

SAINT ALBAN'S CATHEDRAL

TORONTO, CANADA

SPECIFICATIONS FOR

EXCAVATION	PART I	CARPENTER WORK	PART IX
CONCRETE AND REINFORCED CONCRETE	" II	ROOFING	" X
STONE MASONRY AND BRICKWORK	" III	PLASTERING	" XI
CUT STONE	" IV	SLATE AND MARBLE	" XII
STRUCTURAL STEEL	" V	INTERIOR FINISH	" XIII
LIGHT IRON	" VI	METAL CASEMENTS	" XIV
PARTITIONS AND FIREPROOFING	" VII	GLASS	" XV
VAULTED CEILINGS	" VIII	PAINTING	" XVI

CRAM, GOODHUE & FERGUSON, ARCHITECTS
15 BEACON STREET, BOSTON
170 FIFTH AVENUE, NEW YORK

SYMONS & RAE, SUPERINTENDING ARCHITECTS
13 TORONTO STREET, TORONTO, CANADA

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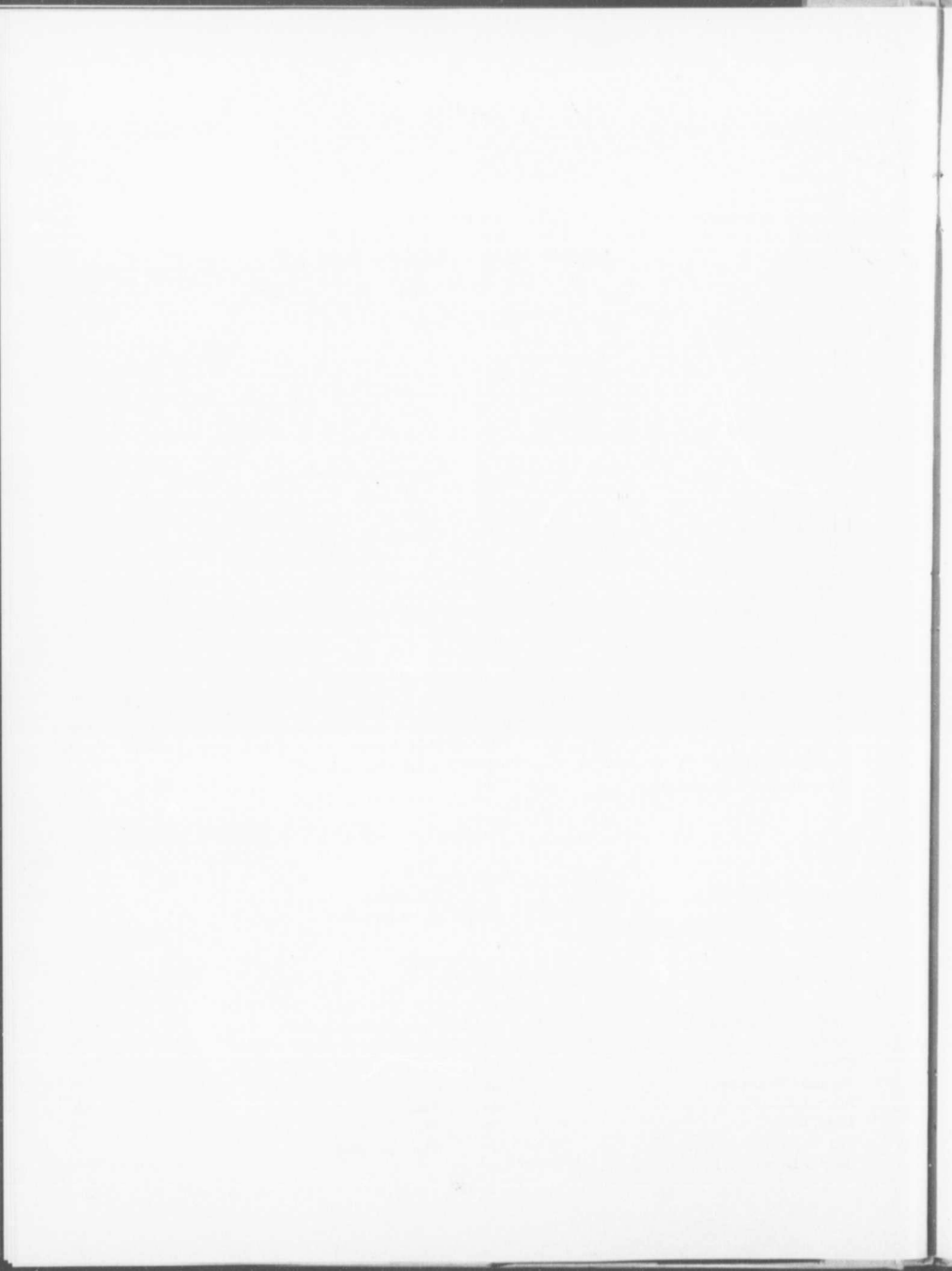
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INVITATION TO BID.

OFFICE OF CRAM, GOODHUE & FERGUSON
ARCHITECTS
15 Beacon Street, Boston, Mass.

..... 1911.

M.....
.....
.....

Dear Sir:

You are invited to submit a proposal for.....
.....
.....

for Saint Alban's Cathedral, Toronto, Canada.

Drawings and specifications and other information may be procured from Messrs. Symons & Rae, Superintending Architects, 15 Toronto Street, Toronto, Canada.

Very truly yours,

CRAM, GOODHUE & FERGUSON.

INSTRUCTIONS TO BIDDERS.

- a. Proposals to be entitled to consideration must be made in accordance with the following instructions.
- b. Before submitting a proposal, the bidders shall visit the site of the work and fully inform themselves as to all existing conditions and limitations.
- c. Should a bidder find discrepancies in, or omissions from the drawings or documents, or should he be in doubt as to their meaning, he should at once notify the architects, who will send written instructions to the bidders. Neither owners nor architects will be responsible for any oral instructions.
- d. The competency and responsibility of bidders and of their sub-contractors, will be considered in making the award. The owner does not obligate himself to accept the lowest or any other bid.
- e. Proposals shall be made in the exact form accompanying these instructions. Numbers shall be stated both in writing and in figures and the completed form shall be without interlineation, alteration, or erasure.
- f. Proposals shall not contain any recapitulation of the work to be done.
- g. All estimates are to be separated as indicated by the sixteen subject headings in this specification. No estimate will be considered that includes work under more or less than one of these headings, except as specified below.
- h. Proposals shall be delivered to the architects, addressed Cram, Goodhue & Ferguson, care of Symons & Rae, 15 Toronto Street, Toronto, Canada, in an opaque, sealed envelope, marked "PROPOSAL" and bearing the title of the work and name of the bidder.
- i. Proposals must be delivered not later than twelve o'clock noon,1911.
Unless otherwise directed all drawings, specifications and samples are to be returned with the proposals.

FORM OF PROPOSAL.

Messrs. Cram, Goodhue & Ferguson,
Care of Symons & Rae,
15 Toronto Street,
Toronto, Canada.

..... 1911.

Dear Sirs:

Having carefully examined the Instructions to Bidders, Form of Agreement, General Conditions, Specifications, Drawings, and the conditions affecting the work, the undersigned proposes

to furnish all materials and labor called for by them for the.....

.....for Saint Albans Cathedral, Toronto, .

Canada, in accordance with said documents, for the sum of.....

.....
(If alternate estimates or unit prices are called for in this specification they are to be listed here.)

The undersigned agrees if awarded the contract to begin the work when directed by the architect and to conduct the same with the utmost rapidity consistent with proper construction.

Submitted by.....

GENERAL CONDITIONS

TO GOVERN ALL WORK INCLUDED UNDER THE CONTRACT.

1. **CONTRACT DOCUMENTS.** The Agreement, the General Conditions, the Specifications and the Drawings with all the notes thereon are the documents forming the contract and are hereinafter referred to as the Documents of the Contract.
2. **NUMBER AND GENDER.** In all documents forming the contract, the owner, the architect and the contractor are treated as if each were of the singular number and masculine gender.
3. **RELATION OF DOCUMENTS.** The contract documents are co-operative, and what is called for by any one shall be as binding as if called for by all. Should they disagree, the better quality or greater quantity of work or materials shall be estimated upon and, unless otherwise ordered in writing, shall be furnished.
4. **OMISSIONS FROM DOCUMENTS.** The omission from the contract documents of express reference to any labor or materials reasonably to be inferred therefrom and necessary for the proper execution of the work shall not relieve the contractor from furnishing them of a kind in keeping with the general character of the work.
5. **DETAIL DRAWINGS.** Detail and working drawings, which shall be true developments of the scale drawings, will be furnished by the architect from time to time, as necessary, and the work shall be executed in conformity therewith.
6. **ACCEPTANCE OF DETAIL DRAWINGS.** If detail drawings are, in the opinion of the contractor, inconsistent with the scale drawings or the specifications, he shall notify the architect before proceeding to execute the work therefrom, and in any case within ten days of their receipt, and failure so to do shall constitute a waiver of all claims for extra payment on such account.
7. **DIMENSIONS.** Figured dimensions shall be followed in preference to measurements by scale, and larger scale drawings shall take precedence over those at smaller scale.
8. **USE AND RETURN OF DRAWINGS AND MODELS.** The drawings and specifications furnished by the architect shall be used for this work only. They are the property of the architect, and shall be returned to him immediately upon the completion of the work. Any models furnished under this contract or by the owner are his property and shall be disposed of as he directs.
9. **NUMBER OF COPIES FURNISHED.** The architect will furnish to the contractor, free of cost, one copy of each full size detail drawing and two copies of all other drawings and of the specifications. Any additional copies desired by the contractor may be obtained by him at the cost of reproduction.
10. **SHOP DRAWINGS.** The contractor shall furnish to the architect at proper times all shop and setting drawings (in duplicate) which the architect may deem necessary to make clear the work intended and to show its relation to adjacent work of other trades. The architect will inspect such drawings but he shall not be held responsible for the contractor's errors, the results of which, should they occur, must be made good at the contractor's expense.

The contractor shall make any required changes in such drawings and shall supply two revised prints to the architect, one to be returned to the contractor, the other to be filed. Any models or templates submitted shall be changed as required until satisfactory to the architect.

11. **DRAWINGS KEPT AT BUILDING.** The contractor shall at all times keep a complete set of drawings and specifications in good and orderly condition at the work for the use of all connected therewith.
12. **VERIFICATION OF DRAWINGS, ETC.** The contractor, as a part of his services, shall carefully study and compare all drawings, specifications and other information given to him by the architect, both as to figures, materials and methods of construction, using therein the skill and experience for which he receives compensation under this contract, and shall immediately report to the architect for rectification any error, inconsistency or omission therein, which he shall discover.
13. **NO WORK WITHOUT INSTRUCTIONS.** The contractor shall do no work without proper drawings or instructions, and shall at his own expense, replace any work wrongly executed, whether from lack of such drawings or instructions or otherwise.
14. **CO-OPERATION.** The contractor shall give every opportunity for the introduction or erection of any work or materials not included in this contract. Each contractor shall cooperate with the other contractors and work in conjunction with them to obtain expeditious results in the best manner.
15. **MEASUREMENTS.** The contractor shall measure work already in place, to insure the proper execution of subsequent work, or for the information of the architect; and should any discrepancy between the executed work and the drawings be discovered, he shall report it at once to the architect.
16. **SCHEDULE OF DATES.** The contractor, if required, shall prepare, in consultation with the architect, a schedule assigning dates for the beginning of manufacture and installation of materials and for the completion of the sundry parts of the work, and the latest dates at which the various detail drawings and decisions will be required under proper conduct of the work.
17. **PERMITS, NOTICES, RULES.** The contractor shall at his own expense, obtain for the owner all necessary permits and licenses, give all necessary notices, pay all fees required by law, comply with all laws, ordinances, rules and regulations relating to the work and to the preservation of the public health and safety, and if the drawings and specifications are at variance therewith, he shall so notify the architect in writing, stating the effect of such compliance upon the contract price, and he shall protect the owner from any annoyance and fines consequent on any infraction thereof.
18. **PATENTS, FEES.** The contractor shall pay all royalties and license fees, and shall save the owner harmless from loss or annoyance on account of suits or claims of any kind for infringement of patents in connection with his work.
19. **SUB-CONTRACTS.** The contractor shall not assign this contract, nor sub-let any portion of the work without obtaining the written consent of the architect; but such consent shall not relieve the contractor of responsibility for his sub-contractors. In sub-letting any part of the work to be done under this contract the contractor shall make with the sub-contractor a contract by which the sub-contractor shall expressly agree to be bound by the Documents of the Contract so far as they are applicable, and the contractor agrees to exact from every sub-contractor strict compliance therewith.
20. **GENERAL NOTICE.** The contractor shall bring to the notice of the architect any conditions known to him pertaining to the site, the soil, the various portions of the work, whether

executed by himself or by the other contractors, or to proposed work, or to laws and ordinances governing the work that should be properly known to the architect.

21. **LABOR, MATERIALS, APPLIANCES.** The contractor, unless otherwise expressly provided, shall furnish and install all material, and shall furnish all labor, water, apparatus, light and power necessary for the complete execution of the work in the best and most expeditious manner.
22. **COMPETENT FOREMAN.** The contractor shall keep a competent general foreman, satisfactory to the architect, constantly at the work, who shall remain in charge from the beginning to the completion of the work, unless changed with the consent or at the instance of the architect. He shall represent the contractor in his absence, and all directions given to him shall be as binding as if given to the contractor; and if, in the judgment of the architect, assistants to the foreman are needed, the contractor shall provide them.
23. **SKILLED WORKMEN.** No one unskilled in the work which he is given to do shall be employed and all work shall be executed in a skillful and workmanlike manner. Should the architect deem any one employed on the work incompetent or negligent, or for any cause unfit for his duties, and so certify, the contractor shall dismiss him at once and he shall not again, without the architect's permission, be employed on the work.
24. **QUALITY OF MATERIALS.** All materials, unless otherwise specified, shall be new and of the best quality of their respective kinds.
25. **DELIVERY.** The contractor shall furnish all materials and labor promptly and at such times as shall be for the best interests of the owner and of all contractors employed upon the work.
26. **STORAGE LIMITS.** The contractor shall confine the storage of materials and operations of his workmen to the limits indicated by the architect, and shall not unnecessarily encumber the premises with his materials.
27. **LOADING.** The contractor shall not permit any part of the structure to be loaded during construction with a weight greater than it is calculated to bear.
28. **VOUCHERS AND SAMPLES.** The contractor shall, when required, produce vouchers showing the kind, quality and quantity of materials used on the work. All samples of materials called for by the specifications shall be delivered to the architect free of cost and be marked for identification. If accepted by the architect they are to become standards of materials and workmanship to be furnished under the contract.
29. **CASH ALLOWANCES.** Where a sum is mentioned in the agreement or specification, as a cash allowance for a certain purpose, the contractor shall set aside such sum to be expended at the architect's discretion, and the contractor shall pay and expend it at such times and in such amounts and to and in favor of such persons as the architect may in writing direct, and such allowance shall be for the actual cost of labor and material only, cost meaning the net cost to the contractor, exclusive of office or other expenses, or profit, and such sums shall be payable by the contractor without discount or deduction, or by the owner directly if he so elects. All bills for labor and materials under such allowances shall be submitted to the architect for his approval. Proper credit or debit shall be made in the contract price, according to the difference between the cost of such material and labor, and the cash allowances named in the agreement or specification. The contractor shall make sub-contracts with the parties furnishing such materials and labor, and he shall assume the same responsibility for their work as for other portions of his work.
30. **INSPECTION.** The contractor shall for the use of the architect, his superintendents and the Clerk of the Works, maintain at all times proper facilities and provide safe access for inspection

to all parts of the work and to the shops wherein the work is in preparation. No work shall be closed or covered up until approved; should any work be covered up without having been approved, it must be uncovered for examination, at the contractor's expense, unless the architect has had timely notice in writing of its readiness for inspection.

31. **RE-EXAMINATION.** When required by the architect, the contractor shall provide all facilities and labor necessary for a complete re-examination of the work under suspicion and if the work is found defective, the contractor shall bear the expense of re-examination and replacement. If not found defective, such expense shall be credited to the contractor as extra work.
32. **CONDEMNED WORK.** The contractor, upon receiving written notice from the architect, and within such reasonable time as may be named therein, shall remove from the premises all materials condemned by him, whether worked or unworked, and take down all portions of the work which the architect may, by like written notice, condemn as unsound or improper, or as in any way failing to conform to the contract, and he shall make good all work damaged or destroyed by the said removal, and he shall promptly re-execute the work in accordance with the contract and without expense to the owner.
33. **DEDUCTIONS FOR DEFECTIVE WORK.** If, in the opinion of the architect, it is not expedient to correct injured work, or work not done in accordance with the contract, the owner may deduct the difference in value between the work involved and that called for by the contract together with a fair allowance for damage, which sum shall be determined by the architect, subject to arbitration.
34. **CHANGES IN THE WORK.** The owner, and he alone, may, without invalidating the contract, make changes by altering, adding to or deducting from the work. No claim for an extra charge for such changes shall be valid unless such work is done in pursuance of a written order therefor from the owner or from the architect (acting in behalf of the owner) having therein the written approval of the owner. All such work shall be executed under the conditions of the original contract, unless specifically provided to the contrary.
35. **VALUE OF CHANGES.** Should the architect determine that any alterations in, additions to or deductions from the work covered by the contract affect the contract price, then their value shall be determined in one or more of the following ways as may be selected by the owner.
 - A. By unit prices named in the contract or subsequently agreed upon. In which case the architect shall make the award, subject to arbitration.
 - B. By cost and percentage. In which case the contractor shall keep a true and correct account of the cost of labor and materials, rendering to the architect at required intervals detailed statements and vouchers and the architect shall award an amount as cost and profit, subject to arbitration.
 - C. By estimate and acceptance in a lump sum. In case an agreement as to price cannot be reached, the architect may with the written authority of the owner, order the work to proceed and the contractor shall forthwith proceed and leave the price to be settled by arbitration.
36. **CONTRACTOR'S CLAIM FOR EXTRA REMUNERATION.** Should the contractor deem any work which he is called upon to perform extra to the contract, he shall so notify the architect before proceeding to execute it, and in any case within ten days of being called upon to perform it, and failure so to do shall constitute a waiver of all claim for extra payment on account of it. If he so notifies the architect, and if the architect decides that no extra payment is due him on account of such work and orders him to proceed therewith he must proceed, but he may appeal to arbitration as to the justness of his claim and the amount, if any, to be paid him in respect thereof.
37. **NOTICE OF CONFLICTING CONDITIONS.** Where the contractor's work is associated with that of another trade, the contractor shall examine the adjacent work and

report in writing to the architect any defect or condition preventing the proper execution of his contract, and if he proceeds without giving such notice, the contractor shall be held to have accepted such work and material, and the existing conditions, and shall be responsible for any defects in his own work consequent thereon, and shall not be relieved of the obligation of any guarantee because of any such condition or imperfection.

