THWN, single conductors in raceway. Homerun shall be considered from the panelboard to the area served. Contractor shall provide junction box in each area served for transition from conduit to MC cable.

Metal clad cables are permitted for lighting switching legs in dry walls and for whips not exceeding 6 feet in length from a junction box to light fixtures in ceiling.

Branch circuits and home runs shall not use MC cables.

Fire Alarm Circuits: Type THHN/THWN, in raceway.

Shielded Cables: Provide shielded cables where required by the manufacturers. Install in raceways or cable trays as specified.

Plenum Spaces: Use plenum rated cables in plenum spaces.

Class 1 Control Circuits: Type THHN/THWN, in raceway.

Class 2 Control Circuits: Type THHN/THWN, in raceway.

L. CONDUIT APPLICATION

Outdoors: Use the following wiring methods:

Exposed: Aluminum.

Concealed: Aluminum.

Underground: PVC, schedule 40.

Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.

Boxes and Enclosures: NEMA 250, Type 3R or Type 4.

Conduit installed in floor slabs shall be PVC, schedule 40.

Indoors: Use the following wiring methods:

Exposed areas not subject to physical damage: EMT.

Exposed areas subject to physical damage: RMC.

Areas subject to physical damage include, but not limited to mechanical rooms, boiler and chiller rooms, sprinkler room and like utility rooms.

Concealed: EMT.

Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC; except in wet or damp locations, use LFMC.

Damp or Wet Locations: Aluminum.

Plenum Spaces: Wiring methods in plenum spaces shall conform to the requirements of NEC Section 300-22. All conduits shall be metal. Exposed cables, where used, shall be listed and approved for use in plenum.

Boxes and Enclosures: NEMA 250, Type 1, except as follows:

Damp or Wet Locations: NEMA 250, Type 4, stainless steel.

M. LIGHTING

Scope of lighting work shall include lighting fixtures and controls for all areas, refer to lighting designer's specifications for fixture description.

Lighting Control: Provide a system of room occupancy sensors to control all lighting fixtures in each classroom, office/work room, toilets, storage closet, etc.

Lighting in classrooms shall generally consist of LED lighting fixtures with interior photo sensors for automatic daylighting control. Additionally, each room shall have preset dimming system.

Provide under cabinet task lighting wherever overhead storage cabinets exist.

Provide two (2) wall switches and one (1) 2-pole ceiling occupancy sensor for lighting controls in each space.

Typical Classroom lighting shall consist of pendant-mounted direct/indirect, continuous row LED lighting fixtures, with 3500°K temperature, 90 or better CRI, and an efficacy of 90 lumens/watt or better, located approximately 8' - 0" on center, providing 50/55 foot candles. Circuiting shall be arranged for daylight harvesting on exterior rows.

Typical corridor lighting shall consist of recessed, parabolic LED lighting fixtures with 3500°K temperature, 90 or better CRI, and an efficacy of 90 lumens/watt or better. Providing 20 footcandles.

N. EMERGENCY LIGHTING

Emergency lighting shall be provided by selected LED lighting fixtures connected to emergency distribution system to provide a minimum of 1 F.C. in all paths of egress.

Exit lights shall be LED type.

An exterior emergency light shall be provided at each exit door. This fixture shall be a dual array, dual LED type lighting fixture with a corresponding bypass relay just inside the building.

Public way exterior lighting shall be energized from the emergency distribution system.

O. GROUNDING

Provide a system ground and all necessary bonding as required by the NEC.

Provide separate insulated ground wire with each branch circuit and feeder.

Provide a grounding electrode system using three ground rods and #2/0 conductor in addition to domestic water and fire protection service piping.

P. LIGHTNING PROTECTION SYSTEM

Provide a lightning protection system and connect to the ground loop as required by the NEC. Provide a lightning arrester on the electric service and all low voltage systems entering the building to obtain a Lightning Protection Inspection Certificate, UL96A for the project.

Q. PHOTOVOLTAIC (PV) SYSTEM

Provisions will be made to connect a 1,350kW PV array to the main electrical system. Weatherproof disconnect switches between the inverter and the electrical distribution system shall be provided on the exterior of the building as per Eversource requirements. The inverters shall be in the main electric room.

PART VIII: PLUMBING SYSTEMS NARRATIVE

A. GENERAL

Comply with all current Federal, State, and local codes, standards and ordinances including:

BUILDING CODES

- 2018 Connecticut State Building Code
- 2015 International Building Code
- 2015 International Residential Code
- 2015 International Existing Buildings Code
- 2015 International Mechanical Code
- 2015 International Plumbing Code
- 2017 National fire Protection Association 70 – National Electrical Code
- 2009 International Code Council / ANSI A117.1 – Accessible & Usable Buildings & Facilities
- 2012 International Energy Conservation Code

FIRE SAFETY CODES

- 2018 State of Connecticut Fire Safety Code
- 2015 International Fire Code
- 2015 National fire Protection Association Standard 101 – Life Safety Code

OTHER CODES or GUIDELINE

- OSHA, NPFA, utility company standards and all other codes and standards referenced by the above documents

The contractor will be responsible to give all necessary notices, obtain all permits and pay all taxes and fees necessary to obtain approvals and complete the work herein. Obtain all required certificates of inspection and deliver same to Owner.

The work includes all labor, materials, equipment and services necessary to complete the work as shown on the drawings and specified herein.

Provisions for the physically handicapped as required by the State of Connecticut Building Code will be included.

Potable water supply will be protected against backflow, back-siphonage, cross connection and other unsanitary conditions.

B. LEAD-FREE STATEMENT

Several plumbing fixtures described in this section fall under jurisdiction of the Federal Reduction of Lead in Drinking Water Act (42 USC 300G) which mandates that effective January 4, 2014 the wetted surfaces of any valve, fitting or fixture that comes in contact with potable water must have

a weighted-average lead content of no more than 0.25 percent. The contractor shall be responsible for providing products that are Lead-Free products and meet the requirements of Safe Drinking Water Act Section 1417 (e) (Section 9 of NSF/ANSI Standard 61) and authorities having jurisdiction.

C. COORDINATION

Coordinate the work, with work of other trades and field conditions. Carefully check space requirements and utilities to ensure all equipment can be installed in the spaces allotted thereto and coordinate all necessary utility service requirements. Coordinate, protect and schedule work with work of other trades in accordance with the required construction sequence. Install all work in accordance with equipment manufacturer's installation instructions.

D. ENERGY CONSERVATION

Energy conservation requirements as set forth in the State of Connecticut Building Code will be included. Additional energy conserving methods will be considered to further affect higher energy savings.

E. WARRANTY

The Contractor warrants that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted, that the Work will be free from defects not inherent in the quality required or permitted, and that the work will conform with the project requirements. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. Contractor shall warranty all work for a period of one year from Owner acceptance unless specified otherwise in which case longer equipment warranties may apply.

Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace the following components of furnaces that fail in materials or workmanship within specified warranty period:

Warranty Period, Commencing on Date of Substantial Completion: One (1) year.

F. WORKMANSHIP

Perform all work in a practical, neat and workmanlike manner with mechanics skilled in work, and using the best practices of the trade involved.

No work shall be concealed until it has been inspected and approved by the Architect.

Workmanship or materials not meeting with requirements of the specifications and drawings and satisfaction of the Architect shall be rejected and immediately replaced in an acceptable manner, without additional cost to the Owner.

G. SPECIAL WORKMANSHIP FOR ARCHITECTURALLY EXPOSED SYSTEMS

General: In addition to basic project workmanship requirements specified above, a higher degree of care in systems layout and routing shall be exerted in selected areas, as follows.

Architectural Exposures: Note that this project includes locations where systems will be partially or fully exposed to view in finished architectural spaces due either to the intentional omission of ceilings, and/or to the intentional holding back of ceiling edges from walls, for architectural effects. These areas shall receive extra effort and care above and beyond basic project workmanship principles.

Special Workmanship Requirements: In these special areas, comply with the following requirements:

- Run systems tight to overhead structure whenever possible.
- In spaces with gaps between ceiling edges and walls, do not run systems down near ceilings. Locate them as high above as feasible.
- Do not cross under framing members within view of such gaps. Seek alternative routes around or through obstacles.
- Fasten systems sufficiently often to prevent their visually sagging or drooping between support points.
- Route systems parallel to walls, framing members, and other elements defining spatial geometries.
- Change directions orthogonally.
- Do not run diagonally when traversing horizontal or vertical surfaces.

Rejection of Work: Workmanship and/or materials not complying with the above additional requirements in these special areas to the satisfaction of the Architect shall be rejected and shall be immediately replaced in an acceptable manner without additional cost.

H. SUBMITTALS

Contractor shall submit; shop drawings, product data, samples, record documents (as-builts) and operation and maintenance manuals in accordance with the Contract requirements and particular specification section requirements.

Shop Drawings: Submit shop drawings of all items proposed to be furnished and installed under this Section which shall include but not be limited to:

- Coordination drawings, coordinated with all other trades
- As Built drawings in electronic (Revit) format as specified by owner with hard copies.
- Piping materials, joints and fittings
- Valves, tags and name plates with schedule and location
- Pipe hangers and supports
- Insulation
- Valves

- Cross connection protection devices
- Pipe sleeves and seals
- Drains
- Cleanouts
- Plumbing fixtures
- Water heating equipment
- Pumps
- Water detection equipment
- Hose bibbs and wall hydrants
- Access panels
- Trap primers
- Miscellaneous plumbing specialties
- Welding certifications: submit reports as required for piping work
- Brazing certifications: submit reports as required for piping work

Manufacturers' recommended installation procedures which, when approved, will become the basis for inspecting and accepting or rejecting actual installation procedures used on the work.

I. RECORD DRAWINGS

Provide a complete set of as-built drawings reflecting as installed conditions. As-built drawings shall indicate all installed conditions of systems within this discipline. Drawings shall be of similar scale as the construction documents and include details as necessary to clearly reflect the installed condition. Drawings shall be bound in a complete and consecutive set. Supplemental sketches and loose paperwork will not be acceptable and will be returned for revision. The contractor shall comply with the engineer's comments to produce a clear and concise set of drawings. Drawings shall be submitted in both hard copy and electronic (AutoCAD or Revit version as required by the owner) version. Number of copies of each as requested by the owner.

Indicate the following installed conditions:

- Include all changes and an accurate record, on reproductions of the contract drawings or appropriate shop drawings, of all deviations, between the work shown and work installed.
- Mains and branches of piping systems, with valves and control devices located and numbered, concealed unions located, and with items requiring maintenance located (i.e., traps, strainers, expansion compensators, tanks, etc.). Valve location diagrams, complete with valve tag chart.
- Equipment locations (exposed and concealed), dimensioned from prominent building lines.
- Approved substitutions, contract modifications, and actual equipment and materials installed.
- Contract modifications, actual equipment and materials installed.
- Submit for review bound sets of the required drawings, manuals and operating instructions.
- Submit a complete maintenance manual of all equipment installed under this contract.

J. SUSTAINABLE DESIGN FEATURES

The following indicates proposed sustainable design features:

- Water conserving fixtures.
- Electronic Controlled Fixtures for water use reduction.
- Rainwater harvesting
- Waterless Urinals

K. FLOW METERS

Flow meters: Provide for a quantity of (15) fifteen Flow Meters.

Basis of Design: ONICON Model F-4600 Series Inline Ultrasonic Flowmeter. Provide an inline flowmeter complete with direct beam wetted ultrasonic transducers, temperature sensor, mounting hardware and calibration certificate. Flowmeter shall be selected for the intended application in terms of pipe size, pipe material, installation requirements, expected flow rate, ambient conditions and fluid characteristics which include but are not limited to pressure, temperature, and viscosity. Ultrasonic flow sensing element shall utilize matched direct path, wetted ultrasonic transducers and 1000 OHM Platinum RTD. All wetted materials shall be NSF 372 compliant.

Transmitter with Integral Display and Operator Interface: Provide an operator interface consisting of three push-buttons. Display shall visually indicate total fluid volume, instantaneous flow rate and fluid temperature. Output signals shall be either serial network protocol, pulse output, analog output or combination. Pulse output for totalization of flow, Gallons typical. Optional serial communications output shall be native to the BTU meter, BACnet meters shall be BTL certified, secondary communication gateways shall not be permitted. Information provided via the serial communication network shall include: Flow rate, flow total, fluid temperature and a trend including peak values. Meters with serial communications shall be able to provide up to three additional auxiliary pulses configured as inputs or outputs.

L. SYSTEM DESCRIPTION

1928 building

The existing 1928 building will remain as a standalone structure with existing plumbing systems intact. The mechanical room in the sub-basement outside the building frame will remain as is. Existing sanitary, natural gas, domestic hot & cold-water piping serving the existing 1928 building and the related mechanical room will remain active. Existing plumbing equipment, pumps, water heaters, tanks control, etc. related to the 1928 building will remain intact and active.

Water supply, drainage piping and plumbing systems extending outside the building perimeter will be divorced from the outside structures and cut and capped inside the building. Equipment serving outside systems within the frame of the existing building to remain will be decommission and abandoned.

The existing storm leaders at the front of the building spilling to grade will remain. Existing storm leaders draining onto the existing structures scheduled for removal will be extended to grade level and drained away from the building. Drainage locations are to be filed coordinated during demolition.

The existing water service entering the basement level will remain to serve this building.

The existing building will be provided new gas service, meter and regulator to support the existing to remain domestic water heating and space heating systems serving the 1928 building. The existing mechanical room demand and pressure requirements to be field verified. The new meter location and service line shall be installed and coordinated with the local gas utility company.

900 Building

Demolition:
The existing 900 building will remain as a standalone structure. The existing domestic water service, meter and shut off valves will remain. The existing strainer, backflow preventer, domestic water distribution piping after the meter shutoff will be removed. All sanitary, waste and vent piping will be removed. The existing sanitary main will be capped at the service entrance. The existing vent through roof will be protected for reuse. Miscellaneous plumbing systems, compressed air, acidic waste and all equipment to be removed.

The existing storm system roof drains and piping will remain intact to be replaced during the building renovations.

The existing natural gas system service assembly at the north end of the 900 building will remain. All gas supply piping serving structures outside the 900 building will be severed cut and capped at the service assembly. The existing gas supply piping to this building will be disconnected inside the building at the entrance.

New Work:
Domestic hot and cold water: The existing water service will be supplied and new backflow preventer with flood control solenoid and strainer. Domestic water distribution piping will supply the new bathrooms and showers as required by the program. Pressure reducing vales will be provided where required. Freeze-proof exterior hydrants will replace existing locations.

The building will be provided a new, gas-fired, semi instantaneous tank type 100-gallon water heater equal to manufacturer PVI model Conquest #20 L 100A-CGL, 199 cfh with recovery of 233 gallons at 100°f rise. The hot water distribution system will be provided hot water circulation and thermostatic mixing valve assembly to supply 105-degree F serving lavatory and shower fixtures.

Sanitary: Install sanitary, waste and vent piping serving plumbing fixtures and floor drains. The existing sanitary waste connection within the building is proposed to be maintained and reused. The existing sanitary system will be scoped to verify condition. Refer to Civil sections for discharge location.

Storm: The existing roof will be provided new roof drains in existing locations. All interior piping will be replaced with new. The existing roof is constructed without parapet walls and does not require secondary roof drainage. The existing storm connection within the building is proposed to be reused. The existing storm system will be scoped to verify condition. Refer to Civil sections for discharge location.

The existing natural gas system service assembly at the north end of the 900 building will remain and be reconnected to the new equipment as required to serve the new program.

New building

Install a 4" domestic water service coordinated with the Local Water Utility Company.

Provide and install a full-size reduced pressure backflow preventer on each building's water service.

Alternate: Provide a packaged variable speed drive triplex pressure booster pump assembly.

Domestic hot and cold water: Install hot and cold-water distribution to plumbing fixtures and other points of connection or service throughout as required by the program. Provide freeze-proof exterior hydrants.

Domestic hot water shall be generated by (3) new, gas-fired, semi instantaneous tank type 100 gallon water heater equal to manufacturer PVI model Conquest #30 L 100A-CGL, 300 cfh with recovery of 349 gallons at 100°f rise each. The hot water distribution system will be provided circulation pumps for each system zone as required. The domestic hot water distribution will be divided in two temperature zones, 140-degree F serving the kitchen and 110-degree F serving toilet room fixtures. 110-degree F water distribution will be controlled with a thermostatic mixing valve assembly.

Sanitary: Install sanitary, waste and vent piping serving plumbing fixtures and floor drains. Install a gravity building drain with a connection to the site sanitary sewer. Refer to Civil sections for discharge location.

Roof, terrace and areaway drainage will be piped independent of the sanitary sewer and discharge to the site storm sewer. Refer to civil sections for discharge location. Areaway drains at lower levels shall incorporate back-water valves to prevent flooding.

Install a complete gas service and piping as required, serving Kitchen and Mechanical. Gas service shall be installed and coordinated with the local gas utility company.

M. COMMISSIONING

This project will include commissioning of plumbing systems by and approved Commissioning Authority (CA). All sub-contractors shall provide necessary support for demonstration of start-up and operation including all required system adjustments. Personnel shall be available as indicated in the CA schedule.

N. DOMESTIC WATER

Scope: Domestic hot and cold-water distribution to plumbing fixtures and other points of connection as required by the program.

Freeze-proof exterior hydrants will be located around the building.

Water piped to plumbing fixtures, drinking fountains, lawn hydrants, and sinks. Hot water piped to plumbing fixtures and sinks.

Design Criteria: Pipe sizing in accordance with the International Plumbing Code based upon friction loss charts with a maximum of 6 feet per second velocity.

Source: Local Water Utility Company.

Piping Materials

Domestic water service piping below ground (4" size): Class 52 (exterior coated), cement lined ductile iron push-on pipe, ANSI A2l.5l/AWWA Cl5l with 350 psi cement lined ductile iron mechanical joint fittings ANSI A2l.10/AWWA C110 and ANSI A21.11/AWWA C111. Cement lining on interior shall be in accordance with ANSI A21.4/AWWA C104. Provide and install tie-rods and clamps at each fitting. Coat rods and clamps, with an environmentally safe exterior corrosion protection coating. Provide thrust blocks at changes of direction.

Domestic hot, cold and hot water recirculation piping above ground (2” and smaller):

Hard drawn seamless Type L copper tubing ASTM B88

Wrought copper solder fittings A.N.S.I. B16.22 and "Bridgit" or other no lead content solder joints ASTM B32-83, alloy Grades SN96 or SB5. Solder flux lead content-zero percent.

******** [OR] ********

Copper Pressure-Seal-Joint Fittings:
Bronze or copper shall conform to the material requirements of ASME B16.18 or ASME B16.22, and the performance requirements of IAPMO PS117, and ICC LC1002. Press fittings ½-inch thru 2-inch for use with ASTM B88 copper tube type L. Press fittings shall have an EPDM sealing element and Smart Connect (SC), leak detention feature for un-pressed fittings. Press fittings with EPDM sealing element shall conform to NSF 61-G when installed in a potable water system. Installation shall conform to manufacturer’s instructions and specifications. Manufacturers: Viega

Domestic hot, cold and hot water recirculation piping above ground (2” and larger):

Hard drawn seamless Type L copper tubing ASTM B88

Copper Grooved-End Fittings: ASTM B 75 copper tube or ASTM B 152 wrought copper fittings with copper tubing sized grooved ends designed to accept Victaulic couplings (flaring of tube and fitting ends to IPS dimensions is not permitted).

Grooved-End-Tube Couplings: Copper-tube dimensions and design similar to AWWA C606. Include ferrous housing sections cast with offsetting, angle-pattern bolt pads to provide system rigidity upon visual metal-to-metal bolt pad contact with no torque requirement, coated with copper-colored enamel, Grade EHP EPDM-synthetic rubber gasket UL classified in accordance with ANSI/NSF61 for hot (180F) and cold (86F) water, and bolts and nuts. Designs that permit spaces or gaps at bolt pads or require a torque per written manufacturer's installation instructions not permitted. Victaulic Style 607.

Valves:

General: Approved manufacturers; Nibco, Apollo, Stockham, Milwaukee.

Domestic water systems up to 2-1/2"size: 2-piece, full port, bronze threaded, extended stem, 400 psi WOG.

Gate valve for domestic water systems 3" and over: Flanged, MSS SP-70, Type I. CWP Rating: 200 psig, ASTM A 126, gray iron with bolted bonnet.

Check valves for domestic water systems up to 2-1/2" size: class 125 all bronze, silent type, threaded.

Check valves for domestic water systems sizes 3" and over: class 125 IBBM flanged, silent check valve.

Balancing valve (domestic hot water circulation): all bronze, threaded end, calibrated stem, balancing ports, Armstrong CBVT series.

Reduced pressure backflow preventers (RPD) - sizes 3/4" through 2": UL listed, AWWA, USC, and SBCCI/IAPMO approved bronze body reduced pressure zone air gap equipped with stainless steel relief and check valves, oversized copper funnel for pressure relief discharge piped to drain, bronze test cocks, integral body unions, bronze strainer and inlet and outlet ball valves. Manufacturer: Watts 909 series.

Hose end drain valve NIBCO Fig. No. T-113-HC, all bronze gate (Watts #B-6000-cc, all bronze ball valve) with 3/4" hose thread outlet, threaded cap, rubber gasket and safety chain.

O. DOMESTIC WATER HEATING

Tank type Gas:

Each water heater shall be condensing gas fired tank type with individual combustion air inlet and stainless-steel exhaust to the exterior. Equipment shall conform to all applicable A.S.M.E. Standards and approved by the National Sanitation Foundation, and in compliance with ASHRAE

90 (latest edition). All components that contact condensate are constructed of corrosion resistant materials. Nonferrous, removable fittings at all tank connections. Aqua PLEX tank requires no anodic protection, whether sacrificial or induced current. All tank connections are non-ferrous and galvanically neutral to the Aqua PLEX tank. Aqua PLEX tank is entirely robotically welded. Programmable electronic operating control with digital LED temperature readouts and Modbus connectability to BAS. ASME-rated temperature and pressure relief valve.

Manufacturer: PVI Industries Conquest, Patterson Kelly HiDra or engineer approved equal.

Water Heating Specialties:

Thermometer (TH): adjustable angle type, mercury or liquid actuated, constructed with non-corrosive internal mechanism and recalibrator adjustment; assembled in minimum 3-1/2-inch diameter gasket sealed, glass faced stainless steel case; equipped with stainless steel bracket assembly, separable socket, 30 to 240 degrees F water temperature range. Manufacturer: Trerice L80030.

Pressure and temperature relief valve - P&T: ASME rated, bronze body, non-corrosive trim, automatic reseating, extension thermostat, test lever, threaded inlet and outlet; 75 to 150 psi adjustable pressure range, set at 125 psi, 210 degrees F. water

Expansion tanks: ASME certified 125 psi, diaphragm type tank for potable water usage.

P. DIGITAL WATER TEMPERATURE CONTROL VALVE

Lead free digital water temperature control and monitoring system shall feature 3.5" full-color touchscreen interface which is configurable on location and does not require factory pre-programming. System shall control water temperature to +/- 2°F in accordance with ASSE 1017 and resist "temperature creep" during periods of low/zero demand. Controller shall be password protected and feature a user-adjustable outlet temperature range of 60 - 180°F with high and low temperature alerts, and an approach temperature of 2°F. System shall digitally control and monitor mixed outlet temperature. Controller shall integrate with building automation systems (separate module not required) through BACnet and Modbus protocols and feature local and remote temperature alarms. System will feature a user-set, high-temperature sanitization mode for thermal disinfection of bacteria and a programmable temperature set back feature to improve energy efficiency. System will also feature high speed actuator with override feature. In the event of a power failure, system will open full cold supply. In case of a loss of cold water, the system will close hot water supply. Valve and controller shall be listed/approved to ASSE 1017, cUPC, NSF, CSA 24/UL873 and BTL (BACnet Testing Laboratories)

System shall be a pre-pipped Powers LFIS series.

Q. SANITARY DRAINAGE

Scope: Drainage of plumbing fixtures, sinks, drinking fountains, and floor drains piped to sanitary building drain. Venting of fixtures and drains to atmosphere.

Design Criteria: International Plumbing Code and State of Connecticut Plumbing Code.

Disposal: Connect to the municipal sanitary sewer independent of the storm sewer system by gravity.

Piping Materials:

Sanitary, waste and vent piping above ground within building: Hubless cast iron pipe with no hub fittings and "Husky" Series 4000 clamps. Sizes 1-1/2”-4” shall have minimum of (4) sealing bands, Sizes 5”-10” piping shall have minimum of (6) sealing bands.

Sanitary, waste and vent piping below ground within building: service weight cast iron pipe and fittings with hub and spigot ends, ASTM A74. Seal: one-piece neoprene rubber gaskets matching the internal configuration of the hub.

R. STORM DRAINAGE

Scope: Roof drains (primary and secondary) serving flat roof areas piped to interior rain leaders and underground storm drain piping. All downspouts and rain leaders will drain to the site storm sewer system. Secondary or emergency roof drainage serving flat roof areas will be piped independently to the building’s exterior discharging above grade.

Sloped roof areas will be drained utilizing architectural gutters and exterior or interior leaders. Leaders will be piped to an underground network discharging independently to the site system.

Design Criteria: International Plumbing Code and the State of Connecticut Building code.

Disposal: connect into site storm drainage system independent of the sanitary sewer by gravity.

Insulation: all above ground horizontal and vertical runs including drain body shall be covered with fibrous glass and fire-retardant vapor barrier jacket.

Piping materials:

Storm piping above ground within building: Hubless cast iron pipe with no hub fittings and "Husky" Series 4000 clamps. Sizes 1-1/2”-4” shall have minimum of (4) sealing bands, Sizes 5”-10” piping shall have minimum of (6) sealing bands.

Storm piping below ground within building: service weight cast iron pipe and fittings with hub and spigot ends, ASTM A74. Seal: one-piece neoprene rubber gaskets matching the internal configuration of the hub. Insulation: all above ground horizontal and vertical runs including drain body shall be covered with fibrous glass and fire-retardant vapor barrier jacket.

Interior Roof Drains: cast iron body, cast iron dome strainer, sump pan, flashing and under deck clamps.

S. PUMPS

Hot Water Recirculation Pumps:

Description: Factory-assembled and -tested, in-line, single-stage, close-coupled, overhung-impeller centrifugal pumps designed for installation with pump and motor shaft mounted vertical.

Casing: Radially split, cast iron, with wear rings and threaded companion-flange connections for pumps with NPS 2 pipe connections and flanged connections for pumps with NPS 2-1/2 pipe connections.

Impeller: Statically and dynamically balanced, closed, and keyed to shaft.

Shaft and Shaft Sleeve: Stainless-steel shaft, with copper-alloy shaft sleeve.

Seal: Mechanical, with carbon-steel rotating ring, stainless-steel spring, ceramic seat, and rubber bellows and gasket. Include water slinger on shaft between motor and seal.

Bearings: Oil-lubricated; bronze-journal or ball type.

Shaft Coupling: Flexible or rigid type if pump is provided with coupling.

Motor: Single speed, with grease-lubricated ball bearings; and rigidly mounted to pump casing.

Manufacturer: Grundfos, Taco, Armstrong, B&G

ALTERNATE - Domestic Water Booster Pumps:

Furnish and install a pre-fabricated and tested variable speed packaged pumping system to maintain constant water delivery pressure. The packaged pump system shall be a standard product of a single pump manufacturer. The entire pump system including pumps and pump logic controller, shall be designed and built by the same manufacturer.

Manufacturer: Grundfos or Armstrong

Duplex Sewage Ejector Pumps:

Provide a complete prepackaged duplex pumping system. The system shall be by the same manufacturer as supplying the pump and motor control panel to insure suitability and single source responsibility for all equipment. The pump shall be able to pass a 2 1/2" spherical solid.

All fasteners exposed to the pumped liquids shall be 300 series stainless steel. The pump Volute, Motor, Seal Housing and Impeller shall be manufactured from class 30 Cast Iron.

