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EXISTING CONDITIONS ASSESSMENT

Durham Old Town Hall
Durham, NH

Prepared for:
Town of Durham, NH
8 Newmarket Road
Durham, NH 03824

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ARCHITECTURAL DESCRIPTION

Durham Old Town Hall was built in 1825 by Joseph Coe, a local merchant and shipbuilder. It is a fine example of a Federal-era commercial block, and remains an impressive architectural gem, even in this age of star-chitecture. It is a two-story brick building with a cornice height of three stories. The west corner is rounded, incorporating a curved door, transom and threshold at this main entrance. Two of the other corners, the north and the south, are at right angles, but none of the walls are parallel. This makes the old town hall extremely rare and valuable. It is a rich anomaly. The floor systems and roof systems are timber framed, but they follow a completely unique layout that has almost no perpendicular intersections, even where right angles might have simplified matters. The joiner was highly skilled, an artist. He was commissioned to create a one of a kind structure for a very specific purpose.

Times have changed and Joseph Coe's vision for Durham has been muted by progress and development. What was once a truly defining town landmark has now at best become underutilized, at worst ignored. Encroachment is obvious. At the intersection of Main and 108, it is squeezed by one of the busiest intersections in Durham. It is tightly abutted on the other two sides by a parking lot. (Photos 1-7) Despite its mediocre neighbors, the Durham Old Town Hall still retains its prominence in town. If not recognized by locals and students it nevertheless is one of the most important buildings in New Hampshire

In 1999, State Architectural Historian James Garvin recognized its importance and outlined the historical significance of the building in a letter to the Durham Historical Association (available digitally on the town website):

"The old Durham Town Hall is significant in three major areas. Architecturally, the structure is an impressive example of local masonry construction. The design of the structure is dramatic, commanding vistas along both Main Street and Newmarket Road. The structure is built of locally-made bricks and hammered granite, recalling the fact that Durham was one of the major brick manufacturing towns of New Hampshire in the early nineteenth century and that its granite was the first in the region to be cut and shaped into architectural elements. The masonry of the structure is exceptionally fine, displaying unusual skill in the laying of the bricks in two separate bonds to conform to the geometry of the structure".

This building embodies the essence of Durham, New Hampshire. It physically documents Durham history, industry and innovation. It must be repaired and better used by Durham residents.

"Second, the building is a rare survivor of an early-nineteenth-century commercial block. Whereas other stores that once stood near Durham Landing were wooden, Joseph Coe's massive and urbane structure proclaimed the commercial importance of Durham as a trading center and the connecting link between waterborne traffic and overland traffic on the New Hampshire Turnpike. The significance of the structure as the functional heart of old Durham is strengthened by the fact that the town's post office was located in the building for many years".

Joseph Coe understood how important Durham was to the growth of New Hampshire and he built a building honoring this legacy. The current town government and its citizens must embrace this legacy.

"Third, the building is significant as the seat of Durham's government from 1840 until recent times. The building's long civic history is symbolized by the enlarged windows that express the presence of the old town hall, created in 1852 by removal of the original third floor of the building."

Your new town hall usurps the civic function of the old town hall but it does not diminish its grandeur or its significance to Durham's identity.

There is extensive existing documentation of the building in the 1936 HABS drawings and photos, and the 1995 assessment by Allen Charles Hill. Significant improvements were made following the 1995 recommendations. The ivy was removed, and it appears that a number of granite lintels were replaced with an epoxy product that provides a very close substitute. Fortunately, the timber frame layout was closely documented in 1936, along with many joinery and finish profile details. The HABS drawings remain the best documentation of this building. They are not only beautiful, they are accurate and very skillfully done. All of this documentation is available digitally. The HABS drawings and photos can be downloaded from the website of the Library of Congress.

In the first half of the 19th century, most timber frames were laid out by scribe rule, which means that the timbers were laid out flat on the ground, and each individual joint was made by tracing one timber onto the end of the other. A mortise, or square hole, was cut into the major timber, and the end of the intersecting timber was shaped into a tenon. The shoulders of the tenoned member were carved to fit the face of the major timber, so that a well-cut joint shows no gaps even though the intersecting faces are irregular. This frame is distinctively and definitively scribe-ruled. The great majority of interior joints are out of square. Major interior girts, the large horizontal timbers, are almost never square or parallel with any exterior walls. Instead, the joiners tended to bisect the angles created by the exterior walls, so the girts are fanned over the building footprint. This practice continues in the floor joists, so that a few floor joists within each bay might be parallel, but certainly not all of them, which is very rare. From the exterior, the building conveys the solemnity of the town's commercial and civic seat, but the timber framing inside reflects the creative abundance of an artist following his heart. It would be extremely challenging to accurately recreate this building; it is truly one-of-a-kind.

