Team® ENGINEERING
Building Inspection & Design

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September 7, 2017

SMP Architecture
Attn. Eric Palson
30 South Main Street
Building 2, Suite 401
Concord, NH 03301-4809

Property: Taylor-French House
970 Whittier Highway
Moultonborough, NH 03254

Dear Eric,

At your request, an engineering consultation regarding the above property was performed on August 3, 2017. The primary purpose of the inspection and this report is to assess the general condition of the existing structure of the Taylor-French House.

This inspection was performed and report written by Brian W. Ki, Project Manager/EIT. Further, this report has been reviewed by Daniel D. Martel, P.E.

LIMITATIONS

This report is the complete response to your request for a study or an inspection of this property. If you have any questions about this report or our inspection, please call your engineer for clarification.

As you requested, this evaluation is limited in scope, focusing on the general condition of the existing structural members only.

As Professional Engineers, it is our responsibility to evaluate available evidence relevant to the purpose of this inspection. We are not, however, responsible for conditions that could not be seen or were not within the scope of our service at the time of the inspection.

BACKGROUND

The Taylor-French House (Photo 1) is a historic 19th century building owned by the Town of Moultonborough. As we understand it, the Town is performing a general study of the building to decide its potential future use. Sheerr McCrystal Palson (SMP) Architecture is preparing a "Historic Building Assessment" (draft dated July 18, 2017) that includes discussion of the existing architectural features, building systems, and envelope. We understand that architectural historian, Dr. James Garvin of Concord, NH, has provided a preliminary report of the historical and architectural significance of the property. Team Engineering is responsible for the assessment of the general condition of the existing building structure.

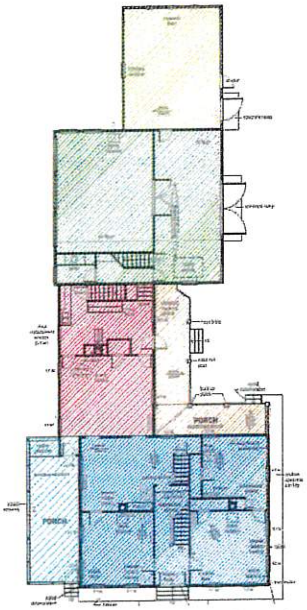
On-site coordination was performed by Norman Larson (Moultonborough Heritage Commission) and ceiling access points were selectively created for our inspection by Mike Kepple, Facilities and Grounds Team Leader, Town of Moultonborough Department of Public Works.

For the purposes of this report the front of the building is assumed to face west. All directions are from the point of view of an observer standing in the front of the building and facing it or the points of the compass.

DESCRIPTION & OBSERVATIONS

The original building is reported to be constructed in c. 1840. Dr. Garvin's report includes a stereograph of the home that was made in the 1870-1880's; showing its appearance at that time. A published photograph provides evidence that the house was altered to its current form by 1907. Most significantly, the main building was once a one-and-a-half story structure. The roof was later lifted to create the two-and-half story building we see today.

For ease of this report, we have separated the building into (6) distinct sections. The following figure represents the delineation for each section:



YELLOW: Barn Addition (Photo 2)

GREEN: Barn (Photo 3)

RED: Main House-to-Barn Connector (Photo 4)

ORANGE: Main House-to-Barn Connector Porch (Photo 4)

CYAN: Main House Porch (Photo 5)

BLUE: Main House (Photo 1)

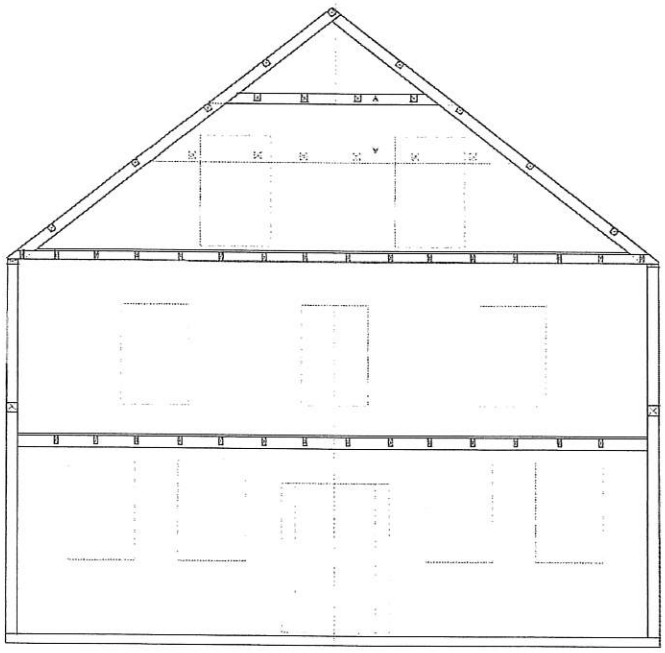
FIGURE 1. GENERAL BUILDING FOOTPRINT

At the start of our investigation, only limited portions of the existing structure were visible, and many areas were inaccessible. This includes the majority of the second floor framing due to floor and ceiling finishes and the first floor framing due to floor finishes and timber planking across the

bottom of the framing. We assume that the framing seen within the access locations is generally repetitive in nature and representative of the condition of the unseen. When the Town chooses to rehabilitate the structure, the condition of all structural members should be verified.

MAIN HOUSE

It appears that the main house was originally constructed using a timber post and beam framing system (Photo 6). This was observed in the roof/attic framing where 6"x8" timber rafters are spaced approximately 8 feet on center. These rafters span approximately 12 feet horizontally in the east-to-west direction and are at an approximate 10V:12H pitch. There are 4"x4" purlins connected into the roof beams spaced approximately 3 feet on center horizontally spanning north-to-south. We observed collar ties (4"x5") at rafter locations just above mid-height of the gable triangle for the attic space.



Above: House Frame as Altered circa 1900

FIGURE 2. EXISTING MAIN HOUSE ROOF FRAMING (by James Garvin)

There is a small section of the roof on the east portion of the main home framed using 2"x7" rafters spaced 24" on-center and spanning in the north-to-south direction (Photo 7).

Two 2"x8" attic floor beams tie directly into the bottom of the roof rafters (Photo 8), which may have been originally intended to resist outward thrust. Additionally, the remaining 2"x8" attic floor joists were installed perpendicular (north-to-south) to these members and spaced 24" on-center as shown in Figure 2 above.

Through first floor ceiling access points, we observed the second-floor framing to be 2"x8" floor joists spaced 24" on-center. These span approximately 12 feet in the east-to-west direction to a center load bearing wall on the first floor.

We viewed the first-floor framing through access points in the timber planking along the basement ceiling. The main load-carrying timber floor beam is 5"x8" through majority of the basement. There was a small room along the southeast corner where the timber beam is 8"x8" (Photo 9).

The majority of first-floor joists (visible from the basement) are (2) 3"x5" timbers spaced 24" on-center, spanning approximately 12 feet (Photo 10). These appear to be newer than the main floor beams and might have been installed to help strengthen the floor by reducing the tributary widths of generously spaced members. In the small room along the southeast corner, the joists are 2"x8" timbers spaced 24" on-center (Photo 9).

There was a section of the floor under the existing entrance that is framed with uneven 6"x6" timbers sistered with a newer 2"x6" timbers. It was not clear why these members differentiate from the typical framing pattern, but based on its location, there may have once been a floor penetration at this area, such as stairs, that was filled.

Some of the wooden members for the first-floor framing of the main home appeared to have experienced insect damage at one point. This should be further investigated and treated if still active.

The exterior foundation for the main home consists of large split granite rocks stacked together. It was reported that the foundation is pointed with lime-sand mortar, with split granite underpinning, backed with bricks on the interior along the top of the wall above grade (Photo 11& 12). The existing basement floor is a thin, unreinforced concrete slab, that is severely deteriorated (Photo 13). Interior foundation posts and piers are a combination of steel tube, heavy timber, and brick masonry (Photo 11 & 12). Footings for the interior posts, if any exist, were buried and not visible at the time of our consultation.

MAIN HOUSE PORCH

The main house porch roof framing (Photo 14) consists of 2"x6" timber rafters spaced 24" on-center and spanning north-to-south approximately 10 feet. These rafters appear to sit on a 4"x6" timber beam covered in white trim.

The floor framing consists of 2"x6" timber joists spanning in the east-to-west direction at 24" on-center (Photo 15). A flush-framed 2"x6" timber beam shortens the span of the porch floor joists, and is supported by a short 5"x5" timber post.

Due to the lack of access and surrounding shrubbery, footings were not measured and depth could not be determined for the porch framing. Based on observation of the unlevel floor and by generally observing the condition of the framing, the footings appear to have heaved or settled.

MAIN HOUSE-TO-BARN CONNECTOR

The roof for this portion of the building appears to be 2"x8" timber rafters spaced 24" on-center (Photo 16). We viewed them through a small ceiling opening above the barn stairs that was not accessible to hand measure. At the roof overlay near the barn, the framing is 2"x4" timber rafters spaced 24" on center.

Using a 4-foot aluminum level, we measured the exterior walls and found them to be out of plumb by approximately 1½" over 4 feet with the tops leaning towards the exterior. This is indicative of movement that indicates inadequate structure to resist the outward thrust of the roof.

Through partially-removed ceiling finishes providing access from the first floor, we observed the second floor framing to be 2"x8" timber floor joists spaced 32" on-center.

In the east kitchen (over the basement), the second-floor joists span like the main home in the east-to-west direction at an approximate 14-foot span (Photo 17). We observed staining and deterioration of the ceiling finishes that appears to be caused by rodent excrement (Photo 18). This was discovered when a ceiling tile was removed to access the framing.

In the adjacent west room (over the crawlspace), the second-floor joists span in the north-to-south direction. The room is 17-feet long in the direction of the joist span, but it is likely that there is an intermediate beam that we could not locate. A 17-foot span is excessive for the joists observed compared to the framing in the rest of the house.

