

Government of Madras.

EDUCATIONAL DEPARTMENT.

Recd.

Regd.

} 1913

Enclosures

Spare copies

G.O. No. 1048, 17th November 1913.

Grant-in-Aid Code.

Ordering, with remarks, the publication in the *Port St. George Gazette* of a notification adding a note to article 52 of the — requiring any correspondent contemplating building operations for which he desires a grant from Government to apply to the Inspector for a form of application for grant and for instructions for the preparation of plans and estimates.

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GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

READ—the following papers:—

I

G.O. No. 370, Educational, dated 1st May 1912.

ABSTRACT.—Accepting the proposals of the Director of Public Instruction with regard to the grants for school buildings and for hostels or boarding houses for students and revising chapter VIII of the Grant-in-Aid Code.

II

P.W.D. Circular No. 116 C., dated 4th January 1913.

ABSTRACT.—Issuing instructions for the guidance of educational and other bodies in the matter of the preparation of plans and estimates which are to be ultimately forwarded to the Public Works Department for scrutiny.

III

Endorsement No. 2143-1, Educational, dated 15th July 1913.

Communicated to the Director of Public Instruction who is requested to consider whether a note may be added to the Grant-in-Aid Code stating that managers contemplating building operations should apply to the Inspector for (1) a form of application for grant and (2) instructions for the preparation of plans and estimates.

W. FRANCIS,
Ag. Secretary to Government.

To the Director of Public Instruction.

IV

Letter—from the Hon'ble SIR ALFRED GIBBS BOURNE, K.C.I.E., D.Sc., F.R.S.,
Director of Public Instruction.

To—the Secretary to Government, Educational Department.

Dated—Madras, the 9th August 1913.

No.—R.C. 6860.

With reference to your Endorsement No. 2143-1, Educational, dated 15th July 1913, communicating a copy of the Public Works Department Circular No. 116 C., dated 4th January 1913, I have the honour to state that the note referred to may be added to the Grant-in-Aid Code.

2. Building grants up to the limit of Rs. 2,500 are now sanctioned by me and only those cases which involve a grant exceeding this amount go up to the Chief Engineer for scrutiny. I therefore suggest that the limit prescribed in paragraph 3 of the circular mentioned above may be modified and that the instructions contained in the circular may be made applicable only to cases involving a grant exceeding Rs. 2,500.

3. I also request you to be good enough to let me know whether the copies of the circular with its annexures will be stocked by the Superintending Engineers and supplied by them to the Inspectors and Inspectresses.

Order—No. 1048, Educational, dated 17th November 1913.

The proposal of the Director of Public Instruction to add a note to the Grant-in-Aid Code is approved. The following notification will be published in the *Fort St. George Gazette*.

NOTIFICATION.

In the revised chapter VIII of the Grant-in-Aid Code published on pages 317, 318 of Part I-B of the *Fort St. George Gazette*, dated 21st May 1912, the following shall be added as a note to article 52:—

“Any correspondent contemplating building operations for which he desires a grant from Government should apply to the Inspector for—

“(1) a form of application for grant and (2) instructions for the preparation of plans and estimates.”

2. Orders will issue in the Public Works Department in regard to the Director's suggestion regarding the modification of the limit prescribed in paragraph 3 of the Public Works Department Circular No. 116 C., dated 4th January 1913.

3. The Director of Public Instruction will be requested to arrange for the reprinting of copies of the circular in pamphlet form and for their supply through Inspectors to applicants for building grants along with application forms.

(True Extract.)

W. FRANCIS,
Ag. Secretary to Government.

To the Director of Public Instruction.
“Public Works Department.
“Superintendent, Government Press, for publication of notification.
Editors' Table (para. 1 only).

EDUCATIONAL DEPARTMENT.

NOTES CONNECTED WITH G.O. No. 1048, EDUCATIONAL, DATED
17TH NOVEMBER 1913.

[SUBJECT.—*Instructions for the preparation of plans and estimates for educational buildings.*]

*From the Director of Public Instruction, dated 9th August 1913,
No. 6860.*

The Director agrees to the publication of a note to the Grant-in-Aid Code stating that managers contemplating building operations should apply to the Inspector for a form of application and instruction for the preparation of plans and estimates. A notification adding a note to Article 52 of the Code to that effect may, it is submitted, be published in the Gazette.

2. As regards the question raised in paragraph 2 of the Director's letter, namely, that the limit of applicability of the circular may be raised to cases involving a grant of Rs. 2,500, from the present limit of Rs. 1,000, it is submitted that the matter was fully considered before the circular was published. At first the Chief Engineer proposed that the circular should be applicable to all cases of building grants. Then the Director proposed that its application may be restricted to cases of buildings which came before the Chief Engineer for scrutiny. The limit of this was just then raised from Rs. 1,000 to Rs. 2,500. The Chief Engineer, however, considered that Rules 50 (3) on page 10 of G.O. No. 370, dated 1st May 1912, as, even in cases which the Director dis-

posed of on his own authority he had to rely on the scrutiny of the Superintending Engineers, relief to the latter was as much required as to the Chief Engineer. On a further u.o. reference to the Director of Public Instruction he suggested that the limit might be fixed at Rs. 1,000 and this suggestion was eventually adopted. Both when the Director made his original and subsequent proposals as to the limit he was fully aware that the limit of sanction for grants has been raised to Rs. 2,500. There seems therefore to be no fresh ground to warrant a reconsideration of the position. Apparently the current letter from the Director of Public Instruction emanated from his Madras office which was not probably aware of the un-official reference to Dr. Bourne.

