SPECIFICATIONS

FOR

NEW BLUE QUILLS
INDIAN RESIDENTIAL SCHOOL
NEAR
ST. PAUL DE METIS, ALTA.

Dept. of Indian Affairs,
Ottawa, March 12, 1930.

Plan No. 614.

CANADIAN COAT OF ARMS.

TENDERS WANTED.

Sealed Tenders addressed to the undersigned and endorsed on the envelope "TENDER FOR NEW BLUE QUILLS INDIAN RESIDENTIAL SCHOOL" NEAR ST. PAUL DE METIS, ALTA." will be received up to noon of the 19th day of May, 1930, for the erection of the above mentioned building.

Plans and specifications may be seen at the Post Offices at St. Paul and Vegreville; at the office of Mr. Race, Indian Agent, Edmonton; at the Builders' Exchange of Calgary; at the office of the Indian Commissioner, Mr. Graham, at Regina; and at the office of the Inspector of Indian Agencies, John R. Bunn, at Winnipeg;

Each tender must be accompanied by an accepted cheque on a chartered bank of Canada for ten percent of the amount of the tender, payable to the order of the undersigned, (War Bonds of the Dominion or Canadian National Railway Bonds will also be accepted as security, or Bonds and cheque if required to make up an odd amount) which amount will be forfeited if the person or persons tendering decline to enter into a contract, when called upon to do so, or fail to complete the work contracted for.

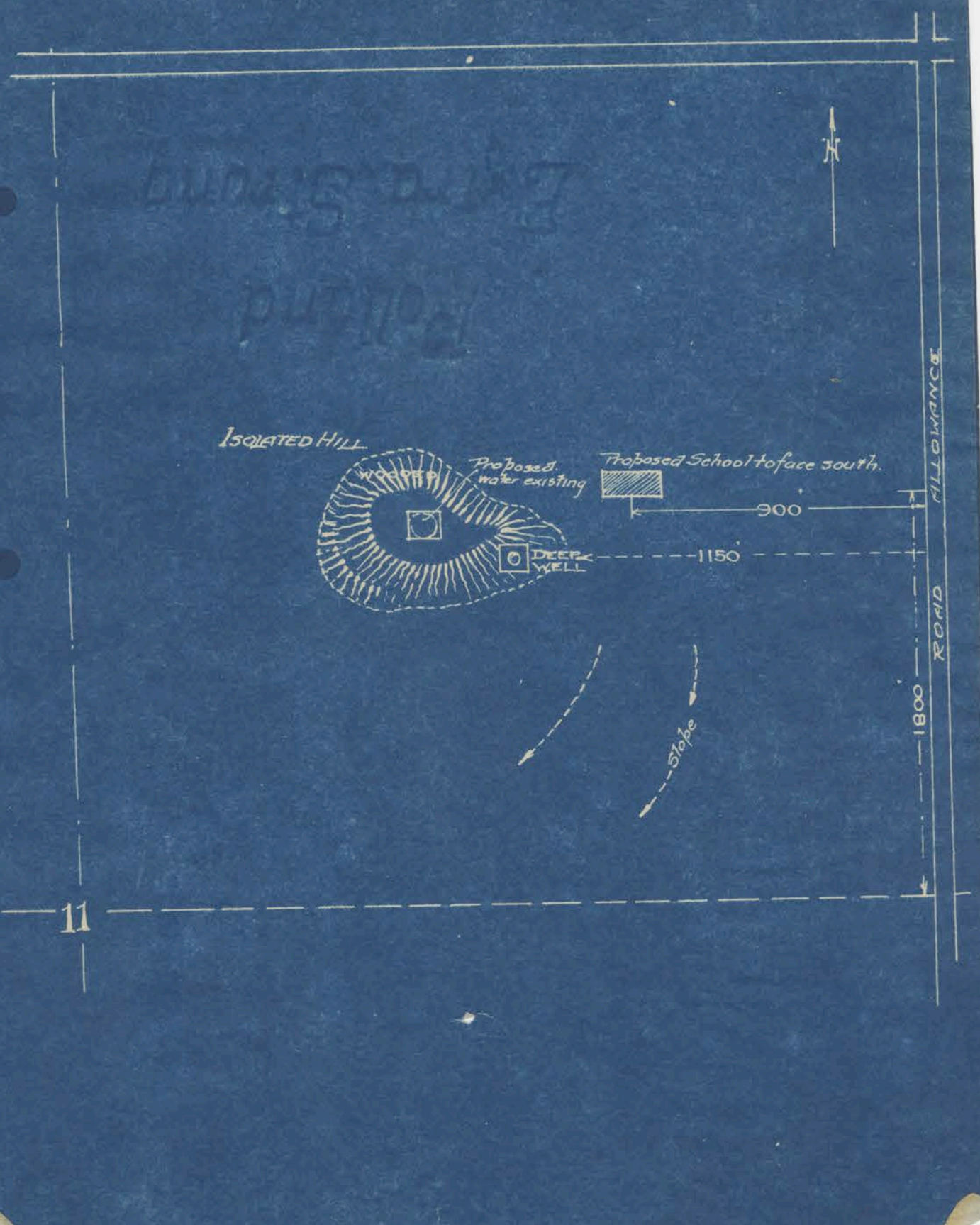
The lowest or any tender not necessarily accepted.

DUNCAN C. SCOTT.
Deputy Superintendent General
of Indian Affairs.

Dept. of Indian Affairs,
Ottawa, April 16, 1930.

SKETCH PLAN

Showing approx.-location for
PROPOSED BLUE QUILLS INDIAN SCHOOL
and existing well on N.E.¼ SEC 11-TP 58-RGE 10 W of 4TH M.
Scale 1" = 400'



S P E C I F I C A T I O N S.

OF THE WORK TO BE DONE AND MATERIALS FURNISHED IN THE ERECTION AND COMPLETION OF THE NEW BLUE QUILLS INDIANS RESIDENTIAL SCHOOL, NEAR ST. PAUL DE METIS, ALTA. ACCORDING TO THE DRAWINGS AND THESE PARTICULARS PREPARED FOR SAME BY THE ARCHITECT OF THE DEPARTMENT OF INDIAN AFFAIRS AT OTTAWA , ONT.

Proposals to be entitled to consideration must be made in accordance with the following instructions:

Proposals shall be made upon the forms provided therefor, and all blank spaces in the forms shall be duly filled and the completed form shall be without alteration or erasure. The tender form shall be enclosed in an envelope, endorsed with the names of the works to which they refer, seasled and addressed to the Deputy Superintendent General. The Proposals shall not contain any recapitulation of the work to be done.

Before submitting a proposal the bidders shall carefully examine the drawings and specifications, visit the site of the proposed work and ascertain for themselves the nature of the soil to be exeavated and the amount of excavating required and fully inform themsleves as to all existing conditions.

This contract is made and entered into by the contractor on the distinct understanding that he has, before execution, investigated and satisfied himself

of everything and of every condition affecting the works to be executed and the labour and materials to be provided, and that the execution of this contract is founded and based upon his own examination, knowledge, information and judgment, and not upon any statement, representation or information made or given by any officer of the Department.

The contractors tendering will be required to provide and send in with tender a marked cheque equal to 10% of their tender, accepted by a chartered bank of Canada.

War Bonds of the Dominion or Canadian National Railway Bonds will also be accepted as security, or bonds and cheque if required to make up an odd amount. The Bonds must be deposited in a chartered bank, subject to the order of the Deputy Superintendent General, a certificate obtained from the Manager of the Bank and attached to the tender advising that the bonds have been deposited.

Unsuccessful tenderers shall have their cheques returned as soon as contract has been made. The successful tenderer's cheque will be retained until 30 days after the completion and acceptance by the Department of the building.

Contract documents consist of the agreement, specifications including all general conditions and instructions, and the drawings.

The contract documents are complementary and what is called for by one shall be as binding as if called for by all.

Tenders will not be considered unless they reach the Department on or before the time and date stipulated in the advertisement.

GENERAL CONDITIONS.

CERTIFICATES.

Certificates will be issued and payment made on the contract up to 90% of the value of the material furnished and work done, balance to be paid 30 days after the full and satisfactory completion of the work.

The contractor shall promptly pay for all labour, services and materials in or about the construction of the work, and all payments for such purposes shall be made by the contractor at least as often as payments are made to the contractor by the Department.

The contractor's pay lists, time books, books of accounts, invoices and statements shall at all times be open for inspection and extract by the Architect or any authorized representative of the Department.

The Architect may withhold the issuance of certificates pending the adjustment of work not in accordance with the contract. All payments on work during progress on account of the contract or extra work will be made on the certificate of the Architect or his authorized supervisor, and such payments shall in no case be construed as an acceptance of the work executed. Final certificate shall not be issued until all accounts for extra work and materials authorized and allowance for omissions have been rendered, agreed to and made part of such certificate.

Before the first certificate is issued the contractor shall furnish the Architect with a detailed estimate of the quantities and prices of all materials and labour included in the contract, which shall aggregate the contract price.

2. CHARACTER OF WORK.

All the various works shall be executed in a substantial and workmanlike manner, and of the best materials and workmanship of their several kinds, in accordance with the drawings, specifications and instructions given from time to time, and all of the said works shall be carried out and completed to the full and entire satisfaction of the Deputy Superintendent General of Indian affairs, at Ottawa, Canada, through the intermediary of his Architect or authhorized supervisor.

3. DELAY.

No charges shall be made by the contractors for any delays or hindrances from any cause during the progess of any portion of the work embraced in their contract. If the delay be caused by any act or neglect of the Department of Indian Affairs, or other contractors for the Department of Indian Affairs, the contractors shall be granted an extension of time for the completion of the work sufficient to allow for the delay. Such extension will be determined by the Architect of the Department providing the contractors shall give him immediate notice of the cmase in writing.

4. SUPERVISION.

The contractor shall give his personal supervis on to the work, set out the work to the correct dimensions and position on the site and proper level and furnish all necessary materials, labour, apparatus, scaffolding, and utensils required in or used for performing the work in the best and most satisfactory manner.

The contractor shall thoroughly examine the specifications and drawings and especially check up the figured dimensions immediately after the contract is awarded and report to the Architect if any discrepancy, error or defect appear.

Figure and full size drawings shall take precedence over scale measurements.

There shall also be a competent foreman on the work continually during working hours who shall be fully empowered to act for the contractor during his absence.

5. MATERIALS AND WORKMANSHIP.

All materials of every kind and description shall be of the best quality and make unless expressly specified otherwise. Samples where required shall be furnished the Architect in advance and the materials shall be equal to sample. All materials shall be Canadian (that is if they can be obtained in Canada).

When the term acceptable or approved is used it means that the material or work shall be acceptable to or approved by the Architect.

All work shall be executed in a thoroughl, substantial and workmanlike manner, in accordance with the best standard practice, and to the entire satisfaction of the Architect. None but competent workmen shall be employed on any part of the work. Should the Architect or his representative deem any men incompetent or negligent or for any cause unfit for their duties, the contractor shall dismiss them, and they shall not again be employed on the work.

Should the contractor introduce any material different from the sort and quality herein described, it shall on notice, be immediately removed at the contracto's expense

at any time during the progress of the works.

6. INTERPRETATION.

The work shall be executed according to the true intent and meaning of the plans and specifications, which are intended to include everything necessary and requisite for the full and entire completion of the works without exception, notwithstanding that every item necessarily involved in the work is not particularly mentioned, and work shown and not specified, or vice versa shall be done as if both shown and specified.

7. ADDITIONS AND DEDUCTIONS.

No deviations from the plans and specifications will be permitted without the direct consent of the Department in writing, and no extras will be considered unless authorized by the Department in writing, and the prices agreed on before the work is commenced. Extra work and deductions, if any, shall be at the rate paid for the original contract. Should the Department at any time during the progress of the work desire any alterations, additions or omissions from the work as provided for in the plans and specifications, the Architect, shall have the right to issue orders and directions in the matter, and the same shall in no way affect or make void the contract.