The east kitchen has a basement, while the west room is framed over a crawlspace. Both sections have joists spanning east-to-west. The east kitchen's first floor joists are 2"x8" timber spaced 36" on-center with a7"x7" timber beam at mid-span (Photo 19). The west room has 2"x5" timber joists spaced 24" on-center with a 6"x8" timer beam at mid-span (Photo 20). This intermediate beam is posted near its center with a 4"x6" timber post.

The condition of the east kitchen basement slab is similar to that in the main house basement with severe deterioration observed. There was a significant bulge along the bottom of the brick stem wall in this basement (Photo 21). It appeared that tree roots from the overgrown exterior landscaping adjacent to the building may have caused this bulge (Photo 22), but it could also be the result of excessive and/or sustained lateral earth pressures from the backfill it retains.

The foundation for the west room crawlspace could not be easily observed. From what was observable, large stone and dirt filled the crawlspace and no floor slab is present.

MAIN HOUSE-TO-BARN CONNECTOR PORCH

The main house-to-barn connector porch is split into two distinct sections: the south-facing porch and the east-facing porch.

The south-facing porch is the kitchen entry for the building. The roof is framed with 2"x5" timber purlins spaced 20" on-center with 2"x5" timber beams supported by timber posts (Photo 23). The floor framing for this area is largely inaccessible, but it appears that timber floor joists span east-to-west.

The ceiling of the east-facing porch is the expanded second floor above (Photo 24). That floor is framed with 2"x6" timbers spaced 16" on-center bearing on what appeared to be a 6"x10" timber drop beam (measured around finished trim) supported with multiple timber posts. The porch floor joists in this area were measured are 2"x7" timbers spaced 16" on-center supported by 6"x6" timber beams.

Posts and footings were not accessible due to vertical board siding along the porch edge.

BARN

The barn is a two-story structure framed using a timber post and beam system. Modifications to the framing were made during the building's lifetime as mortise pockets (connections between members) were left empty.

The barn's roof consists of 8"x10" timber rafter beams spaced 8 feet on center with 4"x4" timber purlins spaced 4 feet on-center (Photo 25). There is an 8"x8" timber tie (horizontal) at the bottom of the gable triangle with a center post and a pair of ¾" metal tension rods, carrying the second-floor framing below (Photo 26). The rafters are supported by 8"x12" timber posts.

The second floor of the northern portion of the barn is framed using 2"x8" timber joists spaced 32" on-center and spanning in the east-to-west direction. There is a perpendicular floor beam that is hung off the roof/attic framing using a pair ¾" metal rods and plates (Photo 27).

The second-floor framing of the southern portion could not be definitively determined due to lack of sufficient access. Partially viewing it using the floor hatch and flush ceilings, we assume that the floor joists along this portion are 2"x5" timbers.

The first-floor framing and foundation for the barn was accessed through an opening in the floor. The first-floor framing is in very poor condition due to period construction practices (not unusual for the age of the building) and underperforming structural members.

The northern portion of the barn floor is framed with 6" diameter and 6"x6" timber joists spaced 3 feet on-center (Photo 28). These span almost 10' to 6"x8" timber beams at mid-span. Dry-stacked

stones supporting the beams that act as foundation piers are out-of-plumb, obviously structurally inadequate, and need correction before the barn is re-occupied.

The first-floor framing at the southern portion of the barn consists of two ±8" diameter rough log beams spaced 4 feet on-center (Photo 29). Dry-stacked stones supporting the beams that act as foundation piers are out-of-plumb, obviously structurally inadequate and need correction before the barn is re-occupied.

At both portions of the first-floor framing, we observed significant deficiencies in the beams (cracking, sagging, etc.), and improvements are needed immediately (Photos 30-34). As shown in a sketch by SMP Architecture, the "flooring swelling" in the barn is caused by the first-floor framing significantly underperforming causing a beam to deflect up through the floor (Photo 35).

The foundation for the barn is almost non-existent structurally. A few of the dry-stacked stones along the edges of the barn are in contact to support the barn's superstructure (Photo 36). Replacing the stones with a structurally-adequate foundation is necessary.

BARN ADDITION

The barn addition appears to have newer framing than the house and original barn. The roof of the barn addition is framed with 2"x6" timber rafters spaced 24" on-center (Photo 37). There is a 1"x7" timber collar tie connected around mid-height of the gable triangle.

The second-floor framing consists of 2"x8" timber floor joists spaced 32" on-center and spans north-to-south for the entire 15-foot width of the addition.

The first-floor framing and foundation for the barn addition was inaccessible at the time of our consultation. Further investigation is needed for this portion of the structure to determine its structural condition.

Using a 4-foot aluminum level, we measured the first-floor south exterior wall, and found it to be out-of-plumb approximately 1½" over 4 feet, leaning inward at the top. The north wall is leaning similarly but outward at the top. This is likely due to the lack of adequate support against lateral loads (i.e. wind) reflecting period construction practices (not unusual for its time).

CONCLUSIONS AND RECOMMENDATIONS

The existing structural framing of the Taylor-French House is consistent with similar structures of its vintage, and is experiencing structural deficiencies expected for a building its age. Based on the framing we documented and its current condition, we expect that very little, if any, would meet current loading requirements for new construction. A renovation to change the use of the building could provoke the local authority having jurisdiction (AHJ) to require that all structural elements meet current design loading.

Similar to SMP Architecture, we would like to adopt the approach of looking at the ***structure*** as an ailing relative and take their medical triage tactic. As stated in SMP's draft report:

1. Assessment: Is the condition life-threatening?
2. Laying the groundwork: What are the prerequisites to doing any work at all?
3. Stabilizing the patient: What threatens further damage to the building in the near term?
4. Prioritizing: What are the major deficiencies going forward?
5. Pause to re-assess.

Is the condition life-threatening?
The following should be addressed immediately to stabilize the building in its current, unoccupied state and reduce further deterioration:

1. The Barn is in need of major structural improvements to the foundation and first-floor framing prior to being put into use and/or occupied. This area has already shown significant signs of failure.
2. Due to light framing, the roof structure of the entire building should also be improved as heavy snow loads may cause the roof to fail.
    a. Limiting the amount of snow accumulation above the roof by shoveling is a viable option. Once again, because of the light framing, we do not recommend having workers stand directly on the roof. Instead, shoveling should be performed on a separate platformed structure, i.e. boom lift.

What are the prerequisites to doing any work at all?

The Town should address any hazards identified in the Environmental Site Assessment (Phase I) by others (reported June 2013). After any hazardous conditions have been addressed, a professionally drafted and to-scale set of plans should be developed showing the architectural layout and structural systems to remain. This will give a better understanding of the building for any contractor who may perform the work and the local building inspector to review.

What are the short-term threats?

1. Loading upon the existing floors for the entire building should also be limited as to not overload the current light framing.
2. Some of the older wood beams, seen in various locations throughout the entire building, appeared to have signs of insect damage. The Town should verify that termites, other wood-destroying insects, and/or rodents have been eliminated that may eat away at the existing building and/or compromise any structural improvements to be made.

What are the priorities going forward?

The number of and prioritization of structural improvements will depend on the future use of the building. The applicable building code and design loads vary, for example, if the building is to be used for residential apartments, professional offices, or a community gathering space. Certain elements need attention regardless of the future use:

1. Reconstruct the barn foundation and repair and/or strengthen its first-floor framing. The barn's foundation is comprised of stacked stone rocks minimally contacting the building's structure. This means any weight applied to the building (snow, live, dead, etc.) is applied at random points along the foundation and may cause uneven loading. The stacked rocks could easily collapse and cause further damage to the structure above. Additionally, the first-floor framing of the barn has significant structural deficiencies including cracked, warped, and significantly deflecting members. These need to be addressed to avoid further collapse in the future.
2. Repair bulging foundation wall in east kitchen basement of main home. This wall appears to be bulging in due the overgrown landscaping and sapling trees grown in adjacent to this area and/or excessive lateral earth pressures. Removing the trees, pruning back ornamentals (lilacs) and installing a new foundation wall will address this failing portion.
3. Improve the roof structure of the entire building. In addition to the immediate new roofing recommended by SMP Architecture, the Town should also improve the loading capacity of the roof structure. This may include adding additional posts to the existing post and beam framing, sistering new members, adding in structural ridge members, and more. Unlike the interior floors, snow loading cannot be controlled for how much load may be applied. With one heavy storm, the roof could easily collapse with such light framing. It was reported that this has not occurred since c. 1900 with the renovations resulting in the current roof configuration.
4. Repair chimneys. As in most buildings, it is assumed that the chimney is not relied upon as a part of the main structure. It may be of a large concern if the bricks are to topple and damage the surrounding area. If loose mortar and bricks are identified by a mason's inspection, the Town should have this repaired.
5. Assess property for wood boring insects/rodents. Some of the older beams appeared to have damage due to wood boring insects. The Town should verify that these have not spread into other areas of the house. If this is the case, the property should be treated to prevent further damage to the structure.

We recommend the following, depending on the decided future use of the building.

1. Recommended use. After improving all the high priority items listed above and based on our discussions to date, we recommend limiting access to the second floor and attic spaces above prevent overloading. Improvements to these areas will be most difficult and/or expensive if keeping the current layout and aesthetics of the existing building footprint. Sistering floor framing, adding in beams, posts, etc. may increase the floor depths or affect the overall room layout (need to add posts) of attic, second, and first floors below.

a. In most scenarios, steel will be able to accomplish majority of the framing improvements while keeping the same layout and aesthetics. Steel can be very expensive in material and/or labor especially under existing conditions. Although this may be an option, it may be very costly and not recommended for this timber framed building.