38. **WORK NOT IN CONTRACT.** The owner reserves the right to let contracts other than this one in connection with this work and he shall provide all labor and materials not included in this contract, essential to the conduct of this work, in such manner as not to delay its progress.
39. **REPORTS.** The contractor shall furnish, whenever required and in the manner directed, reports showing the progress and status of the work at the building and in the shops.
40. **PROTECTION OF WORK.** The contractor shall cover and protect his materials and work from damage by the elements, or from any other cause, in a manner satisfactory to the architect. The protection must be substantial and so placed as to be easily removed for inspection or to facilitate the progress of other work.
41. **REPAIR OF DAMAGE.** The contractor shall, at his own expense, make good to the architect's satisfaction any damage to his work from the action of the elements or other cause, except as provided in Articles 33 and 68.
42. **CUTTING, FITTING AND DIGGING.** The contractor shall do all cutting, fitting or rearranging of his work that may be required to fit it to receive or to be received by work of the other trades, and he shall patch up and make good after them as the architect may direct, but the contractor shall not endanger the stability of the structure or any part thereof by cutting or digging or otherwise, and shall not in any way cut or alter the work of any other contractor, save with the consent and under the direction of the architect.
43. **FIRES, SMOKING.** The contractor shall not permit open fires to be lighted at any time in or dangerously near the building, and after the roof is on shall not allow smoking within the building.
44. **SIGNS.** The contractor shall not permit signs other than signs required for public safety upon the building or premises except by the written permission of the architect.
45. **RUBBISH.** The contractor shall not allow the waste material or rubbish caused by his own mechanics to accumulate on the premises, but shall promptly remove the same, and at the completion of the work he shall thoroughly remove all rubbish from the premises, and all tools, scaffolding and surplus materials, and shall leave his work thoroughly cleaned and ready for use.
46. **STATEMENT OF COSTS.** The contractor shall, if required, before his application for first payment, furnish to the architect, upon a blank form prepared by him, a correct statement showing the cost of each part of the work as subdivided in the specifications; the total equalling the contract price.
47. **APPLICATIONS FOR CERTIFICATES.** At least one week before each payment falls due, the contractor shall submit to the architect a requisition therefor and shall, if required, submit therewith an itemized statement of the quantities and cost of work performed to the termination of the period to be covered by the payment and such statement shall be made in form provided or approved by the architect, but it shall not be binding as against his judgment.
48. **LIENS.** Payments shall not become due until in each case the contractor, if so required, and in any event before the final payment, shall have delivered to the owner a certificate from the Registrar of the County where Mechanics' liens may be recorded, and signed by said Regis-

trar " that he has examined the records, and finds no Mechanics' liens or claims recorded against the land of said Proprietor " on account of said contractor; and thereupon, and on or before the said thirty-first day after completion of the said works, a final certificate shall be obtained from and signed by the architect, certifying to the balance due to the contractor on said contract, and for all extras in respect thereof. But if, from any reasonable cause whatever, such final certificate should not be obtained, or that the giving of the same should be refused by said architect, the said contractor shall, nevertheless, after the expiration of the said thirty-one days, be entitled to proceed at law to enforce payment of the balance due to him under the said contract, and for all extra work in respect thereof, and the production of a final certificate shall not in any case be a condition precedent to his right to recover the amount justly due and owing to him and such balance and the amount due in respect to extras shall be recovered, if justly due, without the necessity for the production in evidence of any final certificate, and the right of action hereby provided shall not be controlled by the arbitration clause hereinbefore set forth.

49. **PAYMENT OF FINAL CERTIFICATE A WAIVER.** Acceptance by the contractor of the payment of the final certificate shall constitute a waiver of all claims against the owner under or arising out of this contract.
50. **CERTIFICATE NOT FINAL EVIDENCE.** No certificate given, nor payment made under the contract, nor partial or entire occupancy of the building or premises by the owner shall be construed as acceptance of defective work, or of improper materials, or as condoning any omission, or as determining the date of completion.
No payment, nor certificate, final or otherwise, shall be construed as relieving the contractor from his obligation to make good any defects discovered in his work after the completion and acceptance of the same, nor as a waiver of any specific obligation the contractor may have assumed as to the durability of his work.
51. **CERTIFICATES WITHHELD.** The architect may withhold any certificate, if, in his opinion, violation of the contract exists after the contractor has been notified to correct same, and such certificates may be withheld until violations are corrected to the satisfaction of the architect.
52. **DELAY IN COMPLETION.** Should the owner claim damages for delay in the completion of the work, the architect shall cross the face of his final certificate with the words " Payable, subject to deduction by reason of the owner's claim for damages for delay in completion of the work "; and thereupon the architect's services in this matter shall terminate, except as provided under Article 63. The owner's claim for damages shall, however, be subject to arbitration.
53. **ARCHITECT'S AUTHORITY.** The architect has authority to stop the progress of the work whenever, in his opinion, such stoppage may be necessary to insure the proper execution of the contract. He has authority to condemn and order the removal of any materials, whether worked or unworked, or any portions of the work, which in his opinion are not in accordance with the contract.
54. **ARCHITECT'S DUTIES.** The architect will furnish all necessary drawings and specifications, except as noted in Article 10. As supervisor of the work, he will explain and supplement the drawings and specifications, and will decide whether the work and materials are in conformity with the contract. He will keep accounts, verify estimates of the work done and issue certificates when payments are due. He will compute or check all deductions from and additions to the contract price and determine the responsibility of the contractor or owner, for failure to fulfill the terms of the contract, and he will perform such other services as may be herein set forth.

55. **LIMITATION OF ARCHITECT'S DUTIES.** The architect will notify the contractor of the rejection of faulty work as it comes to his attention, but his failure to detect violations of the contract shall not act as an acceptance of the work. It is not incumbent upon the architect to notify the contractor when to begin, to cease, or to resume work.
56. **COMPENSATION FOR PROTRACTED SERVICES.** Should the contractor by his own fault or negligence delay the completion of the work, thereby necessitating unusual or protracted services on the part of the architect or the Clerk of the Works, the owner shall be entitled to retain from the amount otherwise to become due to the contractor an amount sufficient to properly reimburse each of them for such protracted or unusual services, subject to arbitration.
57. **OWNER'S RIGHT TO DO WORK IN CONTRACTOR'S DEFAULT.** Should the contractor become insolvent, or at any time refuse or neglect to supply a sufficiency of properly skilled workmen or of materials of the proper quality, or fail in any respect to prosecute the work with promptness and diligence, or fail in the performance of any of the agreements herein contained, such refusal, neglect or failure being certified by the architect, the owner shall be at liberty, after forty-eight hours written notice, served personally upon the contractor, or delivered at his last known address, to provide any such labor or materials, and to deduct the cost thereof from any money then due or thereafter to become due to the contractor under the contract.
58. **OWNER'S RIGHT TO TERMINATE CONTRACT.** If the architect shall certify that such refusal, neglect or failure, as described in Article 56 is sufficient ground for such action, the owner shall also be at liberty to terminate the employment of the contractor for said work, and for the purpose of completing the work, to enter upon the premises and take possession thereof, and of all materials, tools and appliances thereon, and to employ any other person or persons to finish the work, and to provide the materials therefor; and in case of such discontinuance of the employment of the contractor, he shall not be entitled to receive any further payment until the said work shall be wholly finished, at which time, if the unpaid balance of the amount to be paid shall exceed the expense incurred by the owner in finishing the work, including proper compensation to the architect for his additional services in connection therewith, such excess shall be paid by the owner to the contractor; but if such expense shall exceed such unpaid balance, the contractor shall pay the difference to the owner. The expense incurred by the owner as herein provided, either for furnishing materials or for finishing the work, and any damage incurred through such default shall be audited and certified by the architect.
59. **OWNER'S DUTY ON ARCHITECT'S DEATH.** In the case of the death of the architect or of the termination of his employment, the owner shall appoint a capable and reputable architect as his successor, who shall be vested with all the duties and authority of the former architect.
60. **CONTRACTOR'S CLAIM FOR EXTENSION OF TIME.** Should the contractor be delayed in the prosecution or completion of the work by the act, neglect or default of the owner, or by any one employed by the owner, or by any damage caused by fire or other casualty for which the contractor is not responsible, or by general strikes, then the time fixed in the Agreement for the completion of the work shall be extended for a period equivalent to the time lost by reason of any or all the causes aforesaid, which extended period shall be determined and fixed by the architect, subject to arbitration, but no such allowance shall be made unless a claim therefor is presented in writing to the architect within forty-eight hours of the occurrence of such delay.
61. **CONTRACTOR'S CLAIM FOR DAMAGES.** Should the contractor be damaged by the act or omission of the owner relating to this contract or to the work, the right of the contractor to compensation for the damage suffered and the amount of said damage shall be

determined and awarded by the architect (subject to arbitration); but no such allowance shall be made unless a claim therefor is presented in writing to the architect within forty-eight hours of the occurrence of such damage.

62. **CONTRACTOR'S RESPONSIBILITY FOR DAMAGES.** The contractor shall be responsible for and shall make good, to the satisfaction of the architect, all damages, except by fire, arising directly or indirectly from operations under his contract to the adjoining streets, to sidewalks or premises, or to the materials or work of other contractors, or to the property of any person in or about the building or upon the ways adjacent thereto, or to any other contractor employed upon the work on account of delay which he may cause to the progress of the work of such other contractor for which alleged damages claim shall be made against the owner, but only in such amount or manner as shall have been certified by the architect as just or tenable, subject to arbitration.
63. **ARBITRATION.** Should any dispute arise as to the value of any claim for extras or deductions after the architect has given the final certificate in writing on the completion of the contract, the same shall be referred to two arbitrators, one to be chosen by the owner and the other by the contractor, and in case of disagreement the two arbitrators shall appoint a third, and their award and decision, or that of any two of them, shall be final and conclusive, and binding upon all parties to this contract, the submission and reference to be in writing under seal, and to be signed by the owner and contractor and duly witnessed, and the said award of the arbitrators or any two of them to be also in writing, duly signed, sealed and witnessed, shall, if required, be made a Rule of the High Court of Justice of Ontario, when so submitted to and decided by competent authority. When the proprietor or contractor shall apply for an arbitration, the application shall not be entertained until security to the amount of two hundred dollars has been given by the applicant to cover the costs of the arbitration and the arbitrators or any two of them shall decide as to the payment of the costs of the arbitration and award. In case of a balance remaining to the credit of the contractor according to the certificates of the architect, the same may be received on account of the said security of two hundred dollars to cover the costs of arbitration. In case either party refuses or neglects to appoint an arbitrator within two weeks of his being notified to do so, the judge for the time being of the County Court of the County in which this building is located shall appoint one for him.
64. **CLERK OF THE WORK.** When a Clerk of the Works is appointed by the architect or owner, it is his duty to examine and report to the architect upon the condition, quality and progress of the work and whether it is being executed in conformity with the contract; and the contractor is to afford every facility and convenience for the discharge of his duties. The Clerk of the Works has no discretionary or administrative power and will not interpret the intent and meaning of the drawings and specifications. The contractor is not to take orders from the Clerk of the Works without written authority from the architect.
65. **TREES.** The greatest care is to be taken at all times to protect the trees, shrubs and fences and this contractor is to hold himself responsible for them. The protection must be substantial and satisfactory to the architect.
66. **ACCIDENT INSURANCE.** The contractor shall take out and maintain adequate accident insurance for any person, whether employed by the contractor or not, who may sustain bodily injury in or upon or about the building or upon the ways adjacent thereto, and arising directly or indirectly from operations under this contract, and he shall be responsible for failure to maintain such insurance.
67. **REPETITIONS.** Where the drawings show outline or descriptive representations of repetitive features, the contractor shall construct them in exact accordance with the corresponding features completely drawn and specified.

68. **GENERAL CHARGE OF BUILDING OPERATIONS.** The mason is to have general charge of the building operations until the building is dry enough to receive the interior finish, when the interior finish contractor will be in charge until the completion of the work. See Specification for Stone Masonry, etc., and Interior Finish.
69. **STORAGE OF MATERIALS.** Each contractor shall provide suitable buildings or other covering satisfactory to the architect for the storage of all materials such as cements, lime, finished woodwork, etc.
70. **DAMAGE TO PERSONS.** The contractor shall be solely answerable for all damages or injury caused to persons employed upon or about the work or to the public, by himself or those working under him or through any operations under his charge, whether covered by the original contract or otherwise, and agrees to protect the owner from any claim, demand or suit on said account and to indemnify him for every verdict recovered against him on account of such damage or injury.
71. **FIRE INSURANCE.** Unless specifically provided otherwise in the "Agreement," the owner and the contractor shall each protect his own interest against loss or damage by fire, pending full performance by the contractor of the work hereunder and full payment thereof by the owner. For the purpose of maintaining fire insurance as far as concerns this contract the owner's interest at any time shall be held to amount to the sum of all payments which he shall have made to the contractor on account of this contract. For the same purpose, the contractor's interest shall be held to consist of any and all insurable value under and pertaining to this contract not above defined as "owner's interest." Loss or damage by fire shall not affect the rights and obligations of either party under this contract, except that in such event the contractor shall be entitled to reasonable extension of time for the performance of this contract, as provided under Article 59 (Contractor's Claim for Extension of Time). The contractor shall upon written notice from the owner immediately proceed with the reinstallation of work damaged or destroyed, and the owner shall make payments to the contractor on account of reinstallation upon certificates of the architect issued on the same principles as govern payments during its original construction as provided in the Agreement. Should the owner and the contractor fail to agree on the total amount thus to be paid, such amount shall be subject to arbitration.
72. **WATCHMAN.** A watchman will be provided from the time of beginning the stone masonry to the completion of the building for properly safeguarding the work. The employers of such watchman will not be responsible at any time for anything which may occur through the absence, negligence or fault of such watchman. Should any contractor consider the above provisions insufficient for his interests he may supply his own watchman for such length of time as he deems necessary.
73. **PAYMENTS.** Payments will be made to the contractor in current funds as follows, subject to additions and deductions as provided in these specifications, but only upon certificates of the architect as follows. On the fifteenth day of each month, the contractor shall submit a statement of the amounts that he has paid for materials placed in permanent position and work performed in connection therewith during the previous thirty days.
Upon approval by the architect, this amount shall be paid to the contractor, minus fifteen per cent of the sum of such statement, on or before the last day of the month in which such statement is made, provided that the sum of all payments at any time shall not exceed an amount that bears the same ratio to the total contract price, less fifteen per cent, as the amount of the work performed bears to the whole construction.
74. **TIME LIMIT.** It is hereby understood and agreed by the parties hereto that time is of the essence of this contract and that great energy and diligence shall characterize all operations carried on under this agreement. The preparation of any work away from the building shall

be done at the earliest possible time; every precaution shall be taken in advance to avoid delays. The contractor shall keep constantly employed at the building a sufficient number of workmen, with materials, to satisfy the architect that the work is being conducted with the utmost rapidity consistent with proper construction. See Article 56 of the General Conditions.

75. **BOND.** The contractor will be required to furnish a bond in some good Bond or Surety Company approved by the owner, in the amount of twenty per cent of the amount of his contract for the faithful performance of all provisions of the contract. The bond shall also cover all damages sustained by the owner by reason of failure to complete contract within the time specified, and it shall be so stated therein.
76. **MAINTENANCE.** The contractor shall keep his entire portion of the work in repair without expense to any one as far as concerns defects of workmanship or materials for a period of one year from the date of the final certificate of the architect (unless specified for a longer time elsewhere), and he shall be responsible for and make good any damage caused by such defects; but this clause shall not be interpreted as holding him responsible for making good any deterioration of his part of the work due to its use or abuse by the owner.
77. **THE WORK.** The work to be executed under this contract consists of the erection of Saint Alban's Cathedral, in the City of Toronto, Canada, under the supervision of and in accordance with the drawings, general conditions and specifications, prepared by Cram, Goodhue & Ferguson, architects, said drawings being numbered one to eleven, inclusive, and the specifications including all work under the following headings:

Excavation.	Carpenter Work.
Concrete and Reinforced Concrete.	Roofing.
Stone Masonry and Brickwork.	Plastering.
Cut Stone.	Slate and Marble.
Structural Steel.	Interior Finish.
Light Iron.	Metal Casements.
Partitions and Fireproofing.	Glass.
Vaulted Ceilings.	Painting.

NOTE: The foregoing 77 articles constitute the General Conditions.

PART I.
EXCAVATION.

1. **GENERAL CONDITIONS.** The General Conditions are hereby made a part of the specification for Excavation.
2. **WORK INCLUDED.** This contract includes the providing of all labor and implements and the excavation for all work as called for in this specification.
3. **UNIT PRICE.** The contractor shall state in his bid a price per cubic yard for excavation not included in the contract that may be ordered by the owner in connection with this work. The same price to be used in case of deductions from contract.
4. **PREPARATION OF SITE.** The plot plan on basement sheet shows the buildings which are to be removed. This contractor is to remove these buildings and any trees and shrubs now on the lot.

Any apparatus in these buildings remains the property of the owner and will be removed by him.

All other materials are to become the property of the contractor and are to be carted away from the site.
5. **BATTER BOARDS.** The batter boards will be furnished, set and maintained by the contractor for Foundations.
6. **SHORING.** Any shoring required in connection with the work shall be done by this contractor and when no longer needed shall be removed by him. Shoring of old walls is not included in this contract.
7. **WATER.** The basement shall be kept clear of water at all times by this contractor without extra expense to the owner.

If water shows continuous flow, as from springs, the contractor shall provide for its constant removal by putting in such permanent drains as the architect may direct. These permanent drains shall be paid for by the owner as an extra to the contract.
8. **SOD AND LOAM.** Take off the sod and loam from the entire site of the building and wherever excavating will be done or grades changed and stack where directed on the lot.
9. **GRADE.** The grade lines are shown approximately on drawings.
10. **EXCAVATION UNDER BUILDINGS.** Excavate under all walls, footings, piers or other masonry to depths shown, and level off to receive masonry. Should any excavation be carried too deep at any point filling must be of concrete same as specified for footings.

No masonry can be built on filling or on an incline. Changes of level must be by horizontal stepped courses.

Carefully level and thoroughly ram the surface of the unexcavated portions ready to receive the concrete.

Do all excavation necessary in connection with the underpinning, if any, of the west ends of the four walls of the present building.

Excavate 18" outside of, around and back of all walls, piers, etc.
Do any other excavating necessary for the completion of the work called for by the drawings and specifications.