No such alterations, additions, or omissions shall be instituted, however, without authority in writing.

8. INSURANCE.

The building during construction and until completed and taken over by the Department is entirely within

the charge of the contractor, and he must make good any damage from fire or other causes, and must also hold the Department harmless from any injury to persons or damage to property during construction.

The contractor shall insure the building from fire during constructipn up to 80% of its value at his own expense. The plicy shall be issued in the name of and made payable to the Deputy Superintendent General, Department of Indian Affairs, and in the event of a casualty, the Department will adjust the receipts in a just and equitable manner.

9. RESPONSIBILITY.

The contractor shall be held liable for all violation of laws caused by obstruction of roads, etc. and must give the proper authorities all requisite notice and pay any fees or expenses in connection therewith and shall be responsible for all accidents to workmen engaged about the building during construction and hold the Department harmless from any damage or expense arising therefrom. The work during its performance shall be properly protected by the contractor who will be held responsible for all accidents which may happen to individuals or animals fn the consequence of the non-fulfillment of this condition.

10. TEMPORARY BUILDINGS.

The contractor shall erect temporary buildings that may be required for the storage of materials also privies that may be required for the use of workmen, and have them cleaned out from time to time. He shall also erect an office at the works for the use of the representative of the Department and keep a complete set of plans and specifications in office, with table, chair atove and other furniture required.

11. HEATING.

HEATING.

The contractor shall heat the building as required for the proper and efficient carrying on of the works as may be required for the protection of same. The contractor shall supply the necessary fuel and attendance also heating apparatus. The steam heating plant shall be putin operation as soon as possible and radiators set up away from walls, pending the completion of the work on walls after the completion of which they shall be set in proper position.

12. ACCESS TO BUILDING.

The contractor shall allow any officer of the Department free access to the building or other works in connection with it at any and all times, and shall provide every facility for inspection that such officer may require.

13. OVERLOADING.

No part of the structure shall be loaded during construction with a load greater than it is calculated to bear safely when completed. Should any accident occur through the violation of this requirement, the contractor in default shall hold himself solely answerable and liable. Every temporary support shall be as strong as the permanent support.

14. GUARANTEE.

The occupation of the whole or any part of the building will not be considered as an acceptance of the work and furthermore the final inspection and acceptance of the work shall not be conclusive or binding upon the Department, if it should subsequently be found that inferior workmanship or materials have been incorporated into the building or that the contract has been departed from

in any way. Any and all costs for making good such discrepancies shall be chargeable to the contractor together with any and all damages that may have resulted because of defective workmanship and materials or either.

16. INTERPRETATION.

Should any question arise as to the meaning of any portion of the plans and specifications, the same shall be referred to the determination of the Architect of this Department and his decision shall be final without exception.

W A G E S.

The following is a schedule of wages and working day hours for the several classes of labour to be employed in connection with this contract.

BRICKLAYERS	$1.45 per hour	8 hours per day
MASONS	$1.45 per hour	8 hours per day
PLASTERERS	$1.45 per hour	8 hours per day
SHEET METAL WORKERS	$1.10 per hour	8 hours per day
CARPENTERS	$1.00 per hour	8 hours per day
CEMENT FINISHERS	$1.00 per hour	8 hours per day
ELECTRICIANS	$1.00 per hour	8 hours per day
Structural Steel Erectors	$1.00 per hour	8 hours per day
PLUMBERS AND STEAM-FITTERS	$1.15 per hour	8 hours per day
CONCRETE WORKERS	$ .50 per hour	8 hours day
CEMENT MIXER ENGINEER	$ .50 per hour	8 hours per day
GASOLINE ENGINEER	$ .50 per hour	8 hours per day
PAINTERS	$ .95 per hour	8 hours per day
PAPERHANGERS	$ .95 per hour	8 hours per day
PLASTERERS' HELPERS	$ .65 per hour	8 hours per day
PLUMBERS' HELPERS	$ .60 per hour	8 hours per day
STEAMFITTERS' HELPERS	$ .60 per hour	8 hours per day
ROOFERS, FELT AND GRAVEL	$. .80 per hour	8 hours per day
SHEET METAL WORKERS IMPROVERS	$ .75 per hour	8 hours per day
BUILDING LABOURERS	$ .50 per hour	8 hours per day
COMMON LABOURERS	$ .45 per hour	8 hours per day
TEAMSTER WITH TEAM and WAGON.	$ .95 per hour	8 hours per day.

WAGES

OVERTIME may be permitted in case of necessity on basis of time and one-half.

Exceptions to the 8 hour day and overtime provisions will be recognized in preparatory and complementary work.

The contractor shall post and keep posted in a conspicuous place on the premises where the contract is being executed, occupied or frequented by the workmen the Fair Wages clause or schedule inserted in his contract for the protection of the workmen employed. The contractor shall keep proper books and records of the names, trades, and addressed of all workmen in his employ and the wages paid to and time worked by such workmen and the books and documents containing such record shall be open for inspection by the Fair Wage officers of the Government at any time it may be expedient to the Minister of Labour to have same inspected.

The contractor shall not be entitled to the payment of any money which would otherwise be payable under the terms of the contract in respect of work and labour performed in the execution of the contract, unless and until he shall have filed with the Minister in support of his claim for payment a statement attested by statutory declaration showing, 1, the rates of wages and hours of labour of the various classes of workmen employed in the execution of his contract, 2, whether any wages in respect of said work and labour remain in arrears, 3 that all the labour conditions of the contract have been duly complied with, nor in the event of notice from the Minister of Labour of claims for wages until the same are adjusted.

The contractor shall also from time to time furnish the Minister such further detailed information and evidence as the Minister may deem necessary in order to satisfy him that the conditions herein contained to secure payment of fair wages have been complied with, and that the workmen so employed as foresaid upon the portion of the work in respect of which payment is demanded have been paid in full.

In the event of default being made in the payment of any money owing in respect of wages of any workmen employed on the said work, and if a cliam therefor is filed in the office of the Minister, and proof thereof satisfactory to the Minister is furnished, said Minister may pay such claim out of the moneys at any time payable by His Majesty unier said contract and the amounts so paid shall be deemed payment to the contractor.

These conditions shall extend and apply to moneys payable for the use or hire of horses or teams, and the persons entitled to the payment for the use or hire of horses or teams shall have the like rights in respect of moneys so owing them as if such moneys were payable to them in reppect of wages.

With a view to the avoidance of any abuses which might arise from the subletting of contracts, it shall be understood that sub-letting, other than such as may be customary in the trades concerned, is prohibited unless the approval of the Minister is obtained, sub-cOntractors shall be bound in all cases to conform to the conditions of the main contract, and the main contractor shall be held responsible

for strict adherence to the contract conditions on the part of sub-contractor, the contract shall not, nor shall any portion of same be transferred without the written permission of the Minister, no portion of the work to be performed shall be done at the homes of the workmen.

All workmen employed upon the work comprhhanndd in and to be executed pursuant to the said contract shall be residents of Canada, unless the Minister is of opinion that Canadian labour is not available, or that other special circumstances exist that render it contrary to the public interest to enforce this provision.

E X C A V A T I O N.

The contractor shall visit the site of the proposed building, examine for himself the condition of the lot and satisfy himself as to the nature of the soil and the amount of excavating required. The earth from the excavation shall be deposited where directed and after completion of the building shall be finished to the grade required.

1. TOP SOIL.

Where the building stands the top soil shall be ploughed and scraped off to a depth of 8". The soil shall be stacked where directed and at completion of the work shall be spread as a top dressing where required and directed.

2. EXCAVATION.

Excavate to the depth, form and size shown on foundation and section drawings, or as required, for all basement walls, foundation walls, footings and drains inside the building, to the depth shown and required. The excavation shall be 18 inches on every side larger than the foundation walls.

Excavations for all foundation walls, footings, etc. shall be continued to suitable bottom.

3. FILLING IN.

Contractor shall not fill in over any work until it has been approved by the Architect. The trenches and other excavations shall be filled up to the height of the grade shown in layers of not more than 12" thick. Each layer shall be carefully rammed and shall be further consolidated by the addition of water if necessary. Fill in with broken stones, cinders, sand and gravel

all around external walls of building from the bottom of the building to within one foot of the top of the ground, the filling to be 18" wide, and then fill up to top of ground and well ram.

The contractors shall also keep all excavations, cellars, etc. free from water at his own expense.

CON CRETE.

1. CEMENT.

All cement used in the concrete work shall be best quality approved brand Portland cement, delivered at the site in suitable packages, with the name and brand of manufacture clearly indicated. All cement for use in the work shall be fully up to the specifications of the Canadian Society of Engineers. The contractor shall pay for all charges and other expenses for the making of any test of the cement that may be deemed advisable in order to determine the quality of any shipment.

2. BROKEN STONE.

Broken stone for concrete shall be clean, crushed granite, trap or limestone of approved hardness and toughness, free from dust, dirt or other deleterious matter. It shall have a uniform graduation of particles between the sizes specified, which will pass through a ring 2½" in the diameter to a stone that will be retained upon a screen of 1/4" mesh.

3. GRAVEL.

The use of gravel for concrete work will not be permitted.

4. SAND.

All sand for mortar and concrete shall be clean, sharp, well screened bank sand, free from loam, clay, vegetable or other soluble elements. It shall also be free from alkalies.

5. STORAGE OF CEMENT.

Cement shall be stored on the site in a building especially erected by the contractor for the purpose. The building shall be weather tight with wooden floor at least six inches above ground level. The cement shall be stored in such a manner that each shipment received may be readily identified.

6. CONCRETE.

Concrete shall be mixed in an approved type batch mixer. The ingredients shall be accurately measured for each batch. The proportions shall be by measure and not by weight. The cement shall be measured as pacekd in original packages, while the aggregate shall be measured loose in a box. An automatic measuring device shall be used which will deliver an accurate amount of water on each job. The concrete shall be of such consistency that it will flow when agitated., but shall not be so wet that materials will separate when handled. After mixing concrete shall be conveyed quickly to place in such a manner that there will be no distinct separation of ingredients, and no concrete shall be dropped from a height greater than six feet, - Forms shall be filled uniformly and as far as possible the operation of placing shall be carried on continuously until a section of the work being poured is completed. Care shall be taken that reinforcement, nailing strips, anchors or other things to be bedded or built into the concrete shall not be displaced. Inplacing concrete, it shall be worked continuously to remove voids and until it has filled all portions of the forms.

Filling the forms completely and puddling afterwards will not be permitted.

7. FOOTINGS.

The concrete foundation walls, piers, chimneys columns, and inside supporting basement walls, shall have a footing course of concrete as shown on section drawings, footing for walls to be 12" thick and to project 6" on each side of wall. Footing of piers, columns and chimneys shall be of the size indicated on plan and reinforced with 3/4" steel rods laid 6" apart both ways.

8. FORMS.

Forms for concrete shall be built by cappenter. Refer to carpentry specifications.

9. WALLS. Build walls of the height and thickness shown on plans of concrete composed of one part Portland cement, two and one-half parts of coarse sand, and five parts of broken stone. No concrete work shall be executed during frosty weather, and should there be any probability of frost reaching concrete before it shall have set it must be protected andkept in place till the final set is assured.

10. CEMENT FINISH.

When the concrete work is completed, the whole of the exterior walls above grade line shall be finished with a coat of cement in proportion of one of cement to three of clean sharp sand, mixed as before specified.

All interior walls of boiler room shall also be finished in cement as specified for exposed exterior walls.

This coat shall be laid on with sufficient force to secure a thorough adhesion and floated to a smooth and even surface.

NOTE.- For reinforced concrete floors refer to structural steel specifications.

11. CONCRETE FLOORS.

The basement floor and all other concrete floors throughout the building shall be finished as follows,-

BASE SLAB. The surfece of the structural concrete base slabs and cement base in basement shall be finished reasonably true and struck off at a level approximately 1" below required finished grade. As soon as concrete base permits and before it has fully hardened it shall be thoroughly cleaned with a wire broom and otherwise roughened. Just prior to placing the finish the base shall be thoroughly cleaned by scraping.

