

Raymond S. Oakes
RAYMOND S. OAKES
ATTORNEY AND COUNSELLOR AT LAW
BANK OF COMMERCE BUILDING
PORTLAND MAINE

September 8, 1947

RECEIVED
SEP 9 1947
DEPT. OF BLD'G. INSP.
CITY OF PORTLAND

Warren McDonald
Warren McDonald
Inspector of Buildings
Portland, Maine

Dear Mr. McDonald:

I have your letter of August 30 and wish to thank you for your concern relative to the details that have required my attention in connection with construction of Portland Junior College. This, however, is my job and I wish to be sure that everything is done as it should.

I also acknowledge copy of your letter of September 3rd continuing the thought of the previous letter.

I have previously communicated with Mr. Cheney and asked him to communicate with Mr. Stevens to bring about the necessary examination and filing.

Very sincerely yours,

Raymond S. Oakes
RAYMOND S. OAKES

O:M



APPLICATION FOR PERMIT

Class of Building or Type of Structure **Third Class**
Portland, Maine, **August 11, 1947**

To the INSPECTOR OF BUILDINGS, PORTLAND, MAINE
The undersigned hereby applies for a permit to ~~erect~~ ~~construct~~ ~~erect~~ the following building structure equipment in accordance with the Laws of the State of Maine, the Building Code and Zoning Ordinance of the City of Portland, plans and specifications, if any, submitted herewith and the following specifications:

Location **66 Halmouth Street** Within Fire Limits: **no** Dist. No.
 Owner's name and address **Portland Junior College, c/o Raymond Oakes** Telephone
 465 Congress Street Telephone
 Lessee's name and address
 Contractor's name and address **Consolidated Constructors, Inc., 263 St. John St.** Telephone **2-5524**
 Architect **John Howard Stevens and John Calvin Stevens, 178 Middle St.** No of stories **2**
 Proposed use of building **Recreation Hall and Auditorium** No families
 No families
 Last use **Barn** Style of roof **pitch** Roofing
 Material **frame** No stories **1 1/2** Flat
 Other buildings on same lot **College buildings** Fee \$ **28.50**
 Estimated cost \$ **37,600.**

General Description of New Work

To make alterations to barn and change use as per plans and specifications

INSPECTION NOT COMPLETE

It is understood that this permit does not include installation of heating apparatus which is to be taken out separately by and in the name of the installing contractor.

Details of New Work

Is any plumbing involved in this work? _____
 Height average grade to top of plate _____
 Size, front... depth _____
 Material of foundation _____
 Material of underpinning _____
 Kind of roof _____
 No. of chimneys _____
 Framing lumber—Kind _____
 Corner posts _____ Sills _____
 Girders _____ Size _____
 Studs (outside walls and carrying partitions) **2x4-16" O.C.** Bridging in every floor and flat roof span over 8 feet
 Joists and rafters: 1st floor _____ 2nd _____ 3rd _____
 On centers: 1st floor _____ 2nd _____ 3rd _____
 Maximum span: 1st floor _____ 2nd _____ 3rd _____
 If one story building with masonry walls, thickness of walls? _____

If a Garage

No. cars now accommodated on same lot _____, to be accommodated _____ number commercial cars to be accommodated.
Will automobile repairing be done other than minor repairs to cars habitually stored in the proposed building?

Miscellaneous

Will work require disturbing of any tree on a public street? **no**
Will there be in charge of the above work a person competent to see that the State and City requirements pertaining thereto are observed? **Y.A.B.**

APPROVED:

Consolidated Constructors, Inc.

By: *John H. Stevens*

Signature of owner

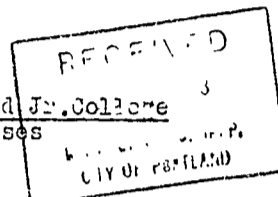
INSPECTION COPY

STEVENS
ARCHITECTS

197 Middle Street
Portland, Maine
February 3, 1944

Mr. W.F. McDonald, Inspector of Buildings
City of Portland, Maine

re: Portland Jr. College
Trusses



Dear Mr. McDonald:

Your letter of January 10th duly received.

In all of this computing of strength of trusses, the effort has been to prove that the design is structurally sound.

In doing so we have carefully computed the loads on the trusses and do not wish to change those assumptions.

The resulting stresses are shown by the diagrams.