Fiberglass basis shall be provided with Steel Anti-Flotation Flange mounted on the bottom of the basin. The unit will be 2-piece field assembled. The basin shall come complete with steel gas tight cover.

Control panel shall be supplied by the pump manufacturer to ensure complete compatibility with the pumps and the balance of the equipment. The control panel shall be NEMA 3R and come complete.

Manufacturer: Hydromatic

T. KITCHEN WASTE

Scope: Drainage of kitchen plumbing fixtures, sinks, floor drains and floor sinks piped to an exterior grease interceptor independent of the building sanitary system. Install venting of fixtures and drains to atmosphere, independently of the building vent system. Provide indirect waste piping from kitchen fixtures and equipment to floor receptor.

Design Criteria: International and State of Connecticut Plumbing Code.

Disposal: Connect to the building sanitary drain by gravity.

Insulation: above ground horizontal and vertical runs covered with fibrous glass and fire-retardant vapor barrier jacket.

Exterior grease and solids interceptor

FRP Composite Grease Interceptor: Provide Xerxes Corporation FRP Composite Storage Tank IAPMO/ANSI Z1001; Tank Material: FRP composite - tank to be manufactured with a composite laminate consisting of resin and glass fiber reinforcement only. Sand/silica fillers or resin extenders shall not be used. Tank to be manufactured with structural ribs fabricated as an integral part of tank wall. Vent tank to atmospheric pressure. Tank capable of handling liquids with specific gravity up to 1.1. Tank to be compatible with liquids identified in manufacturer's standard limited warranty. Capacity: 2000 gallons. Baffles and Partitions: Capable of withstanding hydrostatic loads occurring when one compartment is empty and remaining compartment(s) is/are full. Type of Installation: Underground.

Piping Materials:

Kitchen waste and vent piping above ground within building: Hubless cast iron pipe with no hub fittings and "Clamp-All 125" or 4 band "Husky" clamps.

Kitchen waste and vent piping below ground within building: service weight cast iron pipe and fittings with hub and spigot ends, ASTM A74. Seal: one-piece neoprene rubber gaskets matching the internal configuration of the hub.

Indirect waste piping above ground: hard drawn seamless Type L copper tubing ASTM B88 with wrought copper solder fittings A.N.S.I. B16.22 and "Bridgit" or other no lead content solder joints ASTM B32-83, alloy Grades SN96 or SB5. Solder flux lead content-zero percent.

Grease Trap Maintenance System: Kitchen Waste piping shall be provided with a grease digesting system. System shall be similar to Bioflow grease trap maintenance system as manufactured by Zircon Industries, system to include:

- Bio-flow liquid bacterial solution (in 5-gallon containers)
- Dema Model 257C "Drain Chief" drain dosing pump with digital timer.
- 1/4" tubing, compression fittings and accessories as required for a complete system.
- Tapped 1/8" NPT fitting at point of injection to drain line.
- Contractor shall supply the customer with a minimum of six (6) 5-gallon containers of Bio-flow solution as part of this project.

******** [OR] ********

Underground Kitchen Waste piping shall be provided with process temperature maintenance heat tracing. Similar to Thermon.

U. ACID WASTE

Scope: Drainage of lab sinks, lab hood cup sinks and drains located within science laboratory classrooms and lab prep rooms independently piped to a central exterior 1000 gallon acid neutralization tank with sampling basin and pH monitoring panel. Venting of lab and science fixtures and drains to atmosphere, independently of the building vent system.

Pipe: Orion Blueline (fire retardant) Pipe shall be manufactured to Schedule 40 P.E. pipe dimensions, of pipe grade fire retardant polypropylene, to be supplied in 10-foot lengths. Pipe to be cylindrical and straight and meet tolerances in accordance with ASTM D2447-74. Pipe shall be factory grooved for mechanical joint systems and plain end for socket fusion systems. Material shall conform to ASTM D4101.

Fittings: Orion Blueline (fire retardant) Fittings shall be manufactured to Schedule 40 P.E. pipe dimensions of fire-retardant polypropylene as shown on Orion dimension sheets. Fitting shall conform to tolerances in ASTM D3311. Material to meet ASTM D4101.

Fusion Joints: All fittings to be socket ends. All joints to be made by Orion heat tool to produce hermetically sealed joint which encompasses heat joining of polyolefin pipe and fitting standards and practices to meet ASTM D2657.

Exterior Acid Neutralization Basin:

The neutralization basin shall be constructed of precast concrete having a 28-day compressive strength of 4500 PSI and be reinforced in accordance to ACI 318-89. All reinforcement steel shall comply with ASTM A615 grade 60 or ASTM A706 Grade 60. Bar bending shall comply with latest ACI standards. Lifting inserts to be installed for handling and be installed per manufacturer's requirements. Manufacturer shall certify that the vault design accounts for the prevention of buoyancy effect. The tank shall be provided with a cast iron frame and cover of minimum 20" diameter clear opening and be watertight. Cast iron frame/covers shall conform to ASTM A48-83 Class 30 and be traffic duty. The cover shall be gasketed and bolted with stainless bolts. The cover

shall be marked with 1" high letters indicating "ACID NEUTRALIZATION BASIN". Manhole covers shall be placed at grade elevation by using concrete extension rings or 24" RCP.

Interior Liner: The neutralization tank primary liner shall be constructed of Virgin High Density Polyethylene conforming to ASTM D1248 for polyolefin materials. Liner shall be minimum 5mm thick. Liner shall have integral anchors for embedment into precast concrete shell. The liner shall withstand temperatures of 160 degrees F, and intermittent operation at 200 degrees. Inlet/outlet/vent pipe fittings shall be made of polyethylene and fusion welded to tank.

Exterior Liner: The vault exterior shall be coated with 60 mils of waterproofing mastic. All coatings shall be applied per manufacturer's specifications.

Manufacturer: Park Lab Tank series ANTL-1000

Neutralization Fill: The chemical rock (neutralization fill) shall be furnished by the tank system manufacturer. The neutralization fill shall consist of laboratory quality dolomitic limestone (53% calcium carbonate, 45% magnesium carbonate). The fill shall be ashed and sorted 1-3" size.

pH Monitoring System: System shall be Park Equipment Company Model PHR series or equal. The monitoring system shall consist of pH probe with preamplifier and remote mounted control panel.

The control panel shall consist of a NEMA 4X enclosure with a full Lexan window in the door front. The enclosure shall have stainless steel hinges and locking hasp. The panel shall be prewired and contain the following components:

- PH analyzer microprocessor-based with LCD readout with (2) isolated 4-20 mA analog outputs.
- Direct Digital Recorder with reusable memory card and isolated 4-20 mA input. Memory card shall have capacity to accommodate 1 year of data.
- Audible / visual pH high/low alarm horn and indicator lights.
- Alarm silencing button and H-O-A switch.
- Panel power on-off switch.
- Dry contacts for remote alarm.
- Sump pump RUN light indicator light.

V. AUTOMOTIVE SHOP GARAGE WASTE

Scope: Drainage of garage floor drains piped to an exterior oil/sand interceptor independent of the building sanitary, kitchen waste and acid waste systems. Install venting of drains to atmosphere, independently of the building vent system.

Design Criteria: International and State of Connecticut Plumbing Code.

Disposal: Connect to the building sanitary drain by gravity.

Insulation: above ground horizontal and vertical runs covered with fibrous glass and fire-retardant vapor barrier jacket.

Exterior OIL/SAND interceptor:

Provide and install Highland Tank 1000-gallon capacity Model SB OSI - 1000 Single Basin Oil/Sand Interceptor (s).

Gravity-based oil/sand interceptor shall be constructed of high-strength, mild carbon steel to ASTM specifications and coated inside and outside with high-solids polyurethane.

Interceptor shall be 4' - 0" in diameter and 14' - 0" long; having a total volume of 1000 gallons and a sludge holding capacity of 60 cubic feet to comply with the requirements of the plumbing code. The sizing and construction of this interceptor is consistent with industry protocols for complying with the sewer pretreatment regulations, therefore an interceptor of smaller volume or multiple, interconnecting vessel construction is not permissible.

Interceptor shall have the capacity to minimize turbulence and promote separation.

Flow to the interceptor shall be by gravity. Interceptor shall retain wastewater long enough to allow sand, grit, and free oil and grease to separate from the water due to their differences in specific gravity. The wastewater will then flow to a sanitary sewer.

Interceptor shall be installed underground with top access at or above grade level (as specified on drawings).

DESIGN CRITERIA

The Interceptor shall be constructed of high-strength, mild carbon steel, meeting ASTM specifications, with capacities, dimensions, construction, and thickness in strict accordance with Underwriters Laboratories, Subject UL-58 Standard for Safety, Steel Underground Tanks for Flammable and Combustible Liquids, September 30, 1997, Single Wall construction.

The Interceptor's Corrosion Control System shall be in strict accordance with Underwriters Laboratories Inc. Subject UL-1746 Standard for External Corrosion Protection Systems for Steel Underground Storage Tanks and Highland Tank's HighGuard External Corrosion Protection Specifications.

The Interceptor shall be the standard product of a steel tank manufacturer regularly engaged in the production of such equipment. No subcontracting of Interceptor fabrication shall be permitted.

The Interceptor shall be fabricated, inspected and pressure tested for leakage before shipment from the factory by manufacturer as a completely assembled, single vessel ready for installation.

The Interceptor shall be cylindrical, horizontal, atmospheric-type steel vessel.

The Interceptor shall have the structural strength to withstand static and dynamic hydraulic loading while empty and during operating conditions.

The Interceptor's dimensions and thickness shall be in strict compliance with Roark's Formulas for Stress and Strain as presented in UL 58, September 30, 1997.

Calculations, signed and stamped by a Registered Professional Engineer shall be submitted to document structural strength under specified overbearing or external pressure. An interceptor with a reduced shell thickness is not permissible.

The Interceptor shall consist of inlet and outlet connections, internal influent nozzle, heavy duty sludge baffle, large sediment and oil pump-out access, effluent downcomer, fittings for vent, sampling, gauging, and lifting lugs.

OIL LEVEL SENSOR AND CONTROLS:

UL Listed Interface/Oil Level Sensor and Controls.

Oil/Water Separator shall be supplied with an audible and visual alarm system that indicates high level and high-high level of accumulated oil in the oil/water separator.

Level sensor to be intrinsically-safe, separator-mounted magnetic float probes, suitable for use in Class I, Division II, Group D locations.

Level sensor floats to be made of Buna-N.

The control panel shall be NEMA 4X (FRP).

A silence control shall be provided for the audible alarms.

Power to the control panel is to be 110-volt, 1 phase.

Control panel shall be connected to Building Management System.

W. INSULATION

Insulation:

Pipe Insulation: piping within building insulated with 1" minimum thickness fibrous glass insulation and pre-formed fibrous glass fittings with fire retardant vapor barrier jacket. Include sound attenuation insulation and wrap.

All insulating materials shall comply with the following ratings:

Flame spread	-25
Smoke Developed	-50
Fuel Contributed	-50

Fiberglass Piping Insulation (interior)

Molded fibrous glass with 3.5 pounds minimum density, Maximum K = .3 at 200°F, mean and rated to 450°F. The insulation should be sectional pipe jacketed with an embossed vapor barrier laminate.

Service: Refer to Drawing Schedule

Manufacturers:

1. Owens-Corning, Type 25 ASJ
2. Knauf - Pipe Insulation with ASJ
3. CertainTeed - Type 500 Snap-On with ASJ
4. Manville - Micro-Lok 650 with AP jacket

Foamglass Piping Insulation (exterior and below grade piping systems)

8.5 PCF average density, max. K = .38 at 75°F mean, and operating temperature -320°F to 300°F, rigid glass cells.

Service:	Thickness:
Outdoor Piping	2”
Water Make-up	2”

Manufacturers:

1. Pittsburgh-Corning, Type Foamglas
2. Trymer L Include Aluminum jacketing on all exterior insulation.

Service: Outdoor Piping on Type C and Type D Insulation

Manufacturer:

1. Childers Products Co. - Lock-on or slip-on type.

Fiberglass insulation for valves, fittings, flanges (vapor seal insulation).

Molded factory-formed fibrous glass with 3.5 PCF minimum density, max. K = .3 at 200°F, mean, rated to 450°. All joints to be sealed with vapor barrier adhesive and wrapped with glass mesh tape. Each fitting to be finished with two coats of Benjamin Foster 30-36 vapor seal.

Service:	Thickness:
Domestic Water:	Same as piping

Manufacturers:

1. Fibrous Glass Products, Inc.
2. Insulcoustic Corp.
3. Hamfab

Protective Shielding Pipe Covers: Manufactured plastic wraps for covering plumbing fixture hot- and cold-water supplies and trap and drain piping. Comply with Americans with Disabilities Act (ADA) requirements. Truebro LavGuard 2 or approved equal

X. DRAINS

General: Provide all poured in place drains with 24" x 24" flashing.

Floor drain mechanical rooms: heavy duty floor drains with, cast iron body, bottom outlet, 9" diameter cast iron top, trap primer connection, seepage pan and combination membrane flashing clamp.

Floor drain toilet rooms: cast iron body, bottom outlet, 6” square nickel bronze top, trap primer connection, seepage pan and combination membrane flashing clamp.

Bi-functional Roof Drains: Casted Drain Bodies: Drain Bodies (sump) shall be one complete unit and shall also include the outlet connections within the casting and must comply with LC 1021 regarding sump free area. Bi-Functional drains must have removable overflow pipe riser or provide access to primary system to facilitate full pipe rodding of primary system from roof. Separate strainers must be provided for the primary and overflow systems. Drains using one strainer for both systems are not allowed. Manufacturer: Froet.

Roof drains: heavy duty drain with, 15" diameter cast iron body, bottom outlet, 12" diameter cast iron dome, roof sump receiver, under-deck clamp, extension collar, and combination membrane flashing clamp/gravel guard.

Areaway drain: heavy duty drains with, cast iron body, bottom outlet, 15" diameter cast iron top, seepage pan and combination membrane flashing clamp.

Terrace drain: heavy duty drains with, cast iron body, bottom outlet, 14" square cast iron heel proof grate, seepage pan and combination membrane flashing clamp.

Y. FUEL GAS SERVICE

Scope: Provide a complete gas service including meters and piping installed in accordance with local gas utility requirements and NFPA 54.

Design Criteria: International and State of Connecticut Fuel Gas Code and NFPA 54.

Source: Connect to the utility company main with a metered service.

Materials:

Gas piping (up to and including 2" size): schedule 40 black steel ASTM A106, threaded end ANSI B1.20.1, with class 150 malleable iron threaded fittings ANSI B16.3.

Steel Mechanical Press Fittings (1/2" thru 2"):
Viega MegaPress G (Gas) or equivalent cold press mechanical Joint Fittings shall conform to material requirements of ASTM A420 or ASME B16.3 and performance criteria of ANSI/CSA LC4. Fittings shall have anti-corrosion protection with nickel zinc coating or equivalent. MegaPressG fittings shall have an HNBR sealing element, 420 stainless steel grip ring, separator ring, and an un-pressed fitting leak identification feature. All fittings used in Fuel Gas Applications shall be listed by a third-party agency as being acceptable for fuel gas piping systems.

Gas piping (over 2" size): schedule 40 black steel ASTM A106, with schedule 40 butt weld fittings.

Gas service valves: UL listed, for fuel gas service, including Exterior Emergency gas shut-off valve equipped with sign: "EMERGENCY GAS SHUT-OFF VALVE".

Gas pressure regulating valves: Pilot controlled, and actuated.

Z. PIPING SUPPORT

Scope: support of piping from building structure including seismic restraint. Provide necessary structural members, hangers and supports of approved design to keep piping in proper alignment and prevent transmission of injurious thrusts and vibrations. In all cases where hangers, brackets, etc., are supported from concrete construction, do not weaken concrete or penetrate waterproofing. All hangers and supports shall be capable of screw adjustment after piping is erected. Hangers supporting piping expanding into loops, bends and offsets shall be secured to the building structure in such a manner that horizontal adjustment perpendicular to the run of piping supported may be made to accommodate displacement due to expansion. All such hangers shall be finally adjusted both in the vertical and horizontal direction, as required. Hangers in contact with copper or brass pipe shall be dielectric, compatible with copper and brass alloy or provided with felt sleeve.

Design Criteria: Manufacturers Standardization Society (MSS) Standard Practice SP-69, SMACNA, State of Connecticut Building Code.

AA. SLEEVES, ESCUTCHEONS, FIRESTOPPING

Scope: sleeves and fire stopping for piping passing through walls and partitions. Escutcheons for piping exposed to view.

Design Criteria: size sleeves for continuous pipe insulation.

BB. PIPE MARKERS, LABELS, VALVE TAGS AND WARNING SIGNS

Scope: vinyl plastic pipe markers and flow arrows, brass valve tags, valve charts and diagrams.

Metal Labels for Equipment - Brass, 0.032-inch minimum thickness, but not less than 2-1/2 by 3/4-inch, Minimum letter size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.

Warning Signs and Labels - Multilayer, multicolor, plastic labels for mechanical engraving, 1/16-inch-thick, and having predrilled holes for attachment hardware. Size not less than 2-1/2 by 3/4 inch. Minimum letter size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include caution and warning information, plus emergency notification instructions.

Pipe Labels - Preprinted, color-coded, with lettering indicating service, and showing flow direction. Include identification of piping service using same designations or abbreviations as used on Drawings, pipe size, and an arrow indicating flow direction.

Stencils: Prepared with letter sizes according to ASME A13.1 for piping; and minimum letter height of 3/4 inch for access panel and door labels, equipment labels, and similar operational instructions.

Valve Tags - Stamped or engraved with 1/4-inch letters for piping system abbreviation and 1/2-inch numbers. Brass, 0.032-inch minimum thickness, and having predrilled or stamped holes for attachment hardware.

Warning Tags - Preprinted or partially preprinted, accident-prevention tags, of plasticized card stock with matte finish suitable for writing; 3 by 5-1/4 inches minimum. Large-size primary caption such as "DANGER", "CAUTION" or "DO NOT OPERATE."; Yellow background with black lettering.

Design Criteria: ANSI A13.1.

CC. CLEANOUTS

Scope:

Accessible cleanouts to permit "snaking" of drainage piping, and other buried non-pressure piping. Cleanout plates for buried piping.

Design Criteria:

Cleanouts at base of vertical stacks and leaders, at ends of horizontal runs, at each change in direction greater than 45°F., approximately 50 feet apart on piping runs.

Provide and install all cleanouts with 24" x 24" flashing material.

Cleanouts shall be installed at the base of all stacks, at all changes of directions greater than 45 degrees and in runs to provide means of cleaning lines at maximum 50' intervals.

Cleanouts shall be at least the same size as the pipe served up to 6” size. Cleanouts for piping over 6” in size shall be 6” minimum size.

Floor plates: cast iron body, appropriate brass cover plate.

Wall plates: stainless steel.

DD. PLUMBING FIXTURES

Fixtures: As indicated by the Architect, new, complete with trimmings and fittings, including faucets, carriers, supplies, stops, traps, tailpieces, waste plugs, casings, hangers, plates, brackets, anchors, supports, hardware and fastening devices.

Water Closet: Vitreous china, wall hung, elongated siphon jet, flush valve, open front seat, angle supply and stop, floor mounted support. American Standard, Kohler, Toto, Sloan or approved equal.

Water Closet Flush valve: 1.28 Gallons per Flush. American Standard Selectronic PWRX, Kohler Wave, Toto Ecopower, Sloan Optima, AMTC series or approved equal.

Urinal (waterless): Vitreous china. Cartridge-free integral trapway. Touch-free design is vandal resistant and added hygiene. 2" outlet spud, 3 oz Sealing Liquid Sample, Cleaner Sample, Hanger(s), Removable Strainer. Kohler Seward or approved equal.

Lavatory: Vitreous china, wall or counter mounted, floor mounted support, supply and waste fittings. American Standard, Kohler, Toto, Sloan or approved equal.

Lavatory Faucet: Single hole, deck mounted, electronic sensor. American Standard Nextgen Selectronic, Kohler Sculpted, Toto Ecopower, Sloan Basys, AMTC or approved equal.

Mop Sinks: Molded stone floor receptor, supply and waste fittings, mop rack, and faucet hose. Similar to Fiat or approved equal.

Electric Water Cooler: Shall deliver 8.0 gph of 50° F degree water at 90°F ambient and 80°F inlet water per ASHRAE 18 testing. Shall include two vandal-resistant antimicrobial copper push buttons to activate the flow of water and a low flow one-piece bubbler with flexible guard. The fountains shall be designed to eliminate splashing and standing water. Water saver bubbler to reduce waste water by 50% and shall have flexible guard and operate between 20 and 100 PSI. Bottle filler components contain Freshield®, which utilizes a silver-based antimicrobial compound to protect the surfaces from discoloration, odors and degradation caused by the growth of micro-organisms and mildew. Cabinet finish shall be brushed stainless steel. Shall use R-134a refrigerant. Shall comply with ANSI 117.1 and ADA. Shall be listed by Underwriters Laboratories to US and Canadian standards. Shall comply with NSF/ANSI 61 and NSF/ANSI 372.Bi-level; 2-bowl with bottle filler. Wall hung, self-contained, electric, air-cooled. Similar to Oasis Model M8CREBF.Sinks: Counter mounted stainless steel, self-rimming type, with supply and waste fittings and P trap. Similar to Just or approved equal.

Color Selection shall be by Architect.

Handicap fixtures will be provided and set in accordance with the applicable codes.

Stainless steel: type 302, 304, 316, or 317, as noted, sound deadened.

Trimmings and fittings: construct of forged, cast, rolled or extruded brass or bronze with monel and other suitable non-corrosive parts: designed with easily renewable parts that are subject to wear or deterioration. No die castings and stampings other than brass or stainless steel. Plumbing trim shall consist of:

Exposed surfaces: chrome plated.

Pipe: copper type L.

Pipe fittings: threaded bronze.

Supply stops: chrome plated bronze, stuffing box, renewable seat washer.

Waste tailpiece: minimum #17 gage brass.

Escutcheons: one-piece chrome plated cast brass or stainless steel.

EE. ASSE 1070 THERMOSTATIC MIXING VALVE (SINKS AND LAVATORIES)

Provided each sink and lavatory with an ASSE 1070 Compliant thermostatic mixing valve. The sink tempering valve shall be IAPMO lab certified per ASSE 1070 at 0.25 GPM and CSA standards and shall have a solid brass body with corrosion resistant internal components. It shall include integral checks with screens to prevent backflow and to filter debris from entering the valve. Temperature adjustment shall be made using an allen wrench and a locknut on the bonnet to prevent unauthorized or accidental temperature adjustment. Valve shall provide 4.0 GPM with 3/8" compression connection and 4.5 GPM capacity with the 1/2" NPT connection at 45 psi differential. Temperature range shall be 85°F-115° F.

FF. DISINFECTION OF POTABLE WATER SYSTEM

Potable water systems shall be disinfected in accordance with State and Local codes but by not less than one of the following methods before it is placed in operation.

The system, or part thereof, shall be filled with a solution containing 50 parts per million of available chlorine and allowed to stand 24 hours before flushing and returning to service.

The system, or part thereof, shall be filled with a solution containing 200 parts per million of available chlorine and allowed to stand 3 hours before flushing and returning to service.

Repeat procedure where bacteriological testing and examination shows presence of contamination. Perform and submit bacteriological testing and examination reports.

GG. TESTING

General: Perform tests in accordance with building code requirements in the presence of the authorities having jurisdiction. Do not close in, conceal, or cover up any plumbing work until it has been tested, inspected, and approved.

Flush piping, prior to testing, to remove foreign materials which may have entered during course of installation. Clean filters and strainers after flushing.

PART IX: FIRE PROTECTION SYSTEMS NARRATIVE

A. GENERAL

Comply with all current Federal, State, City and local codes, standards and ordinances, including:

BUILDING CODES

- 2018 Connecticut State Building Code
- 2015 International Building Code
- 2015 International Residential Code
- 2015 International Existing Buildings Code
- 2015 International Mechanical Code
- 2015 International Plumbing Code
- 2017 National fire Protection Association 70 – National Electrical Code
- 2009 International Code Council / ANSI A117.1 – Accessible & Usable Buildings & Facilities
- 2015 International Energy Conservation Code

FIRE SAFETY CODES

- 2018 State of Connecticut Fire Safety Code
- 2015 International Fire Code
- 2015 National fire Protection Association Standard 101 – Life Safety Code

OTHER CODES or GUIDELINE

- OSHA, NFPA, utility company standards and all other codes and standards referenced by the above documents.

All equipment shall be in accordance with NFPA 13, 14, 20, 24, UL listed, FM approved. FM approved equipment is mandatory for all FM Global projects

B. COORDINATION

Coordinate the work, with work of other trades and field conditions. Carefully check space requirements and utilities to ensure all equipment can be installed in the spaces allotted thereto and coordinate all necessary utility service requirements. Coordinate, protect and schedule work with work of other trades in accordance with the required construction sequence. Install all work in accordance with equipment manufacturer's installation instructions.

C. WARRANTY

The Contractor warrants that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted, and that the work will conform with the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be

considered defective. Contractor shall warranty all work for a period of one year from Owner acceptance unless specified otherwise in which case longer equipment warranties may apply.

Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace the following components that fail in materials or workmanship within specified warranty period:

Warranty Period, Commencing on Date of Substantial Completion: One (1) year.

D. WORKMANSHIP

Perform all work in a practical, neat and workmanlike manner with mechanics skilled in work, and using the best practices of the trade involved.

No work shall be concealed until it has been inspected and approved by the Architect.

Workmanship or materials not meeting with requirements of the specifications and drawings and satisfaction of the Architect shall be rejected and immediately replaced in an acceptable manner, without additional cost to the Owner.

E. SPECIAL WORKMANSHIP FOR ARCHITECTURALLY EXPOSED SYSTEMS

General: In addition to basic project workmanship requirements specified above, a higher degree of care in systems layout and routing shall be exerted in selected areas, as follows.

Architectural Exposures: Note that this project includes locations where systems will be partially or fully exposed to view in finished architectural spaces due either to the intentional omission of ceilings, and/or to the intentional holding back of ceiling edges from walls, for architectural effects. These areas shall receive extra effort and care above and beyond basic project workmanship principles.

Special Workmanship Requirements: In these special areas, comply with the following requirements:

- Run systems tight to overhead structure whenever possible.
- In spaces with gaps between ceiling edges and walls, do not run systems down near ceilings. Locate them as high above as feasible.
- Do not cross under framing members within view of such gaps. Seek alternative routes around or through obstacles.
- Fasten systems sufficiently often to prevent their visually sagging or drooping between support points.
- Route systems parallel to walls, framing members, and other elements defining spatial geometries.
- Change directions orthogonally.
- Do not run diagonally when traversing horizontal or vertical surfaces.

Rejection of Work: Workmanship and/or materials not complying with the above additional requirements in these special areas to the satisfaction of the Architect shall be rejected and shall be immediately replaced in an acceptable manner without additional cost.

F. SUBMITTALS

Contractor shall submit; shop drawings, product data, samples, record documents (as-builts) and operation and maintenance manuals in accordance with the Contract requirements and particular specification section requirements.

Shop Drawings: Submit shop drawings of all items proposed to be furnished and installed under this Section which shall include but not be limited to:

- Coordination drawings, coordinated with all other trades
- As Built drawings in electronic Revit format as specified by owner with hard copies.
- Piping materials, joints and fittings
- Valves, tags and name plates with schedule and location
- Pipe hangers and supports
- Valves
- Cross connection protection devices
- Pipe sleeves and seals
- Pumps
- Sprinkler heads and accessories
- Access panels
- Miscellaneous fire protection specialties
- Welding certifications: submit reports as required for piping work
- Brazing certifications: submit reports as required for piping work

Manufacturers' recommended installation procedures which, when approved, will become the basis for inspecting and accepting or rejecting actual installation procedures used on the work.