AGGREGATES.

Both fine and coarse aggregates shall be used in the finish. Fine aggregates shall consist of clean, hard sand or crushed stone screenings free from dust, clay, loam or other vegetable matter.

All particles shall have a 1/4" sieve and shall be graded from fine to coarse particles with coarse particles predominating, and not more than 5% passing a 100 mesh and not more than 10% phall pass a 50 mesh sieve. Coarse aggregates shall consist of clean, hard crushed stone free from dust, clay loam or other vegetable matter. It shall contain no soft, flat or elongated fragments and shall be graded from 1/4" to 3/8".

All particles shall pass a 1/2" mesh.

MIXTURE. Misture shall be 1 part Portland cement, 1 part of fine aggregates and 2 parts of coarse aggregates by volume. This nominal mix may be slightly varied depending upon local conditions and as the Inspector may direct.

If the aggregate is very coarse the stone should be reduced to 1½ parts. In no case shall the volume of the coarse material be more than twice the volume of the fine. No more than 5 gallons of mixing water including moisture in the aggregate shall be used for each sack of Portland cement in the mixture.

CONSISTENCY.

Concrete shall be of the dryest consistency possible to work with a sawing motion of the straightedge. Changes in consistency shall be obtained by adjusting the proportions of the fine and coarse aggregates within the limits specified. IN no case shall the specified amount of mixing water be exceeded.

PLACING. Base slab shall be thoroughly wetted just prior to the placing of the finish but there shall be no pools of water left standing on the wetted surface.

A thin coat of neat cement grout shall be broomed into the surface of the slab for a short distance ahedd of the topping. The wearing coarse shall be immediately applied before the grout has hardened and brought to the established grade with a straightedge.

FINISHING. After striking off the wearing coarse of the established grade it shall be compacted with a wood

float. The surface shall be tested with a straightedge to detect high and low spots which shall be eliminated. Floating shall be followed by steel trowelling after the concrete has hardened sufficiently to prevent excess fine material from working to the surface. The finish shall be brought to a smooth surface free from defects and blemishes. No dry cement or mixture of dry cement and sand shall be sprinkled directly on the surface of the wearing course to absorb moisture or to stiffen the mix.

PROTECTION.

All freshly placed concrete shall be protected from the elements and from defacement due to building operations. The contractor shall provide and use when necessary tarpaulins to completely cover or enclose all freshly finished concrete. As soon as the concrete has hardened to prevent damage thereby it will be covered with at least 1" of wet sand or other covering satisfactory to the Inspector and shall be kept continually wet by sprinkling with water for at least 10 days.

12.

BASE. A 4 inch concrete base shall be provided in all rooms, hallways, etc. throughout the building.

The base shall be of similar material and laid as specified for the concrete floors.

13. WEEPING TILE.

Four inch weeping tile shall be laid at outside foundation wall at rear of building. The tiles shall be laid on level with bottom of footings, shall be graded to connect up with drainage system. When filling

in outside of walls about 18" of fill over tile shall consist of broken stone or gravel of every size laid in such a manner that the tile will not be injured.

14. CONCRETE STEPS.

Build outside and inside steps and platforms as indicated on plan of concrete mixed as specified for walls, and finished as specified for floors, with necessary reinforcing. All concrete steps shall be fitted with non-slip safety treads, full width of step and not less than four inches in width. Treads are to be set firmly in concrete and to have round nosing at edge.

15. WATERPROOFING.

All outside foundation walls below grade line shall be waterproofed with one coat of coal tar pitch of sufficient thickness to satsifactorily waterproof the walls. The concrete walls shall be thoroughly dry Before waterproofing is applied. Waterproofing shall be carried down to top of footings.

Interior of all exterior hollow tile walls shall receive one coat of approved waterproofing applied in accordance with manufacturer's instructions.

BRICKWORK.

1. BRICKWORK.

The principal items of brickwork are outside hollow tile walls to be veneered with brick inside partitions where shown, piers, chimneys, the interior of kitchen walls and scullery to be veneered with white enamelled brick, and interior walls of stair wells.

All brick used on outside exposed surfaces shall be dark red pressed clay brick, best quality with faces and arises true. All brick for interior partitions, piers, etc. shall be stock clay brick of approved manufacture.

Contractor shall submit samples of brick he proposes to use for the approval of the Architect before commencing work.

Brick for interior of kitchen walls and scullery shall be white enamel, similar to that manufactured by the Don Valley Brick Co. of Toronto, the walls shall be finished at floor and ceiling with cove brick, also jambs of the windows and doors shall have suitable rounded brick of the same style and quality as used for walls. Joints shall be 1/8" in thickness of cement mortar.

Interior exposed walls of stair wells shall be finished with a light buff hard pressed clay brick.

2. LAYING BRICK.

All brickwork shall be set out and built of the respective dimensions thicknesses and heights shown on drawings. All bricks shall be wetted before laying The tops of walls where left open shall be well wetted before recommencing them. Carry up all walls in a uniform manner, no one portion being raised more than four feet above another at one time. All angles, quoins, reveals, etc. shall be kept strictly true, square and plumb, and the whole work properly bonded together and levelled round at each floor.

3. BUILD IN AND CUTTING.

Build in or cut, bed and pin in all sills, thresholds, steps, landings, corbels, ends of joists, etc. in cement and point as required.

4. ARCHES. All arches shall be cut and laid as shown on drawings and required.

5. DOORS AND WINDOWS.

Build in, bed, set and point all doors and windows, frames, etc. build also and form all panels, panels, splays, indents, projections over sailing courses, piers and buttresses, etc. as shown on drawings and necessary to carry out the design.

6. CHIMNEYS.

Build chimneys and ventilating fluew where shown of size shown, each brick being bedded into and every joint being perfectly filled with mortar.

The chimney for heating boilers shall be lined to a height of 20 feet from where the smoke pipe enters with best quality fire brick.

7. CHIMNEY TOPS.

Tops of chimneys and ventilating flues shall be finished as shown on drawings.

8. BEDS. Properly bed, set and level all joists, and place angle irons, ibeams or reinforced concrete beams of required size over all openings.

Provide and set 16" x 16" cast-iron doors and frame at bottom of main boiler flue. Provide and set 8" x 12" cast-iron doors and frames at bottom of each of the other flues in building. Provide and set all stove-pipe rings or thimbles required throughout.

Provide and set cast-iron or steel bar linetls over openings into brick flues and over openings for smoke duct into main boiler flue.

The joints of brickwork inside the smoke flues shall be neatly struck with trowel.

9. PIERS.

Build up as required for interior tile or brick walls, etc. and brick piers of the height and dimensions shown on plans, and bed level in good

mortar all joists, etc. as shown on plans.

10. NO FRAMING INTO CHIMNEY.

The chimneys shall be built entirely independent of the framework, and no cutting into chimneys for other purposes than for plumbing vents or stove connections can be permitted.

11. HOLLOW BUILDING TILE.

Foundation of building shall be built of concrete from footings to 12 inches above grade line as shown on section drawings. From this point the walls shall be built of hollow tile of the thicknesses shown on plans and veneered with brick. The contractor shall build in all miscellaneous iron work furnished under other contracts and shall co-operate with and assist the carpenter or other contractors in any work which must be jointly executed.

No badly split, cracked, warped, or underburnt tile shall be used in the work. All wall tile shall have dove-tailed scoring or grooving to form a key for mortar or plaster.

The contractor will be obliged before commencing work to submit for the Architect's approval the make of tile which he proposes to use.

12. MORTAR. All mortars used for setting of hollow building tile and brick shall be composed of volume of one part of Portland cement to three parts of clean, sharp sand, thoroughly mixed to smooth, moderately stiff mortar, to which may be added hydrated lime not to exceed 15% of the volume of cement.

All outside mortar joints in brick shall be 3/8" thick with struck joint.

All mortar shall be tinted as directed. All hollow tile shall be laid with full mortar beds and well filled between vertical joints, and shoved to a bearing with as close a joint as is consistent with good workmanship, pointing up and filling all crevices.

All hollow tile lintels shall be formed over all openings, reinforced by filling tile with concrete and placing the required steel rod reinforcing.

The brickwork over openings shall be supported on steel angles of the required size.

Exterior walls and all interior walls where indicated shall be constructed of the several thicknesses of building tile as indicated on the drawings, forming all corners returns and offsets, and using the required shape and size of tile to work up to the corners and openings, and to maintain proper bond throughout the length of the wall. Brick veneering shall be bonded into building at least every fifth course.

13. WALL PLUGS.

Provide and set in as required all necessary metal wall plugs for strapping, etc.

14. INTERIOR PARTITIONS.

All interior partitions except where brick walls are indicated on plan shall be built of 4" hollow gypsum partition tiles. Tiles shall be laid in accordance with manufacturer's instructions.

S T O N E.

WORK INCLUDED.

The work to be done shall include the furnishing, delivery and setting of all stone work required by the drawings and specified herein.

The stone shall be from the Tyndal quarries of Manitoba of good quality free from defects that would impair its durability, strength or appearance of the work. If required the contractor shall submit samples of stone he proposed to use before the work commences.

SHOP DRAWINGS.

The stone contractor shall prepare all the necessary shop drawings, showing in detail the jointing, bonding and construction of all stone work. These shall be submitted to and approved by the Architect before any cutting is done.

FINISHES. The exposed surfaces of stone shall be machine finished with all surfaces smooth.

All exposed surfaces shall be free from waves, projections or depressions and finished at joints.

SETTING. The setting of the stone work shall be done by experienced and competent stone setters and in strict accordance with approved drawings. The stone shall be anchored where necessary. No patching or hiding of defects will be permitted. Defective stone shall be replaced with perfect ones.

WALL COPING. Wall coping as shown on plan shall be of stone.

WINDOW SILLS. All window sills except for basement windows shall be of stone. They shall be 2 courses in height and four inches wider ~~than~~ on each side than opening and extend under wooden sill. The sills shall be weathered, seated and with drip as shown on detail.

DOOR SILLS.

All outside doors shall have sills of stone two brick courses in height and four inches wider than opening on each side. A bevelled threshhold shall be formed upon the sill.

BUTTRESS CAPS.

Buttress caps, chimney caps, main entrance and where indicated on drawings shall be stone.

Front entrance steps and platforms shall be of reinforced concrete.

STEEL AND CAST-IRON WORK.

The contractor shall furnish and erect all structural steel and iron work including i-beams, h-columns, bearing plates, brackets, separators, angles, braces, tie-rods, steel joists, bracing and bridging clips, etc. and furnish all things necessary to complete the work in accordance with the best standard practice. All floors throughout the building above basement floor are to be finished with steel joists and concrete slab and the drawings show the sizes for all steel beams, columns, and joists. Before commencing work the contractor shall submit to the Architect for approval detailed shop drawings for all steel work.

MATERIALS. All structural steel and steel work shall be in accordance with the Standard Specification for Steel Structures for buildings adopted by the Canadian Engineer Standards Association.

COLUMNS. Columns shall be broad flanged, 8 sections.

BEAMS. SteelIBeams shall be provided and built in where shown, of the size and weights figured on the plans. Where beams rest on brick piers, they shall have standard bearing plates of steel under the ends, and shall be anchored to the wall with standard anchors through the ends of the beams.

FLOOR FRAMING.

Floor construction shall be formed of steel joists of approved manufacture. The joists shall be placed parallel to each other and shall be supported at their ends on structural beams or on masonry.

The sizes and placing of the joists on plans are for the steel joists as manufactured by the Truscon Steel

Co. of Canada Limited. If joists of other manufacture are used they shall be of the sizes to correspond to the dzes indicated on plan.

All joists of steel shall be painted one shop coat of metal protective paint. At least 4" of bearing shall be provided where joists rest on masonry and at least 6" where joists rest on steel supports.