Currently, the frame faces three major challenges. First, the basement is wet. This is largely due to the encroachment of the road bed and adjacent parking lot. High ledge interrupts the east corner, and drainage is poor. The ambient moisture has resulted in the deterioration of a number of first floor girts and some joists. Well designed and comprehensive drainage will need to be installed and maintained and floor framing will need to be systematically repaired. It would be very difficult to perform a full replacement of any of the major timbers, making their careful repair and preservation a high priority. The historic form and fabric that makes up the basement and first floor framing is exquisite. It contains some of the largest timbers I have ever seen used for a first floor frame and by far the most creative and beautiful.

Secondly, the cornice was removed and replaced following the 1995 assessment. Thus beginning the efforts to make this building invisible through neglect. This unfortunate renovation not only removed historical material and a distinctive architectural element; it reduced the cornice overhang and eliminated half of the gutter system, exacerbating moisture problems in the basement. A good overhang and well-maintained gutter must be recreated. It will become again a very effective defense

against moisture, especially in conjunction with good exterior drainage. It will reinvigorate the building and regain its architectural beauty and re-introduce pride for town residents for their town.

Third, there are two heavy, inefficient and unnecessary heating systems hanging from the ceiling over the Durham Historic Association. The systems are not only loud, inefficient space hogs, they overload the tie beams above. They are ugly. They diminish the beauty of the great room/museum space and they reflect a lack of appreciation of the importance of this structure.

This dinosaur infrastructure continues to cause joinery failure between the king posts and ceiling girts. The town might consider a mini-split heat pump, if it can be designed to effectively heat the large, open space. There are already a few punctures through the brick work of the northeast wall where a heat pump might be unobtrusively installed. Lightweight efficient and inexpensive alternatives abound.

The Durham Old Town Hall is a significant artifact of history. It is the Seacoast's finest architecture. Like The Wagon Hill House, this building has also been studied ad nauseam. We are humbled and honored by the detailed documentation available and the extensive planning for its preservation. We are disturbed by its neglect.

The building is in good condition, but it is the kind of building that will silently deteriorate for decades before someone realizes that the time for repair has passed. There are some major repairs in the undercarriage and attic. The exterior must be restored and maintained. Increase its visibility and its use will increase. The investment in preservation here extends far beyond simple monetary obligations. Its preservation reflects town pride, town legacy, and determines a bright future for the livability of Durham, New Hampshire.

End of Section

EXISTING CONDITIONS

Undercarriage

The undercarriage, or first floor framing, consists of five major floor girts, connected by smaller, intermediate floor joists. The ends of the girts were built directly into the brick wall, a few feet above the mortared rubble stone foundation. These girts, or carrying timbers, were cut from enormous logs. Directly over their piers, the timbers are deeper, 14" x 17" in cross section. In comparison a typical beam might be 8" by 8" in dimension.

The timbers are relieved on either side of the pier, so that across the open span, the height of the timber was reduced to 12". Relieving these timbers along most of their length is a lot of work, even when working with power tools. Perhaps the builder was trying to eke out as much headroom in the basement as possible. Whatever the reason, it is further evidence of the high level of craft and effort invested into each and every joint. (Photos 8-10)

The joists are primarily half-round logs, with most of their bark removed. Their diameter varies from 7" to more than 12" and spacing varies from 26" – 32". Wide spacing like this may not meet contemporary codes, but is common for this vintage. The floor system contains some squared joists, which were hewn by hand. The joists below the west quadrant of the floor, inside the curved corner, show extensive rot and have been stabilized with conventional sisters. The ends of these sisters should be hung on custom hangers. Given the recreational use of the community room, conventional joist infill may be warranted there as well. It is important to hang conventional joists on structural hangers; toe nails or screws do not provide the same level of structural stability. (Photos 11-15)