11. **REFILLING.** Refill with materials from excavations, around all walls, piers, etc., and in all trenches and all other work called for by plans and specifications.
All filling shall be thoroughly rammed in 6" layers.
No building refuse to be used for refilling or left on the premises.
12. **EXCAVATED MATERIALS.** The excavated materials are to be separated and each kind piled by itself wherever directed on lot. Cart away all material not needed for refilling.
13. **GRADING.** Grade with clean material from the excavation to within 6" of the finished surface shown on drawings.
Where cement or other walks or paving is shown bring to proper grades by excavating or filling.
All to be thoroughly rammed in layers not exceeding 6".
When directed by architect, all portions which are to be in grass are to be covered evenly with top soil free from any stones, chips or other debris.
Top soil to be rolled to a firm, smooth, even surface to finished grade shown.
14. **SOWING DOWN AND SODDING.** Sowing down and sodding is not to be included in this contract.
15. **DAMAGE TO PROPERTY.** If during the progress of the work any curbing, sidewalks, masonry, drain or other construction is disturbed, this contractor shall repair all such damage at his own expense, leaving everything in perfect condition.
16. **CUTTING AND JOBBING.** The contractor is to promptly render assistance to the other mechanics and is to do all cutting and jobbing which may be necessary to enable them to properly fulfil their several contracts.
These are the specifications referred to in our contract of even date.

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PART II.
CONCRETE AND REINFORCED CONCRETE.

1. **GENERAL CONDITIONS.** The General Conditions are hereby made a part of the specifications for Concrete and Reinforced Concrete.
2. **WORK INCLUDED.** Footings, of plain or reinforced concrete.
Cement, or granolithic walks or floors.
Concrete piers.
Reinforced concrete floor slabs and beam protection.
Concrete beams and lintels where shown or necessary.
Bottom of plumbers' manhole.
All other work shown on the drawings or specified as concrete, or necessary to carry out the full intent of the drawings and specifications.
3. **SCAFFOLDING.** This contractor is to furnish and set up all scaffolding and staging for the building of all work under the heading "Concrete and Reinforced Concrete" and is to allow the other mechanics to use them as long as may be necessary.
4. **WATER SUPPLY.** Street water supply is to be furnished by another contractor for the use of all contractors employed upon the work.
5. **UNIT PRICES.** The contractor shall state in his bid a price per cubic yard for any additional concrete footings and piers (including forms) that may be necessary on account of unexpected conditions. The same price to be used in case of deductions from contract.
6. **CITY BY-LAWS.** The Building Laws of the City of Toronto are hereby made a part of this specification, and methods, labor, materials and mixtures shall be at least equal in quality to the requirements of said by-laws.
7. **CEMENT.** All cement to be of the same quality as called for in specifications for masonry and subject to the same tests and requirements.
8. **SAND.** All sand to be clean and sharp and free from all extraneous matter.
9. **BROKEN STONE.** All broken stone for concrete work must be free from dirt, of a solid composition, and satisfactory to the architect.
Stone for concrete not reinforced to be no larger than will pass through a two-inch ring.
Stone for the lower three inches of reinforced concrete footings and for reinforced slabs shall be no larger than will pass through a one-inch ring.
Stone for filling under flanges of beams shall be no larger than will pass through a three-quarter inch ring
10. **GRAVEL.** All gravel to be clean, of suitable size and acceptable to architect.
11. **CONCRETE.** All concrete, unless otherwise specified, shall be made of the following materials and in the following proportions of cement, sand and broken stone. All by measure.
For footings not reinforced; — 1, 2 and 5.
For piers; — 1, 2 and 4.

For reinforced concrete; — 1, 2 and 4.

For cement or concrete floors not reinforced; — 1, 2 and 5.

All concrete to be mixed as specified under Reinforced Concrete.

12. **FOOTINGS.** Build footings under all walls, piers or other masonry. All to be of dimensions shown on drawings.
Where so indicated to be reinforced as specified under Reinforced Concrete.
Form key of concrete as shown under all walls and piers and finish smooth to receive damp course.
Footings to be laid between 2" plank cribbing thoroughly braced.
Footings where reinforcement is shown to be under same conditions as specified under Reinforced Concrete.
No footing to be laid on filling, loam, or on material which has been exposed to action of frost.
13. **CONCRETE PIERS.** To be of sizes and forms shown without reinforcement.
Where piers adjoin walls leave shallow vertical grooves to receive them and build in galvanized iron anchors.
To be 2'-0" long of $\frac{1}{4}$ " x $1\frac{1}{2}$ " metal and set not exceeding 4'-0" apart in height.
To project 1'-6" from the piers.
Set steel plates under ends of all steel beams resting on concrete. Plates will be furnished under another contract.
Set stone caps on all piers supporting floors only.
Plates to be set true and level in 1 to 2 mortar. To be at proper height to receive beams.
The large piers to be carried up to the level of bottom of floor slabs in each case.
14. **CEMENT FLOORS.** All floors of basement are to be rammed thoroughly.
In the excavated portion lay a foundation of broken stone and coarse gravel at least 6" thick. All to be closely packed and well rammed.
Over the broken stone lay 3" of bottom concrete, 1, 3 and 5 well tamped and followed after waterproofing with $3\frac{1}{4}$ " of same concrete. To be followed immediately by a $\frac{3}{4}$ " topping of 1 to 2 mortar.
Straight-edge to proper grade and slope, and trowel to an even, smooth surface.
Make pipe trenches in concrete where directed. Sides and bottom of concrete 3" thick, with cast iron covers furnished under another contract. There will be not exceeding 15'-0" of trenches.
Floor of area same as above except that there will be 5" of concrete above damp proofing including a 1" top as specified above.
Floor of unexcavated portions will be similar to above but will have no broken stone, bottom concrete or waterproofing.
15. **CONCRETE LINTELS.** Furnish and set where shown reinforced concrete beams back of all lintels, or arches in masonry walls. These beams are to be composed of a 1, 2 and 4 mixture of stone concrete. The beams and reinforcing steel are to be of proper size, proportioned to the spans and loads. All beams are to have reinforcing members rigidly attached to the direct tension reinforcement to provide for shear. All materials are to be as approved by the architect.
16. **REINFORCED CONCRETE.** All reinforced concrete is to be of a type approved by the architect and the Inspector of Buildings of the City of Toronto and subject to all tests required by them.
The following portions are to be of reinforced concrete.
Footings of piers where so indicated on the drawings.

All floors throughout the building (excepting in basement) including the inclined gallery floors.

Foundation for brick stairs at South Transept Gallery.

Bridges connecting Triforium Galleries at west end of nave.

Any portions of Triforium Galleries and connections where reinforcement is necessary.

Twelve-inch slabs over the two toilet rooms with not less than 12" bearings and heavily reinforced to carry the walls and buttresses above.

Only such steel beams and girders will be used as are shown on the drawings. These steel beams and girders are to be supplied and set under other contracts, and are specified under "Structural Steel."

All floors shall be made sufficiently strong to carry their own weight (with floor finish) and an additional superimposed load of 100 pounds per square foot, except as otherwise specified.

Wherever slate floors or parts of floors are called for the concrete slab is to be brought to level as directed by the architect and smoothed to receive finish.

Immediately upon request of the architect, the contractor shall, at his own expense, in the manner prescribed by and under the direction of the architect, test, by loading, any three sections in each floor or roof. The load applied to be two and one-half times the total live and dead loads for which the floor or roof is designed.

Should the test cause total or partial failure or develop cracks larger than hair cracks, the work shall be removed and replaced to meet the requirements of the contract and test continued in other parts of the construction until the required strength is demonstrated.

The contractor shall reimburse the owner for any damage caused by delays occasioned by the reconstruction of defective work.

All steel used for reinforcement shall be equal to the standard structural steel, with an ultimate tensile strength of 55,000 to 66,000 pounds per square inch.

The reinforcement of slabs shall have a cross sectional area, in the direction of the span, of the amount required by the bending moment; and a cross sectional area at right angles to the direction of the span of at least 20 per cent of the direct tension section.

The reinforcement across the span shall be securely fastened to the direct tension reinforcement.

Unless reinforced floors are constructed at the same time as bearing walls and all reinforcing metal is turned up six inches and built securely into walls, all reinforced concrete floors bearing on masonry walls are to be anchored to the walls by anchors, furnished by this contractor, built into the walls and projecting out into the concrete at least 24". These anchors are to be of $\frac{3}{4}$ " steel bars of approved deformed type, turned up six inches in the walls and set two feet on centers.

The reinforcement shall be carried continuously from span to span, and bent on an easy curve from bottom of slab at center of bay to top of slab at end of bay and carried over beams.

No system of construction will be considered that does not provide for shearing stresses at the ends of girders and beams.

All floors shall be calculated so that under the total live and dead loads the computed maximum tensile stress in the reinforcing steel shall not exceed 16,000 pounds per square inch, and the maximum compression of the concrete shall not exceed 500 pounds per square inch.

The adhesion of concrete to steel shall not be assumed at more than 50 pounds per square inch.

The effective depth of the slab shall be taken as the distance from the top of the slab to the center of gravity of the reinforcement.

The reinforcing metal must be protected from fire by at least $1\frac{1}{2}$ " of concrete, measured from the lower surface of the slab to the nearest point of metal. The metal in girders and beams must be protected by a minimum thickness of 2" of concrete.

The top of concrete slab is to be $1\frac{1}{2}$ " above the top of steel floor beams.

The steel beams supporting floors of reinforced concrete are to be enclosed on the bottom and sides with the haunches of the floor slabs. Before placing concrete in these haunches,

metal anchors of approved type are to be attached to the bottom of the steel beams which are to be completely enclosed with $1\frac{1}{2}$ " thickness of concrete solidly packed without voids.

Steel bars for use in the concrete will not be painted. A slight film of red rust will not be objectionable, but any bar on which rust scales have begun to form will be rejected.

All forms for concrete shall be built of sound lumber, tongued and grooved and dressed on one side.

The forms for the concrete shall be rigidly and accurately constructed with tight joints and firmly braced to hold the plastic concrete true to line, level and shape. They are not to be removed until the concrete has thoroughly set and written permission obtained from the architect.

All concrete to be mixed by one of the approved standard batch machine mixers. The resultant mixture of sand, cement and stone to be as nearly as possible uniform in character, the mortar being equally distributed throughout the mass of stone.

The mixture shall be of such consistency, that when thoroughly rammed, it will quake slightly; but it shall not, in general, be thin enough to quake in the barrow before ramming. In order that girder or beam molds be well filled, mix the concrete into a more plastic state. Set hangers in proper position in floors for suspension of all ceilings, pipes or other apparatus as required.

If delivered by wheel barrows, concrete shall be dumped as closely as possible to where it is needed, in order to avoid a rehandling or excavating while in the mold. Each layer must be thoroughly rammed until the moisture comes to the surface.

All concrete to be carefully rammed with wooden rammers in layers not over six inches deep. No concrete to be dumped from a height.

Leave all necessary openings.

Before depositing concrete on concrete that has taken its initial set the surfaces shall be thoroughly cleaned with a stiff steel brush and clean water, and coated with a bonding material approved by the architect.

After the forms are removed from concrete the contractor shall repair all porous or rough places in the work if these, in the judgment of the architect, do not affect the strength of the construction; if they are sufficient to weaken the construction in any way, the whole of the affected parts are to be immediately removed and replaced in a proper manner at the expense of this contractor.

Concrete work will be suspended whenever, in the judgment of the architect, it is liable to injury from freezing.

Smooth up floors at proper levels to take various floor coverings called for, making due allowance for setting materials.

Screeds for nailing wood floors are to be bedded in and filled between to top with cinder concrete, by this contractor. The screeds will be 2" x 3" bevelled, set 16" on centres, and furnished by contractor for carpenter work.

Screeds are not to be set on reinforced concrete floors until the forms are removed.

All cinder concrete for filling to be composed of one part approved Portland cement and ten parts clean steam coal cinders.

The successful bidder will be required to furnish detail working drawings and specifications, which must be approved by the architect before work is commenced.

Each bidder must submit general sketches showing his system of reinforced concrete, and the method proposed for applying it for the work in hand, thickness of floor slabs, etc. He must state what is the quality of his steel bars, as to tensile strength, elastic limit, elongation, etc.

No bids will be considered, except from persons with recent and extensive experience in the form of work called for.

Changes of level of floors are shown on drawings. Build up on floor slabs with cinder concrete where so shown or necessary to maintain levels.

A hollow tile and reinforced concrete system satisfactory to the architect and the Toronto Superintendent of Buildings may be substituted for the slab system if approved by the architect.

17. **MISCELLANEOUS.** Floors of Triforium Galleries and connecting passages, Turret floors, and wherever so indicated, or evidently intended, are to have a granolithic finish.

To have a $3\frac{1}{2}$ " foundation of 1, $2\frac{1}{2}$ " and 5 concrete with a $\frac{1}{2}$ " topping composed of $1\frac{1}{4}$ part cement, 1 part sand and 1 part crushed granite.

Straight-edge and trowel to a straight, smooth, even surface.

To be properly reinforced with steel where necessary. Reinforcement to be in accordance with specification for "Reinforced Concrete."

The bridges connecting the Triforium Galleries with West Turrets are to have small curbs 2" wide and raised 2" above the floor surface. Upper edges to be slightly rounded.

In cases where the undersides of these gallery and passage floors are exposed to view, the under surface, and edges where exposed shall be formed on smooth, carefully fitted sheathing finished so as to show a good surface.

The inclined portion of boiler flue, starting at springing point of main arches, is to be cased with reinforced concrete 4" thick as shown, and left smooth on the inside.

18. **PROTECTION OF WORK.** This contractor shall furnish suitable covering to protect his work at all times. If concrete is laid in cold weather a covering of straw well weighted or other material satisfactory to the architect is to be supplied.

19. **OTHER CONTRACTORS.** The contractor shall confer with contractors for electric work, gas fitting, plumbing and heating, and other work, as to the location of pipes, ducts or other apparatus and materials to be installed by them before beginning his work. He is to build in all sleeves, hangers or other materials and leave all openings required for the installation of the work of other contractors. Properly trim around all openings with additional reinforcement.

20. **CUTTING AND JOBBING.** The contractor is to promptly render assistance to the other mechanics and is to do all cutting and jobbing which may be necessary to enable them to properly fulfil their several contracts.

Clean away and remove all rubbish entirely from the premises on completion.

These are the specifications referred to in our contract of even date.

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PART III.

STONE MASONRY AND BRICKWORK.

- 1. GENERAL CONDITIONS.** The General Conditions are hereby made a part of the specifications for Stone Masonry and Brickwork.
- 2. WORK INCLUDED.** This contract includes the providing of all labor and materials as called for in this specification for all stone masonry and brickwork as shown on the drawings or specified and such portions of the finished work as are specified herein.
- 3. CHARGE OF OPERATIONS.** This contractor is to have general charge of the entire operation beginning from the date when the excavating is started until the building is dry enough to receive the interior finish. He is to attend to and maintain in good order, all danger lights and guards; all sanitary conveniences; all temporary doors, windows and screens; and all temporary heat, lights and telephone.

When the building is dry enough, in the opinion of the architects, to receive the interior finish this contractor shall turn over to the contractor for interior finish all apparatus and equipment mentioned above all in good order, and the care and maintenance of them. He is to make arrangements with the above contractor so that there will be no break in the care and maintenance.
- 4. FOREMAN.** This contractor is to have at all times a competent foreman at the building to have general charge of the building operation. He is to give lines and levels and other similar data needed by all other workmen including the excavator. He is to see that gang-way spaces are kept clear and that the building and surroundings are kept clean and orderly at all times.
- 5. OFFICE.** The carpenter under his contract will erect and furnish a temporary office for the use of the architect and clerk-of-the-works. This contractor shall install a proper stove, or other heating apparatus, and shall keep the office properly heated and lighted. As soon as practicable this contractor shall fit up a room in the building to take the place of this office. Install and maintain a metallic circuit non-interfering branch telephone in the office.
- 6. TELEPHONE.** Furnish a long distance telephone of the local exchange as soon as excavating is begun and maintain the service until completion of this contract. This telephone is for the free use, for local calls only, of the architect or his representative and all contractors employed upon the work. All toll charges are to be paid by parties making such call.
- 7. SANITARY CONVENIENCES.** Provide and install three temporary water-closets and water therefor; two for the use of all workmen connected with the building and the other for the office force. Carry out all instructions of the architect relating to the placing, connections, use and removal thereof.
- 8. TEMPORARY HEAT.** The contractor is to be allowed the proper temporary use of the permanent heating apparatus and is to maintain a temperature of at least 65 degrees Fah. in all parts of the building and properly ventilate it at all times after plastering is commenced and until his contract is completed. The heating apparatus shall be under the control of a competent attendant who is to protect it from injury and regulate its use. This attendant is to be an employee of the heating contractor but paid by this contractor. This contractor shall furnish

all fuel and remove ashes. If temporary radiation is necessary to maintain the specified temperature this contractor shall pay heating contractor for its proper installation.

9. **LIGHTS, GUARDS, ETC.** This contractor shall provide and maintain around excavations and upon stores of material belonging to any contractor or any other obstructions incident to this building, proper guards with danger lights upon same at night, for the protection of all parties. All in accordance with the city, police, or other regulations.
10. **UNIT PRICES.** The contractor shall state in his bid a price per cubic yard for stone masonry and brickwork not included in the contract, that may be ordered by the owner in connection with the work. The same price to be used in case of deductions from contract.

11. **EXISTING WORK.** The following items in connection with the present building are not included in this contract:

Removing smaller structures at the west end.

Carpenter work necessary to connect present roof and ceiling with the walls of the new building.

Wood partition to protect the interior while work is in progress.

Patching of roofing.

Patching of plaster.

Patching of floors and wood finish.

Lowering of the present floor.

This contractor is to remove the entire west wall. He is to do all necessary underpinning of walls, etc., made necessary by the new work. Do all shoring, jacking, blocking, needling and all other work necessary in connection with the underpinning and bracing of the old walls to make them perfectly safe and secure.

Arrange for temporary entrance to present building by cutting down a window on the south side where directed to the floor level. Cut neatly and patch where necessary and do all mason work necessary to complete the work. All carpenter work in this connection will be done by the carpenter contractor.

Furnish all labor and material to make proper, safe and rigid connection between the masonry of the present building and the new work.

Do all necessary cutting or trimming of old work. Cut for bonds and cut and wedge in anchors as directed.