BRIDGING.

Steel joists shall be bridged at intervals of not over six feet, with one row of bridging not more than three feet from each end. Bridging shall consist of No 14 galvanized wire in two lines each line to be wrapped around the top cord of one joist and then round bottom cord of next joist and so on throughout the entire panel. The wires to be drawn tight by twisting where they cross between the joists. Each end of each line of bridging to be anchored securely to the wall by means of wall anchors or to the structural steel members which are not parallel to the joists at each end of panel.

SLAB REINFORCEMENT.

The top concrete slab shall be reinforced and supported by steel lath 3/4" rib not more than 4" apart and weighing not less than 5-1/4 lbs per square yard. The lath to be placed with ribs up and at right angles to the joists. Sheets to lap at least 2" at end where the lap occurs over the joists or 4" where the lap occurs between joists and ends of both sheets shall be wired at the lap. Attach the lap firmly to the top flange of the joist by means of special wire lath clips spaced not farther apart than 12". Space 1/4" round rods at right angles to the ribs of the lath spaced 18" on centres.

FLOOR FINISH.

The concrete floor slab shall be continuous and not less than 2½" thick of a 1 - 2 - 4 mixture and of the materials and mxing as before specified. The floor shall be finished in cement as before specified. The ceiling shall be formed by 3/8" high rib lath having 3/8" ribs four inches on centres and weighing 3½ lbs per square yard and shall be attached with ribs up and at right angles to joists by means of lath clips spaced not more than 8" centres.

The ends of sheets to be lapped 2" where the lap occurs at the joists and 4" where the lap occurs between the joists and both ends of the sheet shall be securely wired.

STEEL STAIR CASES.

Steel stair cases shall be built in main building similar to Dennis Steel Simplex Stair type "a" as manufactured by Dennis Wire and Iron Works Co. Ltd. of London, Ontario, or equal and shown on detailed drawing.

The treads shall be formed of reinforced concrete as shown on detail drawing.

The handrail shall be built of birch or maple and stair landing shall be constructed of reinforced concrete.

FIRE ESCAPES.

The contractor shall take all measures at building for the erection of fire escapes. The fire escapes shall be erected as shown and securely put in place.

PLATFORMS. Platforms shall be supported by two steel brackets of triangular shape made of steel angles 2½" x 2½" x1/4" with angle bracing made of 2" x 2" x 3/16".

These angles shall be secured by means of steel plates 1/4" thick, rivetted to angles with 5/8" rivets. Top cord of brackets shall be tied to wall by 1-1/8" round iron bolts running through wall, rivetted to angles with five 5/8" rivets. Inside end of bolts shall be provided with standard nuts and plate-washers 18 x 18 x 1/4" well and strongly adjusted as required.

The angle braces of brackets shall be made at an angle with the wall of not less than 45 degrees.

The top cords of brackets shall extend 12" outside of railing for the fastening of small angle braces which are to be placed at each corner post to stiffen the railing. The lower end of braces shall be split and turned into the wall at least four inches. The balconies between brackets shall be supported by three inch angle iron bars 2½" x 2½" x 1/4" one at wall, one in centre and one in outside edge. The floor shall consist of 1¼" x 3/16" bar iron spaced 1" apart, rivetted at each angle support.

The railing for balconies shall be at least three feet high on all sides of the form shown. The posts shall be formed of 1½" x 1½" x 3/16" angle iron spaced at not more than three feet apart, well rivetted to flooring necessary connection plates and angles. The hand-railing shall be made of 1½" x 1½" x 3/16" iron angles, the bottom rail and diagonal bars to be 1¼" x 3/16" flat i iron well rivetted together and to posts as required. Angle braces made of 1½" x 1½" x 3/16" angle iron shall be placed at each post to stiffen railing. The angle braces shall be rivetted to projecting portion of top cords and to posts as required.

STAIRS.

The stairs connecting the balconies to have

at least two strings made of 4" steel channels weighing five and one-quarter lbs per foot well and strongly rivetted to balconies with steel plates or other connections of approved design and dimensions. The steps shall have at least 27" in width, 7" clear treads and not more than 3" risers.

The treads shall be formed of 1¼" x 1¼" x 3/16" flat iron bars spaced 1" apart. The outer angle of treads shall be made of 1¼" x 1¼" x 3/16" angle iron instead of iron bar.

The tread bars shall be rivetted at each end to a 2 x 2 x 1/4" angle iron, well bolted to channels at each side with 3/8 inch rivets or bolts.

The risers shall be formed of two flat iron bars 3/16" x 1" bended at each end, bolted to channels.

A centre support made of 1¼" x ¼" iron bar shall be placed between the channels and centre of stairs which shall be continuous from bottom to top of each stair. This centre support shall be rivetted to each iron bar forming tread and riser.

STAIR RAILING.

All stairs shall be provided with railing 2'10" high, measured from nosing of steps. The railing shall be constructed as shown on plan, the posts to be formed of 1½" x 1½" x 3/16" angle iron spaced not more than three feet apart, well rivetted at channels. The handrail shall be made of 1½" x 1½" x 3/16" iron angles, the bottom rail and diagonal bars to be 1¼" (one and one-quarter) x 3/16" flat iron bars, all to be strongly rivetted together and to posts as required.

CARPENTRY AND JOINERY.

1. PROTECTION OF TREES.

Fence in or otherwise protect from injury all trees and shrubbery, etc. which may be at the site of the work.

2. TEMPORARY BUILDINGS.

Build and maintain a suitable earth closet for the use of all mechanics, and when directed to do so by the Architect remove the same and its contents from the premises.

3. OFFICE.

The carpenter shall construct an office 8' x 12' in size for the use of all other contractors on the work and the Department's Inspector. Same should be formed of matched boards with watertight roof and wood floor. It shall have a door with lock and two windows. The necessary table, chair, etc. shall be supplied. The office shall be kept clean as required.

4. FORMS FOR CONCRETE.

Build forms of the dimensions of the footing courses and walls where shown. The forms to be erected true and straight level and perpendicular, and to be strongly supported and braced. All forms for walling, piers, etc. shall be made of dressed stuff, thoroughly braced and tied so that after removing the forms, the concrete work will be vertical and true in line and outline. The forms must be absolutely clean and free from shaving or other foreign matter before any concrete is placed. Provision must be made in the form work for the setting of window and door frames etc.

PROTECTION OF WORK.

Properly cover and protect all woodwork in the building until same is completed.

5. CUTTING AND FITTING.

Cut away for and attend upon and make good after all other trades. The carpenter shall do such work in his line as is usually required by other mechanics about the building, such as the cutting away and fitting to other work, cutting for registers and casing in pipes on wall or ceiling where necessary, etc.

6. CLEANING UP FOR PAINTER.

Thoroughly clean out each room and the entire building as far as may be practicable before the painting finish is commenced. Keep the rooms in clean condition till the completion of the work, and leave the entire building broom clean.

7. MATERIALS.

The whole of the lumber shall be sawn die square free from sap, shakes, and loose or dead knots or other imperfections that would impair its durability or strength.

The timber for joiner's use shall be particularly dry and well seasoned, and free from all knots or other defects.

The whole of the timber must hold to the dimensions shown or figured on the drawings and in the specifications.

All material used for construction work shall be best quality spruce and all woods for interior finish except where otherwise specified shall be Douglas fir.

8. FRAMING IN GENERAL.

The whole of the carpentry work shall be framed and trussed in the best possible manner and fitted with

all necessary wrought iron ties, straps, bolts, screws, etc.

All joists, rafters, studs, etc. shall be truly fitted and well spiked together.

9. RAFTERS.

All rafters unless shown on plans shall be 2 x 6 set at 16 inch centres.

Wall plates for rafters shall be 2 x 6 doubled with joints well broken and secured to wall with 5/8" x 16" bolts with nuts and washers and spaced five feet on centres. Wall plates shall be bedded in fresh mortar. Provide all braces of 2 x 6" strongly nailed and bolted in position as shown on section drawings.

10. ROOF BOARDING.

Cover roof with 7/8" shiplap not more than five inches wide and well nailed with two nails to each bearing.

11. INTERIOR DOOR FRAMES.

Interior door frames shall be 1-1/8" Douglas fir rebated for 1-3/4" doors or with adjusted stops as may be directed. Frames in interior of 12" brick wall shall be as shown on detail drawing.

12. WOOD BUCKS.

Woo bucks shall be provided for all doors in brick or tile partitions. They shall be set plumb

STRAIGHT and true and shall be 2" thick.

13. DOORS.

All exterior doors except front doors shall be framed and braced doors of B.C. fir with styles and top rail of equal thickness and bottom and middle rails with braces shall be equal to styles, less thickness of battens. All members shall be flush on back Styles shall be 2-3/4" thick battens 1-3/4" thick.

Doors shall be strongly framed together with screws and bolts. A strip of 1/8" steel plates shall be bolted on outside of bottom of each door. Strip shall be full width of door and 18" high. Hook and eye or strap hings shall be provided, also strong latches and bolts complete.

14. FRONT DOOR.

Front door shall be framed 2¼" thick with panel sub-divided and glased as shown on plan. Door shall be of oak.

15. INTERIOR DOORS.

Interior doors shall be of fir, 1-3/4" thick of the sizes indicated on plan, three panelled flush mouldings, all to be of good quality, well and strongly framed glued and hand-smoothed and solid mouldings. The interior doors shall be hinged with two good quality 4 x 4 loose pin butts. (Exterior doors shall be hinged similarly, excepting that three hinges are required for each door except where otherwise specified)

SEE SHEET METAL SPECIFICATION FOR DOORS LEADING TO STAIRS.

16. BOX WINDOW FRAMES.

Where box frames occur, they shall be 7/8" pine box frames having all necessary 7/8" hanging styles, 1-3/8" x 1-3/4" blind stiles, parting strips, weathered and throated sills and fitted to stone sills.

Under side of wood sill and behind brick stop and inside of window box will be packed with oakum as shown on detail drawing.

17. STORM SASH.

All windows throughout shall be fitted with 1-1/8" storm sash.

Storm sash for box windows shall be placed on the inside hinged as shown on detailed drawing. All storm sash on casement windows shall be placed on outside with sliding pane at least 14" high.

18. SASH. All sash shall be moulded, finished 1-3/4" double hung, except otherwise specified, with bronze face steel axel pulleys and accurately balanced windows to be hung with best quality sash cords and fitted with lifts and fasts complete. Sash shall be divided as shown on drawings. Under no condition shall the sash be fitted or hung before the plaster is completed and the building dried out.

19. CASEMENTS.

The casement sash where shown shall be of pine 1-3/4" thick moulded and rebated, sub-divided as shown. Also provide projecting moulded water drip to bottom rail. They shall be hung to rebated moulded frames of 2" pine with pine sill groove formed of 1 x 1/4" iron. The frames shown shall be framed for transoms. All frames shall be packed with oakum as shown on detail drawing.

20. ARCHITRAVES.

All doors shall have a neat moulded casing 7/8" x 5" Douglas fir, with moulded back band, to which base shall finish, all to be neatly finished and strongly nailed in position required, except doors in brick walls which shall be finished as shown on detail.

21. NOTE.

Plastering shall be carried down to floor behind all trim and shall be thoroughly dry before any finishing is put on.

22. HOOK RAIL AND HOOKS.

Provide 300 lineal feet of four inch round-edged B. C. fir hook railing and do. 20 doz. japanned iron hat and coat hooks complete with screws.

Put the railing and hooks in various places in the building in the best manner according to direction.

23. SLATE BOARDS.

The contractor shall provide where shown on plan slate blackboards 3'6" high for classroom on ground floor and set the slates upon wall so that the top edges are 6'10" above floor level in rooms.

Provide and fit up chalk through with brush shelf

below as indicated by detail under slate, and trim around the blackboard with 3" x 1" moulding.