Ambient moisture rising from the floor is causing extensive surface rot in the undercarriage framing. The floor is covered in crushed stone, but ledge is close to the surface as evidenced by the exposed ledge in the east corner. The Hill assessment from 1995 recommends a vapor barrier, but this can result in moisture being telegraphed to the exterior walls and rising up through capillary action to cause troubles there. There must be some investment in improving drainage. Restoring the overhang and integrated gutter will divert rainwater that lands on the roof. It may be possible to install perimeter drainage along the northeast and southeast walls, adjacent to the parking lots. Interior drainage including a sump pump, will be necessary. Dehumidifiers use a prohibitive amount of energy, but may be worth the investment if limited to the summer months. Removing bulk moisture from the basement is the first priority for maintaining this building. (Photos 16, 17)

For the most part, framing is large enough that dry rot can be excavated and consolidated without jeopardizing the timber's carrying capacity. In the west quadrant, as explained above, existing sisters will need to be hung on hangers. In the neighboring bay to the north, the four joists above the vault are deteriorating due to their close proximity with vault masonry. Given the extreme difficulty of replacement, the rot in these joists should be removed, the remaining material consolidated with epoxy, and sisters installed with hangers. Bora-care, a preventative fungicide, should be applied to all undercarriage framing, and reapplied bi-annually. The shorter floor girt that borders this quadrant is showing surface rot. The timber is large enough that we hope to be able to remove the rot, apply Bora-care, and install a lally column at its mid-span. (Photos 14, 18-21)

The joists in the northeast bay are also rotting. For the most part, excavation and consolidation will suffice, including at the end of the larger girt that runs behind the stairs. There are two joists, however, that will need to be severed, their rotten ends removed, and replaced with a traditional timber scarf joint. These two scarf repairs will then be supported by additional piers, that land on footers anchored to the ledge. (Photos 23, 24) It is extremely important to retain as much of the original historic fabric in the undercarriage as possible. Care must be taken to splice beams using local timber with joinery that emulates the original builder's skillset.

There are rim joists installed along the length of the southeast wall. These are joists that are installed tight to the brick wall, to support the floor framing, and are susceptible to rot because the wood is installed tight to the masonry. Ambient moisture condenses against the cool masonry, and cannot dry out due to the lack of airflow. Two of these rim joists are completely rotted, and supported on a series of jury-rigged piers. They will need to be totally replaced, and should be installed with spacers between joist and brick to allow for better airflow. (Photo 25) In kind replacement has become necessary here because the building has not been maintained. This work is necessary. Time is of the essence to prohibit continued decay.

The center carrying timber, running from southeast to northwest at the near center of the building, is showing the most serious deterioration. The northwest end is so rotted that it has dropped out of the brick pocket in the wall and temporary framing has been installed to shore it up. This end will need to be replaced back to the first pier. The new end should be scarfed to the old using a traditional timber fix and heavily Bora-cared. A timber fix is not only ideal because it meets the National Park standards for buildings on the National Register, it is better suited to an environment with high ambient moisture. Large metal brackets trap moisture against the timber, exacerbating rot conditions. In our experience, timber fixes last longer. (Photos 10, 26-28)

First Floor Interior

The first floor of the building has a long history of use central to the civic and community life of Durham. From its inception it has housed the wares and ambition of Joseph Coe. It has provided a seat of justice as the county courthouse. It has hosted the Selectman's office. Currently the first floor houses the offices of the Recreation Department. It is used daily by town residents.

The second-floor framing is exposed in the large fitness room and the interior corridor. The joiners smoothed the faces of the timbers and molded the exposed corners, indicating that these timbers were always intended to be seen. Apparently, the interior posts have moved back and forth as use has changed, and their shadows lines illustrate the story. (Photos 29-32)

Like the framing below, the partitions are not generally parallel or square to the exterior walls. This is both unusual and beautiful. According to the HABS drawings, the interior partition that defines the northwest offices is partially original. The rest of the partitions have been installed and evolved over time. There is clear evidence that the building has been well-loved and well-used and then less loved. There is very beautiful trim that emulates the original casings. Other trim added much later stands out as a poor replacement. Regardless of changes the interior appears to be functioning well and is an efficient use of space. (Photos 33-36)

Second Floor Interior

The second floor houses the collection of the Durham Historic Association. The partitions are the same as those drawn in 1936; the bathroom wall, for instance, is the thickness of a single board. The stairs to the hall are wide, and presumably were added along with the single-story addition in 1852. The high, 17' ceiling is coved, which was also a later addition. The original ceiling height can be seen in painted shadow lines in the attic framing. The upper windows above the balcony may be the original third story windows. These are trimmed with the angled casing found throughout the building, along with 'extension jambs' that match the curve of the cove ceiling. The angled casing and the jambs show the marks of a hand plane in strafing light. (Photos 37-42)

It is a beautiful space for a collection of historic artifacts, and the exhibit must be complimented; it draws in visitors who would do better to focus on their notebooks and tape measures. The indigenous exhibit is particularly interesting although the written interpretation might include more of the indigenous perspective. The space is light-filled and visitors are apt to linger, although it is hard to hear over the din of the dual heating systems.