2. Improve the first-floor framing (including porches). Assuming the basement and crawlspaces will remain unfinished spaces and new structural members can be implemented as required, first floor improvements will be easier to implement. Using a combination of sistering joists, installing new lally columns, new footings, and/or new beams could bring the floor up to current loading requirements for most occupancies.

3. Document with scaled existing structural plans for full structural analysis to take place. It is our understanding that additional inspections and designs by others may take place to further understand the building and/or prepare for potential occupancy. A full-scale set of plans should be developed architecturally and structurally to determine where improvements (i.e. new posts, etc.) can be made most efficiently.

4. Continue to monitor all areas of the structure. Due to the age of the building, general light framing, and areas that may be not be as easily improved, you should continue to monitor all areas of the structure and repair as necessary.

If you have any questions concerning this report or the inspection, please contact your engineer or this office.

Thank you for the opportunity to be of assistance to you.

Sincerely,

Brian W. Ki, Project Manager/EIT

STATE OF NEW HAMPSHIRE - DANIEL D. MARTEL No. 14560 LICENSED PROFESSIONAL ENGINEER

Daniel D. Martel, P.E.
Senior Structural Engineer

Enclosures: Photos

Distribution: EPalson@SHEER.com
Cristina.Ashjian@gmail.com

Photo: 1

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Main House
Southwest Elevation;
West being Front

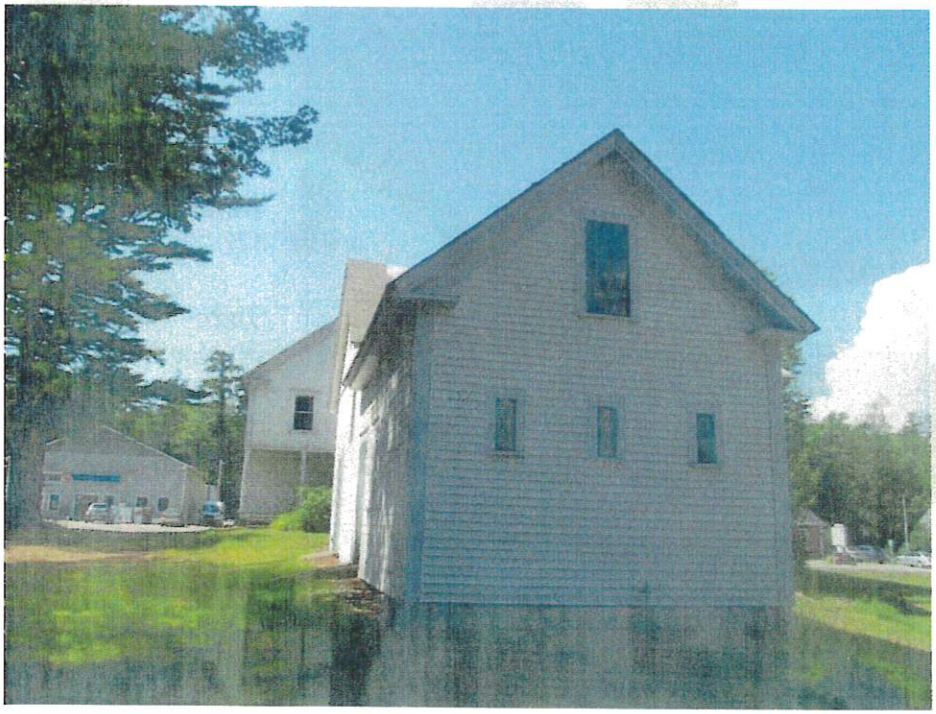


Photo: 2

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Barn Addition East
Elevation

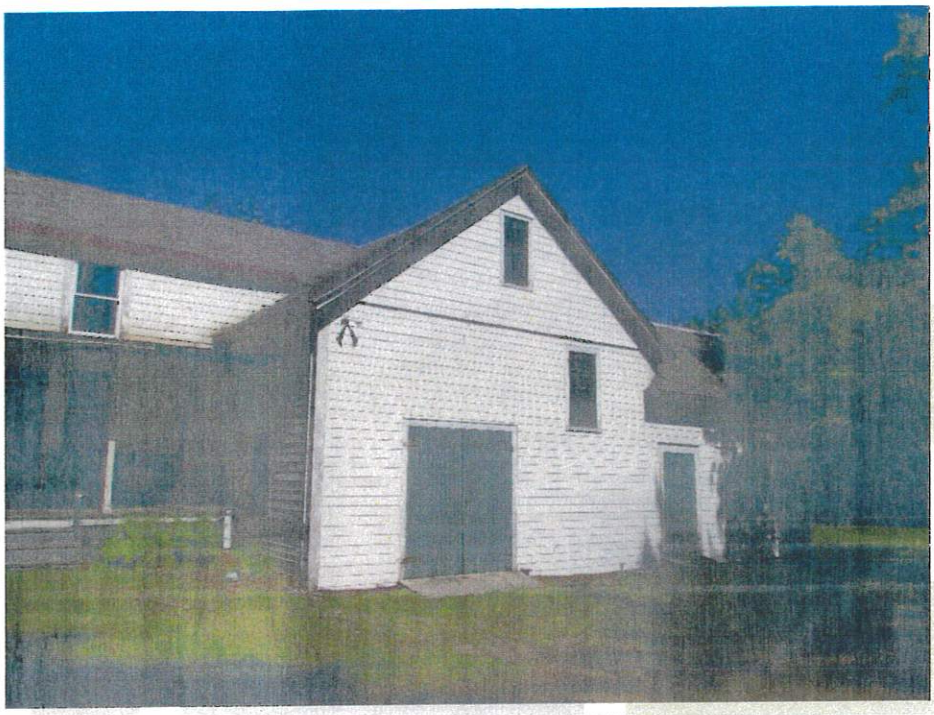


Photo: 3

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Barn South Elevation

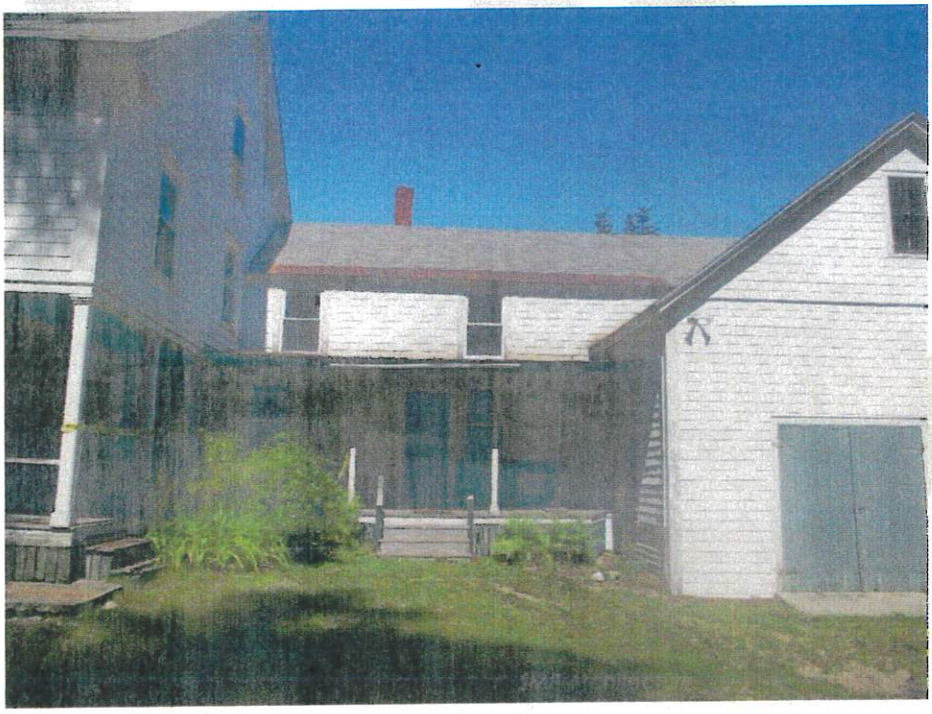


Photo: 4

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
House-to-Barn
Connector including
Porch; South
Elevation

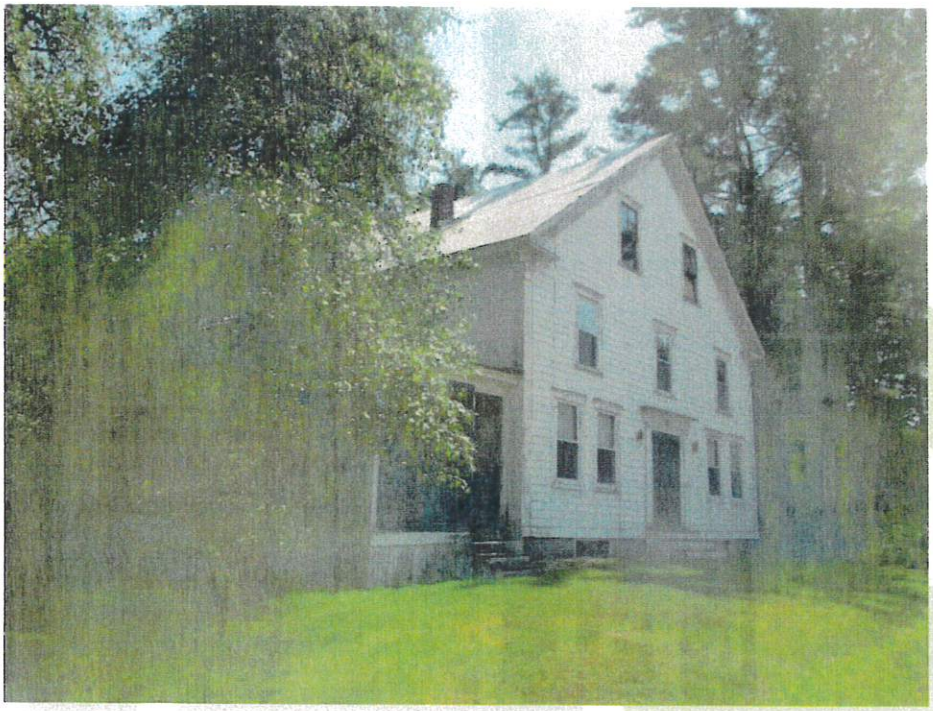


Photo: 5

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Main House and Porch Northwest Elevation