As to your comments in the second paragraph of your letter regarding the top chords in C and D the proportionate reduction of load on this member as a short column would show 704% per square inch -

$$\left(\frac{L}{D} = 16 \quad C = 250 \quad E = 1,000,000 = .939 \text{ or } 704\% \right)$$

In this situation, braced as these members are by the roof timbers, we cannot see but this slight discrepancy from the Code figures is a perfectly safe and reasonable tolerance.

Trusses A & F are proved adequate for the load as originally figured, and since this load has been greatly lessened by the construction of the new trusses, called "beams #2 and #3", we know there is no question of their safety.

On Sheet T.2 the two 2 x 10s have been stiffened by introducing a block between them at the mid point to overcome the lack of stiffness that existed.

We have revised our drawing, however, to show the new loading of "Beam" #2 and #3 on sheet T.2 to conform to the actual load they are now carrying. Also you are correct regarding the compression instead of tension in members 1-2 and tension in 2-3. In the one case, where fiber stress is somewhat above the Code requirements, we feel that nevertheless the design is absolutely safe due to the fact that this is an extreme fiber stress due to flexure and does not exist in the entire chord. This revised drawing was delivered to you of course yesterday.

It is our contention that this whole roof structure is now entirely safe.

Sincerely yours,

John Howard Stevens
John Howard Stevens

JHS:MM
cc Mr. R.S. Oakes
Mr. Kibler
Mr. Hutchins

JOHN HOWARD STEVENS, A.I.A. JOHN CALVIN STEVENS, 2ND, A.I.A.
ARCHITECTS
187 MIDDLE STREET, PORTLAND 3, MAINE

December 18, 1947

Mr. Warren McDonald
Building Inspector
City of Portland, Maine

Dear Sir:

re: Trusses-Portland Jr. College

After my conference with you this morning, I called in Mr. Hutchins and again went over his computations and his reasoning in connection with his recommended treatment for the trusses.

We discussed your question of the connection of members at the peak of the truss and we both agreed that your suggestion was sound, namely, to provide a more direct transmission of the stresses at the peak.

We had previously shown the new 2 x 6 diagonals fastened to the center post, which was mainly because it was thought that to bring these up to the peak would be more difficult and might interfere with the 3 x 4 rafter adjacent to it. The slight eccentric action thereby was not considered serious.

We now submit a revised diagram showing these diagonal 2 x 6 members bolted to the sides of the top chord at the top.

This redesign of the old structure does create a truss whose members can be analyzed and the resulting stresses computed to prove that it is perfectly safe.

We hope you can now give your approval, because work is about to start on these trusses.

Sincerely yours,

John Howard Stevens
John Howard Stevens

JHS:MM

Enclosure

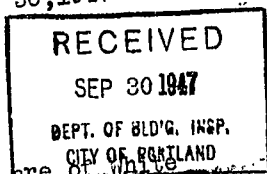
cc Mr. R.S. Oakes

JOHN HOWARD STEVENS, A.I.A. JOHN CALVIN STEVENS, 2ND, A.I.A.
ARCHITECTS
187 MIDDLE STREET, PORTLAND 3, MAINE

September 30, 1947

Mr. Warren McDonald
Inspector of Buildings
City of Portland, Maine

re: Auditorium
Floor



Dear Sir:

We now understand that the old timbers are of white pine and not spruce as we had thought. On this basis the 13x13 timbers, with about 2" cut down at the top, we are figuring as 13 x 10.

Taking the panel load, from 13 x 10 to 13 x 10 and ignoring the 7 x 9 between them, each of the 13 x 10 must carry a load of 117# per sq.ft. and on the 19'-0" span this is 142.5 sq. ft. The total load, therefore, is 16,672#. The 13x10 white pine is good for 6838#, and by spiking a 4 x 12 H.P. each side of it the two H.P. timbers are good for 10,112#, giving a total capacity 16,940#.

These new timbers can get a good bearing on the wall, and on the center girder we will hang them by adequate iron stirrups passing under the new timbers and under the old timber between them.

This is to be done across the lounge only. In other spaces, we can supply adequate strength by supports that will reduce the span so the old timbers can carry the load alone.

As a safety measure, we will provide stirrups under such old timbers to relieve the tenons at the old center girder.

All defective timbers are to be removed and adequate new timbers installed.