3. As regards paragraph 3 of the current letter attention is invited to the notes at the foot of page 7 of the notes with Memorandum No. 116 C., dated 4th January 1913, in which it was proposed that the Director should reprint copies of the circular in pamphlet form to be distributed to the applicants for building grants along with application forms. He may now be informed accordingly.

4. The file may, it is submitted, be sent to Sir Alfred Bourne u.o. as to paragraph 2 supra.

C. RAMANUJACHARI—20-8-13.

Yes.

W. FRANCIS—20-8-13.

Hon'ble Sir A. G. Bourne u.o.

OFFICE OF THE DIRECTOR OF PUBLIC INSTRUCTION.

I certainly suggested Rs. 1,000 as the limit but it seems somewhat incongruous for any Public Works circular to be made compulsorily applicable to any case which is within the Director of Public Instruction's power of sanction and with regard to which he is not obliged to consult any Public Works officer unless he considers this to be a necessary precaution.

I would again point out that the aided manager is spending his own as well as public funds and up to a certain limit may be trusted in the matter. A building costing Rs. 5,000 or under is not, I presume, a very complicated affair.

A. G. BOURNE—4-9-13.

To the Educational Department.

EDUCATIONAL DEPARTMENT.

The chief point seems to be whether Superintending Engineers have enough to do with buildings costing Rs. 5,000 and under, in the way of preliminary examination of the estimates or superintendence of the work, to make it worth while to extend the rates to such buildings for their sake. Will the Public Works Department say (1) what is the practice and (2) what its views on the question are?

W. FRANCIS—17-9-13.

To the Public Works Department.

PUBLIC WORKS DEPARTMENT.

Submitted.

2. With reference to (1) above, it will be seen that under Memorandum No. 7336 C., dated 10th August 1912, rough plans and estimates for works which are beyond the powers of technical sanction of Executive Engineers pass through Superintending Engineers before reaching the administrative departments concerned. Under paragraph 321 of the Public Works Department Code Executive Engineers can be empowered to accord technical sanction up to a maximum limit of Rupees 2,500 in each case but they have actually been given powers in short cases only up to Rs. 500. Therefore as a rule all plans and estimates, whether approximate or detailed, amounting to more than Rs. 500 now pass through Superintending Engineers.

3. With reference to (2) in Local and Municipal Secretary's note, attention is invited to Mr. Pears' note, dated 29th August 1912, on page 3 of the notes with circular No. 116 C of 4th January 1913. Owing to the large delegation of powers made in 1911 to Superintending Engineers in the matter of sanction to detailed plans and estimates their responsibilities have very greatly increased and it seems desirable to treat their offices in the same way as the Chief Engineer's office.

R.K.—4-10-13.

It seems to me that it is to the advantage of every one concerned that plans should be properly prepared and this is the object of the circular. As regards the limit it seems undesirable that it should be altered judging by the plans that frequently come up to the Chief Engineer's office, and as scrutiny is particularly necessary in all cases where upper storey is added to an existing building though the actual cost of the work may be well under Rs. 5,000.

D. MARSHALL—21-10-13.

With reference to Dr. Bourne's note above, I do not see anything "incongruous" in the present arrangements. We do not interfere with his discretion as to sending or not sending cases to Superintending Engineers: all we ask is that any plans which he does decide to send shall be properly drawn.

I am prepared however to modify my previous opinion that Superintending Engineers require relief. For I find that most of the work done in Superintending Engineer's offices in this connection is on cases referred to them by the Chief Engineer

and these would be kept straight by the circular even if the limit of grant were raised from Rs. 1,000 to Rs. 2,500. The cases of Rs. 5,000 and under that are referred to Superintending Engineers are very few.

I therefore agree to the Director of Public Instruction's suggestion to raise the figure in the last paragraph of the circular from Rs. 1,000 to Rs. 2,500. There is however much force in Mr. Marshall's argument on the previous page and the Director of Public Instruction might perhaps be "advised" to consult Public Works Department freely in cases of even considerably less than Rs. 5,000 where an upper storey is involved or indeed any extending or pulling about of an old building.

S. D. PEARS—23-10-13.

To the Educational Department.

EDUCATIONAL DEPARTMENT.

W. FRANCIS—6-11-13. A draft order is submitted for approval.

2. As regards the suggestion at A above it is submitted that the necessary instruction might be given to the Director of Public Instruction after orders have been passed in the Public Works Department modifying the limit in paragraph 3 of their circular and while communicating such order to him.

B. GOPALACHARI—30-10-13.

C. RAMANUJACHARI—5-11-13.

To the Public Works Department for acceptance of the draft.

W. FRANCIS—6-11-13.

PUBLIC WORKS DEPARTMENT.

The draft may be accepted in this department and the file returned to Educational who may be requested to send a copy of these notes along with the order so that action may be taken on paragraph 2 of the draft.

P. RAU—13-11-13.

Accepted in Public Works Department.

D. MARSHALL—13-11-13.

To the Educational Department.

EDUCATIONAL DEPARTMENT.

Issue and note above request.

W. FRANCIS—15-11-13.

[G.O. No. 1048, Educational, dated 17th November 1913.]