There are two independent heating systems hanging from the ceiling; it was hard to tell whether they worked separately or in tandem. In any case, they are overloading the framing at the center of its span. The "king posts" are separated from their ceiling girts, and the pins have broken. The heating system may not be the root cause of the separation in the joinery, but it certainly isn't helping matters. One of the tie beams spans more than 40', which is significant, and nearly unimaginable without a functioning truss. In order to preserve the ceiling, the current heating system and ductwork must be removed. It may be possible to install a heat pump with minimal alteration to the building's exterior. (Photos 43-45)

The ceiling adjacent to the chimneys show signs of poor flashing or leakage. Although this problem has been addressed recently, it does not appear to have been solved. Unfortunately, it is easy to get flashing wrong, and it happens frequently. The problem is more severe in this building because the chimneys are at the bottom of the roof pitch, and so all of the water that lands on the roof above this chimney runs down to this flashing joint. Usually, a cricket is used behind the chimney to divert water away from the joint. We were not able to assess whether crickets were adequate and present on this roof. Regardless, leaks are active, and the culprit does appear to be chimney flashing. (Photo 46)

Attic

The attic framing is a lot like the first-floor framing. It is constructed from three large tie beams connected by a series of ceiling joists, none of which are parallel to the walls or perpendicular to the tie beams. Here too, the joinery was scribed, and appears to be improvised by a skilled joiner. The hip roof is framed with three pairs of principal rafters connected by a longitudinal ridge purlin, four hip rafters, two gable end rafters and the radial rafters needed to create the curved west corner. The rafters are connected to one another by horizontal purlins. It is an incredibly complicated roof system that is made more complicated by the builder's reluctance to use right angles. (Photos 47, 48)

Large tie beams connect the northwest and southeast walls across the vast open span of the second-floor hall. The timbers hover around 11" x 11" in dimension and span from 33' to just over 40'. The

ends of the tie beams pass over the exterior walls and bear upon a wide, shallow plate. These ends once supported the impressive original cornice and integrated gutter.

The rafters land on the ends of the tie beam in a lovely birds-mouth detail, which effectively prevents the rafter from slipping under the outward thrust of the roof load. In general, the joinery was so tight you couldn't fit a thought through. The joint is typical for the period, but it is only effective if it is cut well. On a complex roof like this one, a tight birds-mouth is nothing to sniff at. (Photos 49-51)

The ends of the rafters and tie beams are in varied condition. The original cornice was clearly deteriorating for a while before it was finally removed, and some of the framing was affected. From the attic, we were able to see daylight through the cornice in a number of places, especially along the curved wall. We did not observe any catastrophic failure in the rafter heels or tie beam ends. There are a number of ends that will require consolidation with epoxy and "Dutch-man" face repairs. Framing repairs should be addressed following cornice removal. (Photo 52)

Typically, the ceiling of an open meetinghouse would be supported by a king post truss system, with a series of timber triangles composed of two rafters, a tie beam or "bottom chord" along the bottom, and a king post bisecting the triangle. The king post joins to the tie beam, or bottom chord, with a wedged half dovetail secured sometimes by a wrought iron stirrup. In this building, however, the tie beams are not aligned with the king posts which is curious.