G. RECORD DRAWINGS

Provide a complete set of as-built drawings reflecting as installed conditions. As-built drawings shall indicate all installed conditions of systems within this discipline. Drawings shall be of similar scale as the construction documents and include details as necessary to clearly reflect the installed condition. Drawings shall be bound in a complete and consecutive set. Supplemental sketches and loose paperwork will not be acceptable and will be returned for revision. The contractor shall comply with the engineer’s comments to produce a clear and concise set of drawings. Drawings shall be submitted in both hard copy and electronic (Auto-cad or Revit version as required by the owner) version. Number of copies of each as requested by the owner.

Indicate the following installed conditions:

- Include all changes and an accurate record, on reproductions of the contract drawings or appropriate shop drawings, of all deviations, between the work shown and work installed.
- Mains and branches of piping systems, with valves and control devices located and numbered, concealed unions located, and with items requiring maintenance located (i.e., traps, strainers, expansion compensators, tanks, etc.). Valve location diagrams, complete with valve tag chart.
- Equipment locations (exposed and concealed), dimensioned from prominent building lines.
- Approved substitutions, contract modifications, and actual equipment and materials installed.
- Contract modifications, actual equipment and materials installed.
- Submit for review bound sets of the required drawings, manuals and operating instructions.
- Submit a complete maintenance manual of all equipment installed under this contract.

H. SYSTEM DESCRIPTION

Water Supply:

Document and verify new underground fire protection water supply is sufficient to supply the new sprinkler system in accordance with NFPA 13 and local codes (provide hydraulic calculations and water flow test, less than 1 year old).

Contractor shall document (in schematic way) in which renovated buildings to remain are supplied including pipe sizes, overall length of piping, etc. as necessary to perform hydraulic calculations.

1928 Building:

Existing sprinklers, piping, heads, etc. to remain. Provide new 6" fire protection water supply as required to support existing 1928 Building fire sprinklers. Install new double check detector backflow assembly, with metered by-pass.

Cut and cap any/all fire protection piping supplying other buildings / areas to be demolished.

Provide fire department connection (type, size and location determined by local AHJ).

900 Building:

Provide new 6" fire protection water supply as required to support existing 900 Building fire sprinklers. Install a new reduced pressure backflow assembly, with metered by-pass.

Cut and cap any/all fire protection piping supplying other buildings / areas to be demolished.

Provide fire department connection (type, size and location determined by local AHJ).

Existing sprinkler system to remain completely active (as long as possible) during demolition phase. Existing sprinklers, piping etc. to then be completely removed and properly disposed of throughout the entire building. Contractor to limit time sprinkler system is down and notify proper authorities each and every time. Fire watch shall be provided as required by AHJ, owner, owner's insurance company, etc.

Provide and install a full size reduced pressure detector assembly backflow preventer on each water service. Overflow shall be routed to exterior.

The new fire protection water supply will feed; riser check valve assemblies, (supplying fire sprinklers throughout the building. Sprinkler control assemblies (control valves, check valves tamper switches and flow switches) shall be utilized on each floor to create more manageable zones.

Install concealed pendent sprinklers within areas with finished ceilings and install exposed uprights, pendents, etc. within unfinished areas.

Exposed areas shall have custom piping and color, coordinate routing with architect (and receive approval) prior to installation. Provide additional sprinklers (more than code) in order to ensure symmetry, etc. Piping shall be routed in order to minimize exposed piping and shall be approved and coordinated with architect prior to installation.

Contractor shall provide multiple layers of sprinklers within areas with "cloud" type ceilings. Utilize concealed pendent sprinklers with clouds (custom color cover plates) and exposed uprights and exposed piping (with custom color) at upper ceiling areas.

<u>New High School:</u>

Water Supply:

Document and verify new underground fire protection water supply is sufficient to supply the new sprinkler system in accordance with NFPA 13 and local codes (provide hydraulic calculations and water flow test, less than 1 year old).

Install a new 8" underground fire protection water service coordinated with the local water authority requirements, including tapping sleeve and curb valve.

Provide and install a full size reduced pressure detector assembly backflow preventer on each water service.

Provide and install fire department connection(s) in order for local fire department to supplement sprinkler/standpipe water supply. Exact location, type and quantity of fire department connections shall be determined by local AHJ.

All piping exceeding 175 psi shall be rated at class 250 for both piping and fittings throughout.

The contractor shall provide a water analysis in order to test for onsite microbes and chemical species (iron, Ph, oxygen/ Microbiologically influenced Corrosion (MIC) in accordance with NFPA

13, 25, etc. with a MICKit ™ or similar. Provide report indicating mitigation techniques in order to eliminate / reduce corrosion such as the treatment of the sprinkler water with a biocide which is compatible with piping, fittings, gaskets, sprinklers, etc. Install an FM Approved vent on wet pipe systems (with nitrogen) similar to ECS PAV-WNS

Fire Sprinkler Systems:

Fire Protection water supply will feed; riser check valve assemblies, (supplying fire sprinklers throughout the building. Sprinkler control assemblies (control valves, check valves tamper switches and flow switches) shall be utilized on each floor to create more manageable zones.

Install concealed pendent sprinklers within areas with finished ceilings and install exposed uprights, pendents, etc. within unfinished areas.

Exposed areas shall have custom piping and color, coordinate routing with architect (and receive approval) prior to installation. Provide additional sprinklers (more than code) in order to ensure symmetry, etc.

Contractor shall provide multiple layers of sprinklers within areas with “cloud” type ceilings. Utilize concealed pendent sprinklers with clouds (custom color cover plates) and exposed uprights and exposed piping (with custom color) at upper ceiling areas.

Fire Standpipe Systems:

The water supply will feed; riser check valve assembly, (supplying Class III fire standpipes (2 ½” valve, 2 ½” x 1 ½” cap and chain and a 1 ½” valve with cap and chain) on either side of the stage.

Other

Pre-engineered kitchen hood extinguishing system(s): Provide and install within the kitchen areas. The system(s) shall include; piping nozzles, cylinder, remote pull stations, mechanical gas shut off, etc. and be in accordance with 2012 IMC, NFPA 17A, 70, 72 & 96 and UL.

Provide closely spaced listed window sprinklers (6’-0” o.c.) at glazing, etc. as required to provide rating

All sprinkler pipe passing through or crossing building seismic and/or expansion joints, shall contain a flexible expansion loop, designed for seismic movement.

Dry pipe valve assembly shall supply sprinklers throughout any/all unheated areas.

The dry pipe valve assembly shall incorporate galvanized piping, air compressor, pressure and tamper switches, etc. Dry pipe valve assemblies shall supply concealed dry pendent sprinklers in areas with finished ceilings and exposed uprights in unfinished areas. Provide an Inspector’s Test Connection, piped to the exterior.

The dry pipe systems shall incorporate a pre-engineered nitrogen generation system including; a cabinet, dry smart vent(s) for each zone, interface controller, etc. Similar to ECS pgen-5.

Contractor shall provide additional drum drips (routed to exterior with galvanized piping and splash block) along with valved, threaded capped outlets to ensure entire system can be drained.

Provide exposed upright sprinklers in any/all combustible concealed spaces (attics, etc.)

Alternate:

Contractor shall provide pricing for: electric driven fire pump assembly (1000 gpm 50 HP) as necessary to increase existing water pressure to satisfy NFPA 13 & 14 requirements. Fire pump assembly shall include: fire pump, jockey pump, controllers, transfer switch, associated piping, test header, etc.

I. COMMISSIONING

This project will include commissioning of fire protection systems by an approved Commissioning Authority (CA) and in accordance with NFPA 3. All sub-contractors shall provide necessary support for demonstration of start-up and operation including all required system adjustments. Personnel shall be available as indicated in the CA schedule.

J. DESIGN CRITERIA

State and Local Code, Owner's Insurance Company and NFPA Standards. Systems to be hydraulically calculated based upon the following information with area adjustments for dry and attic systems as required by NFPA 13 & 14. Minimum Density for Automatic-Sprinkler Piping Design shall be coordinated with and meet CT DPW requirements.

Light Hazard
Lobbies, Offices, Corridors
Density - 0.10 gpm/s.f. over the most remote 1,500 s.f. area with 100 gpm added for hose streams. Sprinkler heads rated at 165° spaced at 196 s.f. per head (maximum) with protection of all combustible concealed spaces.

Ordinary Hazard Group 1
Mechanical and Electrical Equipment Rooms -
Density - 0.15 gpm/s.f. over the most remote 1,500 s.f. area with 250 gpm added for hose streams. Sprinkler heads rated at 165° spaced at 130 s.f. per head (maximum).

Ordinary Hazard Group 2
Storage Rooms
Density - 0.20 gpm/s.f. over the most remote 1,500 s.f. area with 250 gpm added for hose streams. Sprinkler heads rated at 165° spaced at 130 s.f. per head (maximum).

K. FIRE STANDPIPE

Hydraulically designed in accordance with NFPA 14.

L. PIPING MATERIALS

Fire Protection piping below ground: Piping shall be equal to U.S. Pipe and Foundry ductile iron class 52 (ANSI) A21.51 (AWWA C151) with push on rubber gasketed joints and rodding as required. Fittings shall be ductile iron class 250 (ANSI) A21.10 and A21.11 mechanical joint type. Contractor shall use a combination of mechanical joint retainer glands, thrust blocks, tie-rods and pipe clamps, at each fitting. The type of pipe, soil conditions and available space shall determine the proper anchoring method. All ductile iron pipe and fittings shall be cement lined on interior in accordance with ANSI A 21.4 and AWWA C104 and coated on exterior, along with rods and clamps, with coal tar enamel.

Wet Sprinkler Piping:

- 2-1/2" and larger: Schedule 10, Black-Steel Pipe: ASTM A 135 or ASTM A 795/A 795M and grooved fittings. Pipe ends may be factory or field formed to match joining method.
- 2" and smaller: Schedule 40 black steel pipe ASTM A 53/A 53M, Type E, Grade B and ASTM A 865, threaded fittings.

Dry Sprinkler piping:

- 2-1/2" and larger: Schedule 40 ASTM A 53/A 53M, Type E, Grade B steel pipe and grooved fittings.
- 2" and smaller: Schedule 40 ASTM A 53/A 53M, Type E, Grade B steel pipe and threaded fittings.

Drain Sprinkler piping:

- Schedule 40 ASTM A 53/A 53M, ASTM A795, Type E, Grade B galvanized pipe and galvanized fittings.

Mechanical Couplings for Joining Carbon Steel Pipe:

Mechanical Couplings: Manufactured in two segments of cast ductile iron, conforming to ASTM A-536, Grade 65-45-12. Gaskets shall be pressure-responsive synthetic rubber, grade to suit the intended service, conforming to ASTM D-2000. Mechanical Coupling bolts shall be zinc plated (ASTM B-633) heat treated carbon steel track head conforming to ASTM A-449 and A-183, minimum tensile strength 110,000 psi (758450 kPa) as provided standard Victaulic.

All grooved components shall conform to local code approval and/or as listed by UL/ULC, FM, or NFPA.

Grooved end product manufacturer to be ISO-9001 certified.

Rigid Type:

- "Installation Ready" rigid joints shall be Victaulic FireLock® EZ Style 009H and Style 107H which are designed for direct "stab" installation onto grooved pipe without prior disassembly of the coupling. Housings shall be cast with offsetting, angle-pattern bolt pads.
- Standard rigid joints shall be Victaulic Style 005 (FireLock® 005) or 07 (Zero-Flex®). Housings shall be cast with offsetting, angle-pattern bolt pads to provide system rigidity and support and hanging in accordance with NFPA 13.
- Rigid couplings shall require visual pad-to-pad verification of complete installation. Tongue and recess type couplings which require the use of a torque wrench to achieve the exact required gap between housings are not permitted.

Flexible Type: Use in seismic areas where required by NFPA 13.

- "Installation Ready" flexible joints shall be Victaulic Style 177 QuickVic™, in sizes 2" through 6", which shall be designed for direct "stab" installation onto grooved pipe without prior disassembly of the coupling. .
- Standard flexible couplings shall be Victaulic Style 004, 75, or 77.

Mechanical Coupling Gaskets: Pressure-responsive, synthetic rubber listed for use with the housings.

Fire Protection Service	Temperature Range	Gasket Recommendation
Dry Systems	Ambient	Grade EPDM, Type A
Freezer Applications	-30°F to 0°F (-34°C to -17°C)	FlushSeal®, Grade L, Silicone
Water/Wet Systems	Ambient	Grade EPDM, Type A

Flange Adapters: For use with grooved end pipe and fittings, for mating to ANSI Class 125 / 150 flanges. Victaulic Style 741 or 744. For mating to ANSI Class 300 flanges use Victaulic Style 743.

Victaulic Grooved End Fittings: Fittings shall be cast of ductile iron conforming to ASTM A-536, Grade 65-45-12 (FireLock), forged steel conforming to ASTM A-234, Grade WPB 0.375" wall (9,53 mm wall), or fabricated from Std. Wt. Carbon Steel pipe conforming to ASTM A-53, Type F, E or S, Grade B. Fittings provided with an alkyd enamel finish or hot dip galvanized to ASTM A-153. Zinc electroplated fittings and couplings conform to ASTM B633.

M. SPRINKLER HEADS

Standard: UL's "Fire Protection Equipment Directory" listing or "Approval Guide," published by FM Global, listing.

Sprinkler Heads:

UL listed/FM approved automatic type; upright, concealed pendent, pendent, or sidewall to meet conditions, and of proper temperature rating. Deflector to be marked to indicate position

Die-cast brass frame, teflon encapsulated Belleville spring seal and frangible glass bulb. Body cast with hex shaped wrench boss. (Sprinklers shall not contain O-rings.) Quick response type.

Nominal 1/2-inch orifice with Discharge Coefficient K of 5.6, and for "Ordinary" temperature classification rating unless otherwise indicated or required by application.

Sprinkler head finishes to be confirmed with architect. Provide custom colors as required.

Pressure Ratings:

Pressure Rating for Automatic Sprinklers: 175 psig minimum.

Guards and Escutcheons: UL 199, Guards and escutcheons shall be listed, supplied, and approved for use with the sprinkler by the sprinkler manufacturer. Provide as required for heads subject to mechanical injury.

Multiple-Use Flexible Drop System: In lieu of rigid pipe offsets or return bends for sprinkler drops, the Victaulic Aquaflex stainless steel sprinkler fitting system may be used to locate sprinklers as required by final finished ceiling tiles and walls. The drop system shall consist of a braided (corrugated) type 304 stainless steel flexible tube, a zinc-plated steel flexible tube 1" NPT Male threaded nipple for connection to branchline piping, and a zinc-plated steel reducer with 1/2" or 3/4" NPT Female thread for connection to the sprinkler head. Union joints shall be provided for ease of installation. The flexible drop shall attach to the ceiling grid using a one-piece open gate bracket (The bracket shall allow for sprinkler installation before or after the bracket is secured to the sprinkler grid). The braided drop system is FM Approved for sprinkler services to 200 psi (1380 kPa) and can be installed without the use of tools.

Spare Sprinkler Equipment:

Spare heads: not less than 12, total number based on one spare head of each type and rating per each 100 similar heads, or part thereof, installed.

Spare head cabinet: baked enameled steel cabinet, hinged cover, of adequate size to contain heads and wrench.

Head wrench: provide at least one, with suitable openings.

N. VALVES

Division (Zone) Valves: spaced to isolate specific areas within buildings and hose supplies.

Ball Valves:

UL/FM Global approved, 350 psi, grooved or threaded ends, bronze body (ASTM B-584 Alloy 844), standard port, chrome-plated brass ball, stainless steel stem, TFE seats, brass gearbox, with pre-wired supervisory switches. Victaulic Series 728 FireLock.

Butterfly Valves:

UL/FM Global approved, 300 psi, grooved ends, polyphenylene sulfide (PPS) coated ductile iron body (ASTM A-536, Grade 65-45-12). Ductile iron disc, synthetic rubber encapsulated suited for the intended service, with integrally cast stem. Complete with weatherproof actuator and pre-wired supervisory switches. Victaulic Series 705 FireLock

Gate Valves: UL/FM Global approved.

2-1/2" through 12" Sizes OS&Y Gate Valves: 250 psi, grooved ends. Ductile iron body conforming to ASTM A-536, cast iron yoke and handwheel conforming to ASTM A-126-B; EPDM coated ASTM A-126-B cast iron disc; ASTM B16 brass rising stem; flanged and epoxy coated cast iron bonnet; EPDM o-ring stem seals and body gasket. Victaulic Series 771.

Wall Type Indicator Post: ASTM A-126-B cast iron wall type indicator post, with ASTM B-62 bronze operating stem and carbon steel operating rod. Victaulic Series 773.

Adjustable Indicator Post Vertical Type: ASTM A-126-B cast iron adjustable indicator post vertical type with ASTM A-126-B cast iron extension sleeve, ASTM B-62 bronze operating stem and carbon steel extension rod. Victaulic Series 774.

Check Valves: UL/FM Global approved.

2" through 3"Sizes Spring Assisted: Black enamel coated ductile iron body, ASTM A-536, Grade 65-45-12, non-slam tilting disc, stainless steel disc and spring, brass shaft, 365 psi. Victaulic Series 717H.

4" through 12" Sizes Spring Assisted: Black enamel coated ductile iron body, ASTM A-536, Grade 65-45-12, elastomer encapsulated ductile iron disc suitable for intended service, stainless steel spring and shaft, welded-in nickel seat, 250 psi. Victaulic Series 717. Designed to accept a riser check kit. Victaulic Series 717R.

O. ALARM VALVES

Alarm Check Valve: Black enamel coated ductile iron body conforming to ASTM A-536, grade 65-45-12, aluminum bronze clapper, stainless steel spring and shaft, EPDM seal, and Nitrile seat O-rings. Valve internal parts shall be replaceable without removing the valve from the installed

position. Water working pressure is 300 psi. Suitable for constant and variable pressure systems with optional Series 752 retard chamber. Victaulic FireLock® Series 751.

Dry System Check Valve: Low differential, latched clapper design, black enamel coated ductile iron body conforming to ASTM A-536, grade 65-45-12, aluminum bronze clapper, stainless steel spring and shaft, peroxide cured EPDM diaphragm, EPDM seal, brass seat, and Nitrile seat O-rings. Valve internal parts shall be replaceable without removing the valve from the installed position. Valve shall be externally resettable. Required air pressure is 13 psi. Water working pressure is 300 psi. Victaulic FireLock® NXT Series 768. Equipment shall also include; nitrogen generating system.

P. EQUIPMENT

Air compressor: UL/FM, single stage, oil-less, permanently lubricated, direct drive, one air filter per cylinder, safety relief valve, thermal protection, base plate mounted with NFPA approved automatic air maintenance device. Size dictated by system volume. Coordinate electrical requirements with electrical contractor. Air compressor/ air maintenance device: General model no. OL-335 1/2 H.P. 115V AC, 1 phase.

Dry valve assemblies shall include a pre-engineered wall mounted nitrogen generator including: cabinet with air compressor and power supply, single point nitrogen/air discharge – ½" FNPT, Oil less air compressor, Cabinet enclosed membrane type nitrogen generator (no nitrogen gas storage) with manual bypass, Air maintenance device with on board adjustable regulator (Victaulic Series 757, Tyco Model AMD– 1 and Reliable Model A-2), Riser-mounted ECS Protector Dry SMART Vent (PSV-D), ECS Protector SMART Gas Analyzer (SGA-1). Similar to EC's PGEN-5. Provide integration with BMS.

Backflow Preventer (New Building and 900 Building): Reduced pressure type, FDA approved epoxy coated cast iron body, bronze seat and disc holder, stainless steel trim, tight seating check valve discs, bronze body ball valve test cocks, UL/FM OS&Y inlet and outlet valves, equipped with detector trim, water meter and backflow preventer. Watts Model Number Watts 909 RPDA. Provide 10" overflow piping routed to exterior.

Backflow Preventer (1928 Building): Double check detector type, FDA approved epoxy coated cast iron body, bronze seat and disc holder, stainless steel trim, tight seating check valve discs, bronze body ball valve test cocks, UL/FM OS&Y inlet and outlet valves, equipped with detector trim, water meter and backflow preventer. Watts Model Number Watts 709 DCDA or approved equal.

Class III, 2 ½" Fire Department Valve: 2 ½" Cast Brass angle Valve, Rough brass angle body, polished trim and red cast iron wheel handle, 300 PSI, WWP. POTTER-ROEMER 4065 or approved equal and a 1 ½" fire department valve with cap and chain.

Recessed mounted custom cabinet sized for (1) 2 ½" valve and (1) 1 ½" fire department valve.

Alarm Test Module: Grooved or threaded ends, bronze body and bonnet, bronze and copper alloy internals with stainless steel spring, dual polycarbonate sight glasses, and malleable iron handwheel. UL listed and FM Approved for services to 300 psi. Victaulic Series 720 TestMaster II.

Riser Manifold Assembly: Grooved end riser manifold assembly consisting of an orange enamel coated steel body, System Sensor model WFD flow switch, Victaulic Series 720 TestMaster™ II alarm test module, and pressure gauge. UL listed and FM approved for wet sprinkler system services to 250 psi.

Air vents on wet pipe systems shall be similar to Potters automatic air vent, PAV. Provide all piping, fittings etc. as required to route to an approved drain location. Include Ball valve supervisory switch model RBVS. UL listed, FM Approved.

Q. FIRE DEPARTMENT CONNECTION

Size, type, configuration, thread specifics and exact location to be coordinated with local fire department and fire marshal prior to installation.

Flush Type Storz:
Aluminum adapter with storz inlet, female NPT outlet. Cast brass escutcheon plate. Hardcoated aluminum storz cap with attachment cable. 30 Degree elbow, Aluminum with Brass Plate; Branding: "Standpipe-Sprinkler". Similar to listed Kochek series. Exact type, size and location shall be coordinated with local Fire Marshal.

R. PRE-ENGINEERED KITCHEN HOOD FIRE SUPPRESSION SYSTEM

Shall be provided and installed for the kitchen exhaust hood(s), and plenum(s), ductwork and cooking appliances requiring protection by the local and state codes, local fire marshal or owner's insurance company. The system shall be in accordance with 2012 IMC, NFPA 17A AND NFPA 96 and UL. The system shall be a pre-engineered, wet chemical, fixed nozzle agent distribution network. It shall include: automatic detection and actuation and remote manual actuation as well as automatic gas / electrical shut-off. Similar to ANSUL Model R-102 Restaurant Fire Suppression System.

S. FIRE PUMP-ALTERNATE

Electric driven 1000 GPM, 50 hp fire pump assembly including; controller, transfer switch, test header, etc. Install in accordance with NFPA 20. Fire pump shall be sized in order to meet NFPA 13 & 14 hydraulic sprinkler requirements. Similar to PEERLESS model 6AEF14.

Fire Pump Test Meters: Grooved end calibrated venturi meter manufactured of carbon steel (ASTM A-53) zinc electroplated body, brass needle valve conforming to ASTM B-124, with attached GPM meter. Minimum straight pipe installation of five diameters upstream and two diameters downstream. Victaulic Style 735.

T. ELECTRONIC DEVICES

Valve supervisory devices: UL/FM approved tamperproof signaling initiating switch arranged to detect closed valve position. Electrical rating: 120VAC.

Waterflow switch, 24 volt with 2 sets of contacts and pneumatic retard to prevent false alarms. Similar to potter model VSR-F.

Pressure switch: Electrically supervised water-flow switch with retard feature.

Components: Single-pole, double-throw switch with normally closed contacts.

Design Operation: Rising pressure signals water flow. Similar to Potter model PS Series.

Electric alarm bell; 6", 24vdc, with weatherproof backbox similar to potter model PBD246.

PART X: TECHNOLOGY SYSTEMS NARRATIVE

A. GENERAL

This narrative describes the Technology scope of work and specifications; refer to floor plans for additional information.

Comply with all current Federal, State, City and local codes, standards and ordinances, the International Building Code, the Connecticut Building Code including supplements, NFPA, utility company standards, insurance carrier requirements, and local authorities.

The Technology systems will be designed to comply with all state and local codes including the following codes adopted by the authority having jurisdiction:

- 2018 Connecticut State Building Code
- 2017 National Electric Code
- 2013 NFPA 72 National Fire Alarm and Signaling Code
- 2010 ADA Standards for Accessible Design
- OSHA, NFPA, utility company standards and all other codes and standards referenced by the above documents

Additionally, the following standards and documents will be referenced:

1. ANSI/TIA-568.1-D - Commercial Building Telecommunications Cabling Standard
2. ANSI/TIA-569-E - Telecommunications Pathways and Spaces
3. ANSI/TIA-606-C - Administration Standard for Telecommunications Infrastructure
4. ANSI/TIA-607-C - Generic Telecommunications Bonding and Grounding (Earthing) For Customer Premises
5. BICSI Telecommunications Distribution Methods Manual - 14th Edition
6. State of CT, Report of the School Safety Infrastructure Council, Nov. 19, 2015 Edition

B. COORDINATION

Coordinate the work, with work of other trades and field conditions. Carefully check space requirements and utilities to ensure all equipment can be installed in the spaces allotted thereto and coordinate all necessary utility service requirements. Coordinate, protect and schedule work with work of other trades in accordance with the required construction sequence. Install all work in accordance with equipment manufacturer's installation instructions.

C. WARRANTY

The Contractor warrants that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted, that the Work will be free from defects not inherent in the quality required or permitted, and that the work will conform with the project requirements. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. Contractor

shall warranty all work for a period of one (1) year from Owner acceptance unless specified otherwise in which case longer equipment warranties may apply. A 20-year manufacturer's warranty for copper and fiber optic cabling will be specified.

D. SUBMITTALS

Contractor shall submit: shop drawings, product data, samples, record documents (as-builts) and operation and maintenance manuals in accordance with the Contract requirements and particular specification section requirements.

E. RECORD DRAWINGS

Provide a complete set of as-built drawings reflecting "as-installed" conditions. As-built drawings shall indicate all installed conditions of systems within this discipline. Drawings shall be of similar scale as the construction documents and include details as necessary to clearly reflect the installed condition. Drawings shall be bound in a complete and consecutive set. Supplemental sketches and loose paperwork will not be acceptable and will be returned for revision. The contractor shall comply with the Engineer's comments to produce a clear and concise set of drawings. Drawings shall be submitted in both hard copy and electronic format (AutoCad or Revit version as required by the Owner). Number of copies of each as requested by the Owner.

F. TECHNOLOGY SYSTEMS

1928 Building

The existing incoming Telecommunications service to the current High School enters the 1928 building basement and must be maintained and preserved during demolition of other sections of this building, and also during construction of the new High School building. All backbone cabling between the 1928 building and other sections of the existing High School (such as the existing 700 Wing Server Room and all Telecom Rooms) are to be demolished only after the new High School building is operational, and the core IT network equipment is fully-migrated.

900 Building

The 900 Building will be renovated to support the Farmington School district's offices.

Two (2) 4-inch conduits with singlemode optical fiber cable will be installed between the new High School's Server Room and a new 900 building Server Room. The Farmington School district's IT network equipment will be installed within this building's Server Room.

One (1) Telecom Room will be constructed in addition to the new Server Room; see "Typical Telecom Room" requirements indicated within the "New High School" section below.

New High School

New incoming service cabling (optical fiber and copper) will be routed from the nearby Town Hall building to the new High School's Server Room in two (2) 4-inch concrete encased, schedule 80 PVC conduits. Cabling will consist of OSP-rated singlemode optical fiber, and OSP-rated 200-pair copper cable. Building Entrance Protectors shall be installed on all inter-building backbone copper cabling. Optical fiber cables will be terminated on LC connectors.

Twelve (12) Telecommunications Rooms (TRs) serving the new High School building will be located to provide connectivity to all areas within cable distance limitations. TRs will be located in these areas:

1st Floor - Building A
1st Floor - Building B
1st Floor - Building C
1st Floor - Auditorium Wing
1st Floor - Gym Wing
2nd Floor - Building A
2nd Floor - Building B
2nd Floor - Building C
2nd Floor - Auditorium Wing
2nd Floor - Gym Wing - (Server Room/Main Distribution Frame)
3rd Floor - Building A
3rd Floor - Building B

A Server Room (containing the IT Main Distribution Frame and acting as a TR for this area) will be located on the 2nd Floor above the Gym. Core network switches, servers, telephone system headend, and paging system equipment will be located in this room. Some equipment is existing in the current High School and shall be migrated to this new Server Room by the FHS IT staff.