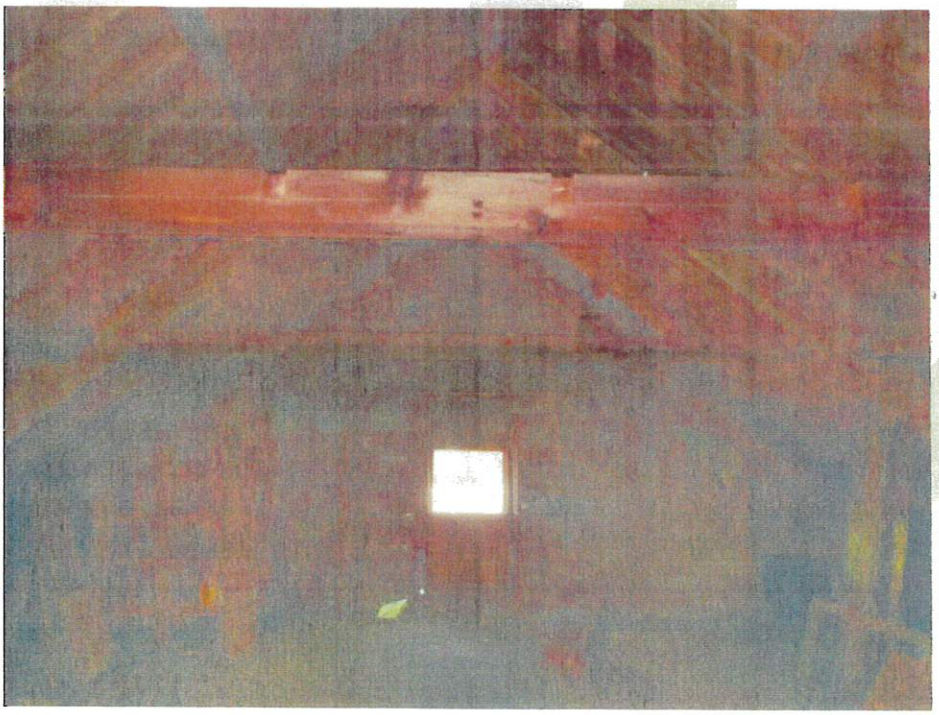


Photo: 6

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Post & Beam Roof Framing for Main House

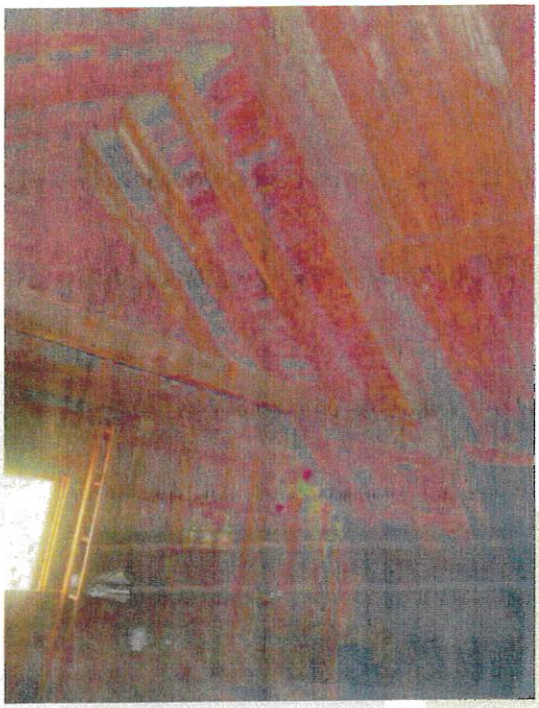


Photo: 7

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Roof Rafter East Section of Main House

Photo: 8

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Perpendicular Attic Floor Joists of Main House

Photo: 9

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Southeast Section of
First Floor Framing
of Main House

Photo: 10

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
First Floor Framing
of Main House

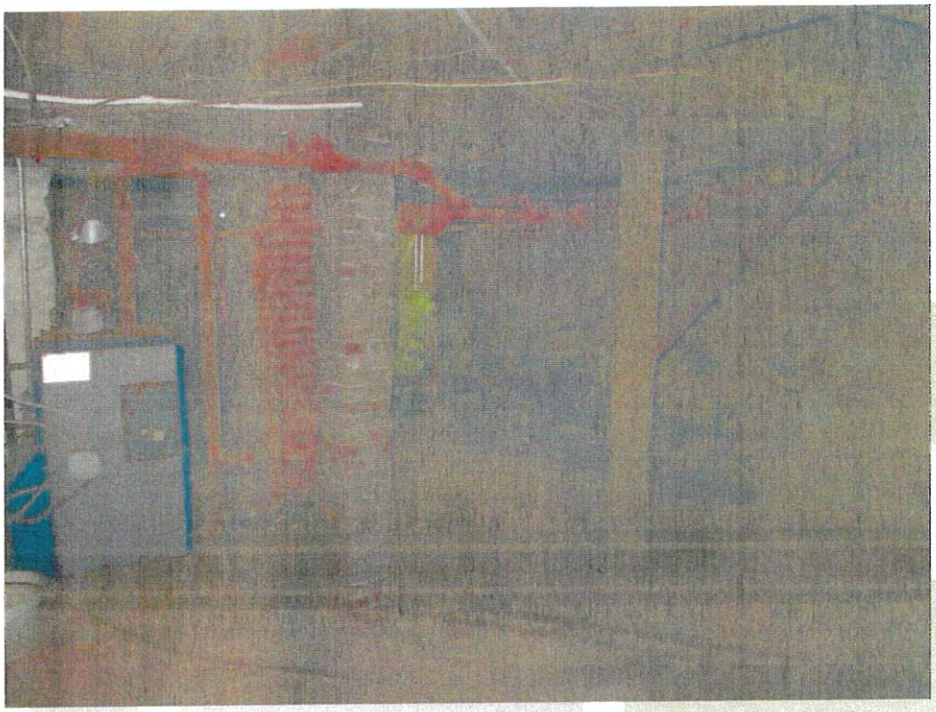


Photo: 11

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Sample of
Foundation Posts for
Main House (Granite
Foundation Beyond)

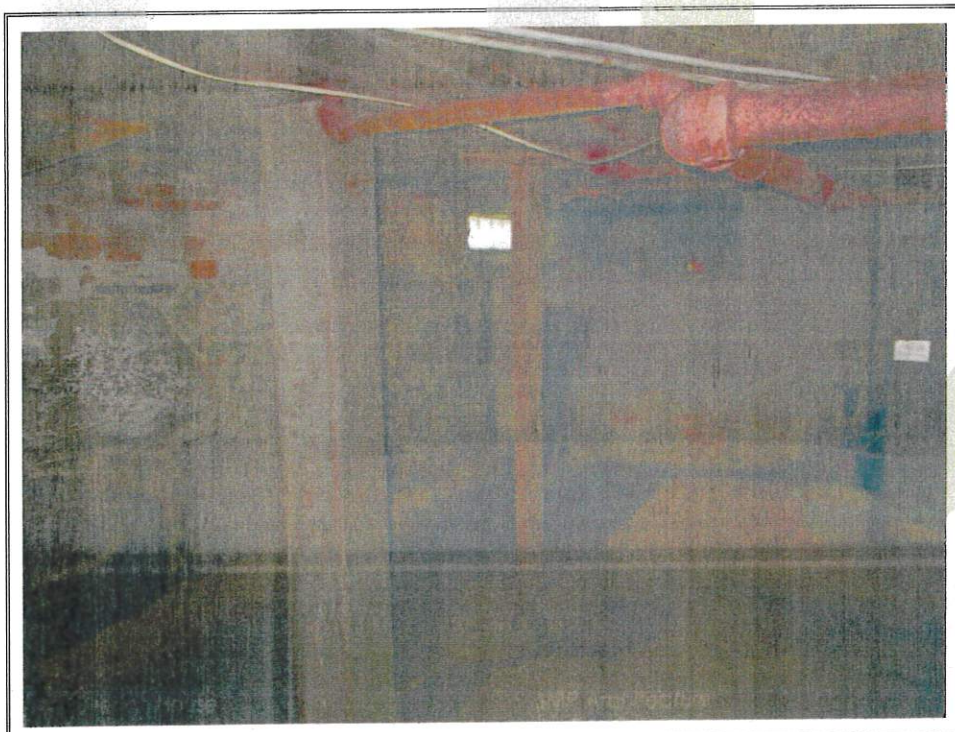


Photo: 12

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Sample of
Foundation Posts for
Main House (Granite
Foundation Beyond)