Instead, heavy timber girts connect the tie beams down the center of the building from southwest to northeast. These support a "king post", approximately 12" x 12", that flares at the top into a diamond-shaped head 15" across at its widest. The angled shoulders of the post accept the principal rafters as in a king post truss. The hip rafters land on shoulders cut into the outside half of the post. The king post accepts five separate rafters at its head: two principals, two hips, and an additional rafter off the center of the "gable" end. The joinery is incredibly complicated, but the "king post" and rafters are not part of a truss system because the king post lands on a longitudinal ceiling girt, rather than a tie beam. The girts join to the tie beams with a 2 ½"-thick tenon, which is an inadequate joint on which to rest the roof weight of the building. It is a mystery why the builder would not choose to align the tie beams in this way. Perhaps he thought that the ceiling girts would hang from the king post, and the tie beams would derive some support from the girts. In any case, the joints at the ceiling level are failing. (Photos 53-56)

The central ceiling girts have dropped more than 2" away from the shoulder of the king post; the pins that once secured the joint are broken. Additionally, the mortise and tenon joint connecting the girts to the tie beams are open because as the center of the ceiling drops, the joinery must separate. An open span of 40' is ambitious, even with a functional king post truss. Frankly, we are surprised that the ceiling system has lasted this long, and it appears that the separation occurred early on. There are wide-plank bolsters connecting the king post and girts and nailed with wrought nails. These bolsters approximate the function of a stirrup. Additionally, the curved pattern pieces that create the cove ceiling may be helping to brace the horizontal ceiling framing, and transfer some of the weight to the outside walls. (Photos 57-59)

Elsewhere, a canted strut is positioned to support each hip rafter at its mid-span. The tie beams upon which they sit have sagged significantly, and the tenons have dropped from their mortises in

the underside of the rafter. Fortunately, the hip rafters have not followed the sag. (Photo 60) A hip roof is especially capable of distributing loads evenly across its span. This is why the ceiling framing and the roof framing continue to perform well despite joinery failure, rot and the extra weight inappropriately hanging the heating systems from the historic frame.

At this point, the heating system is overloading the capacity of the framing and must be removed. Every time it cycles on and off, the ceiling shakes. A heat pump, directly vented to the outside, may be the lowest impact replacement option. Additionally, the king post joinery should be secured with custom metal stirrups to stabilize that joinery.

Although the attempt to modify the king post truss was by today's standards unsuccessful, there are a number of attic details that indicate the joiner's high level of skill. There are three rafters supporting the roof above the curved west corner. This section of the roof is curved all the way to the ridge, where the rafters join the king post. A series of seven horizontal purlins create the tapering curve. They were scored with a series of saw kerfs across the grain in order to allow the 2" x 5" thick purlin to shape the curve of the roof. As carpenters and timber framers, we were very impressed. (Photo 61) The deficiencies in the roof frame design can be mitigated with some carefully placed tension connections and timber repair. Realignment of the framing elements followed by sound repair work will be necessary to ensure longevity.

At the chimneys, the header used to box in the masonry is connected to the adjacent joists with a double through tenon, rather than a drop-in cog. This is a feature more commonly found in furniture construction. (Photo 62) Everywhere we see a level of timber craft and joinery far exceeding many frames contemporary with the town hall. This is a special building and its survival is a direct result of master craftsmanship. Its future depends upon emulation of that craft.

Lastly, access to the attic is impeded by its location just beyond the balcony and DHA exhibit pieces. The access must be improved in order to perform repairs. The exhibits are resting on shockingly shaky shelving. The attic is strewn with both artifacts and trash, including broken glass. It needs to be cleaned, and the valuable items removed to proper storage.

Exterior

Allen Charles Hill's 1995 assessment made recommendations for the excessive creeper vine growth and broken lintels. Both items have since been addressed. We saw no resurgence of the creeper vine and a number of the granite lintels were replaced with reproduction epoxy concrete product. Hill's recommendations regarding historically accurate mortars are important and accurate: contemporary mortars are too hard for historic brick and can damage them. Where repointing is required, multiple mortar samples must be analyzed and accurately reproduced.

He also makes note of the narrow joints and makes the recommendation that careful attention be paid to the raking method so that the joints are not made wider. Although there were some joints here and there that would benefit from re-pointing, we did not observe any major areas in need of repair. Instead, the areas most in need of re-pointing were sections of the wall that had been repaired, and evidently not followed Hill's specifications. (Photos 63-71) An allowance is provided in the estimated costs for improving mortar selection and repointing the walls as needed.

The entrances are accessed by granite steps. In each case, the steps should be reset to ensure that they pitch water away from the building. Stone steps are lovely and long-lasting, but can pitch rainwater against the foundation and trap it once it is there. (Photo 72) The cause of uneven settlement in the stones is largely the result of encroaching asphalt and the resulting disrupted drainage. A drainage improvement is essential for the steps and the building as a whole.