The 10 x 13 from center axis of the building (line of Lally Columns) to the brick partition, ^(11'-0" span) has a safe bearing of 9000# and the load on it is 82 sq.ft. @ 117# or 9594#. This is so near the correct figure that we feel it is not necessary to reinforce these timbers.

Across the toilet room longitudinally, we will introduce two Lally Columns and a steel beam to give support at a point about 11'-0" from the Bedford Street wall, and since these timbers are full 13 x 13 they will be better than required without any reinforcing.

The questionable steel plates at present in talled on Lally Columns, will be replaced with plates of sufficient strength to support the longitudinal 13 x 13s which carry the minor 7 x 9 between the main cross timbers (13 x 13), and based on the fact

STEVENS
ARCHITECTS

September 30, 1947

Mr. Warren McDonald
Inspector of Buildings

re: Auditorium
Floor

that these 7 x 9 will be actually carrying only the load of the ceiling.

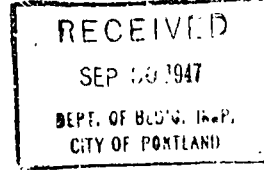
Detailed drawings of all this construction will be submitted in a few days for an amendment to the building permit which we trust you can now issue on the basis of this description.

Sincerely yours,

John Howard Stevens
John Howard Stevens

JHS:MM

cc Mr. R. S. Oakes



HP 17/2630-Addt. #1-1
(23 Brighton Avenue)

January 10, 1948

Messrs. John Howard & John Calvin Stevens
127 Middle Street
Portland, Maine

Subject: Strengthening of roof construction for proposed Portland Junior College Recreational Hall & Auditorium

Gentlemen:

With the issuance of the amendment to building permit covering strengthening of roof trusses to Consolidated Constructors, Inc., there are the following notations with regard to some of the details of design for consideration under your statement of design:

The computation sheet, dated January 5, 1948 and which evidently refers to trusses C and D shows the maximum compressive stress in the top fibers of the sloping top chord as 732 pounds per square inch. The allowable compressive stress in pine for short columns is given as 750 pounds per square inch. This small discrepancy would be of little importance, but the member is not a short column, and it appears that applying the reduction in proportion to the unsupported length of the column or strut would reduce the allowable compressive stress to perhaps 600 pounds per square inch—which would represent a substantial discrepancy.

On Sheet 1-1 the compressive stress in the sloping top chord of trusses A and F are shown even greater than those for trusses C and D, but I understand from Mr. Sears that this diagram of trusses A and F and the computations as to stresses beneath it are no longer correct, these loads having been substantially reduced by the change of plan which involved introducing trusses called "beams #2 and #3", the latter taking much of the load formerly figured on trusses A and F.

On Sheet 1-2 the trusses introduced as beams #2 and #3 show a maximum compressive stress in the sloping top chord of 23,200 pounds, and 2-2x10's on an unsupported length of about 7' have been indicated to take care of it. Assuming that the 2x10's are dressed, their total area appears to be about 31 square inches and applying the allowable compressive stress for short columns (750 pounds), to this area shows the allowable total compression to be just about the same as that shown on the diagram as proposed. Investigation is needed, however, to show how much the allowable stress for short columns must be reduced on account of the unsupported length of the column or strut. Incidentally it appears on the stress diagram of beams #2 and #3 that the stress in member 2-2 would be compression instead of tension as indicated, and the stress in member 2-3 would be tension instead of compression as indicated.

In event substantial discrepancies in these points of design exist, I suggest that you check over your assumptions as to dead loads on the roof, especially that for the ceiling, to see if they are not larger than necessary and perhaps correction would take up any discrepancies that appear to exist. Also, whether or not in the case of the existing trusses allowance in figuring the compressive stress due to bending may not be made in your favor because the uniform roof loads are figured vertically rather than at right angles to the chords which act as beams.

Because this building will house large numbers of the public, it seems my duty to see that the plans as finally filed here show compliance with the Building Code without relying upon verbal understandings and so on. For that reason we will appreciate it if you will revise your plans showing the final result so that the plans for instance

Messrs. Stevens ——— 2

January 10, 1948

In the case of trusses A and F will not show on their face non-compliance with the Building Code and all other details will show compliance consistent with actually assumed loads, etc.

With reference to my letter of December 11, 1947 and your revised plans received December 29, one item does not appear clear and that is with reference to the hardware on the large former barn doors in the opening in the wall toward Bedford Street. I understand you are to fit this as an exit and that the doors will be equipped with anti-panic hardware.