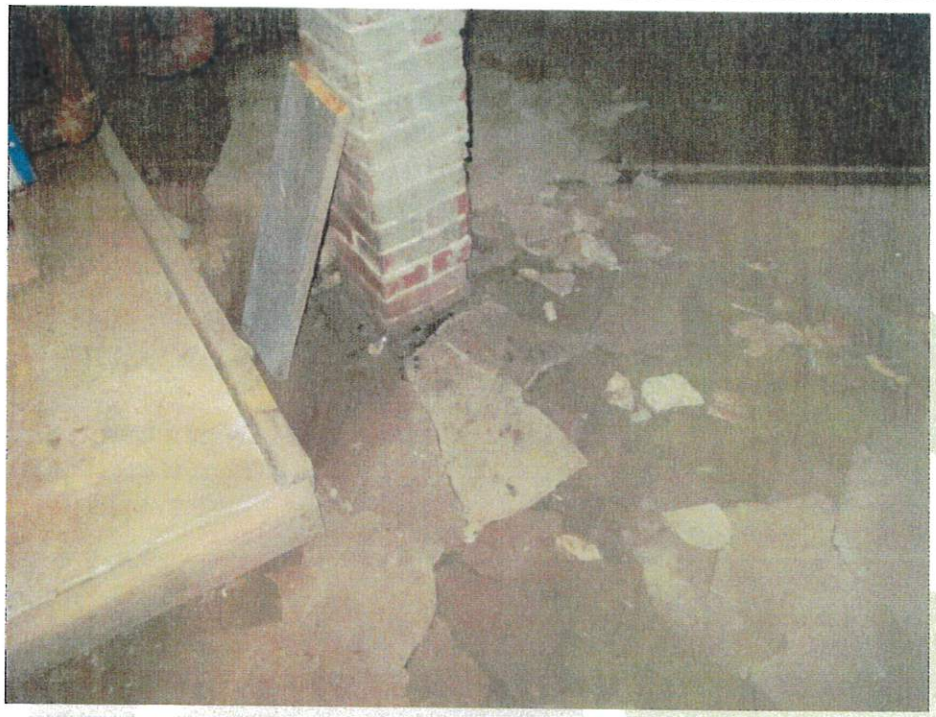


Photo: 13

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Heavy deterioration of main house basement concrete floor slab

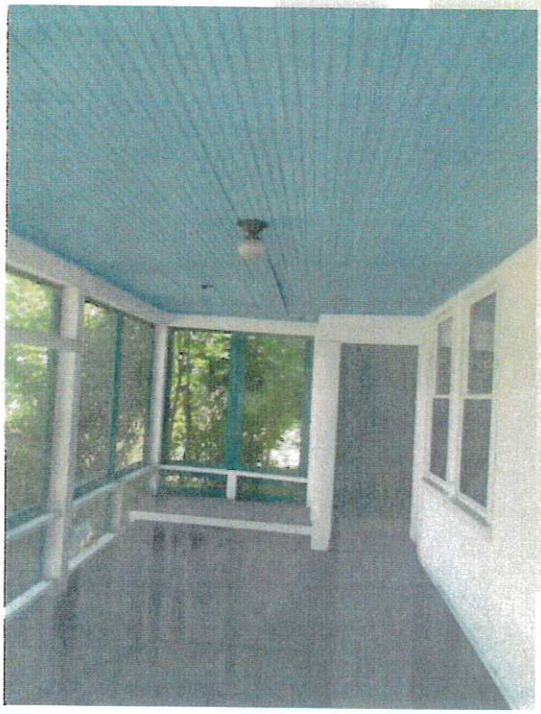


Photo: 14

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Main House Porch Interior

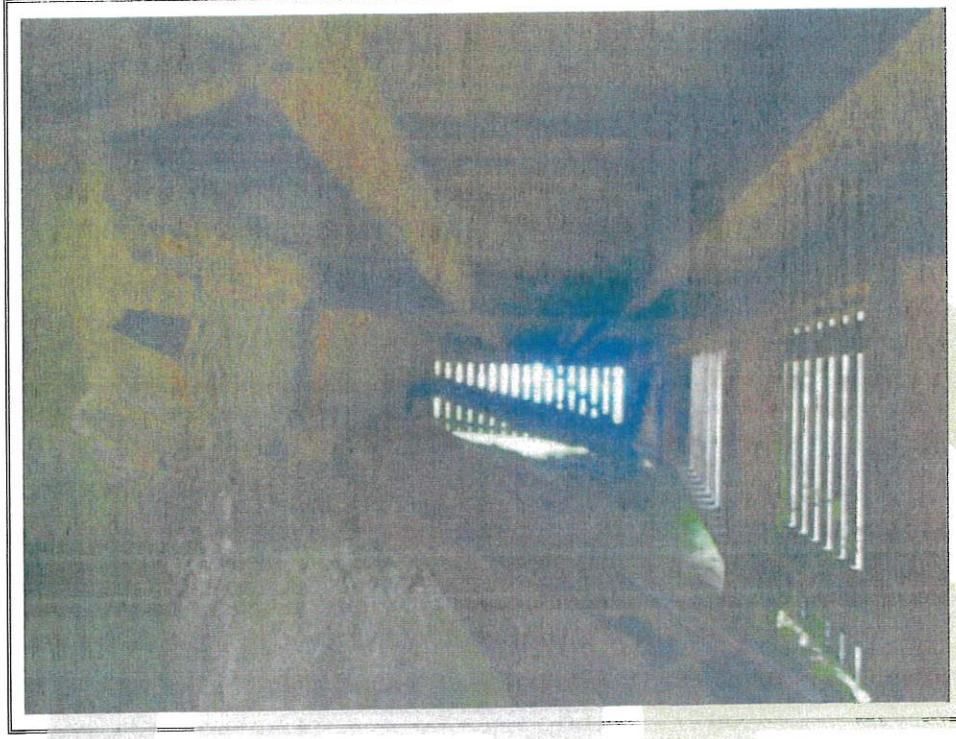


Photo: 15

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Main House Porch
Floor Framing

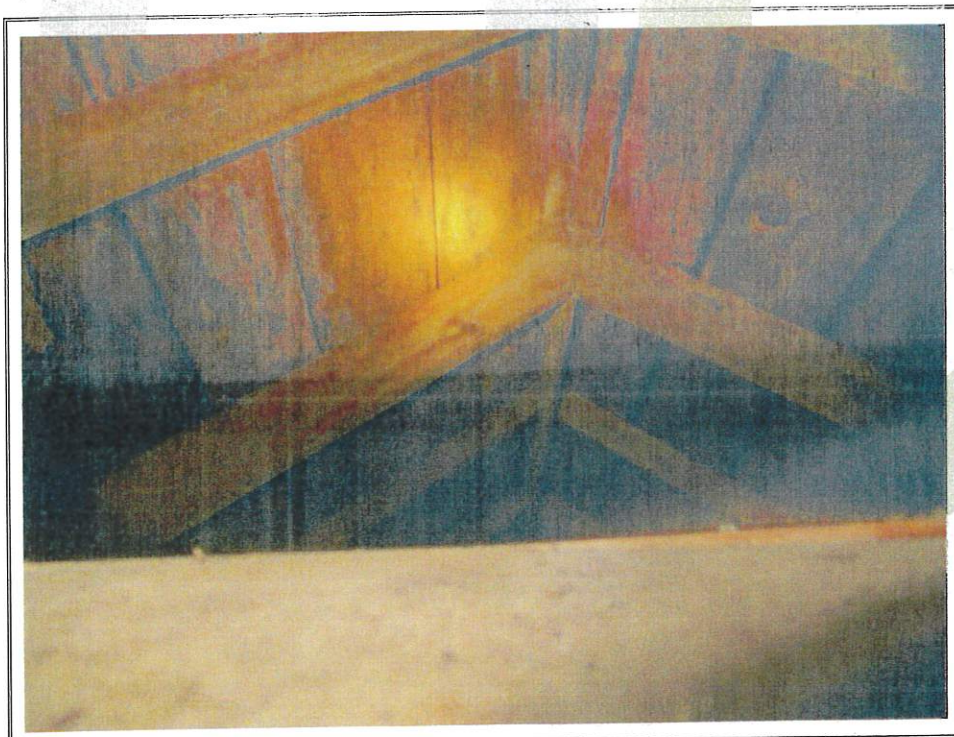


Photo: 16

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Main House-to-Barn
Connector Roof
Framing

Photo: 17

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Main House-to-Barn Connector; East Kitchen Second Floor Framing Access

Photo: 18

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Main House-to-Barn Connector; Rodent Droppings above Removed Ceiling Tile

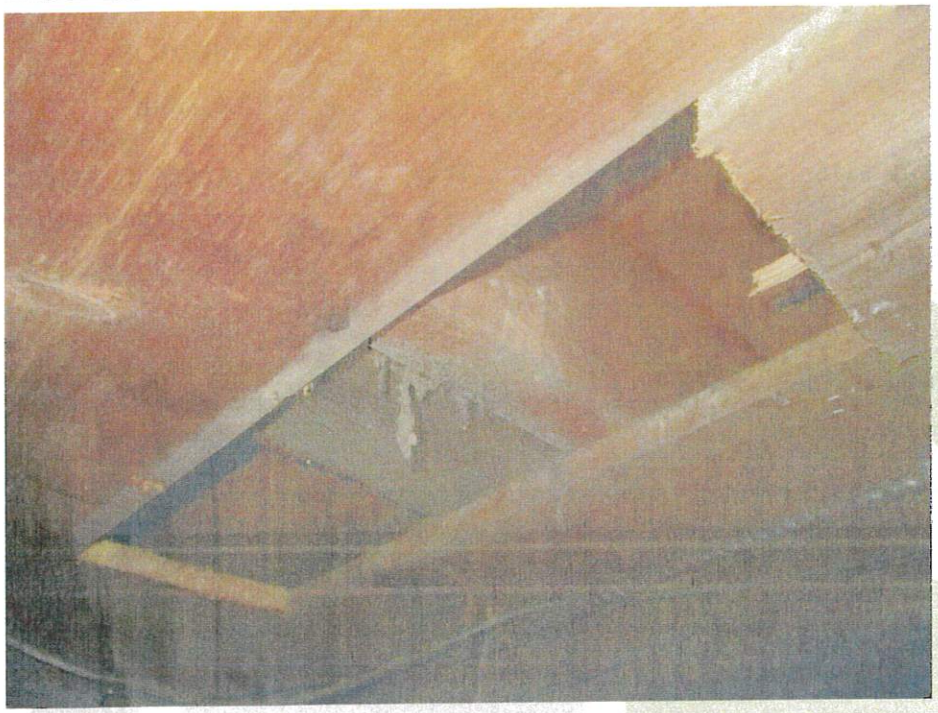


Photo: 19

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Main House-to-Barn Connector; East Kitchen First Floor Framing