The curved front door appears to be the one detailed in the HABS drawings. Unfortunately, the transom sash is clearly in need of repair, or at least weatherization. A custom interior storm window would be a good solution here, instead of a screen of Priority Mail boxes. Neither of the "store" doors, on either the northeast or the southwest elevation were present at the time the HABS drawings were made. And, while I would not advocate for the aggressive restoration envisioned by those architects, I do think the rot in the bottom portion of the rear door provides an opportunity to reproduce the one that was so meticulously documented there. (Photos 3, 4, 73)

The windows and storm windows are in need of scraping, painting, and reglazing. Storm windows that are no longer functioning should be replaced with low-profile models. The HABS sheets provide excellent detailing and should be used when elements must be replaced. A window expert may be acquired to determine costs for the preservation of the windows. This work is a lower priority than those outlined in this assessment. Exact costs should be determined by qualified contractors when the work is determined to be done. Window and door preservation is always part of a long term maintenance plan for the town hall.

The HABS drawings (Historic American Building Survey) are an incredible and essential part of this building's history. The level of detail indicates months of observation and drawing. In the 1930's architects working for this survey understood the incredible importance of the town hall. Not all HABS drawings are created equal, some were just photos, or elevations, and typically contain no information about the timber frame. These contain pages of exterior trim detailing, with dimensioned drawings of the windows and doors. At the time of the HABS drawings, the building sported an impressive cornice, the profile of which was also documented in detail. The combination of brick corbelling and molded wooden gutter created an overhang of about a foot, which would have protected the walls and directed water away from the basement. The cornice should be reproduced and restored, less for aesthetic or historical reasons than for the urgent need for rainwater diversion; currently only the road-side walls have gutters. A functional and well maintained gutter is an essential element of this building's drainage system.

CONCLUSION

The Durham Old Town Hall is a central architectural asset for the Seacoast region. The building is well-loved and well-used. Its continuous use is the reason that it has been maintained as well as it has, and we were pleased to see that it continues to provide a variety of functions for the entire community. There are a number of significant areas of repair, but nothing was catastrophic, nor will the repairs interrupt occupancy. Drainage must be installed, and the basement must be dried out. There are a number of acute areas of repair in undercarriage framing. The heating system is overloading the second-floor ceiling and must be replaced with a wall hung or floor unit. Attic framing should be stabilized with custom tension connections. Historic cornice profile should be re-installed to aid in basement drying. Chimneys need crickets, or cricket and flashing repair. This is an

incredible building, truly one-of-its-kind. We are honored to be part of a long history of those who have documented it.

End of Section

REPAIR RECOMMENDATIONS:
The following prices are based on projects of similar size and scope. Actual numbers will vary with your choice of timing and contractors.

Basement Drainage and Undercarriage Repair: $59,720.00

The basement is wet and must be dried out using drainage and mechanical dehumidification. Undercarriage rot, where it exists, should be removed. The remaining framing should then be consolidated with epoxy, or replaced with in-kind timber.

- Excavate interior organic matter by a few inches. Install interior perimeter drainage, where ledge is not obstructing.
- Cover interior with vapor barrier, but not past perimeter drainage. Spread with 3 inches of gravel
- Scarf repair NW end of center floor girt
- Face repair to SE end of center floor girt
- Repair west floor girt
- Excavate rot from vault floor joists.
- Consolidate remaining material with epoxy.
- Repair large voids in vault floor joists with "dutch-man" face fix
- Install joist hangers under sisters in west bay.
- Remove and replace joists that have rotted
- Excavate rot from joists in NE bay, consolidate remaining material with epoxy.
- Repair two badly rotted joists in NE bay
- Replace two rim joists; install new joists with some air flow between the joist and brick
- Install dehumidifier for use in humid summer months.

Attic Framing Repairs: $67,550.00*

Replace heating and air conditioning units and ductwork with wall-mounted systems. Stabilize king post and ceiling girt joinery with custom tension connectors. Given the difficulties of the site, this building requires a functional gutter and significant overhang in order to manage water infiltration. Ideally, a reproduction cornice would be installed; it may be more economical to integrate with the gutter that is installed on the SW and NW faces of the building.