12. **BATTER BOARDS.** This contractor is to lay out the building on the lot and is to furnish, set and maintain in position substantial batter boards for the excavating and for all masonry. These are to be maintained as long as needed and removed at completion.
13. **SERVICES OF ENGINEER.** The contractor shall employ and pay an experienced engineer to establish and verify lines and levels and shall hold himself responsible for their accuracy. He shall cause him to establish some permanent bench to which access can be easily had during the progress of the work; determine correctly the lines and marks for the work by such bench, place the lines and marks correctly on batter boards or stakes and verify them from time to time during construction.
14. **GRADE.** The finished grade lines are shown on the drawings.
15. **WATER SUPPLY.** This contractor is to provide and put in a 2" Byers genuine wrought iron galvanized water pipe from service main in street to inside of foundation wall at a point designated by the architect. To terminate in a 2" brass Chapman removable seat gate valve. Furnish and build in a 4" cast iron sleeve through wall.

Make application for water supply and pay all charges for installation and for use of all water used until completion of building. This includes water used by all contractors.

From the 2" valve run a 3/4" temporary pipe with 3/4" valve of good quality at some convenient point as directed. This temporary service to be maintained and kept in repair by this contractor for use of all contractors as long as needed by them.

16. **SCAFFOLDING.** Scaffolding for the erection of the Guastavino vaults will be furnished under that contract.

Scaffolding for the erection of the four main piers and four main arches will be furnished under cut stone contract. The contractor for cut stone will also erect scaffolding for the vault ribs in ceilings. These scaffolds will be supported on the wall scaffold erected by this contractor and made strong enough to carry the added load.

This contractor is to read the specifications for "Cut Stone" and "Vaulted Ceilings" and confer with those contractors. All other scaffolding or apparatus necessary for this work is to be furnished by this contractor and left for the use of all other contractors as long as needed by them. The scaffolding at main piers and arches will be sufficiently strong to support remainder of scaffolding to complete tower. See specification for Cut Stone.

This contractor is to furnish suitable ladders and other means for proper access to the different portions of the work by the architect or his representative.

17. **FOUNDATIONS AND BACKING.** The foundations, except where shown as concrete, and the backing of all exterior walls, except where brickwork is called for, shall be built to dimensions shown of flat bedded rubble well bonded.

All stone to be select rubble from the Credit Valley quarries.

Stones shall be roughly shaped with hammer to fit each other approximately, all weak angles to be knocked off, and all stones brought to an even bearing. All stones thoroughly wet before laying, except in freezing weather.

The architect shall determine the size of stones used in all rubble walls.

All stones shall be laid on their natural beds.

One-fourth of the walls shall be through stones evenly distributed.

No stone in the walls to be higher than twice the depth of its bed.

The best stones are to be selected for corners.

All angles in walls, tower and turrets, including buttresses, to be bonded with large stones every alternate course.

All well bonded and laid to a true line on both faces.

Leave all necessary openings and chases for pipes, ducts, etc. Contractor to ascertain their locations before commencing work.

All walls are to be carried up at the same time; in no case shall any portion be carried up more than 5'-0" in advance of another.

The upper courses of all stone walls wherever levelled up to receive plates or other superstructure shall be provided with a through stone at each end and angle and one through stone for at least every five linear feet of wall. Before beginning superstructure, level up tops of walls with 1 to 2 cement mortar to make straight, even work, leaving angles square, sharp and smooth.

All stones to be laid in full beds of mortar and all joints and interstices are to be filled solidly with mortar.

The interior face of all exterior stone walls which are to receive waterproofing to have all joints full and the surface smooth and in proper condition to receive the waterproofing.

The exterior face of all walls enclosing the excavated portion of the basement from the footing to the underside of the grade course is to be plastered with mortar same as specified for setting. This includes cross walls and interior walls wherever they are in contact with the earth filling. Surface to be trowelled smooth and straight to receive the damp-proofing.

In the upper portion of tower stair well the plastering is spread directly on the face of the rubble. This face is to be worked to an even surface so that plaster will be of an approximately even thickness.

18. **ASHLAR.** The entire exterior surface of the building not otherwise shown shall be random uncoursed ashlar of the type indicated on drawings.

To be of blue gray Credit Valley sandstone of the best quality, free from stains, seams or other imperfections. To be from the Fleming or Foster and Rogers quarries.

Ashlar to have a split face. In no case shall there be more than one-half inch difference between the maximum and minimum projection of surface.

The stones forming quoins at all exterior angles of walls, buttresses, chimneys, etc., are to have their lines cut accurately to the plane of each face forming the angle. No lewis holes can show.

Joints to be horizontal at beds and vertical at builds.

Joints to be sawed or equally dressed.

No horizontal joint shall extend more than three stones.

No small stones to be used on face.

One fourth of the area of ashlar shall be bond stones with not less than 8" tie into backing. One eighth of the area of ashlar shall be bond stones entirely through wall except where such walls exceed 1'-8" in thickness.

All headers in ashlar to show not less than 8" face.

The face of all stone where covered by flashing is to be dressed to line so that flashing will set flat against stone.

19. **BRICKWORK.** This portion of the work includes all brickwork not specified under "Foundations." The following portions are to be of brick:

All surfaces which are to be plastered.

All arches which are not of cut stone. This includes all relieving arches in ashlar.

Stairs in galleries where so marked.

All other portions shown or specified as brickwork.

20. **QUALITY.** All bricks, not otherwise mentioned, to be the best hard burned grey bricks.

All to be new, of uniform size and carefully culled for exposed work, excepting that whole bricks from walls of present building may be used in the construction of new work, if they are sound and properly cleaned as approved by architect.

No soft, salmon or misshaped brick or bats to be used.

21. **UNPLASTERED BRICK WALLS.** The following portions will not be plastered and will be faced with best quality straight, hard burned, even colored, square edged, selected grey brick:

Basement entrance stair hall.

All portions of galleries, passages, etc., where plastering is not shown.

Brick stairs at South Transept gallery.

Any other portions shown as unplastered above the first floor level excepting the unfinished spaces above the groined ceilings.

Tympanums over the four entrances will be of same brick.

Samples of brick are to be submitted to the architect for approval and the brick used at the building shall be equal to the approved samples.

22. **HOW LAID.** Each brick to be laid up with a shove joint in full bed of mortar specified, the joints to be thoroughly flushed and during the months from April to November inclusive, the bricks shall be well wet before using. No bricks shall be laid in freezing weather without permission of the architect. If so laid, bricks shall be warm and dry. All courses of brickwork shall be kept level and the bonds accurately preserved. When necessary to bring any course in the backing of interior walls to a required height, clipped courses shall be formed, and in no case shall mortar joint finish more than one-half inch thick unless otherwise specified. Joints of brickwork where exposed to be slightly hollow and rubbed with a steel tool.

Joints of brickwork where plastered to have joints cut flush with face of brick and left rough.

Except as otherwise specified, every sixth course shall be a course of headers. No bats allowed.

All walls to be staged both sides and no bricks laid overhand.

Unless otherwise shown, partition walls are to be carried to under side of roof.

23. **BRICK STAIRS.** Brick stairs at South Transept Gallery to be as shown with treads formed by brick on edge with stretchers below.

To be laid in 1 to 3 Portland cement mortar.

Foundation to be of concrete placed under another contract.

24. **OPENINGS AND CHASES.** Build all chases and openings for all pipes or wires and repair neatly.

The location of chases to be as shown or directed. The contractor is to ascertain definitely where they are to go before he builds the walls.

Iron armored conduit will be used for electric wires.

Do all cutting and patching up for other contractors.

Build into masonry all registers or register frames for heating and ventilation. These are to be furnished by contractor for heating. Set cast iron clean-out door, manhole cover or other cast iron furnished under other contracts.

25. **ARCHES.** Turn strong rowlock arches, unless otherwise specified or shown on drawings, over all openings in interior brick walls and back of all lintels or stone arches in exterior walls. Arches to be bonded through, laid close and well keyed.

Except where shown on drawings, the sizes of arches shall be determined by the architect.

Where arches meet on small piers the lower portion of the arch shall be formed by corbelling out to the line of the centering until the distance between the extrados of the two arches equals the width of the pier. Skewbacks shall be formed by racking back and clipping the brick to the radial line. The arch proper shall start from the skewback thus formed. All as shown on drawings.

26. **BOILER FLUE.** The boiler flue is to be lined with an independent core from the point indicated at basement to the beginning of the inclined portion below the tower roof with "Custodis Radial Brick" manufactured and set by Alphons Custodis Chimney Construction Co., 141 Milk Street, Boston, Mass., or 95 Nassau Street, New York City.

Lining to be 4" thick in three sections, each one-third the height of stack. Each section shall be carried on special corbel ring supported on corbels left on the inside of the flue. Corbel ring to be of same material as the radial brick and arranged with an expansion joint in accordance with the standard construction.

Brick to be of best quality free from cracks.

The smoke opening at foot of flue is to be lined and the opening arched with the same brick.

The under side of the inclined portion under roof of tower is to be underlaid with sheets of copper furnished under another contract.

Make proper arrangement for connecting with the steel flue which joins on at the tower roof level.

To be set in the special refractory mortar furnished by the above firm and all joints made full. Give mason all information as to location and size of corbels, etc.

27. **BOILER FLUE.** Boiler flue and opening in basement for smoke pipe to be lined with an independent core of best quality, straight whole and sound Ramsey's Scotch fire brick.

Lining to be 4" thick, starting at point shown and extending to top of flue. At intervals not exceeding 25 feet in height build corbels of the same brick to support the lining and to form expansion joints, all as shown on drawings.

All fire brick to be laid with full joints in best quality fire clay except that portion of corbels not exposed to direct heat shall be laid in the regular cement mortar.

The cast iron rings shown will be furnished under another contract but set by this contractor.

28. **MORTAR.** Mortar for laying up the various portions of the work shall be as follows:

Foundations, ashlar and backing, one part Portland cement and three parts sand.

Limestone and artificial stone, one part Puzzolan, Sandusky white or Blanc white cement and three parts sand.

Brickwork, one barrel Portland cement, three barrels sand and two pails lime putty.

Any masonry or other work not otherwise specified, one part Portland cement and three parts sand.

Fire brick laid in fire clay as above.

All above by measure.

In freezing weather the above proportions shall be varied as ordered by the architect up to and including a proportion of equal parts of cement and sand, and all sand and water shall be heated by proper and adequate apparatus approved by the architect. All without additional charge to the owner.

All mortar to be used immediately after mixing. No more cement to be wet than can be used before setting. No mortar to be used which has been mixed over night.

29. **CEMENT.** All cement throughout the work to be best fresh Portland cement of approved Canadian make approved by the architect.

All Portland cement shall be made at a mill where but one quality of cement is manufactured and sold under one name and the brand shall be satisfactory to the architect.

All cement may be tested by the architect. Should such tests indicate that any brand or parcel does not come up to the standard demanded herein, it shall not be used but shall be removed from the works at once.

Standard specifications for cement and the tests of same may be seen at the office of the architect.

All cement may be delivered at the building in bags provided that it be stored in a weather-tight building until used. Any other protection will not be considered suitable.

30. **TESTING CEMENT.** Allow and pay the sum of four cents for testing every barrel of cement used under this contract. This allowance to be expended by the architect as provided in Article 29 (Cash Allowances) of the General Conditions. Test to be in accordance with the standard of the Toronto city by-laws.

31. **LIME.** All lime shall be first quality, freshly burned, white lime of a brand satisfactory to the architect.

The lime to be slaked and stacked at least a week before using.

32. **SAND.** All sand to be clean and sharp, free from all extraneous matter and satisfactory to the architect.

33. **POINTING.** All facework to have all joints raked out to a depth of $\frac{3}{4}$ " and pointed after all stone is set with cement mortar. No mortar to be allowed to extend onto face of stone.

Brush out all dust in joints of facework, cut out all close joints, wash clean with hose and wet thoroughly before pointing.

All pointing mortar to be equal parts of Portland cement and sand colored to match the stone.

Carefully caulk around all door frames with oakum and point up with pointing mortar, leaving all tight.

Caulk under thresholds and sills and point with lime mortar colored to match cement pointing.

All face joints are to be finished slightly hollow. Get full instructions from the architect.

All joints to be rubbed smooth with a steel tool.

Work pointed during hot weather must be protected by wet canvas.

34. **WATERPROOFING OF STONE. ASHLAR.** All outside walls are to be waterproofed between the outside stone or backing and the inside stone or brickwork.

Waterproofing to consist of two good coats of Toch Brothers' R. I. W. paint No. 110, Anti-hydrine, or equal approved by the architect, applied in exact accordance with directions furnished by the manufacturers. The material to be used as it comes in the original package with no addition or alteration and be kept well stirred. Each coat to be well brushed in covering the entire surface and leaving no pinholes.

Use special care at brick arches supporting ashlar or backing and similar places, to make the film of waterproofing complete.

This work is to be carried out in such a manner as to provide a complete film of waterproofing between the outside and inside masonry so as to effectually prevent any dampness passing through.

The above waterproofing is to cover all reveals of openings, excepting finished surface of stone or brick, all chases, and is to extend along adjacent interior walls for a distance of six feet.

This contractor shall guarantee all masonry walls built under his contract to be impervious to water for three (3) years from date of completion of contract and shall make good any damage to masonry or interior of building from infiltration of water. Any extra labor or materials made necessary by this guarantee shall be determined and furnished by this contractor without additional charge.

Face of all walls of organ gallery to have two coats as above before plastering. Arrange with plasterer as to proper time to do this work as the plaster is to be applied while the paint is still tacky.

In addition to the above, the backs, beds and builds of all ashlar are to be waterproofed two coats same as above before setting, allowing ample time for each coat to dry. All to be well brushed in covering every part up to within one quarter of an inch of the face. If from any cause any portion of the waterproofed surface should be damaged or disturbed, it is to be touched up leaving the coating entire. Use extra care in setting so as not to damage the waterproofing.

35. **PATTERNS AND CENTRES.** This contractor is to set all wood templets and centres for stone, brick or cement excepting for reinforced concrete, and is to build all work to them.

The centers and templets will be furnished by the carpenter. Centres are not to be removed from position under the arches without permission of architect.

36. **ANCHORS.** Furnish and set all anchors necessary to secure all masonry included in this contract in the most substantial manner. Masonry in this sense refers to all forms of stone or brickwork. Anchors to be as shown or specified or as directed by the architect.

Anchors for securing other materials such as anchors for cut stone, wood beams, or for anchoring steel beams will be furnished by contractors for those materials.

Four-inch brick linings, excepting at boiler flue, to be anchored by 7" x $\frac{3}{8}$ " galvanized wire wall ties with ends turned and crossed, not exceeding 2'-0" apart in any direction.

All other brick lining or inside walls to be anchored by 1 $\frac{1}{2}$ " x $\frac{1}{4}$ " anchors 16' long.

Main corners to be tied by anchors every 5'-0" in height. Anchors to be 5'-0" long x 2" x $\frac{3}{8}$ ", set two at each level and extending back into wall each way from the corner.

The continuation of the four main piers from the springing line of the main arches to the tower roof is to be anchored every 5'-0" in height by anchors 10'-0" long running back each way from corners into main wall and two additional anchors not less than 6'-0" long tying the other two sides of piers. (This gives at each 5'-0" level, eight 10'-0" anchors and eight 6'-0" anchors.) Anchors to be 2" x $\frac{3}{8}$ ", turned down 2" at each end and galvanized as previously specified.

Except as otherwise shown or specified, all anchors are to be made from 1 $\frac{1}{4}$ " x $\frac{1}{4}$ " wrought

iron bars turned up 2¼" on one end and down 1¼" on the other. All anchors to be galvanized after bending. Lengths to be determined by the architect.

In all cases of double walls with passages or stairs between, furnish and build in ties of 1" rods with 4" x ¼" plates at each end. To be built into the concrete slabs of floors or stairs about 5'-0" apart. Where such ties are necessary at points where neither floors nor steps occur they are to be entirely enclosed by this contractor in concrete 2" thick on all sides. No such rods shall interfere with head room at any point.

Over four main arches in tower build in pairs of 1" steel rods in two courses,— eight pairs in all.

These eight rods will be furnished under another contract and are specified under "Structural Steel."

Build in all anchors required to secure the work of other contractors. These anchors to be furnished by contractors for the several trades.

Do any drilling and cutting of stone to receive anchors.

37. **WALL PLUGS.** Furnish and set a sufficient number of metal wall plugs in brickwork for the door casings.

Should there be any doubt as to the exact position of the plugs, the contractor for Interior Finish is to be consulted.

38. **FLASHING.** This contractor is to build in all flashings. Flashings will be furnished by the roofing contractor. This contractor is to call for flashings whenever in his opinion they are necessary to make the work water and weather tight.

The face of all stone where covered by flashings is to be dressed to line so that flashings will set flat against the stone.

39. **DAMP-PROOFING AT BASEMENT.** All exterior and interior foundation walls and piers are to have damp course carried through.

All foundation or other walls enclosing excavated portion shall be damp-proofed on the outside.

The basement floor in excavated portion is to be damp-proofed throughout.

Damp-proofing to be carried under and around area floors and walls.

Wherever a damp-proofing course is called for through foundation walls or elsewhere, lay through walls as directed by the architect two layers of felt worked close around key as shown on drawings. Felt is to be laid in and cemented together with hot waterproofing compound, and be coated after completion with the same material.

Wherever damp-proofing is called for on foundation walls the entire outside surface from footings to bottom of grade course including areas shall be damp-proofed as follows:

All surfaces to be coated are to be washed clean with benzine and all loose particles removed. The walls are then to be given a continuous coating consisting of two layers of felt. Felt is to be laid in and cemented together with hot waterproofing compound, "C" grade, and be coated after completion with the same material.

This course is to be carried around, through and back of walls in contact with earth in such a manner as to thoroughly enclose all portions of the excavated portion from the top of footings to the underside of grade course, or underside of present basement floors, as the case may be.

Wherever damp-proofing of floors is called for it is to be done as follows:

Cover the bottom concrete with a continuous course consisting of two layers of felt.

Felt is to be laid in, cemented together and to concrete with hot water-proofing compound, and is to be coated after completion with the same material. Each sheet is to be cemented all over and to the course or layer below with the compound.

Damp-proof course is to be continuous from wall to wall and be connected to damp-proofing course in walls. Where pits or ducts occur in basement floors, the course must extend around

beneath, and in walls of same, care being taken to have the layers of felt well lapped and cemented.

Make special waterproof joints as directed by the architect wherever pipes pass through waterproofing of walls or floors.

Damp-proofing to be carried around underpinning and walls on the side toward present building. If any masonry other than that shown is needed to support or secure the damp-proofing it is to be done by this contractor.

The damp-proofing must be protected at all times, so as to prevent it from being injured by wheelbarrows, tools, or other objects being dropped or thrown upon it.

Upon completion of the floor damp-proofing, it is to be immediately covered with the Portland cement concrete called for under "Concrete Floors."

All felt to be "Hydrex" waterproofing felt, "Penna Special," "Waterdyke," or equal approved by the architect.

Waterproofing compound to be "Hydrex" compound, "C grade."