To be checked with the copy of
from 1048208. v

PUBLIC WORKS DEPARTMENT.

17-11-13

PUBLIC WORKS DEPARTMENT

No. 116 C. dated 4th January 1913.

Recd.

Enclosures

1913.

Regd.

Spare copies

Circular No. 116 C., 4th January 1913.

N. P. J.

Plans and Estimates.

Issuing instructions for the guidance of educational and other bodies in the matter of the preparation of—which are to be ultimately forwarded to the Public Works Department for scrutiny.

H. J. G. J. G.

PUBLIC WORKS DEPARTMENT.

No. 116 C., dated 4th January 1913.

CIRCULAR.

READ—the following papers :—

I

Letter—from the Chief Engineer, Public Works Department.

To—the Director of Public Instruction, Madras.

Dated—the 5th February 1912.

No.—1347-C.

I have the honour to forward herewith for favour of your remarks a copy of a draft circular which it is proposed to issue for the guidance of the Educational and other bodies in the matter of the preparation of plans and estimates which are to be ultimately forwarded to the Public Works Department for scrutiny. The circular will, it is hoped, enable such bodies to prepare their plans and estimates in such a manner as to save unnecessary additional labour and delay in my office.

ENCLOSURE.

Draft Circular.

The Chief Engineer observes that plans and estimates received for scrutiny in this office frequently fail to comply with the rules in force in the Public Works Department regarding loads to be assumed on rafters, girders and joists, pressures on masonry, strength of various timbers, etc., and that the duplicate copies of plans and abstract estimates which are required for record in the Chief Engineer's office are frequently upon paper which is quite unfit for filing. A great deal of extra work is consequently thrown upon the Chief Engineer's office, entailing delay in the process of scrutiny and difficulty in maintaining proper record of cases which come up for scrutiny.

With a view to remedying these defects, the following revised instructions and copies of tables in force in the Public Works Department are issued, and it is particularly requested that they may be strictly followed in every respect in submitting plans and estimates for the approval of Government.

Professional assistance.—All plans and estimates should be prepared by a professional architect or engineer, and should bear the signature of their author, with date.

Quality of paper.—All documents in connection with estimates should be typewritten on paper not less durable than hand-made foolscap. One side only should be written upon. All drawings should be upon tracing cloth.

Submission in duplicate.—Abstract estimates, general specifications and drawings should always be submitted in duplicate, one set to remain in the Chief Engineer's office for record.

Colours.—Designs for new buildings should be in black ink upon tracing cloth. When it is proposed to add to an existing building, new work should be tinted red.

CIRCULAR.

The use of green ink should be avoided as it is the colour reserved for corrections made in the Chief Engineer's office.

Drawings required.—General drawings, viz., plans of each floor elevations and sections should be drawn to scale $\frac{1}{4}$ inch = 1 foot. Detail drawings showing the construction of floors, roofs, and sections and elevations of one or more bays should be drawn to scale $\frac{1}{2}$ inch = 1 foot. Site plans drawn to any convenient scale showing the proposed buildings in red and showing the north point, and levels should invariably accompany the documents submitted.

In the case of extensions to existing buildings, the site plans should show in black the position and height of adjoining buildings.

Numbering of plans and estimates.—All plans should bear distinctive numbers to facilitate subsequent reference to identification, and these numbers should always be quoted whenever the plans are referred to, such expressions as "the accompanying plans" being avoided. All estimates and abstract estimates should bear on their first sheet the numbers of the drawings to which they refer.

When plans and estimates come through the Educational Department, it would save much inconvenience if that department were to open a register containing a description of each separate drawing which passes through the office of the Director of Public Instruction and the serial number given to each drawing in the office of the Director of Public Instruction would then serve for future identification.

General Specifications.—should be drawn up on form A. It is recommended that the Educational Department should have printed forms like the sample prepared and issue them to all persons likely to be engaged in the preparation of plans and estimates for the approval of Government.

Estimates and abstracts.—should be drawn up on forms B and C.

Figuring on drawings.—Heights and thicknesses of walls and sizes of scantlings should be figured upon drawings. The spacing of rafters, joists and girders should also be figured.

Lucidity in quantities.—It is often extremely difficult to check scantlings in this office owing to the difficulty of identifying on the drawings, scantlings mentioned in the quantities. Rooms shown on plans should wherever possible bear numbers or titles, and the description of the scantlings, floors, etc., in the quantities should give reference to these numbers or titles.

Additional storeys.—In all cases where it is proposed to add an upper storey to an existing building, the documents submitted should be accompanied by a statement signed by a Gazetted officer of the Public Works Department, present or retired, by a member of the Institute of Civil Engineers, or by a recognised professional architect to the effect that the existing walls and foundations are capable of withstanding the extra load entailed by the additional storey.

Pressures on masonry.—In no case should the pressure on brick masonry in lime mortar exceed 4 tons to the square foot, brick masonry in Portland cement, 8 tons per square foot; rubble stone in lime mortar 3 tons per square foot; and rubble stone in Portland cement 6 tons per square foot.

Revised plans.—Revised or amended plans and estimates should be accompanied by those formerly submitted.

List of Enclosures.

Form A.—General specification.

Form B.—Detailed estimates.

Form C.—Abstract estimates.

Appendix (i).—Table of safe distributed loads in tons on standard scantlings supported at ends on varying spans, involving a constant of 210.