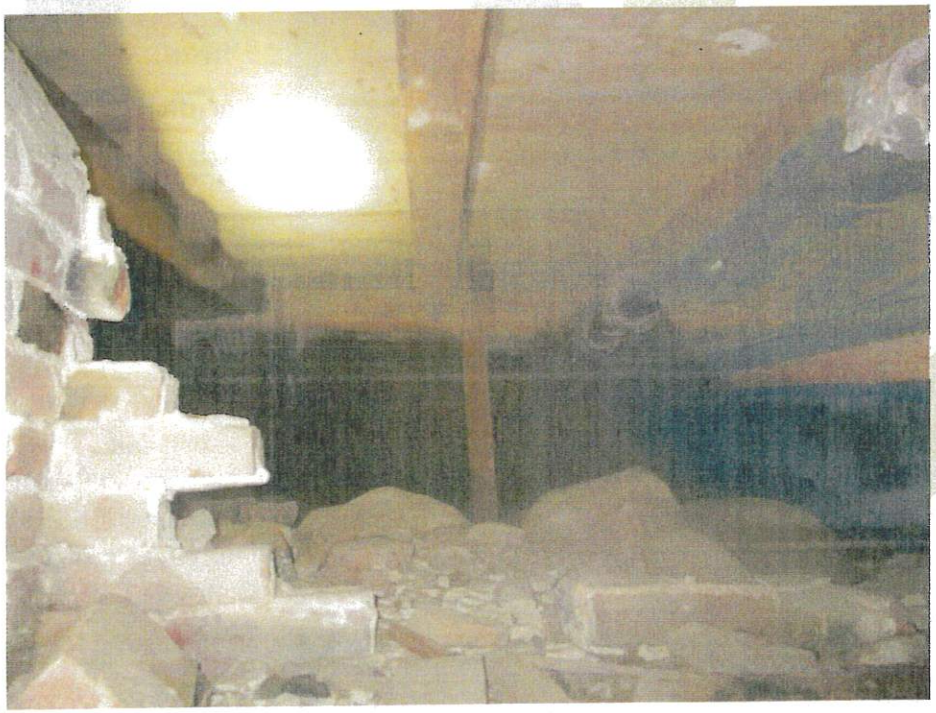


Photo: 20

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Main House-to-Barn Connector; First Floor Framing from Crawlspace

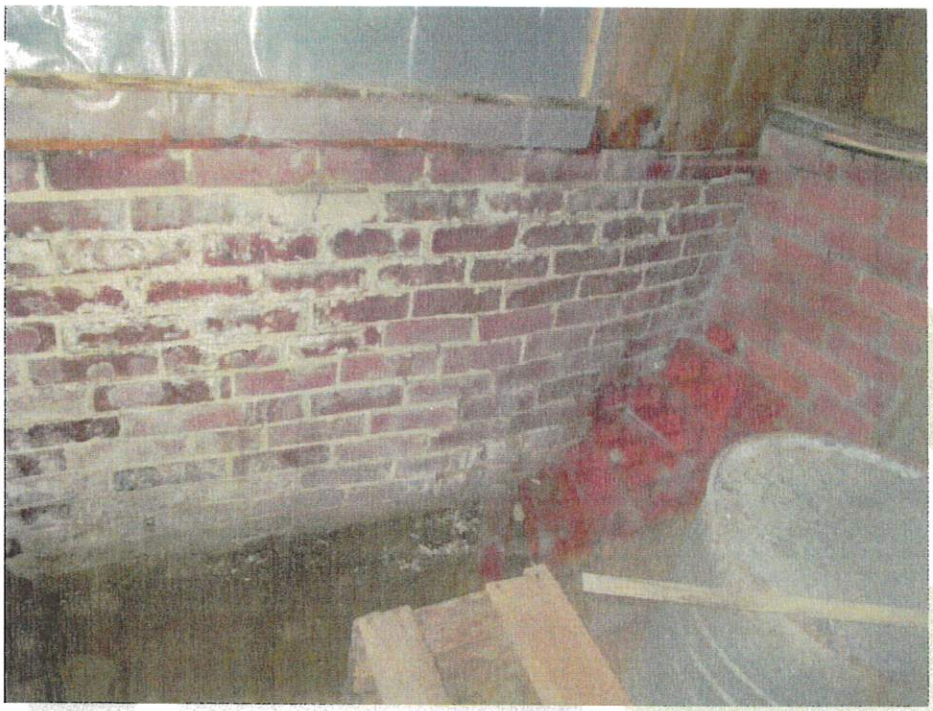


Photo: 21

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Main House-to-Barn Connector; Brick Foundation Wall Bulge

Photo: 22

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Main House-to-Barn Connector; Landscape Trees located on Opposite side of Brick Wall Bulge

Photo: 23

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Main House-to-Barn
Connector Porch;
South Facing Porch

Photo: 24

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Main House-to-Barn
Connector Porch;
East Facing Porch

Photo: 25

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Barn; Post & Beam
Roof Framing

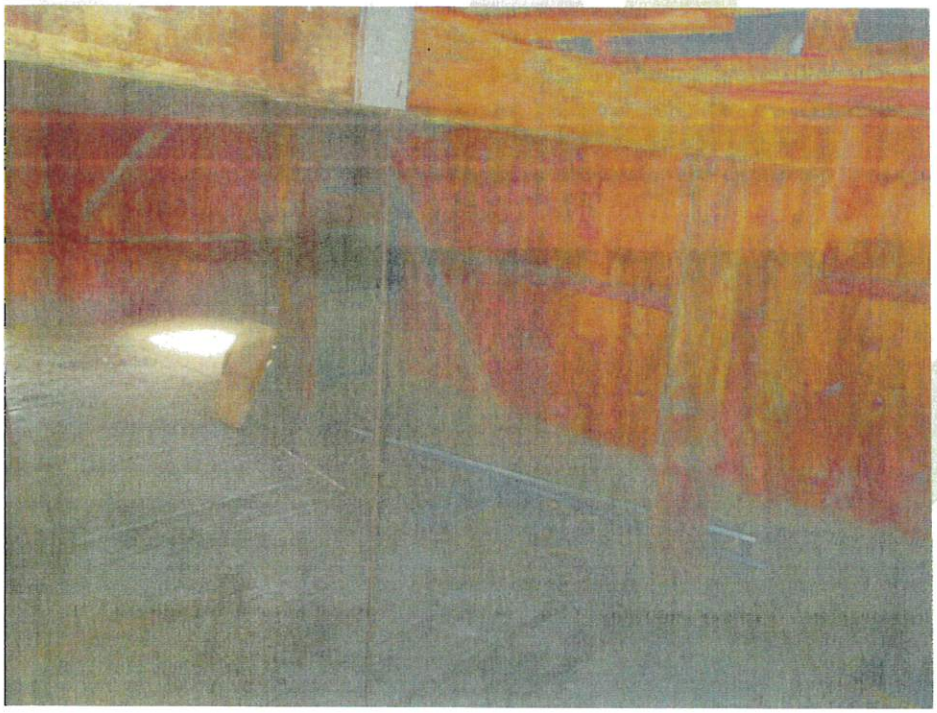


Photo: 26

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Barn; Metal tension
rods in second floor
framing

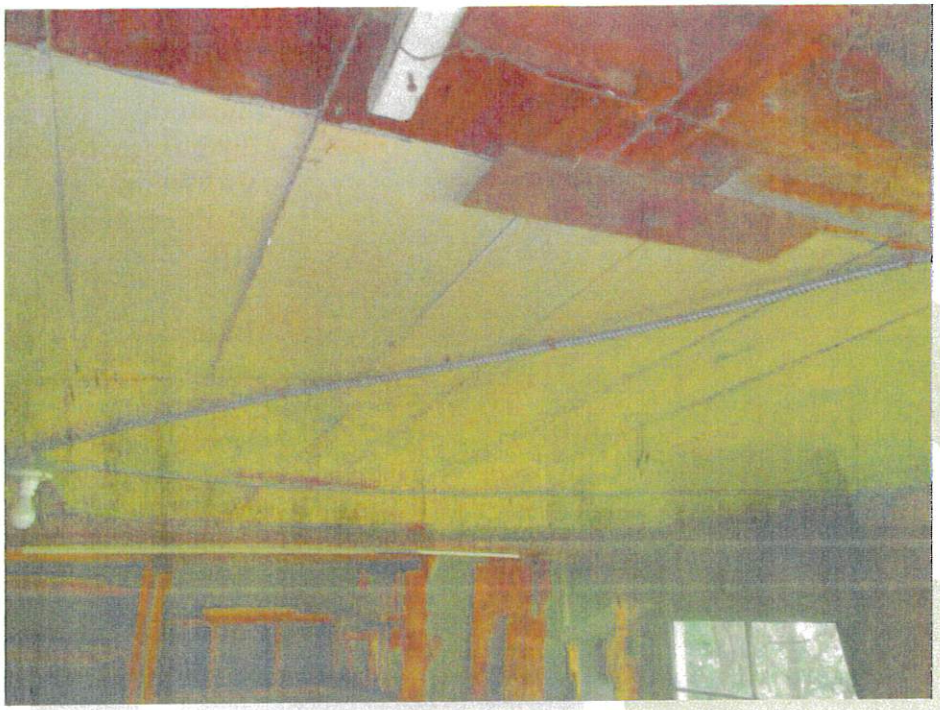


Photo: 27

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Barn; Metal Rods Supporting Second Floor on Roof Framing