40. **CUTTING AND JOBBING.** The contractor is to promptly render assistance to the other mechanics and is to do all cutting, drilling, jobbing, and patching up which may be necessary to enable them to properly fulfil their several contracts.
41. **PROTECTION OF WORK.** Cover the tops of all unfinished work at night, and when it rains or snows, with heavy canvas or other proper substantial protection.
42. **CLEANING.** At completion of the building all work included in this contract is to be washed down carefully, leaving all perfectly clean and free from spots.
43. **REMOVAL OF RUBBISH.** All rubbish must be collected by this contractor and removed frequently and not allowed to collect on the premises. This includes the rubbish of all contractors doing work at the building.

At completion all rubbish and unused material must be removed and the premises left clean and in good order.

These are the specifications referred to in our contract of even date.

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PART IV.

CUT STONE.

1. **GENERAL CONDITIONS.** The General Conditions are hereby made a part of the Specification for Cut Stone.

The term "Cut Stone" in these specifications applies equally to natural stone and the "Roman" stone specified.

2. **WORK INCLUDED.** This contract includes the providing, cutting and setting in the best manner all cut stone as called for on the drawings and specified herein.
3. **SAMPLES.** The contractor shall furnish the architect with a sample of each kind of cut stone specified. Samples to show finish called for, and all material and workmanship to be equal in every respect to samples approved by the architect.
4. **GUARANTEE.** The contractor shall produce conclusive evidence and sufficient guarantee that all cut stone estimated upon by him can and will be furnished in such quantities and of such uniformity as to preclude the possibility of delays in construction.
5. **WATER SUPPLY.** A water supply is to be furnished by another contractor for the use of all contractors employed upon the work.
6. **FOREMAN.** This contractor is to have at all times, from the starting of work under this contract until all cut stone is set, a competent foreman who shall have charge of the cut stone work and who will receive and carry out the orders of the architect.
7. **SCAFFOLDING.** This contractor shall furnish all scaffolding necessary for the erection of the four main piers, the four main arches and the vault ribs. This scaffolding is to be left for the use of all other contractors as long as needed by them. This contractor shall also furnish scaffolding for the erection of finials, tops of turrets, etc., which are entirely of cut stone.

All other scaffolding will be furnished by other contractors.

Scaffolding at main piers, arches and vault ribs to be strong enough to support scaffolding built by other contractors for erecting the Guastavino vaulting and for carrying up the remainder of the tower walls. This contractor is to read the specifications for "Stone Masonry and Brickwork," and is to confer with those contractors.

8. **HOISTING APPARATUS.** This contractor is to furnish all derricks or other hoisting or setting apparatus necessary for the work.
9. **TRIMMING STONE (Exterior).** All exterior trimming stone, except where other stone is especially called for or shown, shall be blue gray Credit Valley sandstone of the best quality, free from stains, seams or other imperfections. To be from the Fleming or Foster & Rogers quarries.

The trimming stone is shown on the drawings in section by cross hatching. In elevation it is shown by tinting on the tracings (showing a contrasting shade on the prints). Exterior trimming stone extending through walls and showing on inside is tinted in the same manner on the interior elevations.

NOTE: The tracery of the following windows extends through wall from the inside and is

specified under "Roman" stone. Rose windows at east wall of tower, gables of North and South Transepts, and West end of Nave.

All trimming stone about windows is to be rebated and grooved to receive iron casement frames or glass as the case may be.

Stone work about window openings where so shown shall extend through walls in one piece, forming grounds for inside plaster.

At the Southeast corner pier of tower the offsets at top over spiral stair are to be cut with lips and rebates in such a manner as to be watertight and weatherproof.

Corner stone to have inscription and recess for box. Box will be furnished under another contract.

10. **ROMAN STONE.** All interior trimming stone, except where other stone is especially called for or shown, shall be of "Roman Stone," manufactured by the Roman Stone Company, Limited, 504 Temple Building, Toronto, Canada.

This stone is to have an ultimate crushing strength of not less than 2000 pounds per square inch in one year from date of manufacture, and must be satisfactory to the Department of Buildings of the City of Toronto.

It shall be of the best quality, perfectly even and true to drawings and free from defects of form, surface, structure and density, and shall be guaranteed against crazing or discoloration.

Samples showing texture, color and finish are to be submitted and the material furnished must be equal to the samples approved by the architect.

Roman stone is shown in section by special hatching and in elevation in the interior by fine stippling.

Furnish all Roman stone in accordance with the following schedule:

Four main piers and all columns, half columns or quarter columns or pilasters.

Base entirely around interior of first floor, including vestibule, but excepting toilets.

Stairs, landings, floors and parapets in South Transept Vestibule.

Stairs, landings, and platforms from main floor to galleries and up through piers and turrets to heights shown.

All stairs, steps, landings, and platforms connecting the Triforium Galleries and Organ Chambers except where brick stairs are shown.

All other interior steps, landings and platforms not otherwise specified.

All trimming stone around window or other openings (excepting where the exterior trimming stone extends through the wall and shows on the interior).

All belt courses, arches and arch ribs.

All ribs and centre keys in connection with vaulting.

All thresholds not otherwise specified.

Any other interior portions marked or indicated as Roman stone on the drawings.

Any other interior plain, ornamental or moulded stone not otherwise specified.

Steps for the spiral stairs are to be moulded with a section of the central core on each step and are to build 4" into the walls at outside end of steps.

Cantilever steps connecting Triforium Galleries to be reinforced and built 12" into walls. Lowest section to build in 16".

Steps, landings, etc., which will be exposed on the underside are to have all exposed surfaces finished.

All tracery about windows to be rebated and grooved for glass.

Ribs for all vaulted ceilings and the centre stones or keys at each bay to be accurately moulded to the true curves and are to be rebated to receive the Guastavino tile filling which is included in another contract.

All Roman stone to be cast with holes for anchors or drilled where necessary.

Roughen beds, builds and backs as directed by architect to secure proper adhesion of the mortar.

All interior stone, including piers and columns, is to start at the top of the concrete floor slab.

The piers and columns must be made of a specially strong mixture and be specially reinforced to carry the unusually heavy loads which they will support.

The total load on each of the four large piers will be 1280 tons or 400 pounds per square inch.

The total load on each of the columns will be 212 tons or 305 pounds per square inch.

The sections forming these piers and columns are to have grooves formed on the upper surface to receive the rings specified under anchors. Grooves to be 2" deep at piers and 1½" deep at columns.

11. LIMESTONE. All limestone to be of the best quality local limestone.

Furnish all limestone as follows:

Bearing stones under all steel beams on outside walls and all beams above the main floor. Also under ends of all trusses and purlins. To be of sufficient thickness and area to properly distribute the load over the supporting material.

Full size cap stones on all concrete piers not exceeding 2'-0" square.

Top of plumber's manhole with hole cut for cover.

12. FINISH. All exposed surfaces of exterior trimming stone to have a coarse sand rubbed finish as directed by the architect. Where this stone is exposed in the interior as at window openings, etc., it is to have a fine sand rubbed finish.

All surfaces of limestone to be planed or equally dressed.

Exposed surfaces of the Roman stone to have fine sand finish.

The sand for finishing stone is to be heated until all moisture is driven off. It is then to be used dry on all work calling for sand finish.

13. DEFECTIVE MATERIALS. Stone of every kind to be perfect in every respect. No stone to be patched or mended in any way, and any so done will have to be removed when ordered out by the architect at any time, no matter at what stage the work on the building may be.

Any work not in accordance with the foregoing, whether of inferior stock or of broken or imperfect stone or executed at variance with proper models or drawings or in an unworkmanlike manner will be rejected, and must be replaced by work called for at the expense of this contractor.

14. JOINTINGS OF STONEMWORK. All jointings of stonework to be in exact accordance with the drawings furnished by the architect.

The joints in stone shall be ¼" unless specified otherwise.

At outside steps and platforms allow one-eighth inch for joints and one-eighth of an inch per foot for pitch.

No false joints will be allowed in stonework.

No stone to be less than 4" thick and all beds and builds to be full to at least 4" from face.

Beds and builds at piers and columns to be full for the entire width of stone. Each stone in the two westerly of the large piers to be a full quarter of the circle, with the courses alternating as shown. Jointing of the two easterly piers will be similar in the circular portion but will vary in the remainder of the pier.

In the columns, every third course or "drum" is to be in two pieces and the joints arranged to show irregularly.

No head to show less than 8".

The stones of all reveals of all openings must extend at least the entire depth of reveals without jointing. This includes sills and lintels. Where so shown, as at windows, etc., stones shall extend through to the inside.

Grade course to extend not less than 2" below finished grade at any point.

Interior stone bases to extend not less than 1" below finished floors and be bedded up with brick in 1 to 3 cement mortar from the concrete floor slab.

At all stone steps and stairs the top step in each case shall be at least as wide as the treads of the other steps. Platforms and landings to be in one piece unless otherwise shown.

All mouldings and arrises shall be clean and sharp and all curves shall be uniformly continuous when the parts are assembled. Adjacent stones showing offsets in members at the joints shall be discarded and new ones supplied. No trimming of members will be allowed.

All coping or other stone, meeting walls at an angle, is to be bonded into walls at least eight inches.

Form slight gutters on inside of sills at all windows, including all tracery, and drill $\frac{1}{2}$ " holes to drain to outside to carry off any water from condensation.

15. **BEDS AND BUILDS.** All beds and builds to be sawed or carefully dressed throughout to planes of joints.

No bed or build to be less than four inches at any point.

All stone to be laid on its natural bed.

Beds of stones to be carefully drilled to receive anchors.

All edges at beds and builds must be clean and sharp, and free from breaks.

All projecting stonework to be bedded on walls so that center of gravity of each stone will fall well within the face of wall.

16. **MODELS.** Before cutting stone, this contractor shall furnish the architect with full size plaster models of any or all carved work, and is not to proceed with the cutting until approved by him. The contractor is to prepay all charges for transportation of models to and from the architect.

All models are to be made by workmen approved by the architect.

17. **CARVING.** All carving indicated on drawings is to be included in this contract and is to be executed in strict accordance with architect's detail drawings by workman approved by architect.

Where stone is marked on the drawings "Blocked for carving" the carving is not to be included in this contract, but the stones are to be neatly and evenly blocked out.

18. **THRESHOLDS.** All outside doors to have stone thresholds.

All thresholds to have lugs and washers.

19. **SILLS.** All sills unless otherwise shown or specified to have lugs.

All sills to have washers.

20. **DRIPS.** All projecting stone work to be throated to form drips unless otherwise indicated.

21. **REGLETS AND DRILLING.** Cut all reglets where required and drill all holes for lighting conduits, bell work, outside hose connections, etc. Do all drilling and cutting for leading flashings, securing grilles, hardware or other work to stone.

22. **SETTING DRAWINGS.** This contractor shall make setting drawings of all work delivered at building showing by number or letter the position of every stone. These drawings must conform to architect's detail drawings and are to be approved by the architect in accordance with Article 10, of the General Conditions.

23. **SETTING.** This contractor is to set in the best manner all trimming stone and all other cut stone called for on this work under the heading "Cut Stone." He is to do all drilling for anchors, grilles, flashings, hardware, etc., and is to supply and install all ties, anchors, dowels, etc., herein specified and any others that may, in the opinion of the architect, be necessary whether specifically mentioned or not.

All stone to be laid in a full bed of mortar.

All vertical joints to be filled solid full of mortar.

All stones in interior piers and columns and any other large stones are to be set with a derrick. The stones are to be bedded, lifted clear of the bed, and rebedded until all voids are filled and the bed full over the entire area. Be particularly careful not to allow any air pockets to form under the stones.

All thresholds and sills are to be bedded at ends only leaving no mortar under center.

24. **MORTAR.** All mortar for laying up stonework, unless otherwise specified, is to be composed of one part Portland cement and three parts sand. All by measure.

In freezing weather the above proportions shall be varied as ordered by the architect up to and including a proportion of equal parts of cement and sand, and all sand and water shall be heated by proper and adequate apparatus approved by the architect. All without additional charge to the owner.

Mortar for setting Roman stone piers and columns from the bottom to the top to be 1 to 2.

All cement to be Portland cement of the same quality as called for in specification for Stone Masonry and subject to the same tests.

Sand to be clean and sharp and free from all extraneous matter.

25. **WATERPROOFING.** The backs, beds and builds of all sandstone and Roman stone are to have two coats of Toch Brothers' R. I. W. paint No. 110, Antihydrine, or equal approved by the architect.

All to be well brushed in covering every part up to one-quarter of an inch from the face. Ample time must be allowed for drying before stone is set. All waterproofing must be applied in exact accordance with directions furnished by the manufacturers and used as it comes from the original package without addition or alteration.

26. **FLASHING.** This contractor is to build in all flashings. Flashings will be furnished by the roofing contractor.

Sills of windows which are over 3'-0" long to be underlaid with a continuous course of 4-lb. lead turned well up on back and down on outside to cover joint in a perfectly straight and even line. Solder all corners.

All joints of string courses or other stonework exposed to wash are to have every joint underlaid with a strip of 16-oz. copper not less than 9 inches wide, the full depth of stone. Turn up slightly at sides and 1 inch at back of stone and have all perfectly straight and even.

All joints of copings are to be underlaid with a sheet of 16-oz. copper 12 inches long and full width of wall beneath. Turn up slightly at sides and turn down at front and back of wall, and leave all perfectly straight and even. Horizontal copings to be underlaid with a continuous sheet of copper with longitudinal corrugations to prevent sliding of the stone. All joints to be soldered.

At southeast corner pier of tower at the offsets over spiral stair use extra care to work in flashings to make a water and weatherproof job.

Build in other flashings wherever necessary to make all perfectly watertight and weatherproof. This contractor is to call for flashings wherever in his opinion they are necessary to make the work water and weather tight.

The face of all stone where covered by flashing to be dressed smooth so flashing will set flat.

27. **ANCHORS.** This contractor is to furnish and set all anchors, clamps, dowels, etc., to properly secure the cut stone of all kinds.

All to be galvanized after cutting and bending.

Anchors not otherwise specified to be made from 1 1/4" x 1/4" bars turned up 2 1/4" at one end and 1 1/4" at the other. All anchors to be of length directed by the architect, but will generally be 12" long after bending (4" on the cut stone and 8" into the backing, except that no anchor shall extend beyond the inside face of the backing).

Cut stone to be anchored by at least one anchor to each stone. Stone over 2'-0" long to have two anchors.

This includes all jamb stones, voussoirs of arches, mullions, lintels, copings, ashlar, caps and offsets of buttresses, etc., and all interior stone.

Anchors are to be wedged into stone by slate chips driven in at front so as to bear firmly at the back of anchor hole.

All coping to be doweled in the joints, and where bedded on an incline each piece will be doweled to bed.

All dowels to be 3" long, of $\frac{1}{2}$ " w. i. rod, galvanized after cutting to length.

Where so directed copings and similar stone to be clamped together by clamps of $\frac{3}{8}$ " x 2" iron turned down 1" at each end and 6" long after bending. To be carefully leaded in and the lead caulked.

Finials on South and West gables to be anchored by $1\frac{1}{2}$ " copper rods 6'-0" long with plates at foot.

At the four main piers each course is to be tied together by a ring formed by a 1" twisted rod laid in mortar in a groove left to receive it and lapped 3'-0" at ends. Ends at lap to be not less than 2" apart. The ring to be thoroughly bedded and enclosed in the mortar at the time the stone above is set. This ring need not be galvanized or painted but must be free from deep rust as specified for reinforcing metal under "Concrete and Reinforced Concrete." Rings at the two easterly piers to conform to the shape of piers.

The courses of stone columns are to have similar rings of $\frac{1}{2}$ " rods.

Rings to come within $3\frac{1}{2}$ " of the face of piers and $2\frac{1}{2}$ " of the face of columns.

28. **PROTECTION OF WORK.** Cover the tops of all unfinished work at night and when it rains or snows with heavy canvas or other proper substantial protection.

All cut stone shall be protected at all times from injury from the elements and from building operations. The protection must be substantial wood boxing so constructed and placed as to be easily removed for inspection or to facilitate the progress of other work.

This boxing must cover all projecting courses; all sills, thresholds or other portions having surfaces showing wash, all door jambs and all other portions liable to injury.

29. **JOBGING.** Do all jobbing, cutting and patching up, and assist all other mechanics wherever possible.

30. **CLEANING.** At completion of the building all work included in this contract is to be washed down carefully, leaving all perfectly clean and free from spots.

These are the specifications referred to in our contract of even date.

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PART V.
STRUCTURAL STEEL.

1. **GENERAL CONDITIONS.** The General Conditions are hereby made a part of the Specification for Structural Steel.
2. **WORK INCLUDED.** This contract includes the providing, fabricating and erecting of all structural steel as shown on the drawings or specified herein.
3. **MATERIALS.** All structural steel to be medium steel with rivets of rivet steel. The whole to be in accordance with by-laws of the City of Toronto.
4. **DRAWINGS.** All shop drawings, templates and measurements at building are to be made by the contractor at his own expense. The shop drawings with strain sheets of all members with their joints and connections, shall be submitted in duplicate to the architect and made satisfactory to him before work is begun.
5. **CONNECTIONS.** In making shop drawings showing connections of members, all rivets and bearing parts are to be computed to develop the full safe strength of the specified members regardless of the magnitude of the stresses shown on the architect's drawings.

All connections shall be made with rivets, machine driven where possible, and standard in size and spacing. Loose or defective rivets are to be cut out and replaced by perfect ones. No rivets to be used in tension.
6. **BEAMS.** Provide and set all steel beams as shown on drawings.

Every beam, channel or other member resting on walls to have a $\frac{3}{4}$ " hole drilled in the end and anchored to wall with $\frac{3}{4}$ " wrought iron anchor; to turn up 4" at the other end and to be securely built into walls and have a 2" x $\frac{1}{2}$ " x 16" wrought iron cross-bar in wall. All beams to be out of wind and perfectly straight.

Where beams are shown side by side they are to be bolted together with fillers or separator-plates at least once every eight feet, but not less than three times in each span. Where beams are framed together, the flanges are to be shaped so that the web shall fit closely, with no clearance.

Beams shall be tied together with 4" I beams along lines of columns and elsewhere as indicated on framing plans; the channels being anchored to wall same as beams. All girders, beams, trusses and channels resting on walls to have steel bearing plates of standard size and thickness, except as otherwise shown on plans.

Beams at front of galleries to be tied to walls by 4" I beams at each column.
7. **COLUMNS.** Columns to be built up of sections as shown. To have proper connections to beams.

The bases to be of plates and angles and all bearing surfaces of columns shall be machine faced after riveting, square with axis of column. No column metal to be less than $\frac{1}{8}$ " in thickness. Columns to be set exactly vertical.
8. **ANCHORS.** All structural metal to be securely anchored to masonry with anchors approved by the architect.