Appendix (ii).—Table of safe distributed loads in tons on standard scantlings supported at ends on varying spans, involving a constant of 180.

Appendix (iii).—Timbers applicable to tables in appendices (i) and (ii).

Appendix (iv).—Table of safe loads on verandah posts or flat ended posts of standard dimensions, one of the timbers applicable to the table in appendix (i) being used.

Appendix (v).—Loads on terraced roofs and floors.

Appendix (vi).—Loads on sloping roofs.

Appendix (vii).—Standard scantlings.

Appendix (viii).—Safe loads on rolled steel joists.

Appendix (ix).—Details of jack arches in roofs and floors.

II

Letter—from the Hon'ble Mr. A. G. BOURNE, D.Sc., F.R.S., C.I.E., Director of Public Instruction, Madras.

To—the Chief Engineer, Public Works Department, Madras.

Dated—the 13th February 1912.

No.—Ref. on C. 967.

With reference to the Circular forwarded as enclosure to your letter No. 1347-C., dated 5th February 1912, I have the honour to enquire whether you can suggest any means whereby managers of aided schools could get the assistance of a professional architect or engineer. Competent people are not always available and officers of the Public Works Department seldom have sufficient spare time to prepare the necessary plans and estimates. Please let me know if you propose that there should be any limit of value with regard to which such detail is necessary.

III

Letter—from the Chief Engineer, Public Works Department.

To—the Director of Public Instruction.

Dated—the 14th March 1912.

No.—2663-C.

In continuation of my No. 1347-C., dated 5th February last, and with reference to your No. 967 of the 13th idem, I have the honour to inform you that there would, I think, be no difficulty in obtaining competent men to do the work provided an adequate fee was offered. I am of the opinion that a fee of $2\frac{1}{2}$ per cent. on the estimated cost of the work should be paid with a minimum of Rs. 10. In order to ensure the plans and estimates being submitted in order and in accordance with the instructions I have already sent you, it could be arranged that no fee would be paid until the plans and estimates are submitted and have been passed by the Chief Engineer. I think it will facilitate scrutiny if the instructions forwarded to you with regard to the preparation of plans and estimates were followed in all cases irrespective of the value of work to be done.

IV

Letter—from the Chief Engineer, Public Works Department.

To—the Director of Public Instruction.

Dated—the 15th April 1912.

No.—3865-C.

I have the honour to invite your attention to my letter No. 1347-C., dated 5th February 1912 and to enquire when a reply may be expected.

V

Letter—from the Hon'ble Mr. A. G. BOURNE, D.Sc., F.R.S., C.I.E., Director of Public Instruction.

To—the Chief Engineer, Public Works Department.

Dated—the 3rd April 1912.

No.—Ref. on C. 967.

With reference to your letters Nos. 1347-C., dated 5th February 1912, and 2663-C., dated 14th March 1912, I have the honour to inform you that proposals for a revision of the rules under which building grants are sanctioned (chapter VIII of the Grant-in-aid Code) are now under the consideration of Government and that a final reply will be sent to you on receipt of their orders.

VI

Letter—from the Hon'ble Mr. A. G. BOURNE, D.Sc., F.R.S., C.I.E., Director of Public Instruction.

To—the Chief Engineer, Public Works Department.

Dated—the 24th April 1912.

No.—Ref. on C. 967.

With reference to your letter No. 3865-C., dated 15th April 1912, I have the honour to invite your attention to this office letter R.C. No. 967, dated 3rd April 1912, and to state that the revised chapter VIII of the Grant-in-aid Code referred to therein has not yet been approved by Government.

VII

Letter—from the Chief Engineer, Public Works Department.

To—the Director of Public Instruction.

Dated—the 21st June 1912.

No.—5803-C.

With reference to the correspondence ending with your letter Reference on C. No. 967, dated 24th April 1912, I have the honour to refer you to the notification published on page 1 of Part I-B of the *Fort St. George Gazette* dated 21st May 1912, in which the revised chapter VIII of the Grant-in-aid Code approved by the Government is published and to enquire when a final reply to my letter No. 1347-C., dated 5th February 1912, may be expected.

VIII

Letter—from the Hon'ble Mr. A. G. BOURNE, D.Sc., F.R.S., C.I.E., Director of Public Instruction.

To—the Chief Engineer, Public Works Department.

Dated—the 8th June 1912.

No.—Dis. 4200.

I have the honour to return the draft circular (with its enclosures) received with your letter No. 1347-C., dated 5th February 1912, and to point out that the number of professional architects and of engineers outside the Public Works Department is very limited and that unless the department of Public Works is prepared to permit officers of the department to undertake freely the work of preparing plans and estimates for the building, etc., of aided schools and colleges, the managers will be put to a serious disadvantage. The above remarks are equally applicable to cases where additional storeys have to be built.

2. The procedure laid down in the circular may be adopted in the case of all buildings, the plans of which come before the Chief Engineer for scrutiny.

Circular—No. 116 C., dated 4th January 1913.

The Chief Engineer observes that plans and estimates received for scrutiny in his office frequently fail to comply with the rules in force in the Public Works Department regarding loads to be assumed on rafters, girders and joists, pressures on masonry, strength of various timbers, etc., and that the duplicate copies of plans and abstract estimates which are required for record in the Chief Engineer's office are frequently upon paper which is quite unfit for filing. A great deal of extra work is consequently thrown upon the Chief Engineer's office entailing delay in the process of scrutiny and difficulty in maintaining proper record of cases which come up for scrutiny.