One (1) additional NEMA-rated enclosure will be installed outside the new High School building in the parking lot area, acting as a TR for any nearby outdoor connections that may be required (light pole security cameras, wireless access points, etc.).

Typical Telecom Rooms will be sized to allow adequate clearances around front, back, and sides of IT Equipment rack(s) and will be provided with plywood backboards, two (2) 19" 2-post racks with vertical wire managers, rack-mount optical fiber enclosures, modular patch panels, horizontal wire managers, and other equipment as required. Ladder Rack will be installed in the ceiling above the equipment racks. UPS and Vertical Power Strips will be included. Active equipment (network switches, servers, etc.) will be furnished and installed by the Owner.

Server Rooms will be sized larger than Typical TRs in order to accommodate Server Cabinets, HVAC, and UPS equipment that require additional floor space and service clearances.

Backbone cabling between the Server Room and all TRs will consist of 24-strand OM4 multimode fiber, and 25-pair Category 5e rated copper cables. Optical fiber shall be terminated in rack-mounted optical shelves using LC connectors, and copper cables shall be terminated on rack-mount patch panels. Coaxial backbone cabling will consist of RG-11 quad-shield coaxial cable and will include all amplifiers, taps, and splitters.

Firestopped sleeves will be provided between the Server Room and TR walls, and the adjacent corridor where approved cable supports (cable tray and j-hooks) will be used to route Category-6A cables to each work area. Additional firestopped sleeves will be installed vertically between TRs.

All IT equipment racks and ladder rack will be grounded to the Telecommunications Grounding Busbar (TGB) in each TR. The Telecommunications Main Grounding Busbar (TMGB) will be installed in the Server Room. A Telecommunications Bonding Backbone (TBB) will be installed as required between TRs with a minimum 3/0 copper grounding electrode conductor from the nearest electrical service ground connection to the TMGB, and from the TMGB to the TGB in each TR.

A standards-compliant structured cabling system, designed by a Registered Communications Distribution Designer (RCDD), will be provided. The structured cabling system will consist of Category-6A STP cable, wall mounted outlet boxes, cover plates, and 8-pin RJ45 jacks. All cables will be properly labeled and terminated in the equipment racks on modular RJ45 patch panels.

Pathways for horizontal cabling will primarily utilize cable tray and j-hooks. Conduit will be installed over all inaccessible ceilings. The horizontal cabling will be installed in conduit from the outlet backbox, “stub-up” to the accessible ceiling space and then by approved cable supports back to the nearest Telecommunications Room. The outlet backbox at each work area will consist of a double-gang box with 1” conduit to accessible ceiling space.

Each workstation outlet in the office areas and at teacher’s stations will receive a minimum duplex drop (2 data cables). Additional voice and/or data drops will be provided in other locations as required, including all classrooms and other spaces as needed. Drops for wall-mount telephones will be provided in designated areas as required.

Wireless Access Points (WAPs) will be located throughout the facility to provide adequate coverage to all occupied areas of the building. Two (2) Category-6A cables installed at each WAP location will be terminated on a surface-mounted outlet faceplate. Each classroom will have two (2) Cat-6A cables for a WAP located in the ceiling, as well as other areas throughout the building. Wireless Access Point hardware, antennas and enclosures will be furnished by the Owner and installed by the IT Contractor.

Networking and telephone system equipment requirements will be coordinated with the Owner’s IT Department. Specification of these systems will be by the Owner, but adequate rack mounting space, cooling, power, and grounding will be provided.

Dedicated analog telephone lines (POTS) will be installed at required locations including elevator control rooms, fire alarm panels, security dialers, and gas meters. All wiring for these devices will be homerun to the nearest Telecom Room.

Coaxial cabling for TV services will consist of RG-6 quad-shield cabling to each device and will include all amplifiers, taps, and splitters.

Cabling to support Audio Visual equipment including LCD screens, projectors, AV Control Panels, and AV Equipment cabinets will be provided in conference rooms, and other locations as required.

Additional speakers for an overhead paging system will be located throughout the building. A new digital bell/clock system will be installed in the new High School

In compliance with State of CT School Safety Infrastructure Council Guidelines, a Distributed Antenna System will be installed to ensure adequate coverage for First Responder radio frequencies. This system will be specified with the required radio frequencies and performance specifications, but designed, installed, tested and commissioned by a qualified DAS Integrator.

G. SECURITY SYSTEMS

Video surveillance cameras will be installed in locations designated by the Owner, including around the building perimeter, main entrances, corridors, and other locations as required. All cameras will be IP-based, with Category-6A cable installed from the camera to the nearest TR. Exterior cameras not attached to the building façade will be supported by the “parking area” TR (see “Technology Systems” section) or hybrid optical fiber/copper cable and fiber extenders installed within the new High School, to deliver both video signal and power to each camera. PoE Switches to power the cameras will be Owner-provided.

Intrusion Detection devices will be provided including door contacts on all exterior doors and roof hatches, motion sensors, glass break sensors, and keypads located at designated entry locations. Security Panels will be located in the TRs mounted to the plywood backboards.

Card readers will be provided at designated locations including exterior entrances, Telecommunications Rooms, Mechanical Rooms, and other locations as requested.

Panic buttons will be located at designated locations, including but not limited to the Main Administration Office Area entrance, Main Public Entrance, and other locations as required. Depressing a panic will initiate a sequence of operations including 911 notification, securing of all main entrance doors, triggering an audible announcement via the Fire Alarm Voice Evac system, and other procedures as required by the Owner.

Video Intercom units will be located at the exterior of all entrance doors. These will be controlled from indoor stations located as required by the Owner.

H. AUDIO VISUAL SYSTEMS

Each classroom will have AV wiring from the Teacher desk to the Interactive Whiteboard location. The specific type of AV cabling will be dependent upon the projector model selected by the Owner. Audio from the Teacher's device (laptop or PC) will be rebroadcast to ceiling mounted speakers, that will also broadcast general paging announcements.

Category-6A STP data cables and power will be provided at all Digital Signage display locations. Additionally, in-wall multimedia enclosures will be installed behind Digital Signage locations for housing of equipment and cables.

Conference Rooms within the Administration Office will be equipped with infrastructure to support an LED display with AV signal inputs (i.e. HDMI, RCA audio, XLR, etc.) located either in the wall, or inside a recessed table box, depending on furniture selection.

In both the Auditorium and Gym, an Audio-Visual system consisting of AV signal inputs, projection screen, projector, speakers, touchscreen control panel, assistive listening system, and AV Switching system will be provided. Assistive listening systems will be provided for all areas containing sound reinforcement.

SITE NARRATIVE

The following outlines the scope of site work for the proposed new school:

Proposed Conditions – Site Improvements, Circulation, and Parking

Vehicular access to the school will remain from Farmington Avenue, Route 4, with modifications to both the ingress and egress lanes to better accommodate school and event traffic. Local officials including emergency services have requested two full travel lanes in both directions each with a fortified shoulder for emergency bypass if necessary. Further modifications within the Route 4 right-of-way include a dedicated left turn lane from the west and a right turn lane from the east. Each of these modifications will necessitate expansion of the north side curbline. All proposed modifications will require state coordination and approval due to Farmington Avenue being a state road. These improvements will likely also trigger improvements to the existing signal located at the driveway intersection with Route 4.

The redesigned school site will provide expanded on-site parking for visitors and staff with 590 dedicated school spaces provided throughout the campus. There are a minimum of 15 accessible spaces included in the parking count to meet the required code. The majority of parking and bus access will be consolidated to the south side of the new school building in dedicated areas for each. Buses will be routed to the east and circulated through a loop with 45 degree parking spaces limiting bus traffic into the site and any comingling of student drivers, visitors, and parent drop off. The dedicated bus area will accommodate bus loading spaces for 22 full size buses. The spaces will allow for arrival and departure of buses without backing up. A dedicated parent pickup and drop-off lane will parallel the school's main entry walks and will accommodate queuing of 24 cars. Site parking is redesigned entirely, with the majority of student parking in two east side lots. Staff parking will be to the north of the new building as will service access. Parking islands will accommodate shade trees and sidewalks in specific locations to aid in wayfinding and safe travel through the lots.

Interior site access drives and corner radii have been designed for easy maneuvering and safe vehicle passage including buses and emergency vehicles. Sidewalks are designed to provide pedestrian-friendly connectivity to and from areas of bus and parent drop off and pickup, and accessible ramps and crosswalks are located where appropriate. Signing and pavement markings to guide vehicle access and circulation will also be included. The proposed building and site access will comply with Office of School Construction Grants standards of vehicular circulation. Pedestrian access will be improved throughout all parking areas with multiple options for pedestrians to cross through parking to the building entrances. Access to the sports facilities will also be improved including regrading and paving the bituminous concrete walk to the upper soccer fields with respite pull-offs and an accessible route to the stadium grandstands and pressbox.

Emergency access has been upgraded above existing conditions to include an access route from the cul-de-sac at Crestwood Circle into the site paralleling the east property line and connecting through the north and south parking lots. This route can be a 12 foot wide heavy duty bituminous drive with 4 foot

wide reinforced turf shoulders or a grass paver system that utilizes plastic rings to allow for the weight of emergency vehicles.

The access drives and parking will have relatively gentle grades. Pavements are to be bituminous concrete, with heavy duty bituminous concrete at all bus access and parking areas, service areas, and emergency access vehicle routes. Sidewalks within and adjacent to parking are to be cast-in-place concrete. Sidewalks to sports fields and site amenities shall be bituminous concrete. Site curbing will be granite with minor areas utilizing bituminous concrete or extruded concrete curb. Site lights are to be LED fixtures on cast aluminum poles. Retaining walls are generally not anticipated for the site work with the exception of approximately 200 linear feet of wall at a maximum height of 10' to retain the hillside adjacent to the relocated Baseball Field.

Site landscaping will include a palette of shade and ornamental trees to complement the walks, drives, parking areas, and student terrace as well as architectural finishes. Low impact design features such as bioretention basins will have native plantings of trees, shrubs and herbaceous ground covers to create site features beyond simple infrastructure improvements. Buffer screening including an earthen berm and vegetation will be constructed along the entire north and east side of the property adjacent to parking and the school building to screen the residential neighbors. Plantings and berm construction will meet all town zoning regulations following the "C" bufferyard designation for a 6' high and 40' wide berm. A variety of trees, both evergreen and deciduous, as well as shrubs will be installed to vegetate the berm and create a diverse habitat along the property edge.

School athletic facilities including baseball and tennis will be relocated to the southwest portion of the site. An additional softball field is proposed as an add-alternate in the lower level field adjacent to Route 4. The upper terrace soccer fields and football stadium and track will remain in their current location with upgrades to accessibility and facilities.

Materials

Bituminous concrete – access drives and parking – heavy duty and light
Concrete walks
Integral concrete curb
Extruded concrete curb
Stamped Concrete
Concrete Unit Pavers
Permeable Pavers
Stone or Brick Veneer walls
Detectable warning strip pavers
Site lights – LED on aluminum poles
Lawn sod/seed

Trees
Shrubs
Perennials
Herbaceous ground covers
Signage – traffic and wayfinding
Pavement markings
Chain link fence – as needed for perimeter security
Emergency access gates
Timber guide rail
Concrete utility and dumpster pads
Flagpole
Catch basins and drainage pipe
Yard drains
Site furnishings – benches, trash receptacles, bollards
Utility services
Sedimentation and erosion controls

Storm Drainage

Proposed stormwater management components are to be designed per the Town of Farmington requirements and the applicable sections of the Connecticut Department of Energy & Environmental Protection *2004 Water Quality Manual*. We anticipate that most of the existing stormwater collection system on site will be removed and replaced to accommodate the new parking configurations and reconstruction of the site. The new stormwater infrastructure will connect to the existing drainage outlet piping near the limits of construction. There are currently two stormwater discharges from the site that cross Route 4 to the Farmington River. One is located near the northwest corner of the property, which provides a discharge point for the existing drainage system that wraps around the gymnasium to the north side of the school where it begins near the cafeteria. A second drainage system discharges across Route 4 to the Farmington River in front of the Town Hall. This drainage system collects stormwater runoff from the southeastern part of the school building, the stadium, eastern parking lot, Monteith Drive, the Town Library and the Town Hall.

Based on the planned site improvements, the drainage collection system to northwestern discharge point will likely see a decrease in impervious watershed and therefore a reduction in flows is anticipated without onsite stormwater detention needed. With the redevelopement of the new school and parking areas on the east side of the site and considering the site constraints we anticipate that some stormwater detention will be needed. A portion of this storage can be provided in small scale surface water quality basins in landscape islands, but an underground detention/water quality basin is anticipated to be needed beneath the east parking area. This basin will receive runoff from the new school building and associated parking areas. The basin will overflow to a new outlet pipe system that will connect to the existing drainage system that runs through the Town Hall parking lot. Low impact

design features will be pursued throughout the site to reduce the need for traditional drainage systems. These will include bio retention swales and basins, detention basins, subsurface sediment traps, and potentially permeable pavements.

Sanitary

There is a sanitary trunk line that runs along the northern bank of the Farmington River, which servs the High School, Library, and Town Hall. The High School and the Library are served by a common sewer collection lateral that crosses Route 4 in front of the library. The the Library appears to be served by a single lateral, while the High School is served by multiple laterals that extend to the front and east side of the building. The Town Hall has a separate lateral crossing of Route 4 to the trunk line.

We anticipate that the new school can be connected to the on-site sanitary system at one of the manholes that exist on the east side of the current school building. This section of the sanitary system also serves the 900 wing of the existing building, which is proposed to remain. We recommend that efforts be made to maintain this portion of the system as part of the redevelopment. It may be wise to have this system TV inspected to confirm the integrity of the system and estimate remaining longevity.

Water Supply, Gas, Electrical

Other utilities that currently serve the site such as water, gas, electrical, and communications have not been fully evaluated at this time. We expect that the existing utility services will continue to have the ability to serve the improved school facility, but further investigation is needed to confirm that ability. Once more information is available on utility loading requirements for the new facility, the information can be provided to the respective utilities to request a “will serve” letters and further refine the location of new infrastructure. If alternate service locations would better serve the new building, those will investigated with the facilities staff and respective utility providers.

END PART XI

VIII. Appendices

E. Cost Estimate

Schematic Design Estimate

Farmington High School

Farmington, CT

PM&C LLC
20 Downer Ave, Suite 5
Hingham, MA 02043
(T) 781-740-8007
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Prepared for:

TSKP Studio

May 20, 2020

PM&C

Farmington High School
Farmington, CT

20-May-20

Schematic Design Estimate

MAIN CONSTRUCTION COST SUMMARY

	Construction Start	Gross Floor Area	$/sf	Estimated Construction Cost
NEW CONSTRUCTION	Mar-22			
NEW SCHOOL		239,250	$319.08	$76,340,835
RENOVATED 900 WING		19,700	$201.92	$3,977,765
DEMOLISH PORTION OF EXISTING BUILDING		197,720	$8.00	$1,581,760
REMOVE HAZARDOUS MATERIALS		197,720	$2.50	$494,300
SITEWORK				$8,942,810
SUB-TOTAL		258,950	$352.72	$91,337,470
ESCALATION TO BID DATE OF SPRING 2022	6.4%			$5,845,598
DESIGN AND PRICING CONTINGENCY	7.0%			$6,393,623
SUB-TOTAL		258,950	$399.99	$103,576,691
GENERAL CONDITIONS	35 months			$4,200,000
GENERAL REQUIREMENTS				$2,071,534
SUB-TOTAL		258,950	$424.21	$109,848,225
STATE EDUCATION FUND	0.03%			$31,073
PERFORMANCE AND PAYMENT BOND	0.68%			$704,321
INSURANCE GL	0.85%			$880,402
PERMIT				Waived
CM FEE	2.00%			$2,196,965
CM/GMP CONTINGENCY	3.0%			$3,295,447
TOTAL OF ALL CONSTRUCTION		258,950	$451.66	**$116,956,433**

Farmington High School
Farmington, CT

20-May-20

Schematic Design Estimate

ALTERNATES - including mark ups		
ALT #1- Motorized demountable partition between gyms	ADD	**$95,304**
ALT #2- Stone veneer I.L.O. masonry along first floor exterior	ADD	**$567,613**
ALT #3- Mothball renovation option including pavers	ADD	**$873,977**
ALT #4- Additional softball field	ADD	**$288,957**
ALT # 5 - Fire Pump	ADD	**$156,800**
ALT # 6 - Water Booster Pump	ADD	**$65,280**
ALT # 7 - Cooling Plant Water-Water Heat Pumps + Geothermal Wells	ADD	**$4,746,720**
ALT # 8 - Cooling Plant Modular Air-Cooled Plant	ADD	**$478,560**
ALT # 9 - Cooling Plant Alternate Thermal Ice Storage	ADD	**$230,400**
ALT # 10 - DOAS with Chilled Beams	ADD	**$306,240**
ALT # 11 - 1350kW PV system	ADD	**$4,838,400**
ALT # 12 - Route 4 improvements	ADD	**$640,000**
ALT # 13 - Universal Design (hands free plumbing fixtures; auto door openers	ADD	**$100,000**

This Schematic Design cost estimate was produced from drawings, outline specifications and other documentation prepared by TSKP Studio and their design team dated April 10, 2020. Design and engineering changes occurring subsequent to the issue of these documents have not been incorporated in this estimate.

This estimate includes all direct construction costs, construction manager's overhead, fee and design contingency. Cost escalation assumes start dates indicated.

Bidding conditions are expected to be public bidding to pre-qualified construction managers, and pre-qualified sub-contractors, open specifications for materials and manufacturers.

The estimate is based on prevailing wage rates for construction in this market and represents a reasonable opinion of cost. It is not a prediction of the successful bid from a contractor as bids will vary due to fluctuating market conditions, errors and omissions, proprietary specifications, lack or surplus of bidders, perception of risk, etc. Consequently the estimate is expected to fall within the range of bids from a number of competitive contractors or subcontractors, however we do not warrant that bids or negotiated prices will not vary from the final construction cost estimate.

ITEMS NOT CONSIDERED IN THIS ESTIMATE

Items not included in this estimate are:

- Land acquisition, feasibility, and financing costs
- All professional fees and insurance
- Site or existing conditions surveys investigations costs, including to determine subsoil conditions
- All Furnishings, Fixtures and Equipment
- Items identified in the design as Not In Contract (NIC)
- Items identified in the design as by others
- Owner supplied and/or installed items as indicated in the estimate
- Utility company back charges, including work required off-site
- Work to City streets and sidewalks, (except as noted in this estimate)
- Construction contingency (GMP Contingency is included)
- Contaminated soils removal

PM&C

20-May-20

Farmington High School
Farmington, CT

Schematic Design Estimate

CONSTRUCTION COST SUMMARY IN CSI FORMAT

	New Building		*Renovated 900 Wing*		*SITE WORK*		*TOTAL PROJECT* *Subtotal*	*Total*
TOTAL PROJECT								
DIV. 2 DEMOLITION				**$200,911**				**$200,911**
024000 Demolition			$200,911				$200,911	
DIV. 3 CONCRETE		**$3,947,188**		**$34,178**		**$158,400**		**$4,139,766**
033000 Cast-in-Place Concrete	$3,947,188		$34,178		$158,400		$4,139,766	
DIV. 4 MASONRY		**$6,000,070**		**$150,238**				**$6,150,308**
040001 Unit Masonry	$6,000,070		$150,238				$6,150,308	
DIV. 5 METALS		**$9,204,786**		**$38,075**				**$9,242,861**
051000 Metal Fabrications	$1,618,278		$21,090				$1,639,368	
051200 Structural Steel Framing	$6,345,136		$1,000				$6,346,136	
053100 Steel Decking	$858,920						$858,920	
054000 Light Gauge Framing	$382,452		$15,985				$398,437	
DIV. 6 WOODS & PLASTICS		**$803,732**		**$34,434**				**$838,166**
061000 Rough Carpentry	$541,092		$34,194				$575,286	
062000 Finish Carpentry	$262,640		$240				$262,880	
DIV. 7 THERMAL & MOISTURE PROTECTION		**$6,383,347**		**$519,689**				**$6,903,036**
070001 Waterproofing, Dampproofing and Caulking	$999,297		$55,494				$1,054,791	
070002 Roofing and Flashing	$3,186,251		$455,025				$3,641,276	
072100 Thermal Insulation	$234,354		$4,170				$238,524	
074200 Metal Panel	$1,286,660						$1,286,660	
077600 Roof Pavers								
078410 Fireproofing	$646,785		$5,000				$651,785	
079500 Expansion Control	$30,000						$30,000	
DIV. 8 DOORS & WINDOWS		**$6,043,360**		**$105,925**				**$6,149,285**
080001 Aluminum Entrances	$4,479,920		$64,900				$4,544,820	
080002 Glass and Glazing	$682,470						$682,470	
081110 Doors, Frames and Hardware	$246,690		$9,000				$255,690	
081400 Wood Doors	$216,680		$9,800				$226,480	
083110 Access Doors and Frames	$20,000		$500				$20,500	
083300 Overhead Coiling Doors	$45,000		$6,400				$51,400	
087100 Door Hardware	$299,400		$15,000				$314,400	
089000 Louvers	$53,200		$325				$53,525	

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Farmington High School
Farmington, CT

Schematic Design Estimate

CONSTRUCTION COST SUMMARY IN CSI FORMAT

	New Building		*Renovated 900 Wing*		*SITE WORK*	*TOTAL PROJECT* *Subtotal*	*Total*
TOTAL PROJECT							
DIV. 9 FINISHES		**$8,221,803**		**$581,515**			**$8,803,318**
090002 Tiling	$1,663,815		$148,515			$1,812,330	
090003 Acoustical Ceilings	$1,808,950		$124,110			$1,933,060	
090005 Resilient Flooring	$675,466		$33,583			$709,049	
090007 Painting	$573,810		$40,005			$613,815	
092110 Gypsum Board Assemblies	$2,682,125		$182,885			$2,865,010	
096000 Carpet	$79,784		$52,417			$132,201	
096400 Wood Athletic Flooring	$328,275					$328,275	
096700 Fluid Applied Flooring	$78,450					$78,450	
098400 Acoustic Room Components	$331,128					$331,128	
DIV 10 SPECIALTIES		**$1,377,550**		**$91,200**			**$1,468,750**
101100 Visual Display Surfaces	$221,760		$5,000			$226,760	
101200 Display Cases	$81,600					$81,600	
101400 Signage	$89,080		$2,200			$91,280	
102110 Toilet Compartments	$176,150		$17,750			$193,900	
102200 Operable Partitions	$153,360					$153,360	
102800 Toilet Accessories	$55,550		$3,450			$59,000	
103000 Lockers	$571,000		$60,000			$631,000	
104400 Fire Protection Specialties	$29,050		$2,800			$31,850	
DIV. 11 EQUIPMENT		**$2,168,288**		**$6,000**			**$2,174,288**
110620 Theatrical Equipment	$721,000					$721,000	
113100 Residential Appliances	$75,000		$5,000			$80,000	
114000 Food Service Equipment	$875,000					$875,000	
115213 Projection Screens	$24,000					$24,000	
115300 Science Room Equipment	$119,600					$119,600	
116600 Equipment	$353,688		$1,000			$354,688	
DIV. 12 FURNISHINGS		**$2,537,750**		**$24,750**			**$2,562,500**
122400 Window Shades	$325,000					$325,000	
123553 Wood Classroom and Laboratory Casework	$2,158,500		$15,000			$2,173,500	
124810 Entrance Mats and Frames	$54,250		$9,750			$64,000	
DIV. 13 SPECIAL CONSTRUCTION							
DIV. 14 CONVEYING SYSTEMS		**$330,000**					**$330,000**
142400 Passenger Elevators	$330,000					$330,000	

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Farmington High School
Farmington, CT

Schematic Design Estimate

CONSTRUCTION COST SUMMARY IN CSI FORMAT

	New Building		*Renovated 900 Wing*		*SITE WORK*		*TOTAL PROJECT* *Subtotal*	*Total*
TOTAL PROJECT								
DIV. 21 FIRE SUPPRESSION		**$1,394,513**		**$180,925**				**$1,575,438**
210000 Fire Protection	$1,394,513		$180,925				$1,575,438	
DIV. 22 PLUMBING		**$3,989,376**		**$284,200**				**$4,273,576**
220000 Plumbing	$3,989,376		$284,200				$4,273,576	
DIV. 23 HVAC		**$13,605,351**		**$1,097,225**				**$14,702,576**
230000 HVAC	$13,605,351		$1,097,225				$14,702,576	
DIV. 26 ELECTRICAL		**$9,554,452**		**$628,500**		**$626,000**		**$10,808,952**
260000 Electrical	$9,554,452		$628,500		$626,000		$10,808,952	
DIV. 31 EARTHWORK		**$779,269**				**$3,661,795**		**$4,441,064**
311000 Site Preparation					$846,420		$846,420	
311100 Erosion Control					$127,000		$127,000	
312000 Earthwork	$779,269				$2,688,375		$3,467,644	
316600 Ground Improvement								
DIV. 32 EXTERIOR IMPROVEMENTS						**$2,813,056**		**$2,813,056**
320000 Paving					$920,522		$920,522	
323000 Site Improvements					$1,031,218		$1,031,218	
329200 Landscaping					$861,316		$861,316	
DIV. 33 UTILITIES						**$1,683,559**		**$1,683,559**
331000 Water Utilities					$406,000		$406,000	
333000 Sanitary Sewerage Utilities					$58,500		$58,500	
334000 Storm Drainage Utilities					$1,219,059		$1,219,059	
SUBTOTAL DIRECT (TRADE) COST		**$76,340,835**		**$3,977,765**		**$8,942,810**		**$89,261,410**

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Farmington High School
Farmington, CT

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Schematic Design Estimate

GFA 239,250

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
NEW SCHOOL							
	GROSS FLOOR AREA CALCULATION						
	First Floor			130,320			
	Second Floor			77,010			
	Third floor			31,920			
	TOTAL GROSS FLOOR AREA (GFA)				**239,250**	***sf***	
03	***CONCRETE***						
033000	**Cast-In-Place Concrete**						
	Foundation concrete						
	Strip Footings	*286*	*CY*				
	Foundation Walls	*327*	*CY*				
	Retaining Walls	*43*	*CY*				
	Spread Footings	*768*	*CY*				
	Piers	*109*	*CY*				
	Total Foundation Concrete	*1,533*	*CY*				
	Strip footings; 3'-0" x 1'-0"						
	Formwork	**4,200**	sf	12.00	50,400		
	Re-bar	**21,000**	lbs	1.35	28,350		
	Concrete material; 4,500 psi	**245**	cy	140.00	34,300		
	Placing concrete	**245**	cy	120.00	29,400		
	Foundation wall; 12" thick						
	Formwork	**16,800**	sf	16.50	277,200		
	Re-bar	**33,600**	lbs	1.35	45,360		
	Concrete material; 4,500 psi	**327**	cy	140.00	45,780		
	Placing concrete	**327**	cy	120.00	39,240		
	Dampproofing foundation wall and footing	**12,600**	sf	1.85	23,310		
	Insulation to foundation walls; 2" thick	**8,400**	sf	2.50	21,000		
	Form shelf	**2,100**	lf	6.00	12,600		
	Strip footings; 5ft x 2'-0" at retaining wall at auditorium						
	Formwork	**420**	sf	14.00	5,880		
	Re-bar	**4,920**	lbs	1.35	6,642		
	Concrete material; 3,000 psi	**41**	cy	135.00	5,535		
	Placing concrete	**41**	cy	120.00	4,920		
	Retaining wall; 16" thick						
	Formwork	**1,680**	sf	18.00	30,240		
	Re-bar	**3,360**	lbs	1.35	4,536		
	Concrete material; 3,000 psi	**43**	cy	135.00	5,805		
	Placing concrete	**43**	cy	120.00	5,160		
	Waterproofing foundation wall and footing	**840**	sf	9.00	7,560		
	Insulation to foundation walls; 2" thick	**1,680**	sf	2.50	4,200		
	Column footings - 8' x 8' x 2'-0" interior footing at two story spaces						
	Formwork	**1,344**	sf	16.00	21,504		
	Re-bar	**15,750**	lbs	1.35	21,263		
	Concrete material; 3,000 psi	**105**	cy	140.00	14,700		
	Placing concrete	**105**	cy	150.00	15,750		
	Column footings - 7' x 7' x 2'-0" perimeter footing at two story spaces						
	Formwork	**2,128**	sf	16.00	34,048		
	Re-bar	**21,750**	lbs	1.35	29,363		
	Concrete material; 3,000 psi	**145**	cy	140.00	20,300		
	Placing concrete	**145**	cy	150.00	21,750		
	Column footings - 9'-0" x 9'-0" x 2'-0" exterior footing Three Story Areas						
	Formwork	**1,344**	sf	16.00	21,504		
	Re-bar	**11,700**	lbs	1.35	15,795		
	Concrete material; 3,000 psi	**78**	cy	140.00	10,920		
	Placing concrete	**78**	cy	150.00	11,700		
	Column footings - 10' x 10' x 2'-0" Interior footing at Three story spaces						
	Formwork	**2,072**	sf	16.00	33,152		