24. PICTURE MOULD.

A 1½" picture mould shall be provided for all rooms, corridors, dormitories, etc., except lavatories, stairs, store-rooms, laundry, kitchen and boiler room and chapel the moulds to be of similar material as the trim.

25. WINDOW BLINDS.

Provide for all windows throughout the building except boiler room "Royal Standard Blinds No 505 hung on Hartshorn rollers with approved fittings and suitable pulls, etc. complete.

26. SCREEN DOORS AND WINDOWS.

Provide for all exterior doors and windows throughout, suitable framed door and window screens covered with rustless bronze screen cloth manufactured by B. Greening Co. of Hamilton, Ont. or equal. The two windows in Assembly Hall to have screens.

The doors shall be of 1¼" stuff strongly framed with suitable braces, etc. hinged with self closing spring hinges and automatic lock fasteing.

The windows shall be framed of 1¼" stuff with neat angle pieces and rebated to fit sash and sill. All box windows shall have screen full size of lower sash; screens for casement shall be full size of window.

27. DOOR CHECKS.

All outside doors shall be fitted with Yale liquid door checks of the size required for doors.

28. COLD STORAGE ROOM.

Cold storage room to be provided in basement where shown on plan. Wallsto be finished with 4" Armstrong cork board in two layers, the first layer to be bedded in a half inch bed of Portland cement mortar mixed 1 part cement to 2 parts of clean sharp sand, second layer in addition to being secured by means of cement mortar shall have two galv. wire nails to each square foot of wall. In laying second layer of cork board jointing shall be booken.

Ceiling shall be finished with 4" cork board similar to wall except same will be secured to shiplap which will be nailed to 2 x 6" ceiling joists. Walls of cold storage room and ceiling shall be finished with Portland cement plaster.

The floor shall be constructed of concrete on which shall be laid two layers of Armstrong Cork board, both layers to be laid in hot asphalt cement, the surface of the cork shall then be flooded with hot asphalt approximately 1/8" thick and floor finished with 2" concrete mixed 1 part cement 2½ parts clean sharp sand. The floor shall be graded to drain. Completestandard refrigerator door shall be provided with all fittings, fastens, complete. Door to be of make approved by The Architec.t

H A R D W A R E.

1. HARDWARE.

The contractor shall supply and install all finished hardware required throughout the building. The hardware shall be put in separate packages with the name of the manufacturer thereon. All finished hardware shall be correctly fitted as required.

All hardware shall have bronze finish except in bath rooms where it shall be nickel plated. Escutcheons shall be solid, knobs shall be of solid metal. All butts shall have loose pin and self-lubricating ball bearing washers. All exterior doors shall have three butts to each door. All interior doors shall have two butts to each door.

All outside doors shall have morticed cylinder locks.

Interior doors shall have bit key morticed knob and lock of good quality and approved by the Architect.

ROOFING AND SHEET METAL WORK.

This subdivision shall include,

(a) Flashing and counter flashing.

(b) All roof coverings.

(c) Valleys, gutters, hoppers, etc.

(d) Duct work and ventilating.

e) Metal ceilings.

NOTE.

The various kinds of roofing shall be as noted on the drawings. All outside sheet metal work unless otherwise particularly noted or specified shall be galv. iron.

Contractor shall oncompletion of his work guarantee in writing the roof against leakage for a period of five years after the complation and acceptance and he will make good without expense to the Department any leaks or other defects in his work that may appearduring that time.

MATERIALS. Felt roofing paper shall be thoroughly impregnated with tar or asphalt and shall weigh not less than 14 lbs per hundred square feet.

Gravel or slag shall be dry and well screened and shall be from 1/4 to 5/8 in size.

Gavl. iron of well known standard brand not less than 26 gauge shall be used.

FELT ROOFING.

Felt roofing shall be laid where indicated on the plans.

1. LAY ONE thickness of sheeting paper on unsaturated felt lapping sheets at least one inch.

2. Lay two ply of roofing felt lapping each ply over the preceding one and nail as often as necessary to hold in place until felt is laid. Width of lap 32" felt, 17",
36" felt, 19".

3. Coat with asphalt or pitch.

4. Lay two ply roofing felt lapping each over the preceding one, mopping with asphalt or pitch full width of lap so that in no place will felt touch felt. Such nailing as is necessary shall be done so that nails will be covered by not less than 1 ply felt. Width of lap 32" - 17" 36" - 19".

5. Give uniform coating of asphalt or pitch pouring it while hot from a dipper, gravel or slag being bedded therein.

METAL WORK.

All seams in metal work unless otherwise particularly noted or specified shall be as follows,-

(a) All flat and lap seams shall be made in the direction of the flow.

(b) Flat or lock seams shall finish at least 1/2" wide.

(c) Lap seams where soldered shall finish at least 1 inch wide. and lap seams unsoldered shall be at least three inches wide.

(d) Standing seams shall be at least 1" high.

(e) On roofs as indicated on plan seams shall be stadding.

All metal roofing shall be laid over 1 ply of roofing felt.

Metal roofing shall be well turned up against all parapet

walls, curbs, etc. and connected to flashing or turned in as specified for flashing.

FLASHING.

All necessary flashing shall be provided around plumbers pipes where they pass through the roof. All flashing and counter flashing shall be provided around parapet walls, etc. and all shall be formed and erected in accordance with the best standard practise.

All joints in flashing and all nail heads shall be soldered.

HOPPERS. Funnel shaped hoppers shall be provided at outlets where shown. These hoppers shall be about 12" wide at the level of the roof and shall taper to four inches in diameter and shall be fitted with solid brass furrel where they pass under the cast iron rain water down pipe provided by the plumber. The flanges of hoppers shall extend well back under felt roofing. The hoppers shall be fitte with cast brass frame, which shall be set flush with flat roof. Hoppers shall be provided with proper gravel stop and basket guard of copper wire.

ROOF VENTS.

Roof ventilators shall be installed over laundry and kitchen and assembly hall where shown on plan. They will be of the Robertson Standard type for flat roofs and roof openings and curbs shall be constructed of the size as recommended by the manufacturers.

VENTILATING REGISTERS.

All ventilating registers shall be cast iron black japa nned of dimensions shown on plans and

approved design and manufacture, set with iron frames attached to ducts set with iron frames attached to ducts with border and louvres to open and close. All registers except in lavatories and bathrooms shall be placed 12" from floor line. The registers in lavatories and bathrooms shall be placed 12 inches from ceiling. Registers shall also be provided on ceiling of kitchen and laundry.

METAL DOORS.

All doors opening on to main stair cases and where indicated on the plan shall be metal doors constructed in accordance with scale and full size details.

The covering of styles shall be painted around the inner edge and into the groove for the reception of the panels. The covering of the panels shall be painted around edges and lapped and tacked before the panel is set in pl ce. Covering of mouldings shall be painted into the core upon the back. All mouldings and fillets shall be sharp and true.

All joints shall be mitred and soldered and no joints will be permitted in the length of the stiles and panels.

Doors shall be 1-3/4" thick, with upper panel of glass approximately 2 feet in height and glazed with wired glass 1/4" thick. Lower portion of door to be finished in three panels. All regular hardware including hinges, locks, etc. shall be supplied and in addition Yale liquid door checks of the size required shall be provided and installed for each door.

L A T H I N G

A N D

P L A S T E R I N G.

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1. REQUIREMENTS.

The contractor shall furnish all labour and materials required to complete the work of lathing and plastering of all walls and ceilings throughout the building, except walls of boiler room, kitchen, scullery and stair wells.

The contractor shall examine the walls and furring and shall notify the Architect of any that are not true and securely fixed and shall see that all faults are corrected before lathing, and failing to do so, he shall, at his own expense, replace in a proper manner all plastering which may have been removed to correct such faults.

2. TEMPORARY HEATING.

The contractor shall, when directed, provide apparatus and maintain fires for the proper heating of the building until the plastering shall have become thoroughly dry. If the permanent heating apparatus has been installed the contractor, with the consent of the Architect may have use of same. He shall take proper care of the apparatus and shall be responsible for same and shall leave it in perfect condition and shall supply all fuel and attendance.

3. PROTECTION OF WORK.

The contractor shall at all times take proper precautions to provide against injury to the plastering by the weather and other causes.

4. PATCHING.

The contractor shall repair all damaged plastering at such times as the Architect may direct.

NOTE.

Contractor will note that no plastering is required on walls of boiler room, kitchen scullery and stair wells.

Walls of boiler room shall be whitewashed twice.

5. STRAPPING.

Internal face of all exterior walls shall be strapped with 1 x 1½" strapping.

6. LATHING.

Interior face of all exterior walls shall be lathed with metal lath of approved manufacture weighing not less than three lbs per square yard.

For ceiling lathing see structural steel specifications.

7. PLASTERING.

All plastering on walls and ceilings shall be three coat work.

8. MORTAR.

For first and second coat mortar shall be hard wall or wood fibre plaster of approved manufacture, mixed and handled in accordance with manufacturer's directions.

No more shall be mixed at one time than can be used in one hour.

The quantity of sand to be mixed with hard wall plaster shall be proportioned as follows,-

9. BASE COAT.

The base coat shall be in three coat work well scratched to receive second coat in two coat work.

It shall be straightened as specified for second coat and shall be set thoroughly before second coat is specified.

10. SECOND COAT.

The second or straightening coat in three coat work shall be brought to a true and even surface by means of a darby and stright edge and left ready to receive finishing coat.

11. FINISHED COAT.

The finihsing coat shall be hard white finish and shall consist of white hydrated lime putty, plaster of paris and sand, and shall be trowelled to a smooth pdished surface.

12. RONAMENTAL PLASTER WORK.

The ornamental plaster work shall consist in running of mouldings on beams and chancel openings in chapel. Mouldings shall be as shown on detail.

13. CLEANING.

The plasterers shall clean all lime from all floors, walls, trim, etc. before handing over to painters.

P A I N T I N G.

1. INSPECTION OF WORK.

Before starting work the contractor shall go over the building and see that all nail heads have been countersunk and that all work has been properly cleaned and all is ready for painting.

Unless this contractor notifies the Architect to the contrary before starting, it will be assumed that all work was in good condition for him to work upon and he will be held responsible for a piece of workmanship that is perfect in every way.

2. LINSEED OIL.

All linseed oil shall be pure, thoroughly settled and clean. Raw oil shall contain no additions of any kind. Boiled oil shall contain only such additions of lead and dryers as may be required.

3. WHITE LEAD. The lead to be of the best Canadian white lead of Brandram-Henderson's manufacture of approved equal.

4. PUTTY STOPPING.

All work requiring it shall be carefully knotted with best shellac before priming. After the priming coat is dry, work shall be putty stopped with putty coloured to match the woodwork after staining. All putty stopping shall be brought flush to surface of woodwork, and shall be sandpapered smooth leaving no surplus putty.

5. EXTERIOR WOODWORK.

All exterior woodwork usually painted shall have three coats of lead and oil or ready prepared paint of approved quality or manufacture, the colour to be approved by the Architect.

6. EXTERIOR OF DOORS.

The exterior face of doors shall be stained and varnished the same finish as interior face of same.

7. RADIATORS AND PIPES.

Plumbing and heating pipes where exposed shall be painted in black japan in boiler room and laundry and as directed in all other parts of the building.

The contractor shall clean the pipes throughly before painting.

Painting of plumbing and heating pipes shall be in two coats. Radiators shall be painted two coats to match woodwork of different rooms.

8. PLASTER WALLS.

The walls and woodwork of infirmary rooms, walls of bath rooms and lavatories, all walls of corridors to a height of four feet shall be finished in enamel. The contractor shall ess that the surface of the finish is perfectly dry and free from all loose plaster dust.

Apply one coat of Sherwin William's wall primer and sealer in accordance with manufacturer's instructions.

For second coat apply Sherwin William's

XXX enamel under coater, reduced with 1 pint of pure Turps and 1 quart of enamelastic to the gallon.