Photo: 28

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Northern First Floor Barn Framing from Crawlspace

Photo: 29

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Southern First Floor Barn Framing from Crawlspace

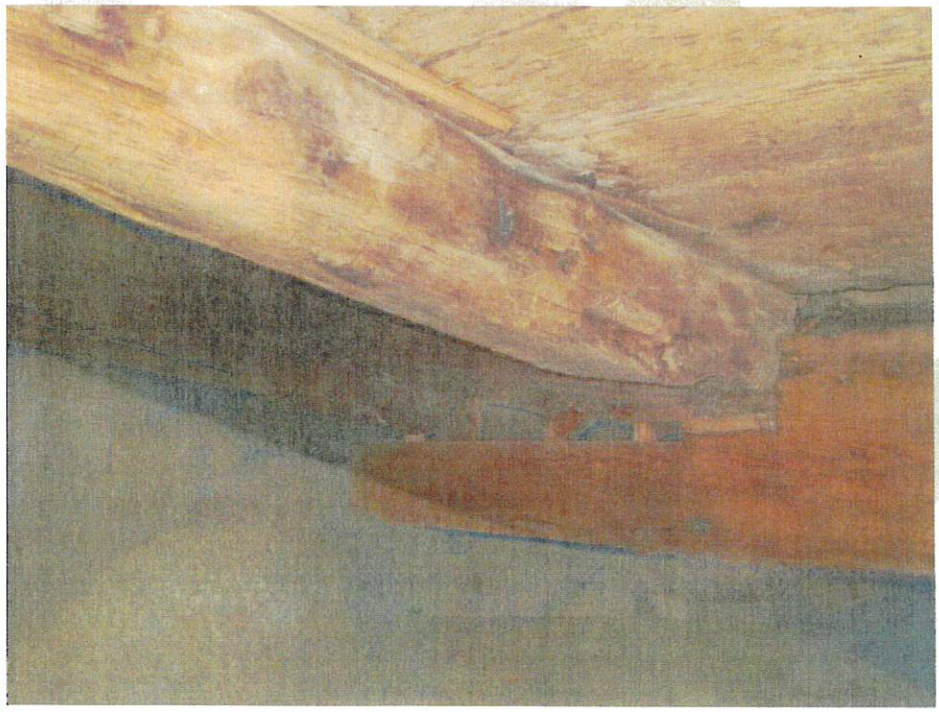


Photo: 30

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Barn Failing First Floor Framing

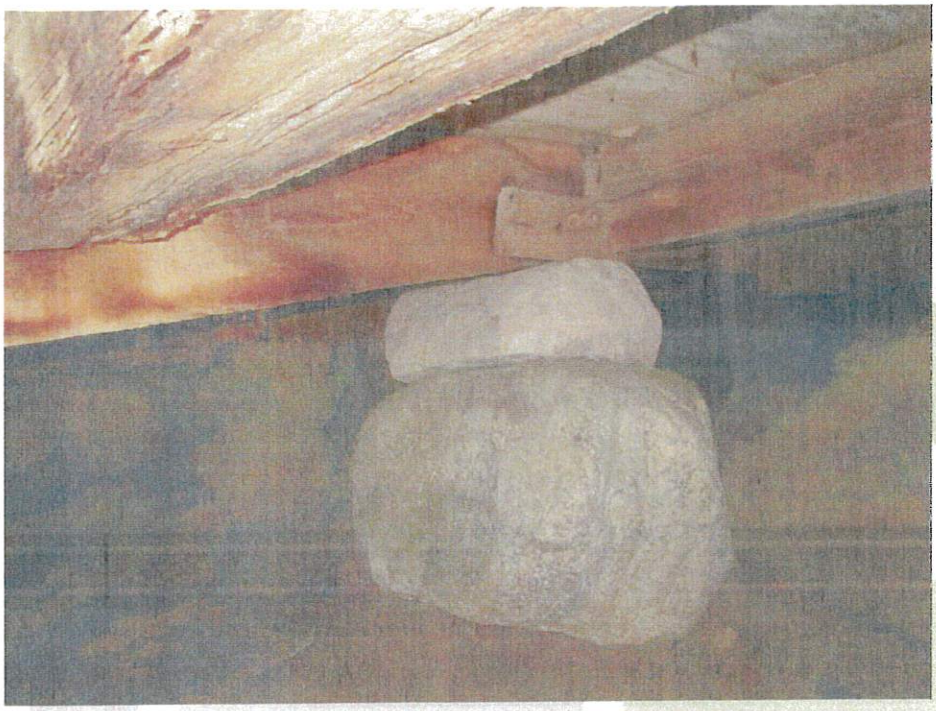


Photo: 31

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Unbalanced Stacked Rock Post at Barn

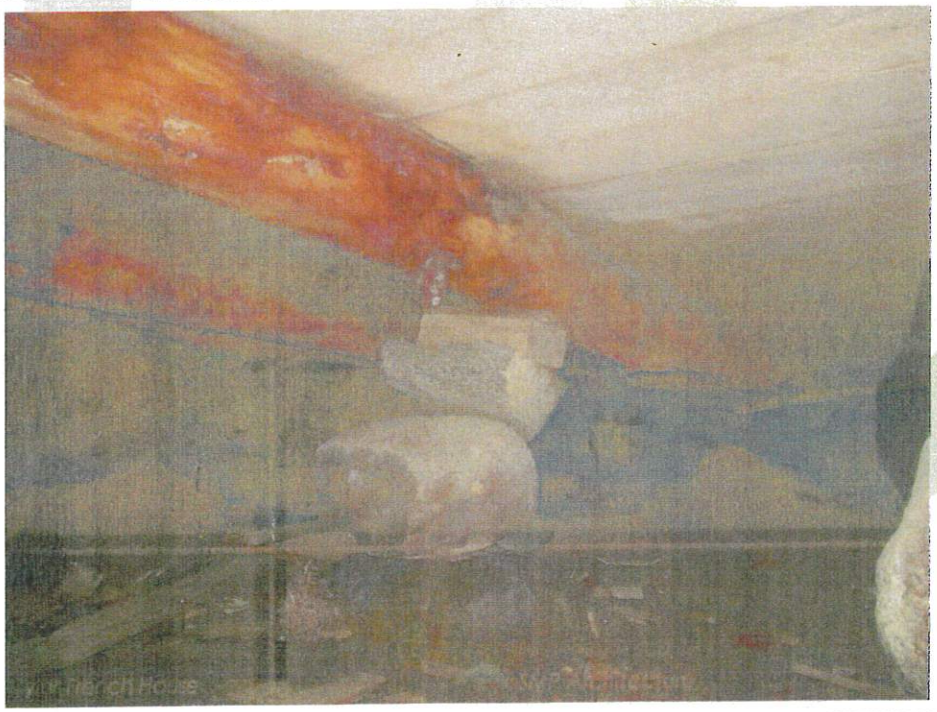


Photo: 32

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Failing Stacked Rock Post at Barn

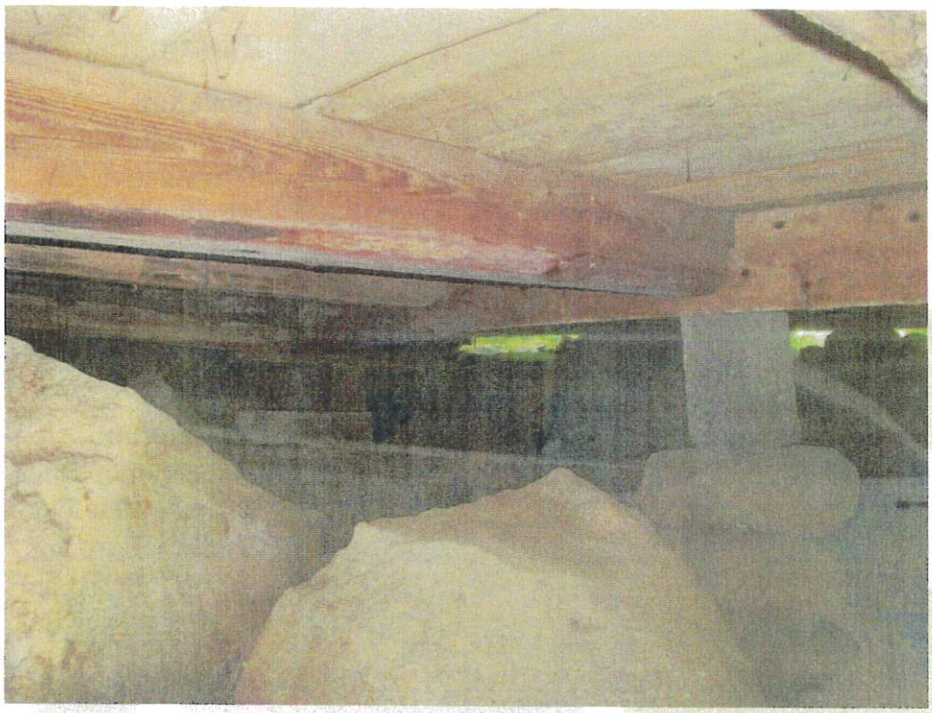


Photo: 33

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Unbalanced Stacked Rock/Timber Post at Barn

Photo: 34

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Broken Support Timber Beam and Post at Barn