2. With a view to remedying these defects, the following revised instructions and copies of tables in force in the Public Works Department are issued, and it is particularly requested that they may be strictly followed in every respect in submitting plans and estimates for scrutiny by officers of the Public Works Department or for the approval of Government:—

(i) *Professional assistance*.—All plans and estimates should be prepared by a gazetted officer of the Public Works Department, present or retired, a present or retired District Board Engineer, a member or associate member of the Institute of Civil Engineers or a recognised professional architect.

(ii) *Quality of paper*.—All documents in connection with estimates should be typewritten on paper not less durable than hand-made foolscap, one side only should be written upon. All drawings should be upon tracing cloth.

(iii) *Submission in duplicate*.—Abstract estimates, general specifications and drawings should always be submitted in duplicate, one set to remain in the Chief Engineer's office for record.

(iv) *Colours*.—Designs for new buildings should be in black ink upon tracing cloth. When it is proposed to add to an existing building, new work should be tinted red. The use of green ink should be avoided as it is the colour reserved for corrections made in the Chief Engineer's office.

(v) *Drawings required*.—General drawings, viz., plans of each floor elevations and sections, should be drawn to scale $\frac{1}{8}$ inch = 1 foot. Detail drawings showing the construction of floors, roofs, and sections and elevations of one or more bays should be drawn to scale $\frac{1}{2}$ inch = 1 foot. Site plans drawn to any convenient scale showing the proposed buildings in red and showing the north point and levels should invariably accompany the documents submitted.

(vi) In the case of extensions to existing buildings, the site plans should show in black the position and height of adjoining buildings.

(vii) *Numbering of plans and estimates*.—All plans should bear distinctive numbers to facilitate subsequent reference to identification and these numbers should always be quoted whenever the plans are referred to, such expressions as "The accompanying plans" being avoided. All estimates and abstract estimates should bear on their first sheet the number of the drawings to which they refer.

When plans and estimates come through the Educational Department, it would save much inconvenience, if that department were to open a register containing a description of each separate drawing which passes through the office of the Director of Public Instruction and the serial number given to each drawing in the office of the Director of Public Instruction would then serve for future identification.

(viii) *General specifications*.—should be drawn up on Form A. It is recommended that the Educational Department should have printed forms like the sample prepared and issue them to all persons likely to be engaged in the preparation of plans and estimates.

(ix) *Estimates and abstracts*.—should be drawn up on Forms B and C.

(x) *Figuring on drawings*.—Heights and thicknesses of walls and sizes of scantlings should be figured upon drawings. The spacing of rafters, joists and girders should also be figured.

(xi) *Lucidity in quantities*.—It is often extremely difficult to check scantlings in this office owing to the difficulty of identifying on the drawings scantlings mentioned in the quantities. Rooms shown on plans should, wherever possible, bear numbers or titles, and the description of the scantlings, floors, etc., in the quantities should give reference to these numbers or titles.

(xii) *Additional storeys*.—In all cases where it is proposed to add an upper storey to an existing building, the documents submitted should be accompanied by a statement signed by a gazetted officer of the Public Works Department, present or retired, a present or retired District Board Engineer, a member or associate member of the Institute of Civil Engineers, or a recognised professional architect to the effect that the existing walls and foundations are capable of withstanding the extra load entailed by the additional storeys.

(xiii) *Pressures on masonry*.—In no case should the pressure on brick masonry in lime mortar exceed 4 tons to the square foot, brick masonry in Portland cement 8 tons per square foot, rubble stone in lime mortar 3 tons per square foot and rubble stone in Portland cement 6 tons per square foot.

(xiv) *Revised plans*.—Revised or amended plans and estimates should be accompanied by those formerly submitted.

3. The instructions in this circular will, in the case of applications for grants for educational buildings, apply only to cases involving a grant of Rs. 1,000 and above.

C. A. SMITH,
Chief Engineer, P.W.D.

To the Superintending Engineers of Circles.
" Educational Department.

FORM A.
GENERAL SPECIFICATION.

[Here describe the purpose for which the building is required.]

Name of work.—Constructing a

The plans and estimate have been prepared in accordance with the requisition of

and are signed by

LIST OF DRAWINGS

No.	Ground Plan.	Scale	" = 1 foot.
19			

[In the case of the building being according to a type design, here quote the G.O. issuing the type.]
[Every drawing should bear a distinctive number, and the number should be quoted in every reference to any particular drawing.]

Total amount of the Estimate Rs.

Particulars of Estimate.

[FORM A—SHEET 3.]

Main building Rs.

Subsidiary Buildings.—

Lightning conductor	...	...	...	...	Rs.
Land compensation	...	...	...	...	"
Compound wall	...	...	...	...	"
Well	...	...	...	...	"

DETAILS OF CONSTRUCTION.

Nature of surface soil.—

Nature of sub-soil.

[Calculations showing the maximum pressure at the point where pressure appears to be greatest should be given separately. The point at which pressures are calculated to be clearly marked on the ground plan.]

Maximum pressure on soil (vide calculations, page).—

Description of foundation proposed.—

[FORM A—SHEET 4.]