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Farmington High School
Farmington, CT

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Schematic Design Estimate

GFA 239,250

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
NEW SCHOOL							
	Re-bar	**21,150**	lbs	1.35	28,553		
	Concrete material; 3,000 psi	**141**	cy	140.00	19,740		
	Placing concrete	**141**	cy	150.00	21,150		
	Column footings - 8' x 8' x 2'-0"footing at Gym + Aud						
	Formwork	**3,840**	sf	16.00	61,440		
	Re-bar	**44,850**	lbs	1.35	60,548		
	Concrete material; 3,000 psi	**299**	cy	140.00	41,860		
	Placing concrete	**299**	cy	150.00	44,850		
	Miscellaneous						
	Piers/pilasters	**109**	cy	750.00	81,750		
	Set anchor bolts grout plates	**49**	ea	165.00	8,085		
	Miscellaneous						
	Loading dock	**1**	ls	25,000.00	25,000		
	Equipment pads	**1**	ls	15,000.00	15,000		
	New Slab on grade, 5" thick						
	Mesh Re-bar 15% lap	**149,868**	sf	1.15	172,348		
	Concrete -5" thick; 4,000 psi	**2,078**	cy	145.00	301,310		
	Moisture mitigation	**2,078**	cy	60.00	124,680		
	Place & finish including control joints	**130,320**	sf	2.50	325,800		
	Vapor barrier under slab on grade	**130,320**	sf	1.00	130,320		
	Rigid insulation beneath slab on grade; 2" thick	**130,320**	sf	2.50	325,800		
	Miscellaneous						
	Premium for sloped auditorium floor/ramps	**1**	ls	75,000.00	75,000		
	Equipment pads	**1**	ls	5,000.00	5,000		
	New elevator pit	**1**	loc	35,000.00	35,000		
	Upper floor construction						
	Concrete on Metal Deck	*108,930*	*sf*				
	WWF reinforcement	**125,270**	sf	1.15	144,061		
	Concrete Fill to metal deck; Light Weight, 5-1/4"	**1,864**	cy	175.00	326,200		
	Place and finish concrete	**108,930**	sf	2.75	299,558		
	Rebar to decks	**32,679**	lbs	1.20	39,215		
	Moisture mitigation	**1,864**	cy	60.00	111,840		
	Premium for steps to maker space wing second floor	**46**	lf	150.00	6,900		
	Roof construction						
	Concrete on Metal Deck	*15,000*	*sf*				
	WWF reinforcement	**17,250**	sf	1.15	19,838		
	Concrete Fill to metal deck; Light Weight, 5-1/4"	**316**	cy	175.00	55,300		
	Place and finish concrete	**15,000**	sf	2.75	41,250		
	Rebar to decks	**4,500**	lbs	1.20	5,400		
	Stair construction						
	Concrete to stairs	**10**	flt	1,500.00	15,000		
	Floor Finishes						
	Sealed concrete at mechanical, electrical, custodial and laundry, allow	**11,393**	sf	1.50	17,090		
	Sealed concrete below auditorium seats	**2,090**	sf	1.50	3,135		
	SUBTOTAL					3,947,188	
	TOTAL, DIVISION 3 - CONCRETE						**$3,947,188**
04	***MASONRY***						
042000	**Unit Masonry**						
	Exterior wall						
	Clay masonry veneer	**45,275**	sf	37.00	1,675,175		
	CMU backup, 8" at mechanical and custodial	**2,680**	sf	24.00	64,320		
	CMU backup, 8" GFCMU backup at stairs	**363**	sf	29.00	10,527		
	CMU backup, 12" @ gymnasium and auditorium pop up roof	**11,784**	sf	32.00	377,088		
	Cast stone accent band 8"	**2,350**	lf	45.00	105,750		
	Flashings at exterior masonry	**45,275**	sf	0.50	22,638		
	Install lintels above exterior glazing, supplied by others	**1,840**	lf	25.00	46,000		

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
NEW SCHOOL							
	Staging to exterior wall	**91,438**	sf	3.00	274,314		
	Interior partitions						
	6" CMU at mechanical, custodial and kitchen	**9,408**	sf	20.00	188,160		
	8" CMU at stairs, reinforced	**6,832**	sf	28.00	191,296		
	8" CMU at lockers and corridors	**76,175**	sf	26.00	1,980,550		
	Elevator CMU - 8" reinforced 2 hr. rated	**3,052**	sf	35.00	106,820		
	12" CMU at gym , stage and auditorium	**13,356**	sf	32.00	427,392		
	Premium for anti-graffiti clear sealer at lobbies and corridors	**45,780**	sf	6.00	274,680		
	Premium for GFCMU	**51,072**	sf	5.00	255,360		
	SUBTOTAL					6,000,070	
	TOTAL, DIVISION 4 - MASONRY						**$6,000,070**
05	***METALS***						
050001	**Miscellaneous Metals**						
	Exterior Wall						
	Miscellaneous metals to exterior masonry; lintels, angles etc.	**45,275**	sf	2.00	90,550		
	Exterior sign, allow	**1**	ls	10,000.00	10,000		
	Interior Partitions						
	Seismic clips	**1,871**	ea	140.00	261,940		
	Misc. metals to CMU	**108,823**	sf	1.00	108,823		
	Support at operable partitions	**213**	lf	150.00	31,950		
	Specialties						
	Guardrail at auditorium ramps	**100**	lf	250.00	25,000		
	Guardrail at second floor corridor ramp	**45**	lf	250.00	11,250		
	Guardrail at second floor corridor steps	**6**	lf	250.00	1,500		
	Guardrail at exterior roof patio		lf	350.00	NR		
	Handrail at second floor corridor ramp	**40**	lf	75.00	3,000		
	Handrail at second floor corridor steps	**5**	lf	75.00	375		
	Open to below - 42" ptd steel picket guardrails, AESS w/ hdwd top rail	**830**	lf	320.00	265,600		
	OT/PT swing	**1**	ea	3,000.00	3,000		
	Catwalk allowance	**1**	ls	125,000.00	125,000		
	Decorative metal column covers at interior, allow	**1**	ls	30,000.00	30,000		
	Aluminum column covers at exterior entrance overhang, allow	**1**	loc	3,640.00	3,640		
	Steel angle base at gym wood flooring	**520**	lf	15.00	7,800		
	Corner guards, allow	**1**	ls	10,000.00	10,000		
	Miscellaneous metals throughout building	**239,250**	gsf	1.00	239,250		
	Stairs						
	Open Feature stairs at main circulation spine, including railing (90 degree turns)	**6**	flt	45,000.00	270,000		
	Egress stairs - standard	**2**	flt	25,000.00	50,000		
	Egress stairs - straight run	**2**	flt	22,000.00	44,000		
	Spiral stairs at auditorium storage, assumed metal threads	**1**	flt	20,000.00	20,000		
	Elevator						
	Pit ladder and sump cover	**2**	ea	2,500.00	5,000		
	Sill angle	**24**	lf	25.00	600		
	SUBTOTAL					1,618,278	
051200	**Structural Metals**	*13.0*	*lbs/sf*				
	Floor construction;	*1,556*	*tns*				
	Floor Structure - Steel:						
	Structure at Typical floors; 13 PSF	**806**	tns	3,800.00	3,062,800		
	Premium for HSS steel	**202**	tns	400.00	Included		
	Shear studs	**15,491**	ea	6.00	92,946		
	Miscellaneous						
	Firestopping at floor penetrations	**123,930**	gsf	0.15	18,590		
	Spray-applied fireproofing to beams and columns only	**123,930**	sf	2.50	taken below		
	Relieving angles				incl above		
	Roof construction						
	Roof Structure - Steel:						

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
NEW SCHOOL							
	Structure at typical roof; 13 PSF	**568**	tns	3,800.00	2,158,400		
	Structure at Gym + Aud roof (trusses); 13 PSF	**182**	tns	4,200.00	764,400		
	Premium for HSS steel	**142**	tns	400.00	Included		
	Spray-applied fireproofing to beams and deck	**87,320**	sf	3.00	taken below		
	Miscellaneous						
	Premium for seating area at auditorium	**4,600**	sf	30.00	138,000		
	Support framing to roof screen	**1**	ls	50,000.00	50,000		
	AESS Canopy frame, assume 13#/SF	**6**	tns	5,000.00	30,000		
	Premium for AESS steel, allow	**1**	ls	30,000.00	30,000		
	SUBTOTAL					6,345,136	
053100	**Steel Decking**						
	2" Metal galvanized floor deck; 18 Ga.	**123,930**	sf	3.00	371,790		
	Premium for acoustic deck at shops and gymnasium	**26,000**	sf	6.00	156,000		
	3" 20 Ga. galvanized Metal Roof Deck	**28,000**	sf	3.25	91,000		
	1-1/2" 20 Ga. galvanized Metal Roof Deck	**87,320**	sf	2.75	240,130		
	SUBTOTAL					858,920	
054000	**Light Gauge Framing**						
	4" CFMF at exterior soffit	**3,230**	sf	10.00	32,300		
	6" MS at exterior wall	**30,448**	sf	11.50	350,152		
	SUBTOTAL					382,452	
	TOTAL, DIVISION 5 - METALS						**$9,204,786**
06	***WOOD & PLASTICS***						
061000	**Rough Carpentry**						
	Floor construction						
	Amphitheater stepped seating framing	**490**	sf	35.00	17,150		
	Windows						
	Wood blocking at openings	**7,590**	lf	12.00	91,080		
	Exterior doors						
	Wood blocking at openings	**396**	lf	10.00	3,960		
	Roof						
	Wood blocking at roof edge	**10,335**	lf	16.00	165,360		
	Wood blocking at misc. penetrations	**1**	ls	10,000.00	10,000		
	Partitions						
	Wood blocking at interiors	**239,250**	gsf	0.75	179,438		
	Rough blocking at partitions	**14,680**	lf	3.00	44,040		
	Interior Doors						
	Wood blocking at openings	**5,016**	lf	4.00	20,064		
	Specialties						
	Backer panels in electrical closets	**1**	ls	10,000.00	10,000		
	SUBTOTAL					541,092	
062000	**Finish Carpentry**						
	Administration desk	**1**	ls	15,000.00	15,000		
	Media center desk	**1**	ls	30,000.00	30,000		
	Wall hung counter at second floor cafe	**25**	lf	250.00	6,250		
	Window sill; solid surface	**1,898**	lf	55.00	104,390		
	Millwork for serving counters, tray slides and stations at Kitchen/Servery	**1**	ls	60,000.00	w/ kitchen equipment		
	Millwork allowance for recycling and service stations	**42**	lf	500.00	21,000		
	Mailboxes	**1**	ls	8,000.00	8,000		
	Closet rods and shelves	**1**	ls	2,000.00	2,000		
	Bench at locker rooms allowance	**1**	ls	20,000.00	20,000		
	Vanities at locker room toilets	**12**	lf	500.00	6,000		
	Miscellaneous millwork, wood paneling etc.	**1**	ls	50,000.00	50,000		
	SUBTOTAL					262,640	
	TOTAL, DIVISION 6 - WOOD & PLASTICS						**$803,732**

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	NEW SCHOOL						
	07 THERMAL & MOISTURE PROTECTION						
	070001 Waterproofing, Dampproofing and Caulking						
	Foundations						
	Dampproofing foundation wall and footing				taken above		
	Waterproofing at foundation wall and footing				taken above		
	Slab on Grade						
	Waterproofing at lowest level	**130,320**	sf	6.00	NIC		
	Vapor barrier	**130,320**	sf	1.00	taken above		
	Elevator pit walls						
	Waterproofing walls and slab	**2**	loc	8,000.00	16,000		
	Exterior walls						
	Fluid applied moisture barrier	**60,283**	sf	7.00	421,981		
	Air barrier at soffits	**3,230**	sf	7.00	22,610		
	Air barrier/flashing at windows	**7,590**	lf	6.25	47,438		
	Miscellaneous sealants to closure	**60,283**	sf	1.00	60,283		
	Windows						
	Backer rod & double sealant	**7,590**	lf	10.00	75,900		
	Exterior Doors						
	Backer rod & double sealant	**396**	lf	10.00	3,960		
	Roof						
	AVB at roof perimeter	**3,445**	lf	8.00	27,560		
	Partitions						
	Miscellaneous sealants at partitions	**239,250**	gsf	0.30	71,775		
	Interior Doors						
	Backer rod & double sealant	**5,016**	lf	2.50	12,540		
	Specialties						
	Miscellaneous sealants throughout building	**239,250**	gsf	1.00	239,250		
	SUBTOTAL					999,297	
	070002 Roofing and Flashing						
	EPDM roofing membrane .060" thick typically	**123,260**	sf	7.00	862,820		
	Protection board, 1/2" gypsum sheathing	**123,260**	sf	1.75	215,705		
	Insulation; including tapered at select areas	**123,260**	sf	5.00	616,300		
	Reinforced vapor barrier	**123,260**	sf	1.00	123,260		
	Substrate board, 5/8" gypsum sheathing	**123,260**	sf	1.25	154,075		
	Standing seam metal roofing at gable-roofed clerestory with rosin slip sheet, Tern-coated zinc. 5" roof insulation	**7,033**	sf	65.00	457,145		
	Green roof, allowance	**1**	ls		NR		
	Roof membrane system at backside of parapets, allowance	**2,723**	sf	12.00	32,676		
	Sidewalls at sloped skylight systems, roof membrane on metal stud framing	**1,313**	sf	25.00	32,825		
	Miscellaneous Roofing						
	Skylights - aluminum, thermally broken 1" insulated, low-E glazing with 50% white frit	**2,090**	sf	150.00	313,500		
	Roof edge	**1,255**	lf	30.00	37,650		
	Parapet cap	**2,190**	lf	80.00	175,200		
	Roof hatch & ladder	**3**	loc	4,000.00	12,000		
	Miscellaneous flashings	**123,260**	sf	0.75	92,445		
	Roof to wall flashing	**1,410**	lf	30.00	42,300		
	Walkway pads	**1**	ls	7,500.00	7,500		
	Elevator ventilation unit	**2**	ea	3,500.00	7,000		
	Internal downspouts at glazed entrance canopy	**30**	lf	35.00	1,050		
	Internal gutters at glazed entrance canopy	**80**	lf	35.00	2,800		
	SUBTOTAL					3,186,251	
	072100 Thermal Insulation						
	Foundations						
	Insulation				taken above		
	Slab on grade						
	Rigid insulation				taken above		
	Exterior walls						

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	NEW SCHOOL							
303		Polystyrene insulation at brick veneer and metal panel	**60,283**	sf	3.50	210,991		
304		Insulation at soffits	**3,230**	sf	3.50	11,305		
305		Rigid insulation at roof edges	**3,445**	sf	3.50	12,058		
306		SUBTOTAL					234,354	
307								
308	**074200**	**Metal Panel**						
309		Exterior Wall						
310		Standing seam wall panels rain screen system	**15,008**	sf	65.00	975,520		
311		Standing seam wall panels rain screen system at mechanical wells (backside of masonry veneer wall)	**1,036**	sf	65.00	67,340		
312		Metal panel exterior soffit, allow	**3,230**	sf	60.00	193,800		
313		Metal panel mock-up	**1**	ls	50,000.00	50,000		
314		SUBTOTAL					1,286,660	
315								
316	**077600**	**Roof Pavers**						
317		Roof pavers at green roof, allow	**1**	ls		NR		
318		SUBTOTAL						
319								
320	**078410**	**Fire stopping/Fire proofing**						
321		Spray-applied fireproofing to beams and columns only (floor construction)	**123,930**	sf	2.50	309,825		
322		Spray-applied fireproofing to beams and deck (roof construction)	**87,320**	sf	3.00	261,960		
323		Intumescent paint - allow	**1**	ls	50,000.00	50,000		
324		Fire stopping floors	**1**	ls	25,000.00	25,000		
325		SUBTOTAL					646,785	
326								
327	**079500**	**Expansion Joints**						
328		Roof expansion joint	**1**	ls	5,000.00	5,000		
329		Expansion joints	**1**	al	25,000.00	25,000		
330		SUBTOTAL					30,000	
331								
332		***TOTAL, DIVISION 7 - THERMAL AND MOISTURE PROTECTION***						**$6,383,347**
333								
334	***08***	***DOORS & WINDOWS***						
335								
336	**080001**	**METAL WINDOWS**						
337		Exterior glazing						
338		Exterior clerestory at gym	**1,640**	sf	85.00	139,400		
339		Sloped clerestory system glazing at roof monitors	**1,401**	sf	90.00	126,090		
340		Curtainwall - thermally broken 2" w. mullions, 1" insulated, low-E glazing with integral impact resistant film	**9,493**	sf	110.00	1,044,230		
341		Exterior Storefront - thermally broken 2" w. mullions, 1" insulated, low-E glazing with integral impact resistant film	**18,605**	sf	80.00	1,488,400		
342		Premium for spandrel glazing, allow	**1**	ls	30,000.00	30,000		
343		Punched windows	**16**	sf	80.00	1,280		
344		Horizontal aluminum sunshades with Kynar finish 20" deep	**2,815**	lf	150.00	422,250		
345		Horizontal aluminum sunshades with Kynar finish 36" deep at curtainwall	**260**	lf	250.00	65,000		
346		Vertical aluminum sunshades with Kynar finish - plate aluminum on welded aluminum C channel frame 20" deep from	**1,755**	lf	200.00	351,000		
347		Exterior Doors						
348		Exterior storefront doors w/ impact film including frames and hardware, single	**3**	ea	4,500.00	13,500		
349		Exterior storefront doors w/ impact film including frames and hardware, double	**8**	pr	9,000.00	72,000		
350		Interior storefront						
351		Interior storefront at entrance vestibules, classrooms adjacent to central spine, second floor overlooking café and teacher work rm	**6,471**	sf	60.00	388,260		
352		Interior storefront at third floor stairs, 1/4" laminated glazing in gasketed frames	**3,546**	sf	60.00	212,760		
353		Transaction window at admin	**25**	sf	150.00	3,750		
354		Control booth window	**1**	ls	2,000.00	2,000		
355		Interior Doors						
356		Interior storefront doors at entrance vestibules including frames and hardware, double	**7**	pr	8,000.00	56,000		

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	NEW SCHOOL							
357		Interior storefront doors at media including frames and hardware, double	**1**	pr	8,000.00	8,000		
358		Interior storefront doors at select classroom interior storefront, single	**9**	ea	4,000.00	36,000		
359		Interior fire rated storefront doors at third floor center stairs, double	**2**	pr	10,000.00	20,000		
360		SUBTOTAL					4,479,920	
361								
362	**080002**	**Glass and Glazing**						
362		Premium for impact resistant film to exterior glazing	**28,098**	sf	12.55	352,630		
363		Sidelight glazing (6' full height glazed sidelight at all classrooms)	**3,024**	sf	35.00	105,840		
364		Glazed entrance canopy - laminated glass panels 1-1/4" thick w/ integrated 75% frit	**995**	sf	200.00	199,000		
365		Wall mirror at fitness rooms; allowance	**1,000**	sf	25.00	25,000		
366		SUBTOTAL					682,470	
367								
368	**081110**	**HM Doors and Frames**						
369		Exterior Doors						
370		Flush HM door, frame & HW, single	**5**	ea	600.00	3,000		
371		Flush HM door and frame, double	**5**	pr	450.00	2,250		
372		Interior Doors						
373		Frames, single	**248**	ea	450.00	111,600		
374		Frames, double	**40**	ea	600.00	24,000		
375		Sidelight frames	**3,024**	sf	35.00	105,840		
376		SUBTOTAL					246,690	
377								
378	**081400**	**Wood Doors**						
379		Interior Doors						
380		Pocket doors at reading classroom including frame and hardware	**1**	ea	6,000.00	6,000		
381		Solid core maple veneer doors, single	**248**	ea	410.00	101,680		
382		Solid core maple veneer doors, double	**40**	ea	820.00	32,800		
383		Premium for doors with vision panels and glazed panels	**1**	ls	25,000.00	25,000		
384		Premium for fire rated doors at stairs, per leaf	**6**	ea	200.00	1,200		
385		Premium for sound gasketing & STC rated doors	**1**	ea	50,000.00	50,000		
386		SUBTOTAL					216,680	
387								
388	**083110**	**Access Doors and Frames**						
389		Access Doors	**1**	ls	20,000.00	20,000		
390		SUBTOTAL					20,000	
391								
392	**083300**	**Overheard doors**						
393		Coiling grill at cafeteria/servery, allow	**1**	ls	30,000.00	30,000		
394		Exterior OHD at loading, allow	**1**	ls	15,000.00	15,000		
395		SUBTOTAL					45,000	
396								
397	**087100**	**Door Hardware**						
398		Door Hardware at interior door leaf	**328**	ea	800.00	262,400		
399		Door Hardware at exterior door leaf	**15**	ea	1,400.00	21,000		
400		Auto openers - allow	**4**	ea	4,000.00	16,000		
401		SUBTOTAL					299,400	
402								
403	**089000**	**Louvers and Vents**						
404		Terne-coated zinc vertical louver at mech wells	**560**	sf	95.00	53,200		
405		SUBTOTAL					53,200	
406								
407		***TOTAL, DIVISION 8 - DOORS AND WINDOWS***						**$6,043,360**
408								
409	***09***	***FINISHES***						
410								
411	**090002**	**Tile**						
412		Wall finishes						
413		Porcelain tile at kitchen/servery full height	**3,630**	sf	19.00	68,970		
414		Tile to toilet and locker room walls full height	**10,920**	sf	19.00	207,480		
415		Floor finishes						
416		Cafeteria - Quarry tile	**12,640**	sf	24.00	303,360		

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
NEW SCHOOL							
	Kitchen/Servery - Quarry tile	**4,465**	sf	24.00	107,160		
	Lobbies & Corridors - Thin set porcelain tile	**33,915**	sf	21.00	712,215		
	Locker & Toilet rooms - Ceramic tile 6x6	**7,720**	sf	18.00	138,960		
	Marble thresholds at bathrooms, allow	**23**	ea	150.00	3,450		
	Quarry tile base	**1,315**	lf	12.00	15,780		
	Porcelain tile base	**6,985**	lf	12.00	83,820		
	Ceramic tile base	**1,885**	lf	12.00	22,620		
	SUBTOTAL					1,663,815	
090003	**ACT**						
	Typical ACT, 2x2	**155,139**	sf	7.00	1,085,973		
	Acoustical tile at lobbies and corridors (85% of area)	**10,826**	sf	9.00	97,434		
	Ceiling of circulation spine at third floor (40% of area)	**1,296**	sf	9.00	11,664		
	Food service grade ACT at kitchen/servery	**4,465**	sf	7.25	32,371		
	Suspended acoustical tile at auditorium	**5,674**	sf	10.00	56,740		
	Wood acoustical ceiling tile at main circulation spine at floor 1 & 2	**16,399**	sf	32.00	524,768		
	SUBTOTAL					1,808,950	
090005	**Resilient Floor Tile**						
	VCT 24x24, typical	**100,691**	sf	4.75	478,282		
	RAF at weight room, allow	**3,025**	sf	12.00	36,300		
	Rubber flooring at ramp	**175**	sf	16.00	2,800		
	Rubber flooring at amphitheater stepped seating	**490**	sf	16.00	7,840		
	Vinyl base	**39,019**	lf	2.50	97,548		
	Stairs						
	Rubber flooring at first floor stair landings	**677**	sf	18.00	12,186		
	Rubber tile at stairs -intermediate landings	**570**	sf	18.00	10,260		
	Rubber tile at stairs - treads & risers	**1,375**	lft	22.00	30,250		
	SUBTOTAL					675,466	
090007	**Painting and Coating**						
	Paint doors and frames	**343**	ea	200.00	68,600		
	Paint to staircases	**9**	flt	1,700.00	15,300		
	Paint exposed ceiling structure	**5,930**	sf	1.50	8,895		
	Paint exposed ceiling structure at gym and stage	**5,930**	sf	2.00	11,860		
	Paint to GWB walls and ceilings	**260,922**	sf	0.85	221,784		
	Paint to CMU walls	**132,206**	sf	1.00	132,206		
	Premium for epoxy paint at locker and toilet rooms	**20,220**	sf	0.75	15,165		
	Misc. wall coverings, allow	**1**	ls	50,000.00	50,000		
	Staging allowance	**1**	ls	50,000	50,000		
	SUBTOTAL					573,810	
092110	**GWB**						
	Exterior wall						
	Densglass sheathing at exterior wall backup	**45,456**	sf	2.75	125,004		
	5/8" Gypsum sheathing at soffit	**3,230**	sf	2.75	8,883		
	GWB lining to interior face of exterior wall	**45,456**	sf	3.10	140,914		
	Interior Partitions						
	Typical partition - 3-5/8" MS w/ 2 lyrs 5/8" GWB b/s w/ acoustic batt insulation	**102,900**	sf	15.00	1,543,500		
	Miscellaneous GWB assemblies	**239,250**	gsf	2.00	478,500		
	Ceilings						
	GWB ceilings at circulation spine, locker and toilet rooms	**9,666**	sf	14.00	135,324		
	Soffits throughout	**1**	ls	250,000.00	250,000		
	SUBTOTAL					2,682,125	
096000	**Carpet**						
	Carpet tile in offices, meeting spaces, library and conference 2x2	**10,259**	sf	6.22	63,811		
	Broadloom carpet in Auditorium	**3,785**	sf	4.22	15,973		
	SUBTOTAL					79,784	