For the third final coat apply Sherwin William's enamelastic as it comes in the package. Allow to dry thoroughly between coats. The colour shall be white ivory.

10. INTERIOR WOODWORK.

All interior trim and doors shall be stained with an approved quality and given one coat of shellac and two coats of varnish of approved make.

G L A Z I N G

1. PRIMING.

All sash shall be primed on both sides by this contractor, before being brought to the building or put in place.

2. SETTING.

All glass shall be set in the best manner, stopped in with wood or putty as may be necessary.

3. PLATE GLASS.

Front doors shall be glazed with best quality polished plate glass 1/8" thick, All windows shall be glazed with diamond quality sheet glass weighing not less than 16 ounces per square foot.

4. MURANESE GLASS.

Muranese glass shall be provided in all sash to windows of boys and girls toilets bath and lavatories in basement.

5. WIRED GLASS.

All metal doors leading to stairways shall be glazed with wired glass as before specified under metal work.

ELECTRIC WIRING.

1. EXTENT OF WORK.

This contractor shall include the execution, erection and completion of a complete system of conduit electric wiring as hereinafter described and shown on plans, together with furnishing of all materials, appliances, tools, scaffoldings, apparatus, and labour necessary for said execution, erection and completion.

2. RULES REGULATIONS AND FEES.

All work shall be done in accordance with the rules and regulations of the Canadian Fire Underwriters Association and the Rules and Regulations covering such work in the Province of Alberta, and upon completion of the work a certificate of inspection shall be obtained from the local inspector of said board, also a certificate of inspection fromthe Municipal authorities having jurisdiction. This contractor shall pay all fees in connection with this work.

3. LOCATION.

The plans shown the approximate location of all lights and switch outlets, but the price shall include changing the location of any and all outlets to make them come in the centre of the panels or to meet the exigencies of design or construction.

No extra will be allowed for such change of location unless the distance exceeds ten feet.

4. WORKING DRAWINGS.

The contractor shall prepare a complete set of plans showing the location and size of all wires, details of switch board, etc. These shall be submitted to the Architect of the Department of Indian Affairs for approval before the work is commenced.

5. GENERAL REQUIREMENTS.

The contractor shall provide a complete wiring equipment ready for connection to service mains, which shall enter the building in room marked "shop".

6. CAPACITY.

All wires shall be calculated on basis of 120 watts for pendant outlets and 60 watts for bracket outlets, and cutouts must be so arranged that no set of incandescent lamps requiring more than 660 watts no matter how grouped will be dependent on one cutout.

7. WIRE. All wires shall be soft drawn copper of 98% conductivity in continuous lengths without splices with high grade insulation and close fitting braided covering. Insulation shall adhere to the wire which shall be tinned and accurately centred. The thickness of rubber between conductor and braid shall be at least 3/64" for No 14 wire larger conductors in proportion. All wire must be full gauge of size required and according to B. and S standard of approved make.

8. JOINTS. Joints shall be neatly made, soldered, cleaned, taped with approved rubber and adhesive tape and compounded. Joints shall not be used or covered until after having been inspected.

9. ARRANGEMENT OF FEEDERS.

There shall be one group of feeders

supplying the various centres of distribution.

The wiring of each floor must start from one central point of distribution taking in all branch circuits and outlets. All wiring shall be continuous from the above mentionedpoint of distribution to the last outlet on each circuit.

10. PANEL BOARDS AND CABINETS.

The centres of distribution shall be located as shown on plan. The cabinets for these panel boards shall be similar to the safety panels and cabinets manufactured by Benjamin Starette Co. Cabinets shall be fitted with locked doors.

The main distribution panel board where service mains enter the building shall be of similar type and manufacture and of such design as to meet the requirements.

11. SWITCHES. All switches except where panel and cabinet are indicated on plan shall be the latest type double push switches with iron boxes properly secured in the rough work of walls or partitions. Group switches shall have gang plates. Brass switch plates shall be furnished to all switches. Where cabinets are indicated on plan they shall be similar to type S.P.T. safety panel in cabinets as manufactured by Benjamin Starette Co. and having required number of switches and fuses.

12. RECEPTACLES.

All flush receptacles shall be approved pattern, set in iron boxes in baseboard of rooms where indicated on plans with face plates of brass.

13. CONDUITS.

All wiring in the building shall be enclosed in approved rigid metal conduit. These conduits shall be so arranged that wires may at any time be inserted or withdrawn. Terminal elbows or junction boxes shall be used at all outlets as required. All conduits must be thoroughly secured in place and wires inserted after the plastering is done. The larger conduits shall be supported with pipe hangers in the same manner as water or steam pipes of the same size.

14. CEILING BOXES.

Contractor shall supply and install outlet boxes where indicated on plans. They shall be made of enamel lined with iron and shall be of approved make. All boxes shall be securely fastened in place. Ceiling outlet boxes shall be provided with some approved fixture support for taking the weight so that the fixture does not depend on the outlet boxes for support. The contractor shall provide iron pull boxes of substantial and approved design wherever necessary in order to facilitate the pulling of wires.

15. LIGHTING FIXTURES.

The contractor shall allow in his tender an item of $700.00 to cover the cost of electric lighting fixtures which will be selected by the Department.

This item does not include switches, and receptables which are to be supplied by the contractor.

The contractor shall also include in his tender their erection and putting in place of all electrical fixtures.

16. ELECTRIC BELLS RHEOSTAT.

The electric bells and fire gong shall

be operated from the lighting system by a rheostat reducing the current to the required voltage.

17. ELECTRIC BELL WIRING.

Electric bell equipment shall be so installed in complete working order in the following manner. Push button at front door to ring bell in office of Principal. Push button at rear entrance to ring bell in kitchen. Push button in staff dining rooms to ring electric bell in kitchen.

18. PUSH PLATES.

The push plates shall be of design to match adjacent hardware, and shall be adjusted on hardwood plates well secured to walls.

19. FIRE GONG.

An 8" enclosed type vibrating signal gong shall be located in corridor on each floor and all gongs wired to operate from office and from each staff bedroom in the building.

LAUNDRY MACHINERY.

The contractor shall provide and install complete the following laundry machinery manufactured by the Canadian Laundry Machinery Co. of Toronto or approved equal.

1 - 40" x 32" Junior Drying Tumbler with motor.

1 - 36" x 54" Globe Wood Washer, with motor.

1 - 26" Extractor.

The above mentioned machines to be installed complete and operated by motors attached to each machine. The contractor will be required to ascertain the voltage, phase and cycle of the motors.

The contractor shall install all necessary water pipes, drains, including floor drains, and steam connections from high pressure boiler located in boiler room.

The contractor shall obtain from the Canadian Laundry Machinery Co. a layout showing the proper location of the machines together with all floor drawings required. These drawings shall be submitted for approval of the Architect.

P L U M B I N G A N D D R A I N A G E .

1. EXTENT OF WORK.

The contractor shall include the execution, erection and completion of all the herein described work, together with the furnishing of all materials, tools, apparatus, scaffoldings, appliances, and labour necessary for such execution, erection and completion not otherwise distinctly stated. The plumbing contract for this building will include,-

The complete drainage of the building of all foul water and sewage,

The complete drainage of all flat roof surfaces of all storm water,

The drainage of the heating boilers.

A complete cold water supply to all plumbing fixtures in the building, including laundry machinery, except closets.

A complete system of standpipes and hose for fire protection.

All plumbing fixtures for the building.

All plumbing work shall be done in accordance with the local rules and regulations covering work in the Province of Alberta, and the contractor shall pay for permits and inspections required.

The contractor shall take the necessary measurements for and laying out the plumbing work at the building and provide all materials necessary for the completion of the work of installing the fixtures shown on plan and enumerated herein.

He shall give constant personal attention to the work and hold himself responsible for all damage in performing the work or resulting from mishaps to same, or for any damge to his own or other work.

All material must be new and of the best quality and any work or material necessary for the completion of the plumbing installation whether particularly specified or not must be completed without extra charge.

The work is to be carried on in conjunction with the work of other contractors and the piping shall be carriedup as fast as the other work on the building will permit. The rain water leaders are to be placed and connected as soon as possible after the roofing is completed and in case the contractor shall fail to do so, he should furnish and connect up temporary leaders of sheet metal in such a manner as to properly drain the roof.

2. MATERIALS.

All hot and cold water pipes shall be best quality galvanized wrought iron or mild steel screw jointed pipe of standard weight and thickness. All fittings to be standard, beaded, cast or malleable iron galvanized. All screwed joints shall be made with red lead and boiled linseed oil, or other approved compound applied on piping and not more than three threads on the finished joint are to remain exposed.

All soil and waste pipes and rain water leaders are to be cast iron. All back vents are to be standard weight wrought iron or steel pipe galv. or cast iron. All cast iron pipe for soil waste, sewers and drains underground shall be extra heavy of approved make, cleaned and free from rust, etc. and shall be thoroughly coated inside and out with asphaltum varnish. All necessary branches and off sets are to be furnished the same to be made in the direction with the flow with curved pipe, y-branches and long sweep bends. All piping and fittings shall be the following weight,-

5" pipe to weigh 100 lbs per 5' length.

4" pipe to weigh 65 lbs per 5' length.

All other cast iron pipes shall be medium weight cast iron.

DRAINS. Drains in horizontal soil pipes shall have pitch of 1/4" per running foot.

JOINTS. Connection between lead and iron pipes shall be made with thimbles or ferrules having properly wiped joints, leaded and caulked into said pipe using oakum and molten lead. The joints to be gas tight. Each ferrule shall be at least 4½" long - 1/8" thick.

CLEANOUT END TRAPS.

Provide and set cleanouts at base of all risers and at all points in the system where same would be to advantage in removing obstructions. The screw caps for cleanouts must be brass not less than 1/8" thick.

BACK VENTS.

The traps of all fixtures shall be back vented to standard weight cast or wrought iron vent pipes. These vent pipes may be connected into the standing soils, at a point at least six feet above highest fixtures or carried through the roof separately. Allvent connections are to be made with Y-branches.

VALVES. All valves, cocks, etc. are to be accessibly located, and fully equal in area to the pipes from which they are placed. All valves, cocks, etc. two inches and over are to be gate valves, similar size to be Globe.

HANGERS.

The vertical pipe of cast iron shall be firmly held in place by means of iron pipe hooks or rings placed immediately below the hubs and securely fastened to the adjoining walls or partitions. Hooks are to be placed not over ten feet apart. Water pipe is to be provided with cast or wrought iron hangers of approved pattern, spaced not over ten feet on centres. All other pipe of every description must be provided with suitable hangers and supports. All piping throughout the building shall be exposed.

PARTITION PLATES AND SLEEVES.

Where pipes pass through wall partitions, floors, ceilings, etc. install approved plates and sleeves.

FLASHING.

All pipes extending through roof are to be provided with approved lead thimbles and flashed with 24" x 24" flange made of sheet lead absolutely water tight.

DISCONNECTING TRAPS AND VENTS.

From the tile drain connection outside building provide six inch cast iron piping connection with the tile drain, continued into building area and fitted with a disconnecting trap having fresh air inlet, breathing pipe and cleaning hole which shall be carried up to floor level and fitted with screw plug. The piping inside of building shall be arranged generally as shown on basement plan. The rain water drains shall be taken off the building in a separate pipe.

DRAINAGE IN CAST IRON.

From the disconnecting trap continue the six inch main cast iron drain below basement floor. The main drain shall be continued up the various lines of piping from the fixtures or floor drainage and shall be provided with "Y" branches and brass cleanout screw plugs wherever same would be useful for clearing the drainage of obstructions.

VERTICAL LINES AND FINISH ON TOP.

The vertical lines of piping shall be of the size indicated on plan, continued up through the various stories above roof, the upper joint being increases to 1 inch in diameter. The top of these pipes above roof shall be fitted with galvanized iron covering and cap with 2" spaces around the cast iron pipe, this space being filled with asbestos mineral wool. When passing through roofs the opening shall be thoroughly flashed with sheet lead as above specified.