Materials proposed for basement.—

Materials proposed for walls of superstructure.—

[Here state whether rubble, ashlar burnt stone or laterite, or whether ground-moulded brick or table-moulded brick, etc.]

[State what the damp course is composed of if there is to be one. If not, strike out damp course.]

Damp course.—

[One of the timbers mentioned in appendices (ii) and (iv) as applicable respectively to tables in appendices (i) and (iii) should be specified.]

Name of timber which it is proposed to use for floor or roof timbers.—

Name of timber which it is proposed to use for other scantlings.—

Name of timber which it is proposed to use for doors, windows and ventilators.—

[If Mangalore tiles are used on flat tiles, here state whether bedded in lime mortar or with air spaces.]

Roofing materials.—

Flooring materials.—

[State which walls inside and outside are to be plastered.] *Plastering.*—

Plastering.—

Pointing.—

[As a rule, teak joinery not exposed to weather should not be painted.]

Painting.—

Wood-oiling.—

FORM B.

ESTIMATE FORM—DETAIL MEASUREMENTS.

APPENDIX I.

TABLE of safe distributed loads in tons on standard teak scantlings supported at ends on varying spans.

$$(1) \text{ For strength } W = \frac{210 b d^2}{L \times 2240} \text{ implying factor of safety of 7. } (2) \text{ For stiffness } W = \frac{210 \times b d^3}{L^2 \times 2240} = (1) \times \frac{d}{L} \text{ implying deflection of } \frac{1}{30} \text{ per foot of span.}$$

W in tons; b and d in inches; L in feet.

Scantlings inches.			Weight per foot run at 50 lbs. in tons.	Clear spans in feet.												
b	d			2	3	4	5	6	8	10	12	14	16	18	20	22
2	3	.0416	.0009	0.84	0.56	0.37	0.20	0.13	0.08	..	..	..	..	..	..	..
2	3½	.0486	.0010	1.15	0.77	0.50	0.34	0.27	0.21	..	..	..	..	..	..	..
2	4	.0555	.0012	1.50	1.00	0.67	0.46	0.38	0.28	..	..	..	..	..	..	..
2	4½	.0625	.0013	1.89	1.26	0.84	0.57	0.46	0.37	0.16	..	..	..	..	..	..
2	5	.0694	.0015	2.34	1.56	1.17	0.93	0.65	0.56	0.23	..	..	..	..	..	..
2	5½	.076	.0017	2.83	1.89	1.41	1.13	0.88	0.70	0.31	0.21	..	..	..	..	..
2	6	.083	.0018	3.37	2.25	1.68	1.35	1.12	0.84	0.67	0.28	..	..	..	..	..
2	6½	.090	.0020	3.96	2.64	1.98	1.58	1.32	0.80	0.57	0.35	..	..	..	..	..
2	7	.097	.0021	4.59	3.06	2.29	1.83	1.53	1.14	0.63	0.44	..	..	..	..	..
2	8	.111	.0024	6.00	4.00	3.00	2.40	2.00	1.50	0.93	0.66	..	..	..	..	..
2½	6	.1041	.0023	4.21	2.81	2.11	1.68	1.40	1.05	0.50	0.35	..	..	..	..	..
2½	7	.1215	.0027	5.74	3.82	2.87	2.29	1.91	1.43	0.84	0.55	..	..	..	..	..
2½	8	.1388	.0031	7.50	5.00	3.75	3.00	2.50	1.87	1.20	0.83	..	..	..	..	..