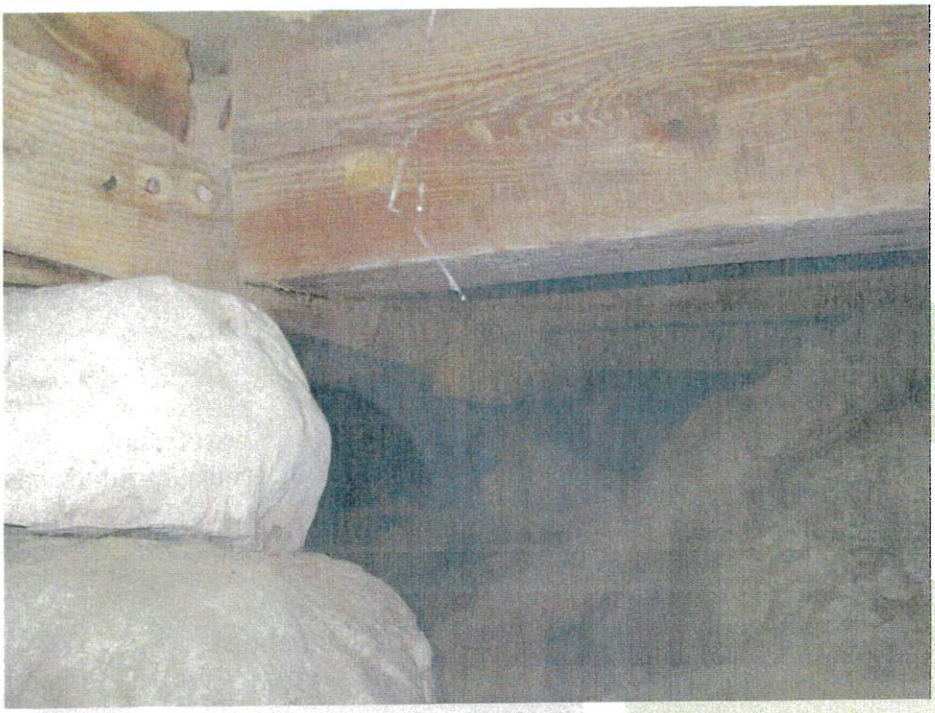


Photo: 35

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Deflection of Floor Beam at First Floor Swell in Barn

Photo: 36

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Poor Foundation Support at Barn Exterior Walls

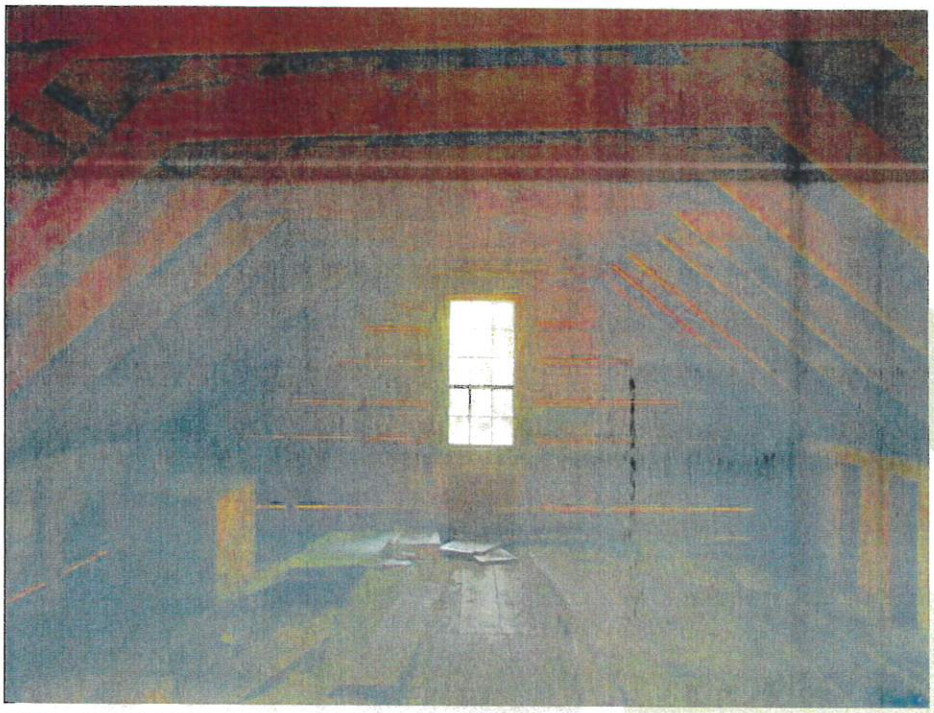
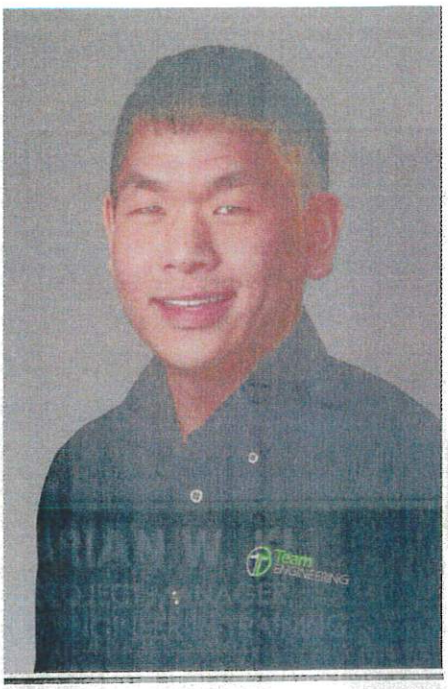


Photo: 37

Location:
Taylor-French House
970 Whittier HW
Moultonborough,
NH

Date:
August 3, 2017

Description:
Roof Framing of
Barn Addition



BRIAN W. KI

PROJECT MANAGER
& ENGINEER-IN-TRAINING

LICENSES
- Engineer-In-Training

CERTIFICATIONS
- CAL OES Safety Assessment Program (SAP) Evaluator

AFFILIATIONS
- Greater Manchester Nashua Home Builders & Remodelers Association (GMNHBRA)
- American Institute of Architects (AIA) – Affiliate Member
- NH Architects Engineers Emergency Response Task Force (NHAEER-TF)

PROFESSIONAL QUALIFICATIONS

Brian's work includes structural design, computer-aided drafting, plan reviews, construction monitoring, and many more engineering services to complete any construction project from start-to-finish. With his architectural background, Brian has the capabilities to design and draft many residential and commercial structures, including new construction of complete building designs, additions, and renovations. He is also responsible for on-site structural consultations, which include evaluating the structural integrity of existing buildings, possible settlement issues with floors or walls, cracks in foundations, and the assessment of load bearing walls.

PROJECTS

875 ELM STREET, MANCHESTER, NH
NORTHPOINT CONSTRUCTION MANAGEMENT
- Designed and drafted structural improvements for renovation of existing Citizen's Bank offices into luxury residential apartments

TEMCO TOOL INC, MANCHESTER, NH
STONE RIVER ARCHITECTS
- Designed and drafted structural plans for proposed steel-framed commercial building

WALSH RESIDENCE, BEDFORD, NH
ECKMAN CONSTRUCTION CO.
- Designed and drafted structural framing plans for proposed residence

SAINT GOBAIN CRYSTALS, MILFORD, NH
- Analyzed load capacity of roof structure
- Designed joist improvements for proposed ceiling mounted trolley systems

EDUCATION

B.S. in Civil Engineering (Structural) / Minor in Architecture
Roger Williams University - Bristol, RI

M.S. in Civil Engineering (Structural)
University of New Hampshire – Durham, NH

PERSONAL

Brian currently lives in Windham, NH with his fiancé, Amanda, and English Bulldog, Russell. He enjoys playing basketball, watching the Patriots, and completing half marathons.

Team ENGINEERING
Building Inspection & Design

DANIEL D. MARTEL

SENIOR STRUCTURAL ENGINEER

LICENSES

- Professional Structural Engineer (PE): NH, MA, ME, VT, CT

CERTIFICATIONS

- Leadership in Energy and Environmental Design (LEED) Accredited Professional (AP)
- Certified Bridge Inspector/Team Leader (FHWA/NHI)

AFFILIATIONS

- American Society of Civil Engineers (ASCE)
- Structural Engineering Institute (SEI)
- Structural Engineers of New Hampshire (SENH)

PROFESSIONAL QUALIFICATIONS

As the Senior Structural Engineer at Team Engineering, Dan leads the technical efforts of Team's structural design staff. Dan provides oversight and Quality Assurance, acting as the Engineer of Record on most of Team's structural designs.

His portfolio includes the rehabilitation of multiple mill buildings in Lawrence, Massachusetts, bringing historic structures into modern code compliance. Dan has also designed retro-fits of existing buildings, accommodating medical office, restaurant, retail, and industrial uses. He has also designed, inspected, and repaired dozens of bridges throughout New England, working for State and Municipal bridge owners. Dan has performed commercial structural Property Condition Assessments on both sides of real estate transactions.

PROJECTS

MELAMPY'S BARN – DUNSTABLE, MA

- Structural Engineer-of-Record for a new 5,000 sf residence melding multiple structural systems: post and beam heavy timbers, engineered lumber floor and wall framing, and custom-harvested western red cedar exposed interior tree columns

RESIDENTIAL RENOVATION – 18 ROCKLAND ROAD, CONCORD, NH

- Performed structural and architectural designs for a renovation and addition of a 4,300 sf residence with estimate construction cost of $500,000

RED ROOF INN UNDERPINNING – WASHINGTON, DC

- 10-story hotel building whose foundation was compromised during construction of adjacent high-rise.
- Dan designed an underpinning system with grouted micro-piles to transform the existing shallow footings into a deep foundation system, shoring the building.

EDUCATION

B.S. in Civil Engineering, Worcester Polytechnic Institute (2006)

M.S. in Civil Engineering, Worcester Polytechnic Institute (2007)

PERSONAL

Dan resides in Manchester, NH with his wife Amy and son Jameson. He enjoys all that New England terrain has to offer by way of hiking, skiing, biking, running, and snowshoeing. He is a proud member of Bedford Presbyterian Church in Bedford, NH. He also loves cooking and sometimes rooting for the Red Sox.

Team ENGINEERING
Building Inspection & Design