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
NEW SCHOOL							
096400	**Wood Athletic Floor**						
	Wood flooring at gyms	**15,575**	sf	18.00	280,350		
	Steel angle base at gym wood flooring	**520**	lf		taken above		
	Masonite wood flooring at stage	**3,195**	sf	15.00	47,925		
	SUBTOTAL					328,275	
096700	**Fluid Applied Flooring**						
	Epoxy flooring at auto, wood and robotics, allow	**5,230**	sf	15.00	78,450		
	SUBTOTAL					78,450	
098400	**Acoustic Room Components**						
	Suspended veneer plywood acoustic reflector ceiling panels at auditorium; 75% of area	**4,256**	sf	48.00	204,288		
	Acoustic wall panels at auditorium; 50% of area	**4,228**	sf	30.00	126,840		
	SUBTOTAL					331,128	
	TOTAL, DIVISION 9 - FINISHES						**$8,221,803**
10	***SPECIALTIES***						
101100	**Visual Display Surfaces**						
	Marker boards	**7,200**	sf	20.00	144,000		
	Tackboards	**4,320**	sf	18.00	77,760		
	SUBTOTAL					221,760	
101200	**Display cases**						
	Display cases in Student Dining	**100**	lf	480.00	48,000		
	Display cases outside of Tech/Art	**40**	lf	480.00	19,200		
	Display case outside of Administration	**30**	lf	480.00	14,400		
	Electronic display board in Main Lobby, Student Dining, and Auditorium Lobby	**1**	ls		F,F+E		
	SUBTOTAL					81,600	
101400	**Signage**						
	Room Signs	**328**	loc	110.00	36,080		
	Building directory	**1**	loc	3,000.00	3,000		
	Other signage/graphics	**1**	ls	50,000.00	50,000		
	SUBTOTAL					89,080	
102110	**Toilet Compartments**						
	ADA	**17**	ea	1,800.00	30,600		
	Standard	**68**	ea	1,600.00	108,800		
	Urinal screen	**17**	ea	650.00	11,050		
	Shower curtain and rod	**14**	ea	400.00	5,600		
	Shower seat	**2**	ea	350.00	700		
	Shower surround allowance	**14**	ea	1,300.00	18,200		
	Curtain and track at nurse, allow	**3**	ea	400.00	1,200		
	SUBTOTAL					176,150	
102200	**Operable Partitions**						
	Moveable partitions , fabric wrapped finish STC 55	**2,130**	sf	72.00	153,360		
	SUBTOTAL					153,360	
102800	**Toilet Accessories**						
	Gang bathroom	**17**	rms	2,950.00	50,150		
	Single bathroom	**6**	rms	500.00	3,000		
	Janitors Closet Accessories	**3**	rms	300.00	900		
	Janitors workroom accessories	**1**	rms	1,500.00	1,500		
	SUBTOTAL					55,550	
103000	**Lockers**						
	Welded steel lockers						
	Double tier corridor lockers 12" x 15" double tier	**1,400**	ope	260.00	364,000		
	Locker room lockers 12" wide, 3 tier 18" x 24"	**1,080**	ope	190.00	205,200		
	Kitchen and custodial lockers, allow	**6**	ea	300.00	1,800		
	SUBTOTAL					571,000	

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
NEW SCHOOL							
104400	**Fire Protection Specialties**						
	Fire extinguisher cabinets	**80**	ea	350.00	28,000		
	AED cabinets	**3**	ea	350.00	1,050		
	SUBTOTAL					29,050	
TOTAL, DIVISION 10 - SPECIALTIES							**$1,377,550**
11	***EQUIPMENT***						
110620	**Theatrical Equipment**						
	Theatrical Lighting	**1**	ls	125,000.00	w/ Electrical		
	Theatrical Rigging and curtains	**1**	ls	500,000.00	500,000		
	Auditorium seating (650 seats)	**1**	ls	221,000.00	221,000		
	SUBTOTAL					721,000	
113100	**Appliances**						
	Appliances, allow	**1**	ls	75,000.00	75,000		
	SUBTOTAL					75,000	
114000	**Food Service Equipment**						
	Commercial food service equipment - Kitchen and Servery	**1**	ls	650,000.00	650,000		
	Commercial food service equipment - Culinary Arts	**1**	ls	225,000.00	225,000		
	SUBTOTAL					875,000	
115213	**Projection Screens**						
	Classrooms, Smartboards	**54**	ea		F,F+E		
	Media Center, allow	**1**	ea	8,000.00	8,000		
	Cafeteria, allow	**1**	ea	8,000.00	8,000		
	Auditorium projection screen	**1**	ea	8,000.00	8,000		
	SUBTOTAL					24,000	
115300	**Science Equipment**						
	Fume hood in science classrooms, single sided	**12**	ea	8,500.00	102,000		
	Kiln	**1**	ea	5,000.00	5,000		
	Peg board	**30**	ea	300.00	9,000		
	Goggle cabinet	**12**	ea	300.00	3,600		
	SUBTOTAL					119,600	
116600	**OTHER EQUIPMENT**						
	Basketball backstops; swing up; electric operated	**6**	ea	8,000.00	48,000		
	Gym wall pads (not behind bleachers)	**1,692**	sf	18.00	30,456		
	Weight room wall pads	**774**	sf	18.00	13,932		
	Gymnasium dividing net; electrically operated	**1**	loc	41,800.00	Alternate		
	Volley ball standard floor inserts	**2**	ea	500.00	1,000		
	Bleachers in main gym; 1,400 seat capacity	**1**	ls	189,000.00	189,000		
	Bleachers in aux gym; 200 seat capacity	**1**	ls	27,000.00	27,000		
	Wrestling mat overhead storage	**1**	loc	19,300.00	19,300		
	Batting cage including overhead storage	**1**	loc	10,000.00	10,000		
	Scoreboard	**3**	loc	15,000.00	w/ Electrical		
	Loading dock equipment	**1**	ls	15,000.00	15,000		
	SUBTOTAL					353,688	
TOTAL, DIVISION 11 - EQUIPMENT							**$2,168,288**
12	***FURNISHINGS***						
122400	**Window Shades**						
	Roller shades at exterior windows, with motorized where necessary	**1**	ls	325,000.00	325,000		
	SUBTOTAL					325,000	
123553	**Casework**						

PM&C

Farmington High School
Farmington, CT

20-May-20

Schematic Design Estimate

GFA 239,250

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
NEW SCHOOL							
	Instrument storage casework	**1**	ls	60,000.00	60,000		
	Classrooms including makerspace						
	Built-in, lockable, shelving along exterior wall below windows with solid surface top	**1,620**	lf	400.00	648,000		
	Upper cabinets, allow	**1,620**	lf	220.00	356,400		
	Science						
	Science student table (6 per room)	**72**	ea	3,000.00	216,000		
	Science base cabinet with epoxy resin countertop, allow 30' per room	**360**	lf	500.00	180,000		
	Upper cabinets, allow 30' per room	**360**	lf	300.00	108,000		
	PPE cabinets	**12**	ea	1,800.00	21,600		
	Prep room casework, allow	**6**	rms	15,000.00	90,000		
	Miscellaneous casework	**239,250**	gsf	2.00	478,500		
	SUBTOTAL					2,158,500	
124810	**Entrance Mats and Frames**						
	Recessed entry mats at vestibules	**850**	sf	55.00	46,750		
	Walk off mats, allow	**500**	sf	15.00	7,500		
	SUBTOTAL					54,250	
TOTAL, DIVISION 12							**2,537,750**
14	***CONVEYING SYSTEMS***						
142000	**ELEVATOR**						
	Electric traction elevator, 3 stop	**2**	ea	165,000.00	330,000		
	SUBTOTAL					330,000	
TOTAL, DIVISION 14							**$330,000**
21	***FIRE PROTECTION***						
210000	**FIRE PROTECTION, GENERALLY**						
	8" Double check valve assembly	**1**	ea	18,000.00	18,000		
	8" Main alarm check valve	**1**	ea	7,000.00	7,000		
	Storz fire department connection	**1**	ea	1,700.00	1,700		
	Riser check valve assembly	**2**	ea	3,750.00	7,500		
	Zone control valve station	**5**	ea	2,200.00	11,000		
	2-1/2" Fire department valve	**2**	ea	800.00	1,600		
	Dry pipe system incl compressor, switches, nitrogen system, etc.	**1**	ls	20,000.00	20,000		
	Sprinkler heads	**239,250**	sf	0.95	227,288		
	Distribution piping with fittings & hangers	**239,250**	sf	2.00	478,500		
	Main sprinkler piping with fittings & hangers	**239,250**	sf	2.00	478,500		
	Add for sprinklers above clouds	**239,250**	sf	0.10	23,925		
	Miscellaneous						
	Kitchen hood extinguishing system				by others		
	System testing and flushing	**1**	ls	10,000.00	10,000		
	Coring, sleeves & firestopping	**1**	ls	12,500.00	12,500		
	Seismic Restraints and Structural Steel Comp.	**1**	ls	15,000.00	15,000		
	Hydraulic lifts/rigging	**1**	ls	35,000.00	35,000		
	Shop drawings / BIM / ENG Support / As-Builts	**1**	ls	30,000.00	30,000		
	Commissioning Support	**1**	ls	3,000.00	3,000		
	Fees & permits	**1**	ls	14,000.00	14,000		
	SUBTOTAL					1,394,513	
TOTAL, DIVISION 21							**$1,394,513**
22	***PLUMBING***						
220000	**PLUMBING, GENERALLY**						
	Gas fired semi-inst HW heater with storage	**3**	ea	27,000.00	81,000		
	Plumbing equipment	**239,250**	sf	1.50	358,875		
	Plumbing Fixtures & Specialties						

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
NEW SCHOOL							
	Plumbing fixtures	**239,250**	sf	2.50	598,125		
	Domestic Water Type L Copper Pipe						
	Domestic water pipe with fittings & hangers	**239,250**	sf	4.00	957,000		
	Domestic water pipe insulation	**239,250**	sf	1.00	239,250		
	Sanitary Waste And Vent Pipe w/ Hangers						
	Sanitary waste pipe with fittings & hangers	**239,250**	sf	2.00	478,500		
	Kitchen waste pipe with fittings & hangers	**239,250**	sf	0.30	71,775		
	Garage waste pipe with fittings & hangers	**239,250**	sf	0.10	23,925		
	Storm Drainage, Hubless Cast Iron Pipe						
	Storm water pipe with fittings & hangers	**239,250**	sf	1.50	358,875		
	Pipe insulation on horizontal runs	**239,250**	sf	0.25	59,813		
	Gas And Fuel Distribution Pipe						
	Gas pipe with fittings & hangers	**239,250**	sf	1.10	263,175		
	Acid Waste And Vent Pipe w/ Hangers						
	Acid waste polypropylene pipe	**239,250**	sf	1.25	299,063		
	Miscellaneous						
	Coordination & BIM	**1**	ls	100,000.00	100,000		
	Coring, sleeves & firestopping	**1**	ls	25,000.00	25,000		
	Commissioning support	**1**	ls	15,000.00	15,000		
	Testing and sterilization	**1**	ls	25,000.00	25,000		
	Fees & permits	**1**	ls	35,000.00	35,000		
	SUBTOTAL					3,989,376	
	TOTAL, DIVISION 22						**$3,989,376**
23	***HVAC***						
230000	**HVAC, GENERALLY**						
	Gas fired HW boiler 2500 MBH	**3**	ea	50,000.00	150,000		
	Air cooled chiller 265 ton with sound enclosure	**2**	ea	240,000.00	480,000		
	HVAC equipment	**239,250**	sf	1.50	358,875		
	Pumps						
	Pumps	**239,250**	sf	0.55	131,588		
	Air distribution						
	AHU's with CHW, HW & ERW	**229,500**	cfm	14.00	3,213,000		
	Air distribution equipment	**239,250**	sf	3.50	837,375		
	Exhaust fans	**239,250**	sf	0.50	119,625		
	Sheet metal & Accessories						
	Sheet metal	**229,500**	sf	15.25	3,499,875		
	Duct insulation	**239,250**	sf	2.00	478,500		
	Sheet metal accessories	**239,250**	sf	2.75	657,938		
	Piping						
	Hot Water Piping						
	Hot water piping with fittings & hangers	**239,250**	sf	2.60	622,050		
	Chilled Water Piping						
	Chilled water piping with fittings & hangers	**239,250**	sf	2.30	550,275		
	Refrigerant Piping						
	Refrigerant piping with fittings & hangers for miscellaneous ductless split systems for IT rooms	**239,250**	sf	0.10	23,925		
	Condensate Drain Piping						
	Condensate drain piping with fittings & hangers	**239,250**	sf	0.10	23,925		
	Piping Insulation						
	Piping insulation	**239,250**	sf	2.00	478,500		
	Automatic Temperature Controls						
	Automatic temperature controls DDC	**239,250**	sf	6.00	1,435,500		
	Balancing						
	System testing & balancing	**239,250**	sf	0.80	191,400		
	Miscellaneous						
	Coordination & BIM	**1**	ls	140,000.00	140,000		
	Commissioning support	**1**	ls	60,000.00	60,000		
	Coring, sleeves & fire stopping	**1**	ls	25,000.00	25,000		

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
NEW SCHOOL							
	Equipment start-up and inspection	**1**	ls	3,000.00	3,000		
	Rigging & equipment rental	**1**	ls	70,000.00	70,000		
	Vibration & seismic restraints	**1**	ls	55,000.00	55,000		
	SUBTOTAL					13,605,351	
	TOTAL, DIVISION 23						**$13,605,351**
	26 ELECTRICAL						
	Normal and Emergency Power						
	3000A main circuit breaker & CT cabinet	**1**	ea	30,000.00	30,000		
	1500kW diesel generator in WP sound attenuated enclosure	**1**	ea	525,000.00	525,000		
	3000A ATS	**1**	ea	50,000.00	50,000		
	150A ATS	**1**	ea	4,000.00	4,000		
	6000AF MDP (per riser)	**1**	ea	150,000.00	150,000		
	3000A generator distribution panelboard	**1**	ea	80,000.00	80,000		
	1600A distribution panelboard	**1**	ea	25,000.00	25,000		
	1200A distribution panelboard	**1**	ea	20,000.00	20,000		
	400A triple tub panelboard	**1**	ea	18,000.00	18,000		
	400A panelboard	**3**	ea	6,500.00	19,500		
	225A double tub panelboard	**9**	ea	5,000.00	45,000		
	225A panelboard	**2**	ea	2,500.00	5,000		
	200A panelboard	**1**	ea	2,200.00	2,200		
	150A panelboard	**1**	ea	1,800.00	1,800		
	100A panelboard	**19**	ea	1,400.00	26,600		
	500kVA dry-type transformer	**2**	ea	23,500.00	47,000		
	45KVA high harmonic dry type transformer	**1**	ea	10,000.00	10,000		
	45KVA dry type transformer	**2**	ea	4,000.00	8,000		
	15KVA dry type transformer	**1**	ea	3,275.00	3,275		
	Normal and emergency power gear and distribution not yet defined inc feeders	**239,250**	sf	3.50	837,375		
	Photovoltaic						
	1350kW PV system	**1,350,000**	w	2.80	By Others		
	Equipment Wiring						
	Fire pump feed and connection				Alternate		
	400A FP main circuit breaker and meter				Alternate		
	400A chiller feed and connection	**2**	ea	15,000.00	30,000		
	200A RTU feed and connection	**10**	ea	6,500.00	65,000		
	Equipment wiring not yet detailed	**239,250**	sf	2.00	478,500		
	LIGHTING & POWER						
	Lighting & Branch Power						
	Lighting	**239,250**	sf	6.00	1,435,500		
	Lighting control system						
	Lighting controls including daylight harvesting system, allow	**239,250**	sf	1.15	275,138		
	Branch devices						
	Branch devices	**239,250**	sf	0.50	119,625		
	Lighting and branch circuitry						
	Lighting & branch circuitry	**239,250**	sf	5.00	1,196,250		
	COMMUNICATION & SECURITY SYSTEMS						
	Fire Alarm						
	Fire alarm system (notifier)	**239,250**	sf	2.25	538,313		
		1	ls	5,000.00	5,000		
	Connect fire alarm system to campus loop, per narrative	**1**	ls	5,000.00	5,000		
	BDA system	**239,250**	sf	0.50	119,625		
	DAS system	**239,250**	sf	0.50	119,625		
	Security System						
	Security System	**239,250**	sf	2.00	478,500		
	Telephone/Data/CATV						

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	NEW SCHOOL							
790		Network switches, servers etc. (By owner)				By Owner		
791		MDF fit out	**1**	ls	12,000.00	12,000		
792		IDF fit out	**12**	ea	5,500.00	66,000		
793		Telecommunications rough in	**239,250**	sf	0.50	119,625		
794		Telecommunications devices and cabling (WAP OFCI)	**239,250**	sf	2.00	478,500		
795		Digital Signage System						
796		Digital Signage System, allow per narrative	**239,250**	sf	0.50	119,625		
797		Call for Aid System						
798		Call for aid system at handicapped bathrooms, allow	**239,250**	sf	0.15	35,888		
799		Public Address/Clock System						
800		PA/Master Clock system	**239,250**	sf	0.85	203,363		
801		Audio Visual (rough-in and power only)						
802		AV equipment				By Owner		
803		Rough-In power, conduit and backboxes only	**239,250**	sf	0.30	71,775		
804		Speech reinforcement system at areas containing sound reinforcement (allowance includes Auditorium and Gymnasium per narrative only)	**2**	loc	5,000.00	10,000		
805		Auditorium						
806		Performance lighting and dimming system, allow	**1**	ls	650,000.00	650,000		
807		Theater AV system	**1**	ls	450,000.00	450,000		
808		Sound Systems, allow						
809		Theatre	**1**	ls	60,000.00	60,000		
810		Gymnasium	**1**	ls	30,000.00	30,000		
811		Cafeteria	**1**	ls	20,000.00	20,000		
812		Large music room	**1**	ls	7,500.00	7,500		
813		Small music room	**1**	ls	5,000.00	5,000		
814		Gymnasium						
815		Large gym equipment feeds and connections inc 2 scoreboards, allow	**1**	ls	20,000.00	20,000		
816		Small gym equipment feeds and connections inc 1 scoreboards, allow	**1**	ls	15,000.00	15,000		
817		Grounding Protection						
818		Grounding	**1**	ls	25,000.00	25,000		
819		Lightning protection	**1**	ls	100,000.00	100,000		
820								
821		OTHER ELECTRICAL SYSTEMS						
822		Miscellaneous						
823		Temp power and lights	**239,250**	sf	0.60	143,550		
824		Testing and studies	**1**	ls	20,000.00	20,000		
825		Seismic restraints	**1**	ls	7,800.00	7,800		
826		Fees & Permits	**1**	ls	110,000.00	110,000		
827		SUBTOTAL					9,554,452	
828								
829		***TOTAL, DIVISION 26***						**$9,554,452**
830								
831								
832	***31***	**EARTHWORK**						
833								
834	**312000**	**Earthwork**						
835		Foundations						
836		Strip footings; 3'-0" x 1'-0"						
837		Excavation	**2,722**	cy	12.00	32,664		
838		Store on site for reuse	**2,722**	cy	8.00	21,776		
839		Backfill with selected material	**2,477**	cy	9.00	22,293		
840		Strip footings; 5ft x 2'-0" at retaining wall at auditorium						
841		Excavation	**175**	cy	12.00	2,100		
842		Store on site for reuse	**175**	cy	8.00	1,400		
843		Backfill with selected material	**134**	cy	9.00	1,206		
844		Column footings - 8' x 8' x 2'-0" interior footing at two story spaces						
845		Excavation	**448**	cy	14.00	6,272		
846		Store on site for reuse	**448**	cy	8.00	3,584		
847		Backfill with selected material	**343**	cy	12.00	4,116		

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Farmington High School
Farmington, CT

20-May-20

Schematic Design Estimate

GFA 239,250

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
NEW SCHOOL							
	Column footings - 7' x 7' x 2'-0" perimeter footing at two story spaces						
	Excavation	**681**	cy	14.00	9,534		
	Store on site for reuse	**681**	cy	8.00	5,448		
	Backfill with selected material	**536**	cy	12.00	6,432		
	Column footings - 9'-0" x 9'-0" x 2'-0" exterior footing Three Story Areas						
	Excavation	**207**	cy	14.00	2,898		
	Store on site for reuse	**207**	cy	8.00	1,656		
	Backfill with selected material	**129**	cy	12.00	1,548		
	Column footings - 10' x 10' x 2'-0" Interior footing at Three story spaces						
	Excavation	**663**	cy	14.00	9,282		
	Store on site for reuse	**663**	cy	8.00	5,304		
	Backfill with selected material	**522**	cy	12.00	6,264		
	Column footings - 8' x 8' x 2'-0"footing at Gym + Aud						
	Excavation	**1,280**	cy	14.00	17,920		
	Store on site for reuse	**1,280**	cy	8.00	10,240		
	Backfill with selected material	**981**	cy	12.00	11,772		
	Miscellaneous						
	Rock removal allowance				Excluded		
	Foundation drain	**2,100**	lf	22.00	46,200		
	Dewatering allowance	**1**	ls	30,000.00	30,000		
	New Slab on grade, 5" thick						
	Rough and fine grade	**130,320**	sf	0.50	65,160		
	Base course; 8" thick; compacted	**3,234**	cy	40.00	129,360		
	Add structure fill at unsuitable material; 8"	**3,234**	cy	40.00	129,360		
	Miscellaneous						
	Underslab drainage; assumed not required						
	E+B for plumbing	**130,320**	sf	1.50	195,480		
	SUBTOTAL					779,269	
	TOTAL, DIVISION 31 - Earthwork						**$779,269**

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Farmington High School
Farmington, CT

20-May-20

Schematic Design Estimate

GFA 19,700

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	RENOVATED 900 WING						
	GROSS FLOOR AREA CALCULATION						
	First Floor			19,700			
	TOTAL GROSS FLOOR AREA (GFA)				**19,700** ***sf***		
	2 DEMOLITION						
024000	**Demolition**						
	Demolish ceiling finishes	**17,730**	sf	1.00	17,730		
	Demolish floor finishes	**17,730**	sf	2.50	44,325		
	Demolish exterior storefront	**285**	sf	10.00	2,850		
	Demolish exterior doors, frames and hardware, single	**2**	ea	175.00	350		
	Demolish interior doors, frames and hardware, single	**18**	ea	150.00	2,700		
	Demolish interior partition	**7,504**	sf	4.00	30,016		
	Demolish lockers	**251**	ea	10.00	2,510		
	Demolish gang toilet accessories	**2**	ea	300.00	600		
	Demolish ADA toilet partition	**2**	ea	150.00	300		
	Demolish regular toilet partition	**7**	ea	40.00	280		
	Demolish urinal screen	**1**	ea	150.00	150		
	Miscellaneous demolition, allowance	**19,700**	gsf	2.00	39,400		
	Cleaning/dust control/temp protection of existing finishes etc. - allowance	**1**	ls	10,000.00	10,000		
	Remove cut & capped MEP equipment and fixtures	**19,700**	gsf	1.00	19,700		
	Sawcut/Remove/Excavate for underslab water service piping	**1**	ls	30,000.00	30,000		
	SUBTOTAL					200,911	
	TOTAL, DIVISION 2 - DEMOLITION						**$200,911**
	03 CONCRETE						
033000	**Cast-In-Place Concrete**						
	Slab on grade						
	New concrete housekeeping pads at mechanical room	**1**	ls	2,000.00	2,000		
	Patch existing slab at mechanical room for new water services	**1**	ls	1,500.00	1,500		
	New loading bay, complete	**1**	ls	25,000.00	25,000		
	Floor Finishes						
	Sealed concrete at mechanical, electrical and laundry, allow	**3,785**	sf	1.50	5,678		
	SUBTOTAL					34,178	
	TOTAL, DIVISION 3 - CONCRETE						**$34,178**
	04 MASONRY						
042000	**Unit Masonry**						
	Exterior wall						
	Clay masonry veneer	**1,390**	sf	40.00	55,600		
	Brace south wall elevation for sheer, per narrative	**105**	lf	250.00	26,250		
	Install lintels	**40**	lf	25.00	1,000		
	Flashings & sealants	**1,390**	sf	1.00	1,390		
	Staging to exterior wall	**1**	ls	15,000.00	15,000		
	Clean existing exterior masonry	**5,981**	sf	8.00	47,848		
	Interior partitions						
	Masonry door infill at previous single door	**1**	loc	3,150.00	3,150		
	SUBTOTAL					150,238	
	TOTAL, DIVISION 4 - MASONRY						**$150,238**
	05 METALS						
050001	**Miscellaneous Metals**						
	Exterior Wall						

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
RENOVATED 900 WING							
	Miscellaneous metals to exterior masonry; lintels, angles etc.	**1,390**	sf	1.00	1,390		
	Specialties						
	Miscellaneous metals throughout building	**19,700**	sf	1.00	19,700		
	SUBTOTAL					21,090	
051200	**Structural Metals**						
	Furnish exterior lintels, install by masonry	**25**	lf	40.00	1,000		
	SUBTOTAL					1,000	
054000	**Light Gauge Framing**						
	6" CFMF stud backup at exterior wall	**1,390**	sf	11.50	15,985		
	SUBTOTAL					15,985	
TOTAL, DIVISION 5 - METALS							**$38,075**
06	***WOOD & PLASTICS***						
061000	**Rough Carpentry**						
	Exterior Glazing						
	Wood blocking at openings	**130**	lf	10.00	1,300		
	Exterior doors						
	Wood blocking at openings	**60**	lf	10.00	600		
	Roof						
	Wood blocking at roof edge	**810**	lf	20.00	16,200		
	Partitions						
	Wood blocking at interiors	**19,700**	gsf	0.50	9,850		
	Rough blocking at partitions	**1,628**	lf	3.00	4,884		
	Interior Doors						
	Wood blocking at openings	**340**	lf	4.00	1,360		
	SUBTOTAL					34,194	
062000	**Finish Carpentry**						
	Window sill; Solid surface	**5**	lf	48.00	240		
	SUBTOTAL					240	
TOTAL, DIVISION 6 - WOOD & PLASTICS							**$34,434**
07	***THERMAL & MOISTURE PROTECTION***						
070001	**Waterproofing, Dampproofing and Caulking**						
	Exterior walls						
	Fluid applied moisture barrier	**1,390**	sf	7.00	9,730		
	Air barrier/flashing at exterior glazing	**130**	lf	6.25	813		
	Miscellaneous sealants to closure	**1,390**	sf	1.00	1,390		
	Exterior storefront						
	Backer rod & double sealant	**130**	lf	7.00	910		
	Exterior Doors						
	Backer rod & double sealant	**60**	lf	8.00	480		
	Roof						
	AVB at roof perimeter	**810**	lf	8.00	6,480		
	Partitions						
	Miscellaneous sealants at partitions	**10,582**	sf	0.50	5,291		
	Interior Doors						
	Backer rod & double sealant	**340**	lf	2.50	850		
	Specialties						
	Miscellaneous sealants throughout building	**19,700**	sf	1.50	29,550		
	SUBTOTAL					55,494	
070002	**Roofing and Flashing**						
	Remove existing roofing down to deck including insulation, blocking and fascia	**19,700**	sf	3.00	59,100		
	EPDM roofing membrane .060" thick typically	**19,700**	sf	7.00	137,900		
	Protection board, 1/2" gypsum sheathing	**19,700**	sf	1.50	29,550		
	Insulation; including tapered at select areas	**19,700**	sf	4.75	93,575		

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
RENOVATED 900 WING							
	Reinforced vapor barrier	**19,700**	sf	1.00	19,700		
	Substrate board, 5/8" gypsum sheathing	**19,700**	sf	1.25	24,625		
	Miscellaneous Roofing						
	Roof edge	**810**	lf	80.00	64,800		
	Roof hatch & ladder, allow	**1**	loc	4,000.00	4,000		
	Miscellaneous flashings	**19,700**	sf	0.75	14,775		
	Walkway pads	**1**	ls	2,000.00	2,000		
	Miscellaneous roof accessories, allow	**1**	ls	5,000.00	5,000		
	SUBTOTAL					455,025	
072100	**Thermal Insulation**						
	Exterior walls						
	Polystyrene insulation at exterior wall	**1,390**	sf	3.00	4,170		
	SUBTOTAL					4,170	
078410	**Fire stopping/Fire proofing**						
	Fire stopping at new partitions	**1**	ls	5,000	5,000		
	SUBTOTAL					5,000	
TOTAL, DIVISION 7 - THERMAL AND MOISTURE PROTECTION							**$519,689**
08	***DOORS & WINDOWS***						
080001	**METAL WINDOWS**						
	Exterior glazing						
	Exterior Storefront - thermally broken 2" w. mullions, 1" insulated, low-E glazing with integral impact resistant film	**218**	sf	80.00	17,440		
	Impact resistant film on existing windows; 3M ultra	**1,341**	sf	12.55	16,830		
	Exterior Doors						
	Glazed aluminum entrance door, frame and hardware; single	**2**	ea	4,000.00	8,000		
	Interior storefront						
	Interior storefront at BOE conference room	**207**	sf	90.00	18,630		
	Interior Doors						
	Interior storefront doors at BOE conference room interior storefront, single	**1**	ea	4,000.00	4,000		
	SUBTOTAL					64,900	
081110	**HM Doors and Frames**						
	Interior Doors						
	Frames, single	**20**	ea	450.00	9,000		
	SUBTOTAL					9,000	
081400	**Wood Doors**						
	Interior Doors						
	Solid core maple veneer doors, single	**20**	ea	410.00	8,200		
	Glazed vision panel at office doors, allowance	**16**	ea	100.00	1,600		
	SUBTOTAL					9,800	
083110	**Access Doors and Frames**						
	Access Doors	**1**	ls	500.00	500		
	SUBTOTAL					500	
083300	**Overheard doors**						
	New steel overhead coiling door at loading dock 10' x 8'	**1**	loc	6,400.00	6,400		
	SUBTOTAL					6,400	
087100	**Door Hardware**						
	Door Hardware at interior door leaf	**20**	ea	750.00	15,000		
	SUBTOTAL					15,000	
089000	**Louvers and Vents**						
	Aluminum louvers at mech room , allowance	**5**	sf	65.00	325		
	SUBTOTAL					325	
TOTAL, DIVISION 8 - DOORS AND WINDOWS							**$105,925**
09	***FINISHES***						