9. **PLATES.** Steel plates are to be provided under the ends of all beams and girders resting on masonry, excepting where limestone bearing stones are shown on drawings. These plates are to be proportioned to the loads as figured, the plates being of sufficient size to distribute the load so that the stress on the masonry shall be as directed by architect.
10. **PAINTING.** All structural metal shall be thoroughly cleaned from all dirt, grease or corrosion at the shop and all mill scale hammered off. The surfaces in contact must receive two coats of standard red lead paint on each surface after the pieces are punched and before they are assembled; covered places and parts inaccessible after erection to have three coats of same. All finished members shall receive one complete coat of oil before they are taken from the shop or exposed to the weather. As soon as the shop work is completed, the material shall be carefully gone over and touched up with oil, the intention being to secure at least one good coat of oil on material when it is ready for shipment from shop. Erection marks to be made on the oiled surface and not on bare metal. No material to be taken from shop before oil is dry. All oil to be best kettle boiled pure linseed oil. Paint shall be well brushed out on the surface and well rubbed in.

Immediately after erection and before applying finishing coats, the material shall again be retouched. All metal shall then be carefully cleaned and painted two coats best red lead and pure linseed as above. The first coat to have about $\frac{1}{4}$ pound of lampblack stirred into each gallon of paint. Paint to be well brushed out. All paint to be applied on dry, clean surfaces. No painting shall be done in wet or freezing weather.

These are the specifications referred to in our contract of even date.

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PART VI.
LIGHT IRONWORK.

1. **GENERAL CONDITIONS.** The General Conditions are hereby made a part of the Specification for Light Ironwork.
2. **WORK INCLUDED.** This contract includes the providing, fabricating and setting at the building of all iron work specified herein excepting the cast iron. Cast iron is to be delivered at the building to the contractor for mason work who will set it.
3. **DRAWINGS.** All shop drawings, templates and measurements at the building are to be made by the contractor at his own expense. These must be submitted to the architect and made satisfactory to him before work is begun.
4. **MATERIALS AND WORKMANSHIP.** Materials and workmanship to be of the best quality. Ironwork must be neatly made and fitted together and secured to the building in the strongest and neatest manner.

Castings must be heavy, of new, clean gray iron. To be smooth, true and free from sand holes or other defects.
5. **IRON STAIRS AND LADDERS.** There will be stairs and ladders as follows:
 - Stair from basement to South Vestibule.
 - Stair from boiler room to present basement.
 - Ladder from boiler room to unexcavated portion.
 - Ladders in two west turrets from top of stone stairs to approximately grade 111.00.
 - Stair to South Vestibule to have cast iron strings, risers and posts. Wrought iron rail and balusters, one to each tread. Wall string to form base fitting closely to brick walls. Treads will be $1\frac{1}{2}$ " slate furnished and set under another contract.
 - Stair to present basement will be similar to above but will have cast iron roughened treads and no risers.
 - Ladder in boiler room will have $\frac{1}{2}$ " x 4" sides, 4" treads and $1\frac{1}{2}$ " pipe rail.
 - Ladders in turrets to be 20" wide with $\frac{1}{2}$ " x $2\frac{1}{2}$ " sides and $\frac{3}{4}$ " rounds. To be secured not less than 7" from walls by $\frac{1}{2}$ " x 2" braces built and anchored into walls every 8'-0" in height.
6. **RAILINGS.** Furnish iron rails as follows:
 - Around area at basement entrance and down the stair, of 2" pipe.
 - At East area, of $2\frac{1}{2}$ " pipe.
 - At each side of concrete bridges from Triforium Galleries to West End of Nave, of $2\frac{1}{2}$ " pipe.
 - At Triforium Galleries in Transepts, 1" square.
 - At cantilever steps, connecting Triforium Galleries in Transepts, 1" square. Balusters leaded securely into stone and welded neatly to rail.
 - All pipe rails and fittings to be galvanized.
 - All rails to be let into masonry and rigidly secured. To have flanges at ends. Flanges on interior rails to be very small so as to barely cover joining with masonry.
 - Rail at basement entrance area to have posts. To have standard connections with ball fittings. Posts to have large flanges secured to copings, etc., with long expansion bolts. All rigidly secured.

7. **CRANE AND CHAIN HOIST.** Provide iron crane at basement entrance area for ash hoist. Build in eye bolts and lead securely. All of 1 $\frac{1}{4}$ "x 1 $\frac{1}{4}$ " iron as per detail drawings.

Provide Yale and Towne or equal differential chain block hoist, 800 pounds capacity, all complete for use, with grapple for barrel.

8. **SUSPENDED CEILINGS.** There will be a suspended ceiling under the South Transept Gallery.

Arrange with the carpenter and assist him to secure proper wood nailing blocks and furrings for the wood beams and any other wood in connection with the ceiling.

There will be hung ceilings in the two toilet rooms.

Wherever suspended ceilings or furrings are called for, they are to be framed as shown on the drawings or directed by the architect, of $\frac{3}{4}$ " channel iron 12" o. c. clamped to larger beams spaced 3 feet on centers except as otherwise shown.

These beams in turn to be suspended with wrought iron rods or angles clamped to beams or floor construction over. Sizes of rods and beams to be as directed by architect.

All parts of the framing are to be bolted together. No wiring will be allowed.

Leave space for heat, vent ducts, pipes, etc., over ceilings wherever shown on drawings or directed.

The metal lathing will be under another contract and is specified under "Plastering."

9. **TIE RODS.** Furnish anchor or tie rods over four main arches. To be in pairs the entire length of each side and extending to within 4" of the face each way as shown. Sixteen rods are required. Rods to be 1" in diameter with ends upset for threads. Ends of each pair to terminate with nuts and washers through 8"x 12"x 1" anchor plates. Rods to be 6" center to center.

10. **BASEMENT WINDOW SCREENS.** At all basement window openings furnish and set securely screens of $\frac{1}{8}$ " wire with 1" rectangular mesh neatly and rigidly secured in angle iron frames.

At fresh air inlet, at East area, furnish and set a screen of copper or brass wire of the size and mesh generally used for fly screens. To be set in a proper metal frame. To fit closely all around the opening and arranged to be easily removable for cleaning.

11. **IRON DOOR.** Provide substantial cast iron clean-out door with heavy frame at foot of boiler flue as shown on drawings. To be 2'-0"x 2'-0".

12. **COVERS.** Provide and set manhole cover shown on drawings. To be of cast iron set in substantial cast iron frame.

13. **PAINTING.** All iron work under this contract shall be thoroughly cleaned from dirt, grease or corrosion at the shop and any metal scale hammered off. The entire surface shall then receive two coats standard red lead. Surfaces in contact must receive two coats of standard red lead paint on each surface. Covered places or parts inaccessible after erection or assembling to have three coats.

The finishing coats will be applied under another contract.

These are the specifications referred to in our contract of even date.

PART VII.

PARTITIONS, FURRING AND FIREPROOFING.

1. **GENERAL CONDITIONS.** The General Conditions are hereby made a part of the specification for Fireproofing.
2. **WORK INCLUDED.** This contract includes the providing of all labor and material as called for in the specification for all terra cotta partitions, and column protection.
3. **PARTITIONS.** Terra cotta partitions shown at passages connecting at Triforium Galleries to be 4" porous terra cotta.
All partition blocks are to start directly upon the rough concrete floor. They are to be set to true line, properly bonded together and securely anchored at top and sides by wedging with terra cotta, slate or other non-combustible material.
Blocks are to be laid in cement mortar of one part Portland cement of approved quality and four parts clean, sharp sand. All joints are to be thoroughly flushed with mortar.
Carpenter is to set 2" wood bucks plumb and true to line at all door openings in hollow tile partitions with 2" headers. These bucks are to be securely anchored to the partitions and built in by this contractor.
4. **FIREPROOFING COLUMNS.** All steel columns are to be completely covered with 2" terra cotta hollow tile blocks properly shaped to fit the column.
Columns are to be finished as small as possible.
Column covering to be wired twice in each course in height, and secured together with clasps. Blocks must be set to break joints.
Column covering to be set in Portland cement mortar and all spaces between the fireproofing and metal work shall be filled with Portland cement concrete.
5. **NAILING BLOCKS.** Build in all wood nailing pieces furnished by other contractors for fastening all wood or other finish to the partitions or furrings.
6. **CUTTING AND JOBBING.** The contractor is to promptly render assistance to the other mechanics and is to do all cutting and jobbing which may be necessary to enable them to properly fulfil their several contracts.
These are the specifications referred to in our contract of even date.

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PART VIII.

VAULTED CEILINGS.

1. **GENERAL CONDITIONS.** The General Conditions are hereby made a part of this specification for Vaulted Ceilings.

2. **WORK INCLUDED.** Provide all centers and materials and construct all vaulting as shown on drawings as Guastavino tile. To be executed by the R. Guastavino Company in accordance with the architect's drawings.

The vaulting in the tower crossing must be made strong enough to carry the roof which is supported on the vault.

All exposed Guastavino work is to be faced with unglazed repressed finishing tiles of random sizes, as follows: 4" x 6", 4" x 8", 4" x 12", 5" x 8", 5" x 12", 5" x 14", 6" x 8", 6" x 12", 6" x 14", 8" x 10", 8" x 12", 8" x 16".

Tile to be as near the color of limestone as possible.

Tile to be selected for color and texture and samples of tiles are to be submitted to the architect for his approval before beginning work.

Tile to be laid in not less than three thicknesses, breaking joints properly and bedded in Portland cement mortar of approved quality.

Disposition of vertical jointing shall come within the middle third of adjoining tile.

Work in any heavier ribs necessary to stiffen the vaulting.

Tile to be pointed with mortar the color of limestone.

Cement and sand to be the same as specified for "Stone Masonry."

Ribs of ceiling vaulting are to be of stone provided and set by another contractor on centers which he is to furnish, but all necessary backing and strengthening of ribs of vaulting is to be provided and built by the Guastavino Company, also any under concrete filling necessary to secure proper grades to take roof or floor materials. The Guastavino Company are to submit shop drawings of all work for architect's approval.

3. **SCAFFOLDING.** The contractor setting the Cut Stone work will erect scaffolding from which to set the four main piers, four main arches and the stone arch ribs. This contractor will have the use of it and may add such portions as he may find necessary.

4. **CUTTING AND JOBBING.** The contractor is to promptly render assistance to the other mechanics and is to do all cutting and jobbing which may be necessary to enable them to fulfil their several contracts.

Clean away and remove all rubbish entirely from the premises, on completion. The tile work is to be cleaned, any damaged work repaired, and all left clean, whole and in good condition.

These are the specifications referred to in our contract of even date.

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PART IX.
CARPENTER WORK.

1. **GENERAL CONDITIONS.** The General Conditions are hereby made a part of the Specification for Carpenter Work.
2. **WORK INCLUDED.** This contract includes the providing of all labor and materials as called for in this specification for furnishing and setting complete all rough carpenter work as shown on the drawings or specified and such finished work as may be specified herein.
 - Office for architect or his representative.
 - Temporary partition to protect interior of present building.
 - Temporary steps to present building.
 - Temporary doors and screens to enclose the new building.
3. **FRAMING TIMBER.** All framing timber, except as otherwise specified, to be first quality, well seasoned, sound and free from large or loose knots, shakes, pitch, sap or other imperfections.
 - Framing timber must be mill sized by planing. There will be no shimming up under beams to maintain levels. Wall plates will be brought precisely to proper levels and beams bedded solidly, no wedges.
 - All framing timber in trusses and wherever marked on the drawings "H.P." shall be genuine Georgia pine.
 - All other framing timber not otherwise specified to be hemlock.
 - See drawings for sizes of timbers (not herein specified).
4. **FRAME.** All work to be framed in the best and strongest manner, perfectly true and plumb, and in accordance with framing drawings.
 - Plates on masonry walls to be securely anchored every 5'-0" with galvanized wrought iron anchors 28" long made of $\frac{3}{4}$ " round iron, with nuts and washers. All securely built into masonry.
5. **TRUSSES.** All trusses are to be framed in the best manner and provided with bolts, tie rods and all iron work as per detail drawings furnished by the architect.
 - The ends of all trusses are to be securely anchored to walls as directed by the architect.
6. **ROOFS.** All roofs are to be framed in the best and strongest manner. Rafters to be spiked to ridge and notched onto plates and purlins and thoroughly spiked and tied.
7. **FLOORS.** All wood floors to be double, unless otherwise shown or specified.
 - Changes of level of floors are shown on drawings. Fur up to make changes where so shown in the most substantial manner.
 - All shavings and rubbish of all kinds to be thoroughly removed from spaces between floor joists, studdings or furrings, etc., before floors are laid.
8. **GALLERY FLOOR FRAMING.** Build substantial frames to support floors and steps at galleries. Horizontal timbers to be 2'x 6". Uprights, 3'x 4". To be set 16" on centers and braced, framed and spiked together in the strongest manner.

9. **UNDER FLOORS.** All under floors unless otherwise shown to be of good native pine boards in 6" widths, planed one side to an even thickness and well nailed to every floor sleeper or timber, breaking joints in every course.
Lay all under floors diagonally.
All under floors must run to the walls and around all furrings, studdings, etc., closing all spaces.
At gallery floors the entire surface, including risers, is to be covered.
All under floors to be thoroughly swept and repaired before the upper floors are laid.
Cover all roofs, except as otherwise specified, with good, clear $\frac{1}{2}$ " matched white pine boards in narrow widths, planed one side to an even thickness and well nailed to every rafter.
Ridge boards as directed.
Form for all pitches, etc., in gutters, etc.
Form saddles where shown or necessary.
Do all wood forming or furring necessary for the copper work.
10. **BRIDGING.** All wood rafters to be bridged once in 8'-0" with a straight, continuous row of double herring-bone cross-bridging of 1"x4" pieces, cut in and nailed with two nails at each end of each piece.
11. **SCREEDS.** Provide floor sleepers of 2"x3" well seasoned cypress or white pine, 16" on centers, bevelled, for nailing floors wherever wood floors are called for on concrete or fireproof construction.
This contractor is to set screeds properly and promptly so as to cause no delay to other contractors.
12. **GROUND AND FURRING.** Furnish and set grounds for plastering wherever wood grounds are needed.
Grounds are generally formed by the interior trimming stone.
Grounds to be $\frac{1}{2}$ " for plastering on wire lath and $\frac{3}{8}$ " for plastering on brick or other masonry.
Plaster is to be applied directly to the brick walls without furring.
Ceiling under West Gallery will be of wood with false beams, etc., furnished under another contract and specified under "Interior Finish." Frame for ceiling with all furrings and blockings necessary to properly secure the wood ceiling and beams.
Ceiling under South Transept Gallery will be metal furred and wire lathed under another contract. Furnish and set all necessary wood furrings and blockings to secure wood beams and ribs.
Furnish all wood furring and blockings to properly secure the screens and rails at both galleries.
All furrings and grounds to be strong, true and plumb.
Do all furring and other work for completing the whole in the strongest and best manner.
13. **WOOD STAIRS.** From the last stone step in northeast corner pier continue the stair in wood with a platform 4'-0" below the bottom of rafters. Stair and platform to have 2" strings and 1 $\frac{1}{8}$ " treads and platform covering. All well supported or hung from rafters. From the platform to scuttle construct a step ladder with 6"x2" sides and 6"x1 $\frac{1}{8}$ " treads grooved into sides. All to be of good quality native pine and thoroughly secured.
Build similar steps from the door in West gable down to walk over Nave vaulting.
14. **WALK.** Build substantial walk 2'-0" wide the entire length of ceiling over vaulting of Nave and Transepts to reach windows, vents, or other apparatus.
Walk to be of $\frac{3}{4}$ " planed native pine boards nailed across 2"x4" sleepers laid lengthwise and blocked up from vaulting.

15. **SUSPENDED CEILINGS.** There will be a suspended ceiling over organ. This will be framed up of 2"x 4" planed hemlock joists 20" o.c. with 4"x 10" header on each end and one in center and carried from rafters with six $\frac{3}{8}$ " round iron rods with nuts, washers, etc. Cover with $\frac{3}{8}$ " matched native pine planed both sides, and lay over all two thicknesses of roofing felt mopped on in hot pitch, and made tight around rods.
Ceiling to pitch to convenient point and dripped through 2", 16-oz. copper down spout to floor. Spout is specified under Roofing.
This ceiling to be put in place and shored up from below and finished before the rafters are set.
16. **SCUTTLES.** Make scuttles in roofs as shown, of planed native pine. To be covered with copper by roofer. This includes scuttles in the two turrets.
Provide with hinges, hasps and padlocks. All to be approved by architect.
17. **COAL BIN.** Coal bin is of brick under another contract.
The three openings to be filled with 1 $\frac{1}{2}$ " boards about 10" wide and sliding in grooves formed by 2"x 4" studs spiked to brick work. All to be planed hemlock.
18. **ANCHORS.** Carpenter is to provide all anchors to secure carpenter work to other carpenter work or to masonry or steel.
He is to furnish to the mason all anchors and anchor bolts which are to be built into the masonry for securing framing, etc., and is to give the mason all necessary information as to their location and levels.
Trusses to have anchor bolts at each foot.
All plates unless otherwise indicated to be anchored to wall by $\frac{3}{4}$ " x 2'-6" bolts with 4" x $\frac{3}{4}$ " plates at top, and bottom.
Rafters, ridges and purlins built into masonry to have anchors not exceeding 5'-0" apart. Anchors to be 2'-0" long, 2" x $\frac{3}{8}$ " spiked with three spikes to rafters and built 8" into wall. Wall end to be turned around a $\frac{3}{4}$ " rod 6" long.
Wood framing at gutter to be thoroughly anchored to masonry.
Furnish $\frac{3}{4}$ " anchor bolts for anchoring gallery fronts and rails to beams. There will be two bolts to each post in the gallery railing.
19. **NAILS.** All nails throughout the building are to be wrought iron cut nails, of size, form and make approved by the architect.
All nails for exterior finish are to be galvanized.
Wire nails may be used for interior finish.
20. **TEMPORARY OFFICE.** Erect a temporary office not less than 15 x 25 feet for the use of the architect and the clerk of the works. It shall be weatherproof and warmly constructed. To have four windows and a door. Windows to have good fasteners and door to have good lock. Build a table 4' x 8' and racks for the convenient examination and storage of drawings, samples, etc.
When the plastering in the new building is dry enough to receive the interior finish the office is to become the property of the contractor for Interior Finish and is to be disposed of by him.
21. **TEMPORARY ENTRANCE.** A window in the present building is to be cut down by the mason to form a door for use until the new building is completed. This contractor is to do all wood work to complete the entrance. He is to furnish suitable door, frame, wood threshold, etc., and is to build steps with a plank walk out to sidewalk. Steps and walk to be 8'-0" wide of 2" plank planed. Steps to have risers. Rail to be 3" x 6" with posts of the same size. All to be planed and rigidly secured. Do any necessary wood casing of jambs to cover rough edges of the cut masonry.