EXPOSED CONNECTIONS.

Connections between fixtures and soil piping shall be exposed as far as possible, and those above basement shall be made below ceiling under the floor on which the fixtures shall be provided. Branch connections from basement fixtures shall be provided with brass screw cleanout plugs. Waste connections of lead wherever required must be short lengths, 18" to be considered as maximum.

The waste connections shall be made to main lines by means of eighth bends and Y branches.

TRAPS.

Traps to basins, wash trays, sinks, water closets and other fixtures shall be effectively arranged according to the requirements of the fixtures.

WATER TEST.

The contractor will seal up outlets and inlets in the

lead and iron piping comprising the drainage and ventilation system within the building and fill up with water to the top of the soil pipes three feet above top of roofs and demonstrate effectually that no cracks or sand holes or other defects exist in the soil or lead pipes. These tests to take place in the presence of the Inspector or other official in charge or reppesenting the Department.

Testing plugs of approved type shall be used in closing openings during the test and the use of wooden plugs shall not be accepted. Pipes must not be covered in until the system shall have passed through the water test.

Provide and set properly connected to sewers approved floor drains. All floor drains unless otherwise specified to be iron bodies and finished with brass top and strainers.

STANDPIPE SYSTEM.

Provide anf fit up a standpipe protection service at centre of main corridor, on each floor and in boiler room. Pipe shall be 2" diameter in basement and first floor and 1½" diameter on other stories. The top end of standpipe shall be eight feet above floor of top story, and the lower end of vertical line shall be continued down to level about three feet above basement floor. The extreme ends of vertical run of pipe system shall be securely capped.

At a level of about five feet six inches above basement floor and in each of the floors above basement provide a one and one half brass body Chicago valve with T. handle.

Furnish each of the outelts with 80 feet of best Underwriters' linen hose with fire Department standard couplings and 1½" x 13" plain polished brass nozzle on suitable Saddle Hose rack of iron painted.

The racks and hose shall be properly set up, the racks being screwed to 2" x 4" wood cleats, bolted in place, The main supplying standpipe service shall be independent of the domestic water service.

WATER SERVICE.

The domestic water service shall leave the supply pipe in a 2" main with Jenkins' gate valve on same.

It is contemplated that the water supply pipe will enter the building in the room marked "Shop" on the plan. The water supply system outside the building is not included in this contract.

Branch services shall be taken off main to serve into two 1" sub-main branches, each fitted with brass stop cock for supplying the various groups of fixtures.

Cold water shall be supplied at each and every plumbing fixture. The supply pipes for hot and cold water to each group of fixtures shall be fitted with shut-off cocks so that any group in the building may be put out of operation without a affecting any other fixtures.

HOT WATER PIPE.

From the hot water storage tank the contractor shall run hot water mains and branches to all fixtures in the building which are usually supplied with hot water.

All branches from hot water mains shall be valved. From the end of each hot water branch the contractor

carry back a recirculating pipe. These pipes shall be connected together and to the inlet of the hot water heater.

RAINWATER.

The flat roof drainage system shall be carried out in wrought iron pipe 4" leaders shall be carried down through the various stories from the roof hoppers and connected to the six inche main in basement.

The six inch main in basement shall be carried through wall and left ready for connection to drain. It will be noted on the plan that the laundry and kitchen drainage is connected to the roof drainage system.

PLUMBING FIXTURES.

Pr ovide and set up complete in the several stories as shown on plan and enumerated herein the following plumbing fixtures. Fixtures in general shall be those as listed or their equals in other makes approved by the Architect.

The plate and catalogue numbers referred to in the following list are from the Standard Sanitary Mfgr's Catalogue. All exposed pipes and fittings and fixtures shall be brass nickel-plated. The water supply pipes shall be seamless brass tubing iron pipe size. All pipes to fixtures shall be fitted with nickel plated flanges where they pass through walls and floors.

BASEMENT.

KITCHEN. 1 sink, 1 slop sink.

SCULLERY. 2 scullery sinks.

LAUNDRY. 4 tubs.

BATH ROOM. 1 closet, 1 basin, 1 bath.

BOYS' LAVATORY. 26 lavatory basins,

BOYS' TOILETS. 7 closets, 2 urinals, 1 slop sink.

GIRLS' LAVATORY. 26 lavatory basins,

GIRLS' TOILETS. 7 closets, 1 slop sink.

2 drinking fountains.

GROUND FLOOR.

2 BATHs, 3 closets, 3 lavatory basins, 2 slop sinks.

FIRST FLOOR.

6 baths, 8 closets, 7 lavatory basins, 5 slop sinks.

SECOND FLOOR.

10 baths, 4 closets, 4 lavatory basins, 2 slop sinks.

SINKS.

Kitchen sink shall be similar to P. 6700E size 20 x 36 complete with self closing nickel plated hot and cold water taps, and supplied with grease trap similar to P. 7094.

SCULLERY SINK.

Scullery sink shall be similar to Plate C. 19880 60 inches with 2 drain bars 36" long, similar to those shown on plate No 19852 as manufactured by Crane Mfg. Co. Ltd. and equipped with quick opening N. P. cocks and N.P. wastes. All other sinks where indicated shall be similar to P. P 6800 - 20" x 36" and fitted complete with hot and cold water N.P. compression cocks, traps, etc.

LAUNDRY TUBS.

Laundry tubs shall consist of two pairs of two each similar to P. 7305 complete with N.P. self closing cocks, traps, etc.

BATHS. Baths shall be enamelled iron five foot in length, except where otherwise indicated on plan, standard porcelain enamelled, similar to P. 2505, and freshly painted by the plumber outside, and fitted with combination quick opening bath cocks, of heavy pattern, plug and chains overflows, nickel plated wastes and vented traps as per plate P. 10078. Supply hot and cold water through nickel plated pipes above floor.

CLOSETS. Closets shall be Crane's with bowl No C. 12724, (Mauretania) Golden oak seat, open front, self-raising, equal to Crane No 526, - high up enamelled iron tank complete with all fittings and chain pull with galvanized supply anf flush pipes.

Closets in all bath rooms shall have a low down tank in place of high tank as before specified.

Tanks shall be cast iron enamelled and fitted with all necessary nickel-plated water supply pipes, etc.

SLOP SINKS.

Slop sinks shall be similar to P. 7260 16 x 20" and fitted with N. P. self closing compression cocks, traps, etc. complete.

WASH BASINS.

Wash basins in boys' and girls' wash rooms in basement shall be similar to P. 6098E size 16 x 20, supported on painted brackets, secured to floor and fitted with H. 434 nickel plated medio compression faucets, also all necessary pipes, traps, stoppers, etc. The floor brackets to be given one good coat of paint after being installed.

LAVATORY BASINS.

Individual lavatory basins shall be similar to P. 3840, 18 x 24, complete with self-closing index faucets, overflow strainers, plugs, stoppers, nickel plated supply pipes and nickel plated vented traps.

BOYS' URINALS.

Boys' urinals shall be similar to Crane No 15580 complete with flushing tank.

DRINKING FOUNTAINS.

Drinking fountains shall be of the Standard P. 6550 C painted pedestal drinking fountain with bowl enamelled inside H. 574 nickle plated cone bubbler, nickle plated push button controlling valve on side of pedestal, loose key volume regulator concealed galvanized supply and waste to floor.

STEEL TOILET PARTITIONS.

All partitions for toilets and baths in basement, ground and first floor shall be built of single sheet of 16 gauge steel with sanitary V. shaped mouldings at top and bottom, formed

of the same steel.

This panel shall be interlocked and welded into the bottom, front and back posts which will be provided with all necessary fittings and rectangular head brace at the top. The wall or floor settings shall be adjustable to take up any variation in walls or floors. Partitions shall be 5'9" high including 9" open space at the bottom. All work shall be fitted in place in accordance with the manufacturer's instructions and shop drawings in a first class and workmanlike manner. The work shall receive three coats of paint after being installed.

Doors shall be constructed of Douglas fir five panel and 1-1/8" thick, with strong suitable hinges and shall be same height as partitions and bottom of door shall be 9inches from floor.

H E A T I N G.

1. QUALITY OF MATERIAL AND WORKMANSHIP.

All material contemplated by these specifications and the plans accompanying same, unless otherwise stated, must be of the best of their respective kinds, all work must be done by first class and experienced mechanics, and it must be understood that the Architect will have the privilege of stopping any work that is not being properly installed and may demand that any incompetent workmen be taken off the job and another man substituted.

All work must be done in accordance with the Rules and Regulations of the Board of Fire Underwriters and the building laws of all character in force in the locality where the apparatus is to be installed.

2. CO-OPERATION OF HEATING CONTRACTOR WITH OTHERS.

The heating contractor as a part of his contract must work in conjunction with and assist all other contractors whose work is in connection with his own. He will also be required to perform his work in the manner and at such times as to not delay the execution of other contractor's work.

Imperfect work of other contractors shall not interfere or furnish an excuse for errors or imperfections in the Heating contractor's work.

3. DRAWINGS AND SPECIFICATIONS.

Heating contractor shall furnish all material called for in these specifications and the accompanying drawings and must erect the apparatus complete in every respect.

Anything called for in these specifications and not shown on the drawings, shown on the drawings and not called for in these specifications must be considered as appearing in both drawings and specifications and must be furnished by the Heating contractor. It sometimes occurs that conditions exist in the building which require certain changes in the drawings and specifications and in the event of such changes being necessary, the same shall be made by the heating contractor without further expense to the owner. Provided, however, that such changes doe not require the furnishing of more material or performing more labour than the true intent and meaning of the drawings and specifications demand. It is understood that while the drawings must be followed as closely as circumstances will permit, the heating contractor is held responsible for the installation of the system according to the true intent and meaning of the plans and specifications. Anything not entirely clear in the drawings and specifications will be fully explained if application is made to the Architect. Should conditions arise, however, where in the judgment of the heating contractor, certain changes would be advisable, the Heating contractor shall communicate with the Architect, and secure his approval of these changes before going ahead with the work.

4. INSPECTION.

The Heating contractor shall at all times allow the Architect or his authorized representative to come on the job for the purpose of inspections and must lend any assistance necessary to help the work along.

5. CUTTING AND EXCAVATING.

The heating contractor shall advise the Architect promptly if any excavating or filling is necessary for the proper installation of this system, so that the proper provisions can be made for same.

Where holes or recesses must be cut in walls, floors, ceilings or other parts of the building, to admit of pipe connections it must be done by a competent workman in a neat and workmanlike manner and at the expense of the heating contractor.

No rough or unsightly work shall be allowed.

6. DIMENSIONS.

Dimensions given in figures shall be always taken in preference to scale measurements. Finished dimensions shall be taken from the premises by the Heating contractor.

7. OPENINGS.

The Heating contractor shall arrange for proper openings in the building to allow for admission of all heating apparatus. If it becomes necessary to cut any portion of the building in order to admit any apparatus the portions cut must be restored in their former condition by and at the expense of the heating contractor.

The Heating contractor shall furnish and install complete on suitable foundations two No 412 Steel portable type firebox steam boilers, each having a manufacturers guaranteed rating of not less than 5000 square feet of direct cast iron radiation. The boilers shall be connected together by steam and return headers and so valved that either boiler may be operated separately or both together. The boilers are to be set so that their waterlines will be on the same level.

Each boiler must be completely equipped with all necessary trimmings, including a water column with water gauge glass and try cocks, a sensitive pressure gauge, a blow off cock, a safety valve set to blow at a pressure not to exceed 10 lbs, and a sensitive damper regulator capable of maintaining a pressure of one to two lbs shall be installed on the boiler, properly connected up by oahins to draft and check dampers. A complete set f firing tools with flue cleaning brush shall be furnished. Install and connect an approved water supply connection constructed of not less than three quarter inch galvanized pipe, in which shall be installed a horizontal swing check valve and a brass jenkins Disc Globe Valve.