3	4	.0833	.00185	2.25	1.50	1.125	0.90	0.75	0.56	..	..	..	..	..	..	..
3	4½	.0937	.0020	2.84	1.89	1.42	1.13	0.94	0.71	0.25	0.17	..	..	..	..	..
3	5	.1041	.0023	3.51	2.34	1.75	1.40	1.17	0.87	0.35	0.24	..	..	..	..	..
3	5½	.1145	.0025	4.25	2.83	2.12	1.70	1.41	1.05	0.70	0.48	0.23	..	..	..	..
3	6	.1250	.0027	5.06	3.37	2.53	2.02	1.68	1.26	0.60	0.43	0.21	..	..	..	..
3	6½	.1354	.0030	5.94	3.96	2.97	2.37	1.98	1.48	1.01	0.84	0.72	..	..	..	..
3	7	.1458	.0032	6.89	4.59	3.44	2.75	2.29	1.50	0.99	0.53	0.39	..	..	..	..
3	7½	.1562	.0034	7.91	5.27	3.95	3.16	2.63	1.97	1.37	0.88	0.67	0.45	..	..	..
3	8	.1666	.0037	9.00	6.00	4.50	3.60	3.00	2.25	1.44	1.00	0.74	0.56	..	..	..
3	8½	.1770	.0039	10.16	6.77	5.08	4.06	3.38	2.54	1.80	1.28	1.12	0.88	0.67	..	..
3	9	.1875	.0041	11.39	7.59	5.69	4.55	3.79	2.84	2.03	1.45	1.27	0.97	0.63	..	..
4	5	.1388	.0030	4.68	3.12	2.34	1.87	1.56	1.17	0.45	0.32	0.24	0.18	0.14	..	..
4	6	.1666	.0037	6.75	4.5	3.37	2.70	2.25	1.68	0.81	0.56	0.41	0.31	0.24	..	..
4	7	.1944	.0043	9.18	6.12	4.59	3.67	3.06	2.29	1.28	0.89	0.65	0.50	0.40	..	..
4	8	.2222	.0049	12.00	8.00	6.00	4.80	4.00	3.00	1.9	1.33	0.97	0.75	0.63	..	..
4	9	.25	.0055	15.18	10.12	7.59	6.07	5.06	3.79	2.72	1.89	1.38	1.03	0.84	..	..
4	10	.277	.0061	18.75	12.50	9.37	7.50	6.25	4.68	3.03	2.53	2.16	1.89	1.68	..	..
5	7	.243	.0054	11.48	7.65	5.74	4.59	3.82	2.87	1.60	1.11	0.89	0.63	0.49	0.39	..
5	8	.277	.0061	15.00	10.00	7.50	6.00	5.00	3.75	2.40	1.68	1.27	0.93	0.73	0.60	..
5	10	.347	.0077	23.43	15.62	11.71	9.37	7.81	5.85	3.00	2.50	2.14	1.87	1.66	1.56	..
6	7	.291	.0064	13.77	9.18	6.89	5.51	4.59	3.44	2.75	1.96	1.72	1.53	1.37	1.17	..
6	8	.333	.0074	18.00	12.00	9.00	7.20	6.00	4.50	3.60	2.99	2.57	2.25	2.00	1.80	..
6	9	.375	.0083	22.78	15.18	11.39	9.11	7.59	5.69	4.55	3.78	3.25	2.84	2.53	2.27	..
6	10	.416	.0092	28.12	18.75	14.06	11.25	9.37	7.03	5.62	4.68	4.01	3.51	3.12	2.81	..
6	11	.458	.0092	34.03	22.68	17.01	13.61	11.34	8.50	6.80	5.66	4.86	4.26	3.78	3.40	..
6	12	.50	.0112	40.50	27.00	20.25	16.20	13.50	10.12	8.10	6.75	5.78	5.06	4.50	4.03	..
7	12	.583	.0130	47.25	31.50	23.62	18.90	15.75	11.81	9.45	7.87	6.75	5.80	5.25	4.72	..
8	12	.666	.0148	54.00	36.00	27.00	21.60	18.00	13.50	10.80	9.00	7.71	6.75	6.00	5.40	..
9	12	.750	.0167	60.75	40.50	30.37	24.30	20.25	15.18	12.15	10.12	8.67	7.59	6.75	6.07	..
9	14	.875	.0165	82.68	55.12	41.34	33.07	27.56	20.67	16.53	13.78	11.81	10.33	9.18	8.26	..
9	16	1.00	.0223	108.00	72.00	54.00	43.20	36.00	27.00	21.60	18.00	15.42	13.60	12.00	10.80	..
9	18	1.125	.0261	136.68	91.125	68.34	54.67	45.56	34.17	27.33	22.78	19.52	17.08	15.18	13.66	..