22. **TEMPORARY PARTITION.** Build a suitable partition to protect the interior of the present building when the west wall is removed. Partition to be securely framed and braced to resist wind pressure. To be sheathed on inside with matched and planed native pine and on the outside with rough hemlock. Cover the outside with one layer of cheap building paper and one layer of tarred felt, both well lapped and all secured by laths nailed on not over 18" apart.
23. **CENTERS AND TEMPLATES.** Furnish wood centers for all brick and stone arches and for stone ribs in the vaulted ceilings. Also furnish all templates.
Centers for Guastavino vault filling will be provided by the contractor for that work.
Wood forms and centers for concrete and reinforced concrete will be provided by the contractor for that work.
24. **WOOD FLOOR RACKS.** Cover the narrow copper floors of outside arcade and balcony at west gable and the balcony at south gable with racks of red oak. Tops to be of 1½" x 2" slate fastened by galvanized screws to 2" x 2" sleepers. Racks to be simply laid on floors as no fastenings can be driven through the copper.
25. **TEMPORARY DOORS AND SCREENS.** Furnish and set temporary doors, windows and screens for use in drying out the building.
Outer doors to be provided with padlocks.
The windows are to be provided with cloth screens for temporary enclosure. To be removable for ventilation.
26. **WINDOWS AND DOORS.** No door frames, doors, window frames, sash or glass are included in this contract except the temporary closing in of openings.
27. **SCAFFOLDING.** This contractor is to furnish and set up all scaffolding and staging for the building of all portions of his work and is to allow all the other mechanics to use them for so long a time as may be necessary.
28. **CUTTING AND JOBBING.** The contractor is to promptly render assistance to the other mechanics and is to do all cutting and jobbing which may be necessary to enable them to properly fulfil their several contracts.
These are the specifications referred to in our contract of even date.
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PART X.

ROOFING.

- 1. GENERAL CONDITIONS.** The General Conditions are hereby made a part of the Specifications for Roofing.
- 2. WORK INCLUDED.** This contract includes the providing of all labor and materials as called for in this specification for completing all Roofing Work as called for on the drawings or as specified herein.

This contract is to include all labor and materials necessary to make all the roofing, conductor and gutter work thoroughly weather tight, secure and permanent in a manner satisfactory to the architect, whether particularly called for in this specification or not.

Vertical hatching on roofs, gutters, ridges, conductors, mouldings, plain and ornamental work indicate copper.
- 3. COPPER WORK.** All copper for gutters, conductors and ornamental work to be one-half cold rolled.

All roofing or flashing copper to be soft copper.
All copper not otherwise specified to be 16-oz.
All copper where exposed to be heavily lead coated and work so formed and connected that only the lead surface will show at any point.
- 4. COPPER ROOFING.** All roofs, unless otherwise shown, are to be covered with 16-oz. copper roofing in the best manner.

All to be securely fastened to boarding with 20-oz. copper clips, 12" o.c. in every joint.
Steeper roofs are to have standing lock joints. Standing lock joints shown on the flatter pitches at the foot of main roofs and for 3'-0" up the steeper portion are to be soldered. Also any other standing lock joints where water is liable to back up.
Flat or low pitched roofs to be laid with flat lock seams thoroughly soldered and sweated.
Make proper allowance for expansion and contraction.
Carry copper up on inside of parapets and gables and turn in under coping.
Joints to be tinned on both surfaces, lapped 1" and riveted every 3½" with copper rivets, and soldered tight, sweating solder well into joints and around rivets.
No iron nails, wires or other fastenings to be used in connection with copper work except as otherwise specified. All fastenings to be of copper or brass.
This includes all ornamental work.
All sheathing copper, except as otherwise called for, to be 14" x 48" sheets well cleated and soldered, no nails to be driven through sheets.
Make cornerstone box 6" x 6" x 10" of 28-oz. copper in the best manner. Box to be tinned inside and have cover with tightly fitting lip. Solder cover on after contents are in place.
- 5. PAPER.** All copper and tin to be underlaid with best quality 16-oz. asbestos roofing felt, laid to lap at least two inches and tacked.

Use double thickness of paper in all valleys for full width of sheet.
- 6. SNOW GUARDS.** Put substantial copper snow guards on the Transept roofs. Guards to be of a form approved by architect.

7. **FLASHING.** Furnish and lay wide flashings and counter-flashings at all angles between roofs and masonry and wherever necessary to make perfectly tight work. Carry flashing well up on walls and lead carefully into reglets or joints or turn in under copings as the case may be.
- All flashing and counter-flashings to be of 16-oz. copper.
- Roofer to furnish all counter-flashings for mason to build in.
- All flashings entering stone reglets are to terminate in a roll, this roll to be of size to firmly engage both sides of reglet and the reglet is to be pointed with a mixture of litharge and glycerine.
- Lead all work in reglets and caulk tight.
- Turn up flashing against masonry as high as the counter-flashings will allow.
- Turn down the counter-flashings, dress close, and cement perfectly tight against masonry.
- Put on all lead rivets for securing metal to masonry.
- Flash carefully around arcade and balustrades.
- Floors of the arcade and balcony at west gable, and the balcony at south gable, are to be covered with copper laid with flat lock seams all soldered and sweated. This copper is to be carried up all around and connected into reglets, etc., in such a manner that, should the leaders become clogged, the water would flow over the outside face of wall before reaching any exposed stone.
- Under all windows over 2'-0" wide set sills in pan of 16-oz. copper turned up at ends and back except where exposed on inside in finished rooms. Corners to be soldered.
- All coping stone is to be underlaid by this contractor with a continuous sheet of 16-oz. copper. Turn down on all sides to cover joint and leave all perfectly straight and even. Set thimble around all dowels and solder tight to flashing. The sheet to have two V-shaped corrugations $\frac{1}{8}$ " high 6" apart and running lengthwise of sheet.
- All joints of string courses, or other stonework exposed to wash are to have every joint underlaid with a strip of 4-lb. lead, or 16-oz. copper not less than 9 inches wide, the full depth of stone. Turn up slightly at sides, and inside 1 inch in height and leave all perfectly straight and even.
- Furnish 2" tube 3'-0" long soldered tight at ends for mason to build in over South Transept entrance.
- Furnish any other copper flashings specified under "Stone Masonry and Brickwork" and "Cut Stone," or necessary to insure weather-tight work.
8. **GUTTERS.** Provide and set gutters for all roofs and put on all mouldings indicated on quarter scale drawings. Sizes are shown on general drawings.
- Line all wooden gutters with 16-oz. copper. Carry copper well up under slate and over edge of gutters.
- Edges of gutter to have $\frac{1}{2}$ " x 1" galvanized iron bar completely covered by metal of gutters.
- Brace with $\frac{3}{8}$ " x $\frac{3}{4}$ " galvanized iron braces every 2'-0".
- Where gutters are formed behind parapet walls or where conductors are taken through roof, or bottom or side of gutter, the roofer is to provide a box of 20-oz. copper with guard of heavy brass wire, and connect same to conductor, making allowance for expansion and action of ice.
- All gutters to pitch towards conductors.
- Clean out all gutters at completion.
9. **CONDUCTORS.** Furnish and put up where shown standing seam conductors of 16-oz. copper with ornamental heads, securely fastened to the walls and to have in addition straps of copper with copper-headed bolts.
- Where conductors stand out from walls provide stiff galvanized iron brackets concealed by the straps to hold conductors rigidly in place.
- Make 16-oz. copper deflectors where conductors discharge on roofs.
- All conductors to have 16-oz. square copper goosenecks as large as conductors will allow.
- Goosenecks are to be carried down through ornamental heads and be directly connected to conductors.

All goosenecks are to be made double, the outer one $\frac{1}{4}$ " larger all around, both to be made perfectly tight at gutter. The outer one runs down through cornice and is made tight below.

Each conductor to be provided with heavy brass wire bail guards.

Furnish 2' conductor for suspended ceilings in Organ Chambers.

Outside conductors will connect into cast iron pipe brought above grade under another contract. This contractor is to caulk the joint with oakum and finish with elastic cement.

Inside conductors from balcony and arcade at west gable and balcony at south gable will be of iron included in another contract. Provide boxes 12" square and 8" deep with outlet arranged for plumber to caulk into his pipe. All of 20-oz. copper. Heavy removable gratings over.

10. **RIDGES.** Make ridges of 16-oz. copper.
11. **MOULDINGS AND ORNAMENTAL WORK.** Mouldings and ornamental work as shown in exact accordance with full size details with all angles turned clean and sharp.
Provide and set all dogs, bars and braces to firmly support and join all metal work together in the best manner.
12. **SADDLES.** Cover all saddles with 16-oz. copper.
13. **SCUTTLES.** Cover all scuttles and frames excepting at tower roof with 16-oz. copper. Scuttle at tower roof to be covered with tin as specified for roof.
14. **VENTILATORS.** All ventilators to be 18-oz. copper, "Globe" ventilators or equal approved by the architect.
There will be ventilators as large as can be set in the upper portion of the two turrets at west. This contractor is to make tight and arrange for the scuttles.
Floors to be of copper, flashed all around and made tight to outside of sill courses.
Provide and set copper or brass screens at all openings in the two turrets at this level. To be of No. 19 wire with $\frac{3}{4}$ " mesh and set in proper brass frames.
Ventilators to have dampers with approved opening and closing device and cord.
15. **TIN ROOF.** The roof of tower is to be tin.
Tin to be I.C. "Merchants Old Method," "Taylor's Old Style," or equal approved by the architect.
To be painted on underside before laying.
To be laid with standing seam and secured to roof by clips 12" on centers in every joint.
Cover scuttle and frame.
Immediately after laying clean off all grease and dirt and paint three coats best quality metallic paint in pure linseed oil.
16. **SCAFFOLDING.** This contractor is to furnish and set up all scaffolding or apparatus necessary for erecting and completing all work under the heading "Roofing." This contractor is to have the use of the scaffolding erected by the mason contractor to build the walls.
17. **GUARANTEE.** This contractor is to guarantee all roofs tight and keep in repair at his own expense for three years.
Contractor is to make good all damage caused by leaks.
These are the specifications referred to in our contract of even date.

PART XI.

PLASTERING.

1. **GENERAL CONDITIONS.** The General Conditions are hereby made a part of the Specification for Plastering.
2. **EXAMINE WORK.** The plasterer is to examine and try all ceilings, partitions and furring, and is to notify the various contractors who are responsible of all that are not square, true, plumb and level, and see that they are correct before lathing, or plastering, and that all are firm and secure.
3. **WATER SUPPLY.** A water supply is to be furnished by another contractor for the use of all contractors employed upon the work.
4. **EXCEPTIONS.** There will be no plaster in the following portions:
 - Basement.
 - Unfinished space between the groined ceilings and the wood roofs.
 - In lower portion of the northeast pier.
 - Portions of the Triforium Galleries and connecting passages.
5. **WORK INCLUDED.** This contract includes the providing of all labor and materials as called for in this specification for completing all lathing and plastering work as called for on the drawings or as specified herein.
 - Plastering is shown on plans and sections by a double line and in elevation by very open stippling.
 - Where plastering is indicated in single bays or surfaces, other similar bays or surfaces are to be plastered the same as if all portions were shown.
6. **PLASTERING.** Plaster in the best manner all walls, furrings, ceilings, etc., wherever plaster is shown or specified or evidently intended.
 - Plastering will be in two coats, brown and skim.
 - Grounds generally will be formed by the cut stone bases, jambs, arches, etc.
 - Wherever there is to be wood finish wood grounds will be set by the carpenter.
 - Grounds at wire lath will be $\frac{3}{8}$ ".
 - Grounds elsewhere will be $\frac{5}{8}$ ".
 - Plaster is to be applied directly to fireproof partitions and brick walls without furring.
 - The plaster for ceilings is to be applied directly to the concrete except where hung ceilings are shown or specified.
7. **KIND OF PLASTER.** Plaster to be of best quality lime plaster.
8. **FIRST COAT.** The first coat is to be a scratch coat of brown mortar with plenty of sound hair, brought well out to grounds and made plumb, true and level.
 - The walls and ceilings shall be screeded about five feet apart both horizontally and vertically, and made plumb, true and level. Fill in between screeds and bring to true and even surface. Surface to be scratched slightly with a corn broom.

9. **SKIM COAT.** The skim coat in the toilets and Organ Chambers to have a smooth finish.
The skim coat throughout the remainder of the building to have a rough sand finish.
Skim coat throughout to be of lime, well gauged with plaster-of-Paris and sand.
Wherever rough sand finish is called for the sand shall be coarse enough to give the rough finish required. The whole to be floated with Brussels carpet float.
A sample of the rough finish is to be applied to the wall and approved by the architect before proceeding.
All walls are to be finished top and bottom at the same time to prevent joinings.
10. **LIME.** Lime to be best quality freshly burned white Canadian made lime of a brand satisfactory to the architect.
Lime to be slaked not less than thirty days before using.
All lime putty to be run through a sieve of not less than ten meshes to the inch.
11. **SAND.** Sand to be clean, sharp washed sand.
For smooth finish to be fine.
For rough finish to be coarse enough to give finish required.
12. **PLASTER-OF-PARIS.** Plaster-of-Paris to be best quality, fresh and of a brand satisfactory to the architect.
13. **METAL LATH.** Metal lath will be used as follows:
Ceiling of South galleries.
Ceilings of organ lofts.
Over pipe chases in plastered walls.
To be Clinton wire mesh or equal approved by the architect, 19 gauge and galvanized after weaving.
To be secured to wood furrings by galvanized staples.
To be secured to metal furring with No. 18 annealed tinned iron wire.
All wood or metal furrings are included in other contracts.
14. **STEEL CORNERS.** All exterior corners in interior plaster work up to 7'-0" above floors to have steel corners throughout.
These corners to be of make approved by the architect.
Metal corner beads are to be wired to all exposed angles and brought to perfect alignment to receive finished plaster work.
15. **PRESENT BUILDING.** Do any lath and plaster work or patching to finish new wall or repair portions damaged by this work. Run new mouldings to match present mouldings, if any, and finish all to agree with present work.
16. **ORNAMENTAL PLASTER.** There will be no ornamental plaster or plaster mouldings in the new portion.
17. **DAMP-PROOFING.** Before walls of organ gallery are plastered the contractor for mason work will paint them with damp resisting paint. This contractor will arrange to have the paint applied at the proper time so that the plaster may be applied while the paint is still tacky.
18. **HEATING.** The heating of building for drying out plaster is not to be included in contract for plastering. Carpenter is to furnish and set temporary doors and screens.
19. **SCAFFOLDING.** This contractor is to furnish and set up all scaffolding or apparatus necessary for erecting and completing all work under heading of "Plastering." The staging is to be left for the use of other contractors as long as needed by them. See specifications for "Stone Masonry" for scaffolding furnished under that contract.

20. MISCELLANEOUS. After the last coat is on, clean the mortar off the floors.

Patch up and repair all plaster at the completion of building and leave all clean and perfect.
These are the specifications referred to in our contract of even date.

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PART XII.
SLATE AND MARBLE.

1. **GENERAL CONDITIONS.** The General Conditions are hereby made a part of the contract for Slate and Marble.
2. **WORK INCLUDED.** This contract includes the providing of all labor and materials as called for in this specification for furnishing and setting complete all slate and marble either shown on drawings or specified herein.
3. **WATER SUPPLY.** A water supply is to be furnished by another contractor on the building site for the use of all contractors employed upon the work.
4. **SAMPLES.** Samples of the slate and marble with the various finishes to be submitted to the architect and his approval obtained before proceeding with the work.
5. **SLATE.** All slate is to be of the best quality of even texture, free from seams, discolorations or other imperfections, milled perfectly true, and from a quarry acceptable to the architect.
Furnish all labor and materials and set slate as follows:
Floors of Vestibule, A, B and C.
All portions of main floor indicated as slate.
Floor of Baptistry and North Chapel.
Treads and platforms at stair from South Vestibule to Basement.
Interior thresholds.
All borders and thresholds will be of Unfading Green Vermont slate.
All other slate will be perfectly clear jet black, free from any ribbands or other blemishes.
Slate will be of the following thickness:
Thresholds 2".
Floors and stair treads, 1½".
All slate stair treads and platforms to have rounded nosings and be securely bolted to metal work by this contractor, using fastenings approved by the architect.
6. **MARBLE.** Partitions and wall linings in W. C. compartments, base in toilets, and the dado in Janitor's closet to be best quality white Italian marble, free from all imperfections.
Partitions to be 1½" thick. Wall linings and dado ¾" thick.
Top of partitions and wall linings to be 6'-6" from floor.
Partitions are to be set up 10" on special nickel-plated brass standards with connections approved by architect.
A marble slab is to extend over top of partition, size 3" x 2½", and is to be properly clamped and dowelled to form tie across partitions.
Doors are to hinge to partitions.
All partitions to be fastened with nickel-plated brass angles and bolts in accordance with directions furnished by architect.
Dado in Janitor's closet will be 4'-0" high.
Base in toilets will be 10" high.
Base, dado and wall lining to have edge slightly rounded and set with face ¼" beyond the face of the plaster.

All edges and corners are to be formed and finished as shown on architect's drawings or as directed.

7. **TILE.** Floors of toilets and Janitor's closet to be of red unglazed 6" quarry tile of make approved by architect, to be set in 1 to 2 cement mortar with full beds.
8. **FINISH.** All exposed surfaces of slate or marble in toilet room and Janitor's closet to be polished.
All other exposed surfaces to be fine sand finish.
9. **SETTING.** Slate floors to be set in 1 and 2 cement mortar with full beds.
Joints to be flushed full of mortar and rubbed smooth even with the surface. Mortar for joints to be colored if directed.
Stair treads to be set in iron setters' cement.
All to be in perfect alignment and the floors smooth and level and at proper heights. Get exact floor levels from carpenter.
10. **PROTECTION.** All work shall be properly protected at all times from injuries from the elements and from building operations. This protection must be of substantial material approved by the architect.
11. **CLEANING.** All work is to be washed down carefully, the slate oiled as directed by the architect, and all left perfectly clean and free from spots when the building is entirely completed.
These are the specifications referred to in our contract of even date.

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PART XIII.

INTERIOR FINISH.

1. **GENERAL CONDITIONS.** The General Conditions are hereby made a part of the Specification for Interior Finish.
2. **WORK INCLUDED.** This contract includes the providing of all labor and materials as called for in this specification for furnishing and setting complete all Interior Finish as shown on the drawings or specified herein.