PM&C

Farmington High School
Farmington, CT

20-May-20

Schematic Design Estimate

GFA 19,700

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
RENOVATED 900 WING							
090002	**Tile**						
	Wall finishes						
	Ceramic tile at shower room walls, full height	**1,480**	sf	19.00	28,120		
	Ceramic tile at toilet room walls, full height	**2,630**	sf	19.00	49,970		
	Floor finishes						
	Porcelain floor tile in toilet and shower rooms	**1,315**	sf	21.00	27,615		
	Porcelain floor tile in locker rooms	**1,590**	sf	21.00	33,390		
	Tile base	**785**	lf	12.00	9,420		
	SUBTOTAL					148,515	
090003	**ACT**						
	New ACT ceilings throughout	**17,730**	sf	7.00	124,110		
	SUBTOTAL					124,110	
090005	**Resilient Floor Tile**						
	LVT flooring in circulation spaces including prep	**3,310**	sf	7.50	24,825		
	Vinyl base	**3,503**	lf	2.50	8,758		
	SUBTOTAL					33,583	
090007	**Painting and Coating**						
	Paint new doors and frames	**20**	ea	200.00	4,000		
	Prep and paint existing doors and frames, allow	**17**	ea	250.00	4,250		
	Prep and paint existing walls, allow	**21,170**	sf	1.50	31,755		
	SUBTOTAL					40,005	
092110	**GWB**						
	5/8" Gypsum sheathing at exterior wall backup	**1,390**	sf	2.75	3,823		
	GWB lining to interior face of exterior wall	**1,390**	sf	3.10	4,309		
	Interior Partitions						
	Typical partition - 3-5/8" MS w/ 2 lyrs 5/8" GWB b/s w/ acoustic batt insulation	**10,582**	sf	14.00	148,148		
	Door infill at previous single door location	**1**	loc	441.00	441		
	Miscellaneous GWB assemblies	**10,582**	gsf	2.00	21,164		
	Ceilings						
	Soffits, allow	**1**	ls	5,000.00	5,000		
	SUBTOTAL					182,885	
096000	**Carpet**						
	Carpet tile in office, meeting spaces and library including prep	**7,260**	sf	7.22	52,417		
	SUBTOTAL					52,417	
TOTAL, DIVISION 9 - FINISHES							**$581,515**
10	***SPECIALTIES***						
101100	**Visual Display Surfaces**						
	Marker boards /Tackboards allowance	**1**	ls	5,000.00	5,000		
	SUBTOTAL					5,000	
101400	**Signage**						
	Room Signs	**20**	loc	110.00	2,200		
	SUBTOTAL					2,200	
102110	**Toilet Compartments**						
	ADA	**1**	ea	1,800.00	1,800		
	Standard	**3**	ea	1,600.00	4,800		
	Urinal screen	**1**	ea	600.00	600		
	Shower curtain and rod	**6**	ea	400.00	2,400		
	Shower seat	**1**	ea	350.00	350		
	Shower surround allowance	**6**	ea	1,300.00	7,800		
	SUBTOTAL					17,750	
102800	**Toilet Accessories**						
	Gang bathroom	**1**	rms	2,950.00	2,950		

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	RENOVATED 900 WING						
	Single bathroom	**1**	rms	500.00	500		
	SUBTOTAL					3,450	
103000	**Lockers**						
	Locker room lockers 18" x 24", single tier	**200**	ope	300.00	60,000		
	SUBTOTAL					60,000	
104400	**Fire Protection Specialties**						
	Fire extinguisher cabinets	**7**	ea	350.00	2,450		
	AED cabinets	**1**	ea	350.00	350		
	SUBTOTAL					2,800	
	TOTAL, DIVISION 10 - SPECIALTIES						**$91,200**
11	***EQUIPMENT***						
113100	**Appliances**						
	Appliances, allow	**1**	ls	5,000.00	5,000		
	SUBTOTAL					5,000	
116600	**OTHER EQUIPMENT**						
	Loading dock equipment	**1**	ls	1,000.00	1,000		
	SUBTOTAL					1,000	
	TOTAL, DIVISION 11 - EQUIPMENT						**$6,000**
12	***FURNISHINGS***						
122400	**Window Shades**						
	Roller shades at exterior storefront, motorized	**218**	sf	18.00	not anticipated		
	SUBTOTAL					-	
123553	**Casework**						
	Casework allowance (none shown)	**1**	ls	15,000.00	15,000		
	SUBTOTAL					15,000	
124810	**Entrance Mats and Frames**						
	Recessed entry mats at vestibules, allow	**150**	sf	55.00	8,250		
	Walk off mats, allow	**100**	sf	15.00	1,500		
	SUBTOTAL					9,750	
	TOTAL, DIVISION 12						**24,750**
21	***FIRE PROTECTION***						
210000	**FIRE PROTECTION, GENERALLY**						
	6" Double check valve assembly	**1**	ea	13,000.00	13,000		
	6" Main alarm check valve	**1**	ea	5,000.00	5,000		
	Storz fire department connection	**1**	ea	1,700.00	1,700		
	Zone control valve stations	**2**	ea	2,200.00	4,400		
	Riser check valve assembly	**1**	ea	2,500.00	2,500		
	Sprinkler heads	**19,700**	sf	1.00	19,700		
	Branch sprinkler piping w fittings & hangers	**19,700**	sf	2.00	39,400		
	Main sprinkler piping with fittings & hangers	**19,700**	sf	2.00	39,400		
	Add for sprinklers above clouds	**19,700**	sf	0.25	4,925		
	1928 Building						
	6" Double check valve assembly	**1**	ea	13,000.00	13,000		
	6" Main alarm check valve	**1**	ea	5,000.00	5,000		
	Storz FD connection & branch piping	**1**	ea	6,000.00	6,000		
	Cut & cap piping supplying other demo bldgs	**1**	ls	5,000.00	5,000		
	Existing sprinklers, piping, heads to remain				NR		
	Miscellaneous						
	Demolition	**19,700**	sf	0.50	9,850		
	System testing and flushing	**1**	ls	1,000.00	1,000		
	Coring, sleeves & firestopping	**1**	ls	1,250.00	1,250		
	Seismic Restraints and Structural Steel Comp.	**1**	ls	1,500.00	1,500		

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
RENOVATED 900 WING							
	Hydraulic lifts/rigging	**1**	ls	3,500.00	3,500		
	Shop drawings / BIM / ENG Support / As-Builts	**1**	ls	3,000.00	3,000		
	Commissioning Support	**1**	ls	300.00	300		
	Fees & permits	**1**	ls	1,500.00	1,500		
	SUBTOTAL					180,925	
	TOTAL, DIVISION 21						**$180,925**
22	***PLUMBING***						
220000	**PLUMBING, GENERALLY**						
	Gas fired semi-inst HW heater with storage	**1**	ea	7,500.00	7,500		
	Plumbing equipment	**19,700**	sf	1.50	29,550		
	Plumbing Fixtures & Specialties						
	Plumbing fixtures	**19,700**	sf	2.50	49,250		
	Domestic Water Type L Copper Pipe						
	Domestic water pipe with fittings & hangers	**19,700**	sf	3.50	68,950		
	Domestic water pipe insulation	**19,700**	sf	1.25	24,625		
	Sanitary Waste And Vent Pipe w/ Hangers						
	Sanitary waste pipe with fittings & hangers	**19,700**	sf	2.00	39,400		
	Storm Drainage, Hubless Cast Iron Pipe						
	Storm water pipe with fittings & hangers	**19,700**	sf	1.50	29,550		
	Pipe insulation on horizontal runs	**19,700**	sf	0.25	4,925		
	Gas And Fuel Distribution Pipe						
	Gas pipe with fittings & hangers	**19,700**	sf	1.00	19,700		
	Miscellaneous						
	1928 Building: cap, cap, make safe	**1**	ls	2,500.00	2,500		
	Demolition	**19,700**	sf	1.00	19,700		
	Coordination & BIM	**1**	ls	4,000.00	4,000		
	Coring, sleeves & firestopping	**1**	ls	1,250.00	1,250		
	Commissioning support	**1**	ls	2,500.00	2,500		
	Testing and sterilization	**1**	ls	1,000.00	1,000		
	Fees & permits	**1**	ls	2,000.00	2,000		
	SUBTOTAL					306,400	
	TOTAL, DIVISION 22						**$306,400**
23	***HVAC***						
230000	**HVAC, GENERALLY**						
	Gas fired condensing HW boiler 720 MBH out	**2**	ea	19,500.00	39,000		
	HVAC equipment	**19,700**	sf	2.00	39,400		
	Pumps						
	Pumps	**19,700**	sf	0.50	9,850		
	Air distribution						
	RTU's DX, HW & ERW	**15,000**	cfm	15.00	225,000		
	Air distribution equipment	**19,700**	sf	3.50	68,950		
	Exhaust fans	**19,700**	sf	0.50	9,850		
	Sheet metal & Accessories						
	Sheet metal	**19,700**	sf	13.00	256,100		
	Duct insulation	**19,700**	sf	1.75	34,475		
	Sheet metal accessories	**19,700**	sf	2.75	54,175		
	Piping						
	Hot Water Piping						
	Hot water piping with fittings & hangers	**19,700**	sf	3.50	68,950		
	Refrigerant Piping						
	Refrigerant piping with fittings & hangers for miscellaneous ductless split systems for IT rooms	**19,700**	sf	0.15	2,955		
	Condensate Drain Piping						
	Condensate drain piping with fittings & hangers	**19,700**	sf	0.30	5,910		
	Piping Insulation						
	Piping insulation	**19,700**	sf	2.00	39,400		
	Automatic Temperature Controls						

PM&C

Farmington High School
Farmington, CT

20-May-20

Schematic Design Estimate

GFA 19,700

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	RENOVATED 900 WING							
388		Automatic temperature controls DDC	**19,700**	sf	6.00	118,200		
389		Balancing						
390		System testing & balancing	**19,700**	sf	0.80	15,760		
391		Miscellaneous						
392		1928 Boiler Plant: cap steam/hw piping	**1**	ls	15,000.00	15,000		
393		Demolition	**19,700**	sf	1.50	29,550		
394		Coordination & BIM	**1**	ls	12,500.00	12,500		
395		Commissioning support	**1**	ls	6,000.00	6,000		
396		Coring, sleeves & fire stopping	**1**	ls	2,500.00	2,500		
397		Equipment start-up and inspection	**1**	ls	1,000.00	1,000		
398		Rigging & equipment rental	**1**	ls	15,000.00	15,000		
399		Vibration & seismic restraints	**1**	ls	5,500.00	5,500		
400		SUBTOTAL					1,075,025	
401								
402	***TOTAL, DIVISION 23***							**$1,075,025**
403								
404								
405	***26***	***ELECTRICAL***						
406								
407		Normal and Emergency Power						
408		Normal and emergency power gear and distribution not yet defined inc feeders	**19,700**	sf	5.00	98,500		
409		Equipment Wiring						
410		Equipment wiring not yet detailed	**19,700**	sf	2.00	39,400		
411								
412		LIGHTING & POWER						
413		Lighting & Branch Power						
414		Lighting	**19,700**	sf	6.00	118,200		
415		Lighting control system						
416		Lighting controls including daylight harvesting system, allow	**19,700**	sf	1.15	22,655		
417		Branch devices						
418		Branch devices	**19,700**	sf	0.50	9,850		
419		Lighting and branch circuitry						
420		Lighting & branch circuitry	**19,700**	sf	5.00	98,500		
421								
422		COMMUNICATION & SECURITY SYSTEMS						
423		Fire Alarm						
424		Fire alarm system	**19,700**	sf	2.00	39,400		
425		BDA system	**19,700**	sf	0.50	9,850		
426		DAS system	**19,700**	sf	0.50	9,850		
427		Security System						
428		Security System	**19,700**	sf	2.00	39,400		
429		Telephone/Data/CATV						
430		Network switches, servers etc. (By owner)				By Owner		
431		MDF fit out	**1**	ls	12,000.00	12,000		
432		IDF fit out	**1**	ea	5,500.00	5,500		
431		Telecommunications rough in	**19,700**	sf	0.65	12,805		
432		Telecommunications devices and cabling	**19,700**	sf	2.00	39,400		
433		Public Address/Clock System						
434		PA/Master Clock system	**19,700**	sf	0.85	16,745		
435		Audio Visual (rough-in and power only)						
436		AV equipment				By Owner		
437		Rough-In power, conduit and backboxes only	**19,700**	sf	0.25	4,925		
438		Speech reinforcement				Assumes NIC		
439		Grounding Protection						
440		Grounding	**1**	ls	2,000.00	2,000		
441		Lightning protection	**1**	ls	10,000.00	10,000		
442								

PM&C

Farmington High School
Farmington, CT

20-May-20

Schematic Design Estimate

GFA 19,700

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
RENOVATED 900 WING							
	OTHER ELECTRICAL SYSTEMS						
	Miscellaneous						
	Temp power and lights	**19,700**	sf	0.60	11,820		
	Demo and make safe	**19,700**	sf	1.00	19,700		
	Fees & Permits	**1**	ls	8,000.00	8,000		
	SUBTOTAL					628,500	
	TOTAL, DIVISION 26						**$628,500**

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
SITEWORK							
	Overall Site Area	*2,078,000*	*sf*				
	G SITEWORK						
	G10 SITE PREPARATION & DEMOLITION						
311000	*SITE PREPARATION & DEMOLITION*						
	Site construction fence/barricades - 8' high CL fence with dust screen	**7,000**	lf	16.00	112,000		
	Construction gates	**2**	loc	3,000.00	6,000		
	Construction entrance	**5,000**	sf	5.00	25,000		
	Allowance to demolish existing paving; pulverize and reuse as base	**320,000**	sf	1.00	320,000		
	Phasing and logistics	**1**	ls	150,000.00	150,000		
	Hazardous Waste Remediation						
	Dispose/treat contaminated soils				Assumed not required		
	SITE CLEARING						
	Clear and grub existing site	**1,178,000**	sf	0.05	58,900		
	Strip topsoil, store onsite	**21,815**	cy	8.00	174,520		
311100	*EROSION AND EDIMENT CONTROL*						
	Silt fence	**7,000**	lf	11.00	77,000		
	Tree protection	**1**	ls	10,000.00	10,000		
	Silt fence maintenance and monitoring	**1**	ls	40,000.00	40,000		
312000	*EARTH MOVING*						
	Site Earthwork						
	Cut/Fill; assumed balanced; level site	**65,444**	cy	6.00	392,664		
	Landscaped berm; 6ft high	**12,258**	cy	20.00	245,160		
	Rock removal allowance				NIC		
	Fine grading	**130,889**	sy	1.25	163,611		
	Hazardous Waste Remediation						
	Dispose/treat contaminated soils/water				NIC		
	SUBTOTAL					1,774,855	
	G20 SITE IMPROVEMENTS						
	BITUMINOUS PAVING						
	Bituminous Paving; parking lot and roadway	*317,704*	*sf*				
	gravel base; 12" thick; reuse existing asphalt	**11,767**	cy	40.00	470,680		
	asphalt; 3.5" thick	**35,300**	sy	26.00	917,800		
	Precast curbs	**14,380**	lf	25.00	359,500		
	Granite curbs at entrance drive	**2,020**	lf	42.00	84,840		
	Tennis Courts	*8*	*courts*				
	Bituminous concrete paving	*49,500*	*sf*				
	gravel base; 6" thick	**917**	cy	40.00	36,680		
	bituminous concrete; 3 1/2" thick	**5,500**	sy	40.00	220,000		
	Tennis court surfacing	**49,500**	sf	2.50	123,750		
	Tennis nets	**8**	set	1,200.00	9,600		
	Chain-link fence with wind break	**993**	lf	70.00	69,510		
	Allowance for tennis lighting	**1**	ls	140,000.00	140,000		
	PEDESTRIAN PAVING						
	Concrete Paving/Sidewalks	*17,849*	*sf*				
	gravel base; 8" thick	**443**	cy	40.00	17,720		
	concrete; 4" thick	**17,849**	sf	8.50	151,717		
	premium for integral curb	**1,800**	lf	6.50	11,700		
	Bituminous Paving/Sidewalks	*21,300*	*sf*				
	gravel base; 8" thick	**529**	cy	40.00	21,160		

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	SITEWORK							
63		Bituminous concrete; 3" thick	**21,300**	sf	4.00	85,200		
64		Dumpster Pad Area						
65		gravel base; 8" thick	**74**	cy	40.00	2,960		
66		concrete; 8" thick	**3,000**	sf	12.00	36,000		
67								
68		*UNIT PAVERS*						
69		gravel base; 8" thick	**362**	cy	40.00	14,480		
70		concrete base; 4" thick	**14,600**	sf	4.00	58,400		
71		sand bedding; 1" thick	**40**	cy	40.00	1,600		
72		Precast pavers	**13,600**	sf	18.00	244,800		
73								
74		Raised crosswalk; allowance	**1,000**	sf	24.00	24,000		
75								
76		*PAVEMENT MARKINGS*						
77		Road markings; other	**1**	ls	25,000.00	25,000		
78		Single solid lines, 4" thick	**590**	space	25.00	14,750		
79		HC parking	**15**	space	125.00	1,875		
80								
81		*WAYFINDING SIGNS*						
82		Monumental signage (entrance), allow	**1**	ls	40,000.00	40,000		
83		Way finding signage	**1**	ls	25,000.00	25,000		
84								
85		*SITE WALLS*						
86		*Retaining wall at Field*						
87		Precast modular block wall; 10 ft high; includes E+B and geo-textile fabric	**2,000**	sf	50.00	100,000		
88								
89		*RAILINGS/FENCES*						
90		4' CL fence at retaining wall at field	**200**	lf	55.00	11,000		
91		Guardrail at entrance - steel backed timber	**1,100**	lf	45.00	49,500		
92								
93		*FLAGPOLES*						
94		Flagpole, allow	**1**	loc	10,000.00	10,000		
95								
96		*ATHLETIC FIELDS*						
97		*Main Field at Stadium*						
98		Synthetic turf; complete including gravel and drainage and shock pad	**100,000**	sf	12.00	ETR		
99		Perimeter drain	**1,300**	lf	120.00	ETR		
100		Football goals	**4**	ea	3,500.00	ETR		
101		Scoreboard	**1**	ls	50,000.00	ETR		
102		Line markings - allowance	**1**	ls	2,000.00	ETR		
103		Soccer goals (movable)	**2**	loc	10,000.00	ETR		
104		Bleachers, allow; includes pressbox	**1**	ls	700,000.00	ETR		
105		4' CL fence	**1,300**	lf	45.00	ETR		
106		CL fence gate - single	**2**	ea	1,200.00	ETR		
107		CL fence gate - double	**1**	ea	2,400.00	ETR		
108								
109		Allowance for field AV system	**1**	ls	50,000.00	ETR		
110		Allowance for sports lighting	**1**	ls	800,000.00	ETR		
111								
112		Allowance for running track	**1**	ls	450,000.00	ETR		
113								
114		*Soccer Fields; three fields*						
115		Gravel base - assumed 8" thick	**5,075**	cy	40.00	ETR		
116		Soil mix; reuse amended soil from on-site spoils	**7,574**	cy	12.00	ETR		
117		Sports turf mix	**204,500**	sf	0.50	ETR		
118		Line markings - Allowance	**1**	ls	6,000.00	ETR		
119		4' CL fence	**3,291**	lf	38.00	ETR		
120		Allowance for sports lighting				Assumed Not Required		
121								
122		*Baseball Field*	**95,000**	sf		-		
123		Gravel base - assumed 8" thick	**2,357**	cy	40.00	94,280		

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
SITEWORK							
	Soil mix; reuse amended soil from on-site spoils	**3,519**	cy	12.00	42,228		
	Sports turf mix	**95,000**	sf	0.50	47,500		
	Infield mix	**1**	ls	60,000.00	60,000		
	Pitching mound; home plate	**1**	loc	2,750.00	2,750		
	3 bases	**1**	loc	700.00	700		
	Line markings w/ marking pins below grade	**1**	ls	3,000.00	3,000		
	Foul poles	**2**	ea	1,500.00	3,000		
	Backstops	**1**	ea	45,000.00	45,000		
	Dugouts	**2**	ea	10,000.00	20,000		
	4' CL fence	**1,300**	lf	38.00	49,400		
	Softball Field - ALTERNATE	**56,000**	sf				
	Gravel base - assumed 8" thick	**1,390**	cy	40.00	**Alternate 2**		
	Soil mix; reuse amended soil from on-site spoils	**2,074**	cy	12.00	**Alternate 2**		
	Sports turf mix	**56,000**	sf	0.50	**Alternate 2**		
	Infield mix	**1**	ls	40,000.00	**Alternate 2**		
	Pitching mound; home plate	**1**	loc	2,750.00	**Alternate 2**		
	3 bases	**1**	loc	700.00	**Alternate 2**		
	Line markings w/ marking pins below grade	**1**	ls	3,000.00	**Alternate 2**		
	Foul poles	**2**	ea	1,500.00	**Alternate 2**		
	Backstops	**1**	ea	30,000.00	**Alternate 2**		
	4' CL fence	**995**	lf	38.00	**Alternate 2**		
	SITE IMPROVEMENTS						
	Miscellaneous site improvements; benches, bike racks, seat walls, trash receptacles etc.	**1**	ls	250,000.00	250,000		
	Allowance to upgrade signal and intersection at Route 4	**1**	ls	500,000.00	Alternate 12		
328400	*PLANTING IRRIGATION*						
	Irrigation at natural turf fields	**299,500**	sf	1.00	299,500		
329200	*TURF AND GRASSES*						
	Lawn						
	Topsoil - reuse existing topsoil	**10,722**	cy	18.00	192,996		
	Loam and seed	**300,000**	sf	0.25	75,000		
329300	*PLANTS*						
	Evergreen tree	**170**	ea	700.00	119,000		
	Ornamental tree	**56**	ea	900.00	50,400		
	Planting at landscape berm; ground cover	**54,800**	sf	2.00	109,600		
	Shrubs	**247**	ea	60.00	14,820		
	SUBTOTAL					4,858,396	
G30	**CIVIL MECHANICAL UTILITIES**						
	All unit pricing below includes E+B, pipe bedding and piping						
	WATER UTILITIES						
	Water supply; Pricing includes E&B and bedding						
	Domestic	**900**	lf	90.00	81,000		
	Fire line	**900**	lf	90.00	81,000		
	Fire loop	**2,000**	lf	90.00	180,000		
	Connect to existing	**2**	loc	6,000.00	12,000		
	FD connection	**1**	ea	2,000.00	2,000		
	Fire hydrant, allow	**4**	ea	5,000.00	20,000		
	SANITARY SEWERAGE UTILITIES						
	Sanitary sewer						
	Gravity sewer	**900**	lf	45.00	40,500		
	Connect to existing sewer	**1**	ea	3,000.00	3,000		
	Grease trap, 5,000 gal	**1**	ls	15,000.00	15,000		
	STORM DRAINAGE UTILITIES						

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
SITEWORK							
	Storm water						
	Allowance for complete system; Piping, Manholes, catch basins, WQS, Infiltration, detention and rain gardens	**406,353**	sf	3.00	1,219,059		
	GAS UTILITIES						
	Excavate and backfill for gas service, piping by utility service	**1**	ls	30,000.00	30,000		
	SUBTOTAL					1,683,559	
G40	**ELECTRICAL UTILITIES**						
	Power						
	Utility co. back charges, allow	**1**	ls	20,000.00	Assumes by owner		
	Connections at existing manhole				Utility co.		
	Tap existing electrical manhole	**1**	ls	2,500.00	2,500		
	Primary ductbank 2-5" ductbank, empty, allow	**900**	lf	120.00	108,000		
	Transformer by utility company				By Utility Co.		
	Transformer pad	**1**	ea	2,500.00	2,500		
	Secondary service 2500A feed	**200**	lf	350.00	70,000		
	Communications						
	Tap existing communications manhole	**1**	ls	2,000.00	2,000		
	Telecom ductbank 4-4", allow	**900**	lf	90.00	81,000		
	Telecom duct bank - concrete encased- 2-4" to the Town Hall Building, allow per narrative	**1500**	lf	90.00	135,000		
	Site Lighting						
	Site lighting fixture; LED includes pedestrian lighting	**1**	ls	225,000.00	225,000		
	SUBTOTAL					626,000	
	TOTAL - SITE DEVELOPMENT						***$8,942,810***

MOTION: Agenda Item N-3

To approve the attached resolution and warning recommending the appropriation and authorizing the borrowing of $135,600,000 (an anticipated net project cost to the Town of $109,300,000) and to set a Special Town Meeting on May 24, 2021 and a referendum on June 3, 2021.

NOTE: The attached resolution contains the items to be considered at a Special Town Meeting to be held on May 24, 2021. By Charter, the Town Council forwards this resolution to the Special Town Meeting with a recommendation that the resolution be approved.

Item 1. Appropriates $135,600,000 for the costs related to the design, construction, furnishing and equipping of a new high school on the grounds of the existing high school, the costs related to demolition of the existing high school except for the 1928 building and the 900 Wing of the existing high school, for costs related to the renovation of the 900 Wing to house locker rooms and the Farmington Public Schools Central Offices and authorizes the same amount less any state grants received in borrowing to finance the project.

Item 1 also refers the Farmington High School Project to the Planning and Zoning Commission for a report pursuant to Section 8-24 of the Connecticut General Statutes.

Items 2 lists the times and voting places for the June 3, 2021 referendum and the wording to appear on the ballot for the question. Item 2 also authorizes the Town Clerk to prepare an explanatory text, subject to the Town Attorney's approval for the resolution.

The Town Council should carefully review the resolution, especially subsections (a) and (b) to make sure that they reflect the Town Council's intent regarding the project.

Staff will be available at the Town Council meeting to answer questions regarding the resolution.

/Attachment

RESOLUTIONS FOR TOWN COUNCIL
(Special Town Meeting and Referendum)

Item 1.

RESOLVED, that a Special Town Meeting be held on Monday, May 24, 2021, to consider and act upon the following resolution which the Town Council recommends be approved:

RESOLVED,

(a) That the Town of Farmington appropriate ONE HUNDRED THIRTY-FIVE MILLION SIX HUNDRED THOUSAND DOLLARS ($135,600,000) for costs related to the design, construction, furnishing and equipping of a new high school, substantially as described in the Farmington High School Schematic Design Report prepared by TSKP Studio, dated July 16, 2020, and as amended on January 11, 2021 and March 10, 2021. The project shall consist of (1) design, construction, furnishing and equipping of a new, three story high school building of approximately 239,000 square feet, to be constructed on the grounds of the existing Farmington High School campus, (2) demolition of substantially all of the existing Farmington High School other than the "900 Wing" and the "1928 Building", (3) renovation of the 900 Wing to house locker rooms and Farmington Public Schools Central Offices, and (4) related site work, including improvements to traffic patterns and vehicular circulation, additional parking, relocation of athletic fields, accessibility improvements to the upper fields, football field stands and press box and widening of Monteith Drive. The appropriation may be spent for design, construction, acquisition and installation costs, demolition and hazardous waste removal costs, equipment including but not limited to building systems and technology equipment, furnishings, materials, athletic fields, parking, sidewalks, lighting, utilities, landscaping, and other site improvements, architect's fees, engineering and other consultant fees, contract administration costs, grant application and administration costs, moving and relocation costs, legal fees, net interest on borrowings and other financing costs, and other expenses related to the project, including the preparation of schematic drawings and outline specifications for the project. The Town anticipates applying to the State of Connecticut for school building project grants to offset in part the cost of the project and anticipates that it will receive grants for the project in the estimated amount of approximately $26,300,000. The Farmington High School Building Committee, or such other building committees for the project as are established from time to time, shall determine the particulars of the project and may reduce or modify the scope of the project including without limitation reductions and modifications appropriate in the event of a shortfall in anticipated project grant receipts to maintain an anticipated net municipal project cost of $109,300,000, and the entire appropriation may be expended on the project as so reduced or modified.