- Replace heating and cooling systems with wall-mounted or floor-mounted units*
- Lift and realign roof framing as much as possible to facilitate the repair process
- Improve attic access with custom ladder to balcony
- clean out attic
- Install stirrup around king post and ceiling girt joint
- Install 8 custom tension connectors between tie beams and ceiling girts
- Remove flat fascia from SW and NW cornice
- inspect tie beam ends
- Remove gutter from curved cornice.
- Surgically remove curved fascia, it is skillfully crafted and has high historical value. Inspect and repair remaining plate

- Repair ends of four tie beams/large ceiling joists with either Dutchman repairs or structural scarf joint
- Repair three rafter heels with in kind repair joinery
- Reinstall fascia, reusing original if possible. Ensure cornice is weather tight

*heating unit prices to be determined for efficiency and ease of installation

Crickets and Flashing: $11,800.00

Despite multiple repair attempts; it is reported that the chimneys are still actively leaking. We were not able to confirm whether crickets have been installed behind the chimneys, but they ought to be. At that time, flashing should be replaced. This work to be done when staging is in place (see below).

- Install or replace crickets behind two chimneys.
- Inspect and repair or replace flashing on two chimneys.

New Roof and Gutters: $126,800.00

Access to the walls and roof of the Durham Old Town Hall is problematic with its close proximity to the street. Staging will be set to allow full access into the building and provide safe passage under the work space along the sidewalk. Staging is to be used for all phases of the preservation effort. Full debris netting will protect pedestrians and patrons.

A new roof covering will be necessary in the near future for the Durham Old Town Hall. Cornice trim on the building has long been removed and gutters removed as well. With the new roof, the cornice trim and gutters should be reinstalled. The cornice trim can and should be an integral copper gutter detail. In this way, the gutter becomes the trim detail shown in the HABS drawings. An integrated gutter/cornice is long lasting and emulates the original form of the roof.

- Staging to access roof, cornice, gutters and brick walls: $48,800.00 (4 months)
- Integrated gutter/cornice trim: $53,000.00
- New Roof Covering and Chimney flashing (Asphalt shingles): $25,000.00

Brick Repair and Repointing: (Allowance): $32,900.00

This estimate is an allowance based on a reasonable time frame for brick repointing. Brick repair and repointing includes the specific formula for the original lime based mortar on this building. Areas in need of repointing will be determined and new mortar will match both color and chemistry to ensure longevity of the original brick. A full inspection of the walls can be made when the staging is erected. Exact numbers for this work can and will be defined.

- Determine the original mortar formula through scientific research
- Determine the optimal way to remove inappropriate or decayed mortar to ensure the spaces between the bricks is retained throughout the repair process
- A qualified mason with historic preservation experience will determine exact scope of the masonry repairs from the project staging

Window Repair, Glazing, Painting and Storm Windows: (Allowance): $67,500.00

The windows on the old town hall are in need of minor repairs and general maintenance, including glazing and painting. The building has functioning storm windows but they are applied to the outside of the window casings and hide some of the architectural features that enhance the building facade.

New more efficient storm windows from J&R Aluminum Products in Dundee, Ohio have designed and built highly efficient storm windows that set into the casings and this would be a good way to finish the building exterior once all of the general maintenance items were completed.

A competent window restorer should be hired to finalize pricing and scope of work. It is most efficient to do this work while the staging is in place, but it can be done at a later phase of work if necessary to stay within budget restraints.

- Scrape all window sash and trim
- Reglaze all exterior sash as needed
- Prime and paint exterior sash and woodwork
- Set new J&R storm windows

A Bright Future for the Durham Old Town Hall:

The Durham Old Town Hall serves the entire community past and present. It illustrates the legacy of the town. It contains irreplaceable historic artifacts but none as important as the building itself. As you consider funding for the continued preservation of the hall, it is important to keep in mind just how important this building is to how the town was developed, how it operates now, and what will be in store for the future. The investment is significant and worthwhile. It is necessary and innovative. It is time to honor the vision Joseph Coe believed in and executed for the town of Durham. It is time to honor your vision for the town as you steward its most valuable resources.

Preservation Timber Framing, Inc welcomes a continued collaboration for this building. We are happy to meet with staff and Selectboard to answer any questions you may have about this report. We are happy to engage with you to determine the best path forward as you preserve and improve the character and livability of your town.

Respectfully Submitted,

Arron J. Sturgis, President
Preservation Timber Framing, Inc.
www.preservationtimberframing.com

Accompanying documents:
- Existing Conditions Photographic Report
- Existing Conditions Structural Drawings