The contractor for mason work is to have general charge of the entire building operation until the building is dry enough to receive the interior finish, when the contractor for interior finish is to take general charge of the building and will take care of the telephone, heating, screens, lights, guards, etc.

The temporary office, all screens, guards, etc., furnished by the contractor for carpenter work are to become the property of the contractor for Interior Finish and when the building is completed they are to be disposed of by him.
3. **FOREMAN.** This contractor is to have at all times after his work commences a competent foreman at the building to have general charge of the work at the building. He is to give lines and levels and other similar data needed by other workmen. He is to see that gang-way spaces are kept clear and that the surroundings of the building are kept clean and orderly at all times.
4. **OFFICE.** A building for the temporary office of the architect has been specified under carpenter work. As soon as the contract for carpenter work is complete this contractor is to care for this office, keeping it clean and properly heated. The building is to become the property of this contractor, and must be removed or disposed of by him.
5. **TELEPHONE.** As soon as the contract for carpenter work is completed and until the entire completion of the building, this contractor is to take charge of and pay for telephone service. The telephone is for the free use of the architect or his representative for local calls. All contractors employed upon the work are to be allowed the free use of the same for local calls. All toll charges are to be paid by parties making such calls.
6. **TEMPORARY HEAT.** This contractor is to be allowed the proper temporary use of the permanent heating apparatus and is to maintain a temperature of at least 65 degrees Fah. in all parts of the building and properly ventilate it at all times after he takes charge and until the building is entirely finished. The heating apparatus shall be under the control of a competent attendant who is to protect it from injury and regulate its use. This attendant is to represent the heating contractor, but is to be paid by this contractor.

If temporary radiation is necessary to maintain the specified temperature, this contractor shall pay the heating contractor for connecting same.

This contractor is to pay for all fuel.
7. **LIGHTS, GUARDS, ETC.** This contractor shall provide and maintain around excavations and upon stores of materials belonging to another contractor, proper guards with danger lights upon same at night for the protection of all parties.

8. **TEMPORARY DOORS, SCREENS.** The contractor for carpenter work is to furnish and set temporary doors and screens for all openings for use in drying out the plaster work. This contractor is to take charge of the temporary doors and screens, replacing them whenever necessary. He is to see that doors are properly locked at night.
9. **SCAFFOLDING.** This contractor is to furnish and set up all scaffolding or apparatus necessary for erecting complete all work under heading, "Interior Finish."
10. **WORK INCLUDED.** This contract includes all labor and material to furnish, set and properly secure ready for painting and finishing all interior finish indicated on the drawings or specified herein. It also includes all exterior doors and frame. No window frames, sash or glass is included in this contract.
11. **INTERIOR FINISH.** All plastering is to be finished, basement cemented, and all mason work done and thoroughly dried before any of the interior finish is brought into building.
All interior finish to be as shown on the drawings and as herein specified.
The entire inside finish to be in accordance with the details and other drawings furnished by architect.
All interior finish except as otherwise specified is to be selected slash white oak.
All stock to be of the best quality, to be thoroughly seasoned, well hand smoothed, sand-papered, and kiln-dried before putting up.
In all framed moulded work, the mouldings and miters are to be worked on the solid rail and stile, the joints being "mason joints," i.e., joints made on the lines of extreme width of rail. All joints are to be mortised, tenoned and pinned together, except where shown to be dowelled.
All panels 12" wide or over are to be built up with at least three thicknesses of stock, the core to have grain running at right angles to grain of back and face, all done to approval of architect.
All curved or circular finish is to be sprung on or worked from the solid, so that no kerfing shall be visible.
Wherever sheathing is shown on drawings or called for in this specification, it is to be matched sheathing with edges slightly rounded (not beaded).
All carving shown on the drawings is to be included in this contract. It is to be executed from full size models approved by the architect. Workmen doing carving and modelling are to be only such as are approved by the architect.
Brad all moulded work in the quirks and set all finish nails.
All finish must be entirely free from mill marks.
All interior woodwork to be finished up perfectly clear and at completion to be properly cleaned and all stains and finger marks removed.
All matched sheathing 4" wide or over that is to have stained finish is to have the edges stained before being put in place.
All nails to be set and puttied. Putty to match woodwork in color.
12. **DOORS.** All doors to be of sizes and as shown on plans.
All doors, unless otherwise specified, to be of best quality, selected straight white oak.
All doors will have framed white pine cores.
All doors to be made according to detail drawings from selected stock, and to be finished up clean and perfect.
All doors to have blind mortises.
All doors to be veneered where necessary to match finish.
All double doors to have astragal.
There will be leaded glass panels in all doors where shown or marked "L. G." All glass and setting is included in another contract.

13. **EXTERIOR DOORS.** All exterior doors to have framed white pine cores and are to be sheathed on both sides with matched V-edge sheathing.
Core for basement entrance door and doors above first floor, $\frac{3}{8}$ ".
Cores for all other outside doors to be $1\frac{3}{4}$ ".
All in accordance with details.
Bolts through hinges and the wrought iron studding nails shown are included in the hardware allowance.
All exterior doors swinging out are to have brass plates $\frac{3}{4}$ " thick over entire top. This contractor to furnish plates.
14. **INTERIOR DOORS.** Interior doors to be generally 2" thick except that the doors opening into narthex will be similar in construction to exterior doors and will have $1\frac{1}{4}$ " core.
Interior doors will have stiles and rails with flush panels of matched V-edged sheathing.
All as detailed.
Doors from boiler room to fan room and to present basement to be "Kalamein" metal covered or equal, approved by the architect. The frames to be of the same material.
Door from boiler room to unexcavated space to be stock cypress $1\frac{3}{8}$ " thick.
All basement door frames to have quarter round beads on each side and scribed to fit the masonry.
Doors from Triforium Galleries to be $1\frac{3}{4}$ " thick as shown.
Doors to water closet enclosures to be $1\frac{1}{4}$ " thick, hinged to partitions with heavy brass spring hinges furnished under the hardware allowance. These doors to be 1'-0" from floor. Spring hinges are to be set to hold doors open.
15. **DOOR FRAMES.** All interior swinging doors to have double rebated and beaded frames of $2\frac{1}{2}$ " solid stock to match finish of rooms.
All exterior doors to have rebated and beaded frames of 4" solid stock to match doors.
There will be mouldings in the angles between door frames and the masonry or plaster as the case may be.
All frames and mouldings to be of best quality selected slash white oak.
16. **STAFF BEADS.** All wooden door frames in masonry walls to have staff beads. See detail drawings for sizes.
All staff beads are to be put on after frames are set and caulked with oakum.
17. **BASE KNOBS.** Base knobs are to be furnished under the hardware allowance; to be set at all swinging doors.
18. **PRIMING.** This contractor must call upon the painter to stain all exterior wood work as soon as set and apply the first coat of varnish to protect it from the weather.
The backs of all door frames are also to be painted two good coats of Antihydrine or equal before setting.
19. **PEWS.** The pews are not included in this contract.
20. **STAIRS.** All stairs are included in other contracts.
This contractor is to furnish and set $1\frac{3}{4}$ " x $2\frac{1}{4}$ " moulded hand rails at the three runs from first floor to galleries.
To be supported on heavy brass brackets included in the hardware allowance.
21. **PAPER.** Lay one thickness of paper between all wood floors.
All paper for floors above basement to be Black Neponset or equal, approved by the architect.
22. **UPPER FLOORS.** Lay upper floors throughout the main floor and galleries, except where masonry or slate floors are called for on drawings. Wherever wood floors are called for they are to be of oak.

All flooring is to be planed and hollow milled on the back.
All wood floors to be laid in the most careful manner, smoothed off, scraped, protected, and left perfect on completion of building. No plane or scraper marks can show.

Unless otherwise shown, all wood floors are to be laid to a border made of one strip of floor boarding all around, mitred at corners.

Wherever changes of level in floors occur, furnish proper nosing strip as directed by the architect.

After floors are laid, they shall all be protected and kept covered with heavy felt paper. This contractor is to see that all workmen are provided with canvas slippers or other approved footwear that will not deface floors in any manner.

All flooring to be tongued and grooved on ends.

All oak floors to be first quality $\frac{7}{8}$ " kiln-dried straight red oak, matched with tightly fitting tongue $\frac{1}{4}$ " wide, and blind nailed. All to be of even parallel widths with not over 3" face and laid in long lengths, breaking joints in every course.

All treads and risers in galleries to be same wood as floors, and of same construction.

All treads ploughed into risers and risers into treads, and treads and risers ploughed for base on wall side.

All treads to be $1\frac{1}{8}$ " thick unless otherwise specified.

All to have rounded nosings with scotia under, returned at ends.

Cover all treads and keep them covered.

23. **CABINETS.** Make cabinets for switches, cutouts and electric apparatus of any kind where shown or directed. All as per detail drawings furnished by architect.

24. **HARDWARE.** This contractor is not to include finished hardware, which includes all locks, knobs, butts, wrought iron hinges, doors stops, hand rail brackets, etc., but is to include nails and rough hardware of all descriptions, and any hardware especially spoken of or described in these specifications.

The owner will select this hardware and order it delivered at the building.

As soon as hardware is delivered at building this contractor is to verify and check each piece and report to the architect any defects or shortage, giving a receipt to the hardware dealer for such as are found to be correct.

This contractor is to put on all hardware throughout, and is to do all jobbing and make all changes in connection with hardware without extra charge to owner.

25. **CUTTING AND JOBBING.** Do all cutting that may be required for contractors for mason or electric work, plumbing, heating and ventilation, roofing or gas piping work, and repair neatly afterwards.

On completion of the work thoroughly clean out the building, repair all damaged places, wash the windows, remove all rubbish of every description, including rubbish of all other contractors, from the premises and leave everything in a condition for immediate occupancy.

26. **SCAFFOLDING.** This contractor is to provide all scaffolding or apparatus necessary for erecting and completing all work under heading of "Interior Finish."

27. **SCREENS AT GALLERIES.** Build temporary screens at galleries as shown.

These are the specifications referred to in our contract of even date.

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PART XIV.
METAL CASEMENTS.

1. **GENERAL CONDITIONS.** The General Conditions are hereby made a part of the Specification for Metal Casements.
2. **WORK INCLUDED.** This contract includes the providing of all labor and materials as called for in this specification for furnishing and setting complete all metal casements as specified herein.
3. **CASEMENTS.** All windows specified herein are to have metal casements and frames furnished and set complete by this contractor.

All window openings with curved heads to have casements filling the entire opening.

All metal casements and vents to be furnished by Henry Hope & Sons, Ltd., 103 Park Avenue, New York City, or by the Wragge Company, whose American agents are Draper & Ringrose, 105 West 40th Street, New York City.

The following windows are to have metal casements:

4 windows in unexcavated basement (hinged at bottom to swing in).

7 windows in excavated basement (pivoted to swing in at top and out at bottom).

2 windows in toilets (hinged at sides to swing out).

4 windows in Triforium Gallery (pivoted to swing in at top and out at bottom).

2 mullioned windows (2 sash each) in west vestibule.

1 mullioned window (2 sash) in south vestibule.

1 window over basement entrance lighting stair to gallery.

(These last four windows will not have casements the entire height but will have vents 2'-0" high in casement frame pivoted to swing in at top and out at bottom.)

4. **MATERIALS AND WORKMANSHIP.** All metal casements except as otherwise specified are to be Hope's section No. 2 or the equivalent Wragge section. To have approved opening and adjusting device.

All sections including the weatherbar to be solid rolled mild steel, the fittings to be of admiralty mixture bronze and handle being of Hope's two point pattern or equal which allows the casement to be opened $\frac{1}{2}$ " or 1" without vibration or rattling. The stay bar to be pattern No. 223 or equal which does not project into the room when the casement is opened at any angle.

The handle plate and jaws for stay bar are to be mild steel forgings welded solid to the casement.

Where the openings have curved heads the steel sections of the casement and frame to be shaped in one piece and not jointed, the weatherbar also to be of properly rolled section to come down to the springing line and machined off on the sides to a feather edge to preserve the proper outline of the casement all around.

All casements and frames to have the angles carefully machined, tenoned, riveted and brazed, the steel work to be sand blasted, removing all scale, etc.

All casements to be hung on loose pin hinges and each frame and sash to be numbered.

All metal casements are to be painted at the factory with two coats of enamel, color as directed by the architect.

All metal casements are to have members carefully wrapped with cloth and be securely crated for shipment to the building.

All to be made and set by this contractor under the direction and to the satisfaction of the architect.

Proper bars for stiffening leaded glass are to be included in this contract and made a part of the metal sash, arranged to go behind the leading (spaced two lights apart).

All metal casements are to be accurately made to fit into rebates in the stone jambs, sills, etc., and are to be carefully set in cement of approved quality and caulked with oakum. Only brass or copper fastenings are to be used in securing frames to the jambs. All damaged paint to be repaired before building is delivered to owners.

5. **SCAFFOLDING.** This contractor is to furnish and set up all scaffolding or apparatus necessary for erecting and completing all work under the heading "Metal Casements."

These are the specifications referred to in our contract of even date.

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PART XV.

GLASS.

1. **GENERAL CONDITIONS.** The General Conditions are hereby made a part of the Specification for Glass.
2. **WORK INCLUDED.** This contract includes the providing of all labor and materials as called for in this specification for furnishing and setting complete all glass throughout the building.

Stiffening bars are included in this contract except for windows where metal frames are called for.
3. **MATERIAL.** All windows unless otherwise specified are to be glazed with best quality plain American Cathedral glass leaded in 5" squares. Color as selected by architect.

All glass except as otherwise specified is to be leaded as above, using $\frac{1}{2}$ " and $\frac{3}{4}$ " heavy leads, flat on both sides, equal to the sample in the office of the architect.

NOTE. The design for leading as shown on the elevation will not be used at this time. The correct design is shown on the left-hand margin of South Elevation.

All interior doors, interior sash or screens where glass is called for are to be leaded with double thick American glass.

The lead is to show all around the edge of glass opening.

Wherever fixed windows are shown the glass is to be set into rebates in the stonework without iron frames.

All windows are fixed excepting those specified under "Metal Casements."

All supporting bars and tees for leaded glass shall be carried well into jambs and tracery to secure large bearings.

All windows over 2'-0" in width where iron frames are not specified are to have vent sections of size approved by the architect and properly arranged for convenient opening and closing.

Furnish and install complete condensation gutters of 12-oz. hard rolled copper, and drip through lower edge of glass leads to outside, for all stationary leaded glass windows, as per detail furnished by the architect.

All leaded glass must be guaranteed against leakage and any discoloration of walls or other damage caused by such leakage shall be made good by this contractor.
4. **SCAFFOLDING.** This contractor is to furnish all scaffolding or apparatus necessary for erecting complete all glass as called for in this specification.

These are the specifications referred to in our contract of even date.

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PART XVI.

PAINTING.

1. **GENERAL CONDITIONS.** The General Conditions are hereby made a part of the Specification for Painting.
2. **WORK INCLUDED.** This contract includes the providing of all labor and materials as called for in this specification for completing all painting work as called for on the drawings or as specified herein.

3. **CONDITION OF WOODWORK.** This contractor must see that all woodwork is perfectly clean before filling or staining; putty up with the knife all nail heads, using care to thoroughly match the putty in all natural wood finish, and to sandpaper smooth and properly prepare all work before applying each coat.

Painter must examine finish before commencing his work, and notify architect in writing of any defects that will prevent the complete fulfilment of his contract.

The whole of the painter's work to be done in the best and most workmanlike manner known to the painting and finishing trade, and all paint and varnish spots to be cleaned off glass, walls and floors at completion of the work, and all left in a perfect and complete state without exception.

Sandpaper all inside work and clean out all mouldings before the first coat, and sandpaper and clean out after every coat except the last.

No substitute for sandpaper shall be used in rubbing down work.

All paint, filler and varnish must be delivered at the building in sealed packages with trade mark of manufacturer, and opened in presence of architect or his representative.

All material must be used as it comes from the package without addition or alteration, unless otherwise permitted by architect.

No paint, stain or other finish is to be applied to the exposed surfaces of wood finish until after it is erected and approved by the architect.

4. **INTERIOR FINISH.** Samples of finish are to be submitted to architect for approval.

All interior finish except as otherwise specified is to be stained with oil stain and given a very thin coat of shellac, rubbed down and waxed.

All varnish where directed by the architect is to have first two coats lightly sandpapered, and the last coat rubbed.

The architect reserves the right to vary finish of woodwork, without increasing the cost of same, to obtain the effect desired by him. The contractor will confer with the architect as to the various finishes desired and will apply samples to the woodwork as directed, for the approval of the architect before commencing work.

Paint backs of all door frames two coats Antihydrine or equal.

All matched sheathing 4" wide or over that is to have stained finish is to have the edges stained before being put in place. See sheathing in doors.

5. **FILLING.** Fill all open grain finish with Wheeler's Patent Wood Filler. All to be applied, rubbed into the grain and cleaned off in exact accordance with directions furnished by manufacturer.

White filler is to be used if so directed by the architect.

6. **FLOORS.** Stain all oak floors as directed by the architect. Fill and finish with two coats of Elastic floor varnish. Remove gloss by rubbing with pumice.
7. **WALLS.** All plaster walls in the toilets and the slop sink closet are to be painted with three coats of "Marvelo" oil paint or equal, last coat flat, applied in accordance with directions of the manufacturers. Walls to be properly sized.
The ceiling of South Gallery is to be painted as above.
8. **OUTSIDE DOORS.** All outside doors and door trim to be filled and stained with oil stain, and have four coats of best exterior varnish. The last coat rubbed to a dull, even surface with pumice stone and oil.
9. **PRIMING.** Do all priming immediately when notified by carpenter.
10. **METAL WORK.** Paint all exterior and interior metal work except copper and tin three coats of Rice's "Eric" carbon paint or equal, first coat black, second olive, third coat black with egg-shell finish. All applied as per directions of the manufacturers, The U. S. Gutta Percha Co., Providence, R. I. All finishing coats of stair work to be special finish, color selected by the architect, and be paint especially fitted to stand severe handling.
All metal stair work and other wrought iron work is to be painted as specified above.
Metal casements are to be painted by another contractor.
11. **PIPES, RADIATORS, ETC.** Painting and finishing in connection with the heating system or plumbing is not included in this contract.
12. **VARNISH.** All varnish used in this building unless otherwise specified is to be selected by the architect. It is to cost \$3.50 per gallon.
13. **WHITE LEAD.** All white lead is to be the best quality approved by the architect.
14. **OIL.** All oil used throughout the building, unless otherwise specified, is to be best quality pure linseed oil. All boiled oil is to be strictly kettle boiled.
15. **SCAFFOLDING.** This contractor is to furnish and set up all scaffolding or apparatus necessary for erecting and completing all work under heading "Painting."
These are the specifications referred to in our contract of even date.

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