(b) That the Town issue bonds or notes in an amount not to exceed ONE HUNDRED THIRTY-FIVE MILLION SIX HUNDRED THOUSAND DOLLARS ($135,600,000) to finance the appropriation for the project. The amount of bonds and notes authorized shall be reduced by the amount of grants received by the Town for the project and not separately appropriated to pay project costs. The bonds or notes shall be issued pursuant to Sections 7-369 and 10-289 of the General Statutes of Connecticut, Revision of 1958, as amended, and any other enabling acts. The

bonds or notes shall be general obligations of the Town secured by the irrevocable pledge of the full faith and credit of the Town.

(c) That the Town issue and renew temporary notes from time to time in anticipation of the receipt of the proceeds from the sale of the bonds, notes or temporary notes and the receipt of grants for the project. The amount of the notes outstanding at any time shall not exceed ONE HUNDRED THIRTY-FIVE MILLION SIX HUNDRED THOUSAND DOLLARS ($135,600,000). The notes shall be issued pursuant to Section 7-378 of the General Statutes of Connecticut, Revision of 1958, as amended, and any other enabling acts. The notes shall be general obligations of the Town and shall be secured by the irrevocable pledge of the full faith and credit of the Town. The Town shall comply with the provisions of Section 7-378a of the General Statutes with respect to any notes that do not mature within the time permitted by said Section 7-378.

(d) That the Town Manager and the Treasurer of the Town shall sign any bonds, notes or temporary notes by their manual or facsimile signatures. The law firm of Pullman & Comley, LLC is designated as bond counsel to approve the legality of the bonds, notes or temporary notes. The Treasurer shall keep a record of the bonds, notes or temporary notes. The Town Manager and the Town Treasurer are authorized to determine the amounts, dates, interest rates, maturities, redemption provisions, form and other details of the bonds, notes or temporary notes; to designate one or more banks or trust companies to be certifying bank, registrar, transfer agent and paying agent for the bonds, notes or temporary notes; to provide for the keeping of a record of the bonds or notes; to designate a financial advisor to the Town in connection with the sale of the bonds, notes or temporary notes; to sell the bonds, notes or temporary notes at public or private sale; to deliver the bonds, notes or temporary notes; and to perform all other acts which are necessary or appropriate to issue the bonds, notes or temporary notes.

(e) That the Town hereby declares its official intent under Federal Income Tax Regulation Section 1.150-2 that project costs may be paid from temporary advances of available funds and that the Town reasonably expects to reimburse any such advances from the proceeds of borrowings in an aggregate principal amount not in excess of the amount of borrowing authorized above for the project. The Town Manager and the Town Treasurer are authorized to amend such declaration of official intent as they deem necessary or advisable and to bind the Town pursuant to such representations and covenants as they deem necessary or advisable in order to maintain the continued exemption from federal income taxation of interest on the bonds, notes or temporary notes authorized by this resolution if issued on a tax-exempt basis, including covenants to pay rebates of investment earnings to the United States in future years.

(f) That the Town Manager and the Treasurer are authorized to make representations and enter into written agreements for the benefit of holders of the bonds, notes or temporary notes to provide secondary market disclosure information, which agreements may include such terms as they deem advisable or appropriate in order to comply with applicable laws or rules pertaining to the sale or purchase of such bonds, notes or temporary notes.

(g) That the Board of Education is authorized to apply for and accept one or more state grants for each of the new Farmington High School and the Board of Education central office components of the project. The Board of Education, the school building committee established for the project, the Superintendent of Schools and other proper officers and officials of the Town are authorized to file applications with the State Board of Education, to execute grant agreements for the project components, and to file such documents as may be required by the State Board of Education to obtain grants for the costs of financing the project components.

(h) That the Town Council, the Town Manager, the Treasurer, the Board of Education, the school building committee established for the project, and other proper officers and officials of the Town are authorized to take any other action which is necessary or desirable to enable the Town to complete said project and to issue bonds, notes or temporary notes and obtain grants to finance the project.

(i) That this resolution shall not become effective until it has been approved by vote on voting machines of persons qualified to vote in town meetings.

FURTHER RESOLVED, that the aforesaid Farmington High School project be referred to the Plan and Zoning Commission for a report pursuant to Section 8-24 of the General Statutes of Connecticut, Revision of 1958, as amended.

* * * * * * * * * * * * *

Item 2.

RESOLVED, that the resolution approved under item 1 above with respect to a $135,600,000 appropriation and borrowing authorization for the Farmington High School project be submitted to a vote on voting machines of the persons qualified to vote in town meetings on Thursday, June 3, 2021, between the hours of 6:00 a.m. and 8:00 p.m. Electors shall vote at their regularly assigned polling places, as follows: Electors residing in the First Voting District and assigned to polling places 1-1, 1-2, 1-3, and 1-4 shall vote at Irving A. Robbins Middle School, 20 Wolf Pit Road, Farmington, Connecticut; and those assigned to polling place 1-5 shall vote at West Woods Upper Elementary School, 50 Judson Lane, Farmington, Connecticut. Electors residing in the Second Voting District and assigned to polling place 2-6 shall vote at the Community & Senior Center, 321 New Britain Avenue, Unionville, Connecticut; and those assigned to polling place 2-7 shall vote at the Municipal Complex, Monteith Drive, Farmington, Connecticut. Voters qualified to vote at town meeting who are not electors shall vote at their respective polling place at Irving A. Robbins Middle School, West Woods Upper Elementary School, the Community & Senior Center or the Municipal Complex. Absentee ballots will be available from the Town Clerk's office.

FURTHER RESOLVED, that said resolution shall be placed upon the ballots under the following heading:

> "SHALL THE TOWN OF FARMINGTON APPROPRIATE $135,600,000 FOR THE DESIGN AND CONSTRUCTION OF A NEW HIGH SCHOOL ON THE GROUNDS OF THE EXISTING HIGH SCHOOL CAMPUS, DEMOLITION OF SUBSTANTIALLY ALL OF THE EXISTING FARMINGTON HIGH SCHOOL OTHER THAN THE 900 WING AND THE 1928 BUILDING, AND RENOVATION AND IMPROVEMENTS TO THE 900 WING, AND AUTHORIZE THE ISSUANCE OF BONDS AND NOTES IN AN AMOUNT SUFFICIENT TO FINANCE THE PORTION OF THE APPROPRIATION NOT DEFRAYED FROM GRANTS (AN ANTICIPATED NET PROJECT COST TO THE TOWN OF $109,300,000)?
>
> YES NO"

FURTHER RESOLVED, that the Town Clerk is authorized, in such official's discretion, to prepare a concise explanatory text regarding said resolution and the Town Manager is authorized, in such official's discretion, to prepare additional explanatory materials regarding said resolution, such texts and explanatory materials to be subject to the approval of the Town Attorney and to be prepared and distributed in accordance with Section 9-369b of the General Statutes of Connecticut, Revision of 1958, as amended, including, as applicable, publication in the Town Letter.

RESOLVED, that due and proper notice of the Special Town Meeting to be held May 24, 2021, and the Referendum to be held Thursday, June 3, 2021, be given in substantially the form presented to this meeting, a copy of which shall be included in the minutes of the meeting.

* * * * * * * * * * * * *

WARNING
TOWN OF FARMINGTON
SPECIAL TOWN MEETING —MAY 24, 2021
REFERENDUM — JUNE 3, 2021

The legal voters of the Town of Farmington and those qualified to vote at town meetings of said Town are hereby warned and notified that a Special Town Meeting of the Town of Farmington is called for Monday, May 24, 2021, at 7:00 p.m. in the Farmington High School Auditorium, 10 Monteith Drive in Farmington, Connecticut, for the following purposes:

1. To consider the recommendation of the Town Council that a resolution be adopted:

(a) to appropriate $135,600,000 for costs related to the design, construction, furnishing and equipping of a new high school, substantially as described in the Farmington High School Schematic Design Report prepared by TSKP Studio, dated July 16, 2020, and as amended on January 11, 2021 and March 10, 2021. The project shall consist of (1) design, construction, furnishing and equipping of a new, three story high school building of approximately 239,000 square feet, to be constructed on the grounds of the existing Farmington High School campus, (2) demolition of substantially all of the existing Farmington High School other than the "900 Wing" and the "1928 Building", (3) renovation of the 900 Wing to house locker rooms and Farmington Public Schools Central Offices, and (4) related site work, including improvements to traffic patterns and vehicular circulation, additional parking, relocation of athletic fields, accessibility improvements to the upper fields, football field stands and press box and widening of Monteith Drive. The appropriation may be spent for design, construction, acquisition and installation costs, demolition and hazardous waste removal costs, equipment including but not limited to building systems and technology equipment, furnishings, materials, athletic fields, parking, sidewalks, lighting, utilities, landscaping, and other site improvements, architect's fees, engineering and other consultant fees, contract administration costs, grant application and administration costs, moving and relocation costs, legal fees, net interest on borrowings and other financing costs, and other expenses related to the project, including the preparation of schematic drawings and outline specifications for the project. The Town anticipates applying to the State of Connecticut for school building project grants to offset in part the cost of the project and anticipates that it will receive grants for the project in the estimated amount of approximately $26,300,000. The Farmington High School Building Committee, or such other building committees for the project as are established from time to time, shall determine the particulars of the project and may reduce or modify the scope of the project including without limitation reductions and modifications appropriate in the event of a shortfall in anticipated project grant receipts to maintain an anticipated net municipal project cost of $109,300,000, and the entire appropriation may be expended on the project as so reduced or modified;

(b) to authorize the issue of bonds or notes of the Town in an amount not to exceed $135,600,000; to provide that the amount of bonds and notes authorized shall be reduced by the amount of grants received by the Town for the project and not separately appropriated to pay project costs; to authorize the issue of temporary notes of the Town in an amount not to exceed $135,600,000 in anticipation of such bonds or notes; and to authorize the Town Manager and the Town Treasurer to determine the amounts, dates, interest rates, redemption provisions, form and

other details of the bonds, notes or temporary notes; and to perform all other acts which are necessary or appropriate to issue the bonds, notes or temporary notes;

(c) to take such action to allow temporary advances of available funds which the Town reasonably expects to reimburse from the proceeds of borrowings; and to authorize the Town Manager and the Town Treasurer to bind the Town pursuant to such representations and covenants as they deem necessary or advisable in order to maintain the continued exemption from federal income taxation of interest on the bonds, notes or temporary notes authorized by the resolution if issued on a tax-exempt basis, including covenants to pay rebates of investment earnings to the United States in future years, and to make representations and enter into written agreements for the benefit of holders of the bonds, notes or temporary notes to provide secondary market disclosure information, which agreements may include such terms as they deem advisable or appropriate in order to comply with applicable laws or rules pertaining to the sale or purchase of such bonds or notes;

(d) to authorize the Board of Education to apply for and accept one or more state grants for each of the new Farmington High School and the Board of Education central office components of the project; and to authorize the Board of Education, the school building committee established for the project, the Superintendent of Schools and other proper officers and officials of the Town to file applications with the State Board of Education, to execute grant agreements for the project components, and to file such documents as may be required by the State Board of Education to obtain grants for the costs of financing the project components; and

(e) to authorize the Town Council, the Town Manager, the Town Treasurer, the Board of Education, the school building committee established for the project, and other proper officers and officials of the Town to take any other action which is necessary or desirable to enable the Town to complete said project and to issue bonds, notes or temporary notes and obtain grants to finance the project.

2. The moderator shall adjourn this meeting and the resolution presented under item 1 of this Warning shall become effective only after having been submitted and approved, by a vote on voting machines of persons qualified to vote in town meetings on Thursday, June 3, 2021, between the hours of 6:00 a.m. and 8:00 p.m. Electors shall vote at their regularly assigned polling places, as follows: Electors residing in the First Voting District and assigned to polling places 1-1, 1-2, 1-3, and 1-4 shall vote at Irving A. Robbins Middle School, 20 Wolf Pit Road, Farmington, Connecticut; and those assigned to polling place 1-5 shall vote at West Woods Upper Elementary School, 50 Judson Lane, Farmington, Connecticut. Electors residing in the Second Voting District and assigned to polling place 2-6 shall vote at the Community & Senior Center, 321 New Britain Avenue, Unionville, Connecticut; and those assigned to polling place 2-7 shall vote at the Municipal Complex, Monteith Drive, Farmington, Connecticut. Voters qualified to vote at town meeting who are not electors shall vote at their respective polling place at Irving A. Robbins Middle School, West Woods Upper Elementary School, the Community & Senior Center or the Municipal Complex. Absentee ballots will be available from the Town Clerk's office.

Said resolution shall be placed upon the ballot under the following heading:

"SHALL THE TOWN OF FARMINGTON APPROPRIATE $135,600,000 FOR THE DESIGN AND CONSTRUCTION OF A NEW HIGH SCHOOL ON THE GROUNDS OF THE EXISTING HIGH SCHOOL CAMPUS, DEMOLITION OF SUBSTANTIALLY ALL OF THE EXISTING FARMINGTON HIGH SCHOOL OTHER THAN THE 900 WING AND THE 1928 BUILDING, AND RENOVATION AND IMPROVEMENTS TO THE 900 WING, AND AUTHORIZE THE ISSUANCE OF BONDS AND NOTES IN AN AMOUNT SUFFICIENT TO FINANCE THE PORTION OF THE APPROPRIATION NOT DEFRAYED FROM GRANTS (AN ANTICIPATED NET PROJECT COST TO THE TOWN OF $109,300,000)?

YES NO"

Voters approving the resolution shall vote "Yes" and voters opposing the resolution shall vote "No".

Dated at Farmington, Connecticut this 11th day of May 2021.

PER ORDER OF THE
FARMINGTON TOWN COUNCIL

_____	_____
Council Chair	Council Member
_____	_____
Council Member	Council Member
_____	_____
Council Member	Council Member
_____	_____
Council Member	Town Clerk

MOTION: Agenda Item N-4

To set a Public Hearing on June 8, 2021 at 7:05 p.m. in the Town Hall Council Chambers to Amend the Farmington Town Code, Chapter 176, "Taxation".

NOTE: One of the Town Council's Strategic Goals was to establish a Sub-Committee to review Article IV: Property Tax Relief for Elderly Homeowners (Local Option), Article V: Property Tax Relief for Volunteer Fire Fighters, Article VI: Qualifying Veterans and Surviving Spouses, and Article VII: Elderly Tax Freeze Program of Chapter 176 Taxation, of the Code of the Town of Farmington and to determine whether there is a need for ordinance changes.

With the pending Farmington High School project, the Town Council felt strongly that it was important to review this ordinance to determine if any changes should be made that would assist our elderly homeowners with property tax relief.

The Sub-Committee was appointed on January 12, 2021. The Sub-Committee held meetings with the Tax Assessor and the Director of Fire and Emergency Services to learn more about the existing programs and to determine what, if any, changes should be made to the programs.

Based upon their meetings the Sub-Committee agreed to recommend the following changes:

That Article IV: Property Tax Relief for Elderly Homeowners (Local Option) be amended by:

Replacing the current sliding scale tax relief benefit with a flat dollar amount tax relief benefit ranging from $1,500 to $250; (see attached chart),

increasing the benefit amount in each income category by $250.00; and,

adding a new tax relief benefit for elderly and disabled taxpayers with an annual income of between $51,801 to $57,500.

The estimated tax loss that would result from these proposed changes is $57,750.

That Article V: Property Tax Relief for Volunteer Fire Fighters be amended by:

Increasing the tax abatement for eligible volunteer firefighters as follows:

For responding to 180 calls to 249 calls the tax abatement would be increased from $500.00 to $1,000.00.
For responding to 250 calls to 319 calls the tax abatement would be increased from $1,000.00 to $1,500.00: and,

(NEW) For responding to 320 or more calls the tax abatement would be $2,000.00.

These proposed changes would increase the abatement by $500.00 for the existing call volume categories and add a new, third category with a $2,000 abatement for responding to 320 or more calls per year. The estimated cost of these changes is a tax loss of $55,000.

Staff will be available to answer questions regarding these recommendations. The amended ordinances with all the above additions and deletions will be included as part of the public hearing presentation and back-up information for the June 8, 2021 Town Council meeting.

/Attachment

ELDERLY AND TOTALLY DISABLED TAX RELIEF PROGRAMS

HOMEOWNERS TAX RELIEF - STATE PROGRAM
INCOME AND GRANT INFORMATION - 2020 BENEFIT YEAR
FILING PERIOD FEBRUARY 1 - MAY 15, 2021

	TAX CREDIT %		TAX CREDIT MAXIMUM		TAX CREDIT MINIMUM	
*INCOME	MARRIED	UNMARRIED	MARRIED	UNMARRIED	MARRIED	UNMARRIED
$0 - $18,900	50%	40%	$ 1,250	$ 1,000	$ 400	$ 350
18,900 - 25,300	40%	30%	1,000	750	350	250
25,300 - 31,500	30%	20%	750	500	250	150
31,500 - 37,600	20%	10%	500	250	150	150
37,600 - 45,800	10%	0%	250	-	150	-

HOMEOWNERS TAX RELIEF - TOWN PROGRAM
INCOME AND GRANT INFORMATION - 2020 BENEFIT YEAR
FILING PERIOD FEBRUARY 1 - MAY 15, 2021

	TAX CREDIT %		TAX CREDIT MAXIMUM		TAX CREDIT MINIMUM	
*INCOME	MARRIED	UNMARRIED	MARRIED	UNMARRIED	MARRIED	UNMARRIED
$0 - $18,900	50%	40%	$ 1,250	$ 1,000	$ 400	$ 350
18,900 - 25,300	40%	30%	1,000	750	350	250
25,300 - 31,500	30%	20%	750	500	250	150
31,500 - 37,600	20%	10%	500	250	150	150
37,600 - 45,800	10%	10%	250	150	150	150
45,800- 51,800	10%	0%	250	-	150	-

HOMEOWNERS TAX RELIEF - COMBINED PROGRAMS
INCOME AND GRANT INFORMATION - 2020 BENEFIT YEAR
FILING PERIOD FEBRUARY 1 - MAY 15, 2021

	TAX CREDIT %		TAX CREDIT MAXIMUM		TAX CREDIT MINIMUM	
*INCOME	MARRIED	UNMARRIED	MARRIED	UNMARRIED	MARRIED	UNMARRIED
$0 - $18,900	50%	40%	$ 2,500	$ 2,000	$ 800	$ 700
18,900 - 25,300	40%	30%	2,000	1,500	700	500
25,300 - 31,500	30%	20%	1,500	1,000	500	300
31,500 - 37,600	20%	10%	1,000	500	300	300
37,600 - 45,800	10%	10%	500	300	300	150
45,800- 51,800	10%	0%	250	-	150	-

HOMEOWNERS TAX RELIEF - NEW LOCAL OPTION BENEFIT

*INCOME	TOWN BENEFIT		TAX CREDIT MAXIMUM W/ADDTL TOWN BENEFIT	
	MARRIED	UNMARRIED	MARRIED	UNMARRIED
$0 - $18,900	$ 1,500	$ 1,250	$2,750	$2,250
18,900 - 25,300	$ 1,250	$ 1,000	2,250	1,750
25,300 - 31,500	$ 1,000	$ 750	1,750	1,250
31,500 - 37,600	$ 750	$ 500	1,250	750
37,600 - 45,800	$ 500	$ 500	750	500
45,801 - 51,800	$ 500	$ 250	500	250
51,801 - 57,500	$ 250	$ 250	250	250

MOTION: Agenda Item N-5

To waive the bidding requirements pursuant to Section 55-10 of the Town of Farmington Purchasing Ordinance under Section 55-1 so that the Town Manager's Office may contract with Authentic Post and Beam of Thomaston, CT to repair the Hein Barn, 303 Meadow Road at a cost of $35,925.00

NOTE: The Hein Barn at 303 Meadow Road needs extensive renovation work to the roof and siding. The barn also needs extra bracing and reinforcing to the frame. Staff sought contractors to do the renovation work and received one quote from Authentic Post and Beam. This company previously performed repair work to the Tinty Barns which staff feel was well done.

The work to be performed includes:

Removing all layers of roof shingles and replacing them with a 30-year black architectural shingle.

Removing all siding and trim boards and replacing them with 1′ x 8″ premium grade knotty pine board.

Straightening the barn frame and adding extra bracing.

Replacing sill beams as required.

Funds for repairs in the amount of $39,000 are included in the Open Space Rental Fund. Staff will be available at the meeting to answer any questions regarding this request.

MOTION: Agenda Item N-6

To waive the bidding requirements pursuant to Section 55-10 of the Town of Farmington Purchasing Ordinance under Section 55-1 so that the Town Manager's Office may contract with Authentic Post and Beam of Thomaston, CT to repair the Tinty Barns, at a cost of $34,225.00.

NOTE: The Tinty Barns need extensive renovation work to the roof and frames. The Gable Barn requires replacement of damaged sills and additional framing to stiffen the structure. The Dutch Barn needs to have the old roof system removed and new roofing materials applied. The cost for this work is $9,625.00 and $24,600.00, respectively. Authentic Post and Beam of Thomaston, CT has performed work on the Tinty Barns and is familiar with their construction. Staff feel the previous work was well done and recommended that Authentic Post and Beam do the additional work that needs to be undertaken to preserve these barns.

Funds for repairs in the amount of $36,000 are included in the Open Space Rental Fund. Staff will be available at the meeting to answer any questions regarding this request.

MOTION: Agenda Item N-7

To approve a three-year Contract from July 1, 2021 to June 30, 2024 between the Town of Farmington and the East Farmington Volunteer Fire Department Inc., Farmington Volunteer Fire Department LLC, and Tunxis Hose Co. No. 1 Inc.

NOTE: The three Volunteer Chief's have agreed to the changes in the contract and I am recommending that the Town Council approve the above changes to the Volunteer Contract.

/Attachment

July 1, 2021 to June 30, 2024 Contract

Town of Farmington and the East Farmington Volunteer Fire Department Inc., Farmington Volunteer Fire Department LLC, and Tunxis Hose Co. No. 1 Inc.

The proposed Volunteer Firefighter Contract is for a three-year term and encompasses reimbursement to volunteer firefighters for recruitment and retention of membership within our predominately volunteer fire department. The contract encompasses items such as paid per call/drill, annual donation, and fuel allotment for each of the volunteer fire companies. The changes to this contract include an increase of .25 for each year for each certification level and $250 per year for the annual donation to each volunteer fire company.

The three Volunteer Chief's have agreed to these changes. I am recommending that the Town Council approve the above changes to the Volunteer Contract.

MOTION: Agenda Item N-8

That the following unobligated CIP balances be transferred to the account listed below for the purpose of reappropriating surplus funds from closed projects in order to purchase a maintenance truck for the Public Works Department's Highway Division.

FROM:

ACCOUNT #	DEPARTMENT	AMOUNT
	Backhoe	$ 18,705
	Roadside Mower	$ 3,439
	Rotary Mower	$ 5,568
	Golf Course Sprayer	$ 2,519
	Rolling Stock	$ 25,000
	TOTAL	$ 55,231

TO:

ACCOUNT #	DEPARTMENT	AMOUNT
	Highway Maintenance Truck	$ 55,231
	TOTAL	$ 55,231

NOTE: In the FY2021/2022 CIP budget there is a reappropriation of surplus funds proposed for the purchase of a small maintenance truck for the Public Works Highway Division. The money for the purchase is proposed to come from surplus funds in several closed capital project accounts, that funded other equipment acquired by the Highway and Grounds unit in prior years. This transfer will reappropriate the funds as proposed in the FY 2021/2022 CIP Budget.

Staff will be available at the Council meeting to answer questions regarding this motion.

MOTION: Agenda Item N-9

That the following unobligated CIP balances be transferred to the accounts listed below for the purpose of closing out various inactive CIP accounts and covering shortfalls in other CIP Accounts.

FROM:

ACCOUNT #	DEPARTMENT	AMOUNT
	Mechanical Control Upgrades	$ 28,016
	IAR Roof Replacement	$ 99,818
	TOTAL	$ 127,834

TO:

ACCOUNT #	DEPARTMENT	AMOUNT
	Noah Wallace Office Relocation	$ 15,443
	West District Office Relocation	$ 2,621
	Security Vestibules	$ 9,200
	Union School Façade	$ 99,818
	Union School Wiring	$ 752
	TOTAL	$ 127,834

NOTE: Periodically staff reviews the various Capital Improvement Project accounts to determine which projects are complete but still have money available and which projects, either completed or not have shortfalls.

Once this determination is made, staff then requests that the Town Council approve the movement of unexpended balances from closed accounts to any accounts which need additional funding in order to cover the shortfalls.

Staff has gone through the list of capital projects and has determined that the projects in the "FROM" accounts listed above have been completed and that the unexpended balances are no longer needed. The projects in the "To" section have shortfalls at the current time or need additional funds in order to complete the project.

Staff will be available at the Council meeting to answer questions regarding this motion.

MOTION: Agenda Item N-10

To approve the transfer of uncollectible property taxes to the Suspense Tax Book.

NOTE: In accordance with Section 12-165 of the Connecticut State Statutes, the Tax Collector has recommended the 2020 Suspense Tax Book. This book has been compiled for the purposes of identifying sums that may be uncollectible, and no way does it represent a cancellation of the tax. The Tax Office will continue to exercise every possible avenue to collect the unpaid tax. Those who own motor vehicles cannot register a vehicle in the State of Connecticut until the tax is paid.

The total sum involved is $18,980.37.

If any Town Council member would like the actual Suspense Tax Book, please let me know and I will have a copy provided to you.

MOTION: Agenda Item N-11

To cancel the May 25, 2021 Town Council Meeting.

MOTION: Agenda Item N-12

To approve the following property tax refunds.

NAME	REASON	AMOUNT
Caruso Bruno	Assessor adjustment	$1,419.72
Corelogic	Overpayment	$2,284.17
Dejulius Adam J	Assessor adjustment	$51.66
Keoveunexay Amphaphone A	Assessor adjustment	$216.02
Massey Dawn	Overpayment	$235.00
Meyers Benjamin & Janelle	Over Payment	$39.16
Nissan Infiniti	Assessor adjustment	$74.65
Procaccini Matthew	Assessor adjustment	$226.44
Rodriguez Zachary	Overpayment	$1,855.25
Toyota Lease	Assessor adjustment	$58.01
VCFS Auto Leasing	Over Payment	$1,470.91
Total		$7,930.99

MOTION: Agenda Item O-1

Executive Session—To discuss matters concerning the sale or acquisition of real property.

To adjourn the meeting to executive session as permitted by Connecticut General Statutes Section 1-225 (a) for the following purposes as allowed by Section 1-200(6), that is

> Discussion of the selection of a site or the lease, sale or purchase of real estate by a political subdivision of the state when publicity regarding such site, lease, sale, purchase or construction would cause a likelihood of increased price until such time as all of the property has been acquired or all proceedings or transactions concerning same have been terminated or abandoned;
>
> That attendance in the Executive Session shall be limited to:
>
> > Members of the Town Council
> > Town Manager

NOTE: Approval of this motion shall be by 2/3 vote.