The boiler must be so installed that the distance between the normal waterline and the lowest return pipe shall permit the installation of the return trap at height which is hereinafter specified. If necessary, the Heating contractor shall provide a sufficiently deep boiler pit, making all excavations and furnishing all material and labour necessary to construct same in an approved and workmanlike manner.

RETURN TRAP. Furnish and install in the position called for by the plans, a return trap of suitable capacity, having cast

iron body and with all operating mechanism enclosed. The return trap is for the purpose of returning the condensate from the radiation on the ground, first and second floors, back to the boiler and for venting the heating system. The trap shall be set level and plumb, with bottom 21" above boiler water line. Piping connections to be made as shown in detail drawing. The bottom of the return main in Boiler Room shall be not less than 48 inches above boiler water line. A steam connection one size larger than tapping in trap shall be made directly with main steam header at boiler. Air eliminators shall be installed as shown in detail on plans.

SMOKE PIPE AND BREECHING.

A flue the full area of the smoke collar of the boiler shall be connected to the boiler with the main smoke breeching sloping gradually upwards to the boiler. Flue and breeching shall be No 14 gauge black iron.

Smoke pipe shall have a balanced check damper installed, which shall be operated by a damper regulator on boilers. Also install a tight fitting hand stop damper in smoke pipe from each boiler between check damper and chimney or breeching. Smoke pipe shall pitch upwards towards chimney, be free from abrupt bends and shall not project beyond inside surface of chimney or breeching.

PIPES AND FITTINGS.

All pipe shall be full weight, standard size and thickness, true and round with full cut threads. Ends of pipe to be reamed and filed and all burrs removed from interior. All fittings to be of best quality cast iron, free from imperfections. All screwed joints to be made iron to iron

or with a filler or graphite and oil. Make proper provision for expansion of all piping. Use unions wherever required and necessary. Use reducing fittings instead of bushings wherever reducings in piping occur. Reductions in steam mains shall be made with eccentric reducing couplings.

PIPING.

Install piping system generally as shown on plans. Connect all steam tappings in boilers full size to steam header. Connect Steam header to return header by liberal sized bleeder pipe. The steam mains shall grade downwards in direction of steam flow with a fall of not less than one half inch in ten feet. All lateral branches shall be taken out of top of steam main at an angle of 45 deg. unless otherwise shown on plans.

When the ends of steam mains are dripped to the wet return main, each drip or bleeder must be sealed well below boiler water line before being connected with any other drip and a 1/2" thermostatic trap of same type as specified under heading "RADIATOR TRAPS" must be installed at the top of each vertical drip, above the point where it drops down below the boiler water line. Such drip or bleeder piping shall connect into return header independent of the dry return piping.

All steam supply branches such as spring pieces, offsets in steam risers, and runouts to radiators that necessarily must drain against steam flow, must be made with swing connections and shall grade with a fall of not less than one half inch per foot and shall be one size larger than the vertical pipes which they supply and where length exceeds eight feet, horizontal pipes shall be two sizes larger than vertical pipes,

where vertical pipe is one and one quarter inches in size or less.

RETURN PIPING.

The dry return piping shall be installed in general as shown on plans. All lateral branches to return mains shall be taken out of top of main atan angle of 45 degrees, and these and horizontal runouts from radiators to return risers must be made with swing connections and shall grade in the direction of the flow of condensate with a fall of ONE HALF INCH PER FOOT. Dry return mains shall have a grade downwards in direction of the flow of condensate of not less than ONE INCH IN TEN FEET.

The dry return piping shall be independent of the drip piping. All dry return mains shall be connected into one trunk return before connection is made to return trap.

RISERS.

Risers shall be run in the open. Radiator connections shall be made in floor construction wherever possible and connections made to avoid tilting or lfiting radiators or trapping of any piping. All reductions in riser sizes must be made at or below floor line upon which rests the radiator to be connected. Risers must be properly supported and anchored.

VALVES, AND CHECK VALVES.

All valves used in steam and return piping excepting radiator inlet valves shall be gate valves of Jenkins or other approved make. Valves 2" and under shall be brass; 2½" and larger to be iron bodies, brass mounted; 5" and larger shall be flanged. Check valves shall be horizontal or angle swing type, of approved make, having a light weight brass disc set nearly vertical. Check valves shall be installed where shown on plans, or details and wherever necessary.

HANGERS.

All pipes shall be supported or hung in a secure manner by approved hangers so that no sags or pockets occur in any piping. Wall radiators shall be suspended by Type "E-Z" hangers or equal.

FLOOR PLATES AND SLEEVES.

All openings through ceilings, floors and partitions must be at least one half inch larger than the outside diameter of the pipe and the pipes are to be kept from the woodwork by approved floor sleeves and nickel plated floor and ceiling plates.

RADIATOR TRAPS. Furnish and install at the return outlet of each radiator a thermostatically operated non-adjustable steam trap of approved Canadian manufacture, constructed with bronze body and cover. The thermostatic member shall comprise a single corrugated disc of phosphor bronze, secured rigidly into cover. The disc shall be arranged horizontally on the radiator side of valve in trap. The valve shall be perfectly flat and close squarely on a rounded seat without the need of a guide pin. The trap shall be free from all sliding contacts. Trap shall automatically release all air and water of condensation from the radiator, but shall not pass steam and shall so operate automatically on all steam pressures up to No 25 gauge. Each radiator to be equipped with a trap of proper capacity. Each trap to be provided with nipple and union nut.

Radiators installed in basement shall be connected to steam and return piping as shown in detail drawings on plans and shall have return connected to a wet drip and vented to dry return main through a thermostatic air line valve of same principales as outlined for radiator traps.

PACKLESS RADIATOR VALVES.

Furnish and install at inlet connection to each radiator, a bronze body packless radiator valve of approved Canadian manufacture having built up bellows like interior, constructed of phosphor bronze corrugated discs. Valve seats shall be renewable and held in valve holder which must be rigidly secured to bottom member of phosphor bronze interior. The operating screw shall be so located that it will not come in contact with steam. The packless feature shall be constructed so that top member of interior shall form the joint between body and bonnet of valve. The valve shall be of quick opening type, requiring not more than one turn from closed to open position. Valve to have wheel handle. See valve schedule on plans for radiator valve sizes.

RADIATION.

Radiation shall be installed as shown on plans. The height of radiators shown at windows anticipates that they will not extend above window sills. If, however, the contractor finds upon checking these heights with actual measurements of building that proposed radaitors would project above window sills, he shall notify the Architect before installing radiation, in order that this discrepancy may be adjusted and where same necessitates using more costly radiation than that shown on plans, the difference in cost will be allowed as an extra to the Heating contractor only on approval by the Architect given in writihg before the change is made.

There shall be installed a total of 6158 square feet of direct cast iron radiation of hot water pattern, made up into units as shown. All radiators to have top inlet tappings and one-half inch eccentric bushing at return outlet. All air valve

tappings shall be plugged.

DOMESTIC WATER HEATER.

Furnish all steam and return piping connections required, incidental to the installation of the domestic hot water storage tank, including all valves, check valves and traps.

The steam coil in storage tank to be supplied direct from steam header on boilers by 1½" line and returns from coil to be connected to return of boilers through a 1" check valve and vented to dry return through a No 1 Dunham Trap or equal.

COVERING.

All steam mains and spring pieces shall be covered with three ply, 3/4" asbestos air cell canvas jacketed sectional covering of approved make. Covering to be thoroughly secured to pipe by non-corrosive metallic bands. Return pipe mains need not be covered. All steam and return piping concealed in outside walls or inside partitions within eighteen inches of an outside wall must be covered with two ply one half inch thick sectional covering as hereinbefore specified. All fittings in piping to be covered shall be plastered flush with asbestos cement covering in a neat and substantial manner and covered with heavy duck neatly pasted down. All cement to be applied while pipes are hot.

BOILER COVERING.

Boilers shall be covered with best grade, long fibre asbestos cement covering, not less than one and one half inches thick wired on and finished smooth with a coat of hard finish covering cement.

CLEANING BOILER.

After boiler has been in operation a week, the heating contractor shall blow it down through bottom blow off under a pressure not exceeding five lbs, first shutting off all radiators and removing the sensitive damper regulator, plugging outlet and closing cock in connection to the sensitive gauges. Afterward it must be cleaned and blown out by the Heating contractor in the following manner. Remove safety valve and connect a temporary blow off to the opening, extending it outside the building or to suitable drain. Close off all radiator valves or valves in mains remove sensitive gauges and damper regulator plugging openings. Fill boiler with water to the top of gauge glass, build very hot fire and blow steam and water out through the safety valve tapping and pipe; keep pressure up to ten lbs; fire hard, supply cold water constantly in at bottom of boiler, maintaining waterline at top of gauge glass, keep up for six hours. Near end of period fill boiler full of water, allowing it to flow through and out of top blow off. At end, close water feed valve, bring pressure up to 10 lbs, open blow off at bottom of boiler, draw the fire and entirely drain the boiler. Allow boiler to cool, replace safety valve, sensitive gauges and damper regulator, close blow off and fill boiler slowly. This operation must be repeated or continued until the boiler is thoroughly free from oil, grease or dirt.

CLEANING.

Any dirt, rubbish or grease on wall, floors, or fixtures for which the heating contractor is responsible must be removed

by him, and the premises left in first class condition in every respect.

PAINTING.

All return pipes, boiler front and bare piping in boiler room shall be painted one coat of black asphaltum paint.

GUARANTEE.

When the apparatus proposed to be furnished is completed in accordance with the conditions hereof, the heating contractor must guarantee it to circulate steam thoroughly through every radiator in the system without noise, with the steam pressure on the heating mains not to exceed two lbs gauge.

If after the apparatus is installed, accepted and paid for, any part constructed in strict accordance with the drawings and specifications or the true intent therefor, shall fail to accomplish the guarantee herein by reason of any defect developing within the period of one full season, due to faulty material or poor workmanship, the Heating contractor shall remedy such defect at his own cost, within a reasonable time after notice. The term "defect" as above used, shall be not construed as embracing such imperfections as would naturally follow improper treatement, accident, or the wear and tear of use, or the improper working of this system if the chimney is not of sufficient size to creat a good draft.

FINALLY.

Nothing herein contained can be construed to relieve this Heating contractor from making good and perfect work in all usual details of construction and he will be held responsible to provide and furnish all materials, do all work and labour, and bear all expenses incident to the satisfactory completion of the work embraced in these specifications.

DOMESTIC HOT WATER HEATER.

The contractor shall supply and install in Boiler Room in approximate position shown on plan a hot water storage tank 48" in diameter x 120" long having a holding capacity of 800 Imperial gallons, Tank to be supported upon cast iron cradles and pipe stand about seven feet above floor level. The water in storage tank will be heated in winter by a No 9 Type "R" Darling Whitlock submerged hot water heater. This heater is placed below the waterline of the steam boilers and immediately beneath the storage tank. Boiling water from either or both will heat the domestic supply. In summer the water in storage tank will be heated by No 14 B. Doric Gurney Heater or equal.

Heater must have capacity of raising the temperature of 300 gals. per hour 100 F.

The submerged heater will have a capacity of raising the temperature of 500 gals. per hour 100 F.

These two heaters are to be cross connected with the storage tank, so that one can be used in summer and other in winter.

ASH HOIST.

Provide and install complete where shown on plan one G. and G. telescopic ash hoist. The hoist to be supplied complete with folding doors.

LAUNDRY BOILER.

The contractor shall furnish and install where indicated on plan or directed a ten H.P. vertical tubular steam boiler of standard type, subject to hydrostatic test of 150 lbs before shipment. Boiler to include cast iron base, grates, safety valve, steam gauge, water column gauge, blow off cocks, check and stop valves, smoke stack, injector, etc. The boiler shall be similar

to that shown and described on page 173 of Cat. B of the Canadian Laundry Machinery Co. Ltd. of Toronto. Contractor shall make all steam connections to laundry machinery which is specified under another heading.