May I remind you again that much of the equipment in the kitchen requires separate permits from this department, issuable only to the actual installer. We have had no such applications thus far.

Very truly yours,

Inspector of Buildings

WHC/2

CC: Mr. W. C. Hutchins
57 Exchange Street

Mr. Raymond S. Cohen
465 Congress Street

Consolidated Constructors, Inc.
263 St. John Street

Encl: Approved amendment #1 to building permit

APPLICATION FOR AMENDMENT TO PERMIT



Amendment No. 1

Portland, Maine, November 25, 1947

RECEIVED
NOV 27 1947
1947 10 10 48

To the INSPECTOR OF BUILDINGS, PORTLAND, ME.

The undersigned hereby applies for an amendment to Permit No. 47/2630 pertaining to the building or structure comprised in the original application in accordance with the Laws of the State of Maine, the Building Code and Zoning Ordinance of the City of Portland, plans and specifications, if any, submitted herewith, and the following specifications:

Location 3-23 Brighton Avenue Within Fire Limits? no Dist. No. _____
Owner's name and address Portland Junior College, c/o Raymond Oakes Telephone _____
465 Congress St. Telephone _____
Lessee's name and address _____ Telephone _____
Contractor's name and address Consolidated Constructors, Inc., 263 St. John St. Telephone 2-5524
Architect _____ Plans filed yes No. of sheets _____
Proposed use of building Recreation Hall and Auditorium No. families _____
Increased cost of work _____ Additional fee .25

Description of Proposed Work

To strengthen roof trusses as per plans.

PERMIT TO BE ISSUED TO Consolidated Constructors, Inc. Details of New Work Permit Issued with Letter

Is any plumbing work involved in this work? _____ Is any electrical work involved in this work? _____
Height average grade to top of plate _____ Height average grade to highest point of roof _____
Size, front _____ depth _____ No. stories _____ solid or filled land? _____ earth or rock? _____
Material of foundation _____ Thickness, top _____ bottom _____ cellar _____
Material of underpinning _____ Height _____ Thickness _____
Kind of roof _____ Rise per foot _____ Roof covering _____
No. of chimneys _____ Material of chimneys _____ of lining _____
Framing lumber—Kind _____ Dressed or full size? _____
Corner posts _____ Sills _____ Girt or ledger board? _____ Size _____
Girders _____ Size _____ Columns under girders _____ Size _____ Max. on centers _____
Studs (outside wall and carrying partitions) 2x4-16" O. C. Bridging in every floor and flat roof span over 8 feet.
Joists and rafters: 1st floor _____, 2nd _____, 3rd _____, roof _____
On centers: 1st floor _____, 2nd _____, 3rd _____, roof _____
Maximum span: 1st floor _____, 2nd _____, 3rd _____, roof _____

Approved: _____
Signature of Owner _____
By: John A. Kehler
Approved: _____ Inspector of Buildings.
1/10/48 - mmr

INSPECTION COPY

STEVENS
ARCHITECTS

December 19, 1947

Mr. Warren McDonald
Inspector of Buildings
City of Portland

-2

was decided to creat a truss at #3 and #2.

Sincerely yours,

John Howard Stevens
John Howard Stevens

JHS:MM

cc Mr. R.S.Oakes
Mr. W.O.Hutchins

BP 47/2630 Addt. #1
66 Falmouth Street-I

December 19, 1947

Mr. John Howard Stevens
187 Middle Street
Portland, Maine

Subject: Strength of roof supports of former barn
to be converted to auditorium at 66 Falmouth
Street

Dear Mr. Stevens:

May I make clear that my hesitancy in approving the proposal with regard to roof construction and strengthening of it in the above building does not spring from any idea of having superior knowledge of structures or from any questioning of the accuracy of Mr. Hutchins's analysis of the converted truss, but from the knowledge that the building cannot lawfully be used as an auditorium until a certificate of occupancy, which I must sign, has been issued from this department. It is quite a responsibility to officially approve this old roof as being safe over the heads of some four or five hundred people possibly. It does not seem out of order to call to attention the original proposal was to leave the trusses precisely as they have been for more than 100 years except for the removal of a few possible supports which occurred in the old hayrack, and at the same time add a new ceiling load of perhaps five pounds per square foot. It has since been conceded that this would not be safe and a substantial "heel" joint has been designed which, I take it, does not rely upon the present fastenings at that joint at all, and a diagonal member has been proposed symmetrically on each side of each truss running from bottom horizontal member approximately to the peak of the truss.

With reference to your letter of December 18 and revised ^{plan} of same date, it appears that only one minor change has been made as the result of our discussion, and, as I thought, substantial agreement on a certain of the problems on the morning of the eighteenth. I thought we were agreed.

1. That, as the trusses stand now, the center 10x10 from bottom chord (horizontal) to the peak appears and actually has been through the years a hanger with probable maximum tension of about 5,000 pounds, since it supports the bottom chord at its center and Mr. Hutchins's diagram shows a load of 3,000 pounds deposited upon this bottom chord on each side of the center.

2. That this tension in the center hanger would exert a pull of the same amount at the junction of the top chords at the peak and an uplift of the same amount at the bottom chord.

3. That in view of the fact that these loads have been carried in this manner for more than a century, that one could never be sure that the mere introduction of a doubled 2x6 diagonal bolted to bottom chord at its quarter point and bolted to the top chord near the peak would so convert the load travel of the years in this structure which certainly has its "set" that there would be no tension at all, in fact neither tension or compression in the center 10x10 upright, which is what the truss analysis seems to show.

4. That we cannot be sure that the 10x10 diagonal, existing for all these years, between the top chord and the center 10x10, will certainly cease to carry any important load, merely because we ignore it for the purpose of analysis.

Mr. John Howard Stevens-----2

December 19, 1947

5. That, in view of the extreme importance of the new occupancy of the building, we should not rely so heavily upon theoretical truss analysis, but should take all reasonable precautions to safeguard the situation in case the new diagonals are not or cannot be installed in such a way as to revolutionize the load travel in this old structure. In view of this it would be only reasonable safety to reinforce the connections between the center 10x10 and the top chords at the peak and the connection between the center 10x10 and the bottom chord so that we would be assured of no failure even if the new diagonals did not convert the load travel, but merely acted as a hanger to give support to the bottom chord at the center point of its 20' span without which the chord would be very substantially overloaded should anything like the maximum 5,000 pounds come from above.

You found no fault with that reasoning at our conference although it may be at fault. It seems necessary for me to insist that you either show that this reasoning is faulty and the strengthening it implies unwarranted, or else go ahead and show the strengthening or something equivalent on the plans.

Something is necessary of course to support the bottom chord under the concentrated load at the center of its 20' span, and it appears that the doubled 2x6 diagonal will do that, the diagram showing a maximum tension in the diagonal of nearly 4 tons. Only two 7/8 inch bolts are shown at each end of this diagonal, and I would like to see the figures to support the strength of these connections, as to bearing of the bolts on the 2x6's, as to possible bending of the bolts and as to horizontal shear, the bolts being shown in line parallel with the grain.

I presume the design of reinforcement of the "heel" joints, using special connectors, takes care of the full load, ignoring the strength of any present fastenings.

Will you explain the figures as to compression on the diagonals of trusses A and F? Direct compression is shown at 31. pounds per square inch and compression due to bending from the rafter loads of 885 pounds per square inch—a total of 1,195 pounds per square inch in compression. The old timbers are reported to be of native white pine and the maximum load in compression given by the Building Code parallel to the grain even on short columns is 750 pounds per square inch. I presume the compressive stresses in the top chords of the other trusses would be only slightly less.

We have your own signed statement of design on the plans relating to other features of structural steel and reinforced concrete design. Do you desire that we consider this strength design of trusses as under your statement, or should we have Mr. Hutchins' signed statement on his own investigation and design?

With reference to Sheet T-3 showing reinforcement of center spans of rafters, where the new 2x6 rafters are to be added, it is understood that steps are to be taken to give the present roof sheathing an adequate bearing on the new rafters in every case.

At our conference nothing was said about the 6 numbered items in my letter of December 11, and your letter of December 18 makes no reference to them. Item 5 requires nothing. I presume the others are being covered either by revision of the plans or revised instructions to the contractor, and that we are to receive a copy, so that our record may be clear and no "hibes" occur when the building is ready for final inspection.

Very truly yours,

Inspector of Buildings

WHL/s

CC: Mr. W. O. Hutchins
57 Exchange Street

1. Raymond S. Jakes, 465 Congress Street
2. Validated Constructors, Inc., 26 1/2 St. John Street