N.B.—The roman figures in this table show the load as arrived at by the strength formula (1), which determines the most suitable scantling in all cases where the depth of the beam in inches is equal to or more than L the span in feet, and in other cases also where strength only has to be considered. The italic figures to the right of the zig-zag black line show the limiting loads as arrived at by the stiffness formula (2), which should be taken where d is less than L, and where it is designed to limit deflection to $\frac{1}{30}$ per foot of span. The table given in appendix II shows results of applying the formula $W = \frac{L^3 \times 2240}{180 b d^3}$ suited to keep deflection to $\frac{1}{30}$ per foot of span.

The block figures in the first two columns denote the proposed standard scantlings.

APPENDIX II.

TABLE of safe distributed loads in tons on standard teak scantlings supported at the ends on varying spans, to limit deflection to $1/40''$ per foot of span as determined by the formula, $W = \frac{180 \times d^3}{2240 \times L^3}$,
 W in tons, b and d in inches, L in feet.

Scantlings in inches.		Weight per foot run at 50 lbs. in tons.	Clear spans in feet.												
b	d		2	3	4	5	6	8	10	12	14	16	18	20	22
2	3	.0009	..	0.48	0.27	0.17	..	..	..	..	..	..	..	..	..
2	3½	.0010	..	0.76	0.43	0.27	0.19	..	..	..	..	..	..	..	..
2	4	.0012	..	..	0.64	0.41	0.28	..	..	..	..	..	..	..	..
2	4½	.0013	..	..	0.91	0.58	0.40	0.22	..	..	..	..	..	..	..
2	5	.0015	..	..	..	0.80	0.55	0.31	..	..	..	..	..	..	..
2	5½	.0017	..	..	..	1.06	0.74	0.41	0.26	..	..	..	..	..	..
2	6	.0018	..	..	..	..	0.96	0.54	0.34	..	..	..	..	..	..
2	6½	.0020	..	..	..	..	1.22	0.69	0.44	..	..	..	..	..	..
2	7	.0021	..	..	..	..	1.53	0.86	0.55	0.38	..	..	..	..	..
2	8	.0024	..	..	..	..	2.28	1.28	0.82	0.57	..	..	..	..	..
2½	6	.0023	..	..	..	..	1.20	0.67	0.43	..	..	..	..	..	..
2½	7	.0027	..	..	..	..	1.91	1.07	0.68	0.47	..	..	..	..	..
2½	8	.0031	..	..	..	..	..	1.60	1.02	0.71	..	..	..	..	..
3	4	.0018	..	..	0.96	0.61	0.42	..	..	..	..	..	..	..	..
3	4½	.0020	..	..	1.37	0.87	0.61	0.34	..	..	..	..	..	..	..
3	5	.0023	..	..	..	1.20	0.83	0.47	..	..	..	..	..	..	..
3	5½	.0025	..	..	..	1.60	1.11	0.62	0.40	..	..	..	..	..	..
3	6	.0027	..	..	..	..	1.44	0.81	0.52	..	..	..	..	..	..
3	6½	.0030	..	..	..	..	1.83	1.03	0.66	..	..	..	..	..	..
3	7	.0032	..	..	..	..	2.29	1.29	0.82	0.57	..	..	..	..	..
3	7½	.0034	..	..	..	..	..	1.58	1.01	0.70	..	..	..	..	..
3	8	.0037	..	..	..	..	..	1.92	1.23	0.85	..	..	..	..	..
3	8½	.0039	..	..	..	..	..	2.31	1.48	1.02	..	..	..	..	..
3	9	.0041	..	..	..	..	..	2.74	1.75	1.22	..	..	..	..	..
4	5	.0030	..	..	..	1.60	1.11	0.62	0.39	..	..	..	..	..	..
4	6	.0037	..	..	..	..	1.92	1.08	0.69	..	..	..	..	..	..
4	7	.0043	..	..	..	..	3.06	1.72	1.10	0.76	..	..	..	..	..
4	8	.0049	..	..	..	..	..	2.57	1.64	1.14	..	..	..	..	..
4	9	.0055	..	..	..	..	..	3.66	2.34	1.62	1.19	..	..	..	..
4	10	.0061	..	..	..	..	..	..	3.21	2.23	1.63	1.26	..	..	..
5	7	.0064	..	..	..	..	3.82	2.15	1.37	0.94	..	..	..	..	..
5	8	.0077	..	..	..	..	..	3.21	2.05	1.42	..	..	..	..	..
5	10	.0084	..	..	..	..	..	..	..	2.79	2.04	1.66	..	..	..
6	7	.0074	..	..	..	..	4.59	2.58	1.65	1.15	..	..	..	..	..
6	8	.0083	..	..	..	..	..	..	2.46	1.71	..	..	..	..	..
6	9	.0092	..	..	..	..	..	5.49	3.51	2.44	1.79	..	..	..	..
6	10	.0102	..	..	..	..	..	..	4.82	3.34	2.45	1.88	..	..	..
6	11	.0112	..	..	..	..	..	..	6.41	4.45	3.27	2.50	1.98	1.60	..
6	12	.0130	..	..	..	..	..	..	..	5.78	4.25	3.25	2.57	2.08	..
7	12	.0148	..	..	..	..	..	..	..	6.75	4.95	3.79	3.00	2.43	..
8	12	.0167	..	..	..	..	..	..	..	7.71	5.66	4.33	3.42	2.77	..
9	12	.0195	..	..	..	..	..	..	..	8.67	6.37	4.88	3.85	3.12	..
9	14	.0223	..	..	..	..	..	..	..	18.73	10.12	7.75	6.12	4.96	4.10
9	16	.0251	..	..	..	..	..	..	..	..	15.11	11.57	9.14	7.40	6.12
9	18	1.125	..	..	..	..	..	..	..	..	..	16.47	13.01	10.54	8.71

N.B.—Where spaces are not filled up on the left of this table, the conditions of strength require the loads to be less than would be arrived at by this deflection formula, and the safe loads are those determined by the strength formula of table I. This table is worked out to the point where the span is about 24 times d .

APPENDIX III.

With regard to strength and elasticity implying a deflection of $1/30''$ per foot of span except for large beams, the table given in appendix I involving constant of 210 may be used for determining scantlings of the following timber :—

- (1) Teak (*Tectona grandis*).
- (2) Sal.
- (3) Irumbogam, Oorapoo (*Hopea parviflora*).
- (4) Ainee (*Artocarpus hirsuta*).
- (5) Karamarudu (*Terminalia tomentosa*).
- (6) Jarrah, Australian.
- (7) Blackbutt do.
- (8) Iron bark (white or grey), Australian.
- (9) Mahogany, Australian.
- (10) Tallow wood do.

The table given in appendix II involving constant of 180 may be used for determining scantlings of large beams and of the following timbers, in cases where deflection of $1/30''$ is suitable and for the timbers of the preceding class where it is desired to limit deflection to $1/40''$ per foot of span—

- (11) Irul (*Xylia dolabriformis*).
- (12) Pillamarudu (*Terminalia paniculata*).

APPENDIX IV.

TABLE of safe loads on teak verandah or flat ended posts of standard dimensions.

Section of post or strut.	Net area taken, allowing for half inch chamfer.	Length.											
		5 feet.		6 feet.		7 feet.		8 feet.		10 feet.		12 feet.	
		Tons.	Lbs.	Tons.	Lbs.	Tons.	Lbs.	Tons.	Lbs.	Tons.	Lbs.	Tons.	Lbs.
3" x 3"	8.5	1.7	3,842	1.6	3,663	1.5	3,451	1.4	3,204	1.1	2,618	0.8	1,904
4" x 4"	15.5	3.2	7,331	3.1	7,145	3.0	6,851	3.0	6,980	2.7	6,076	2.3	5,332
5" x 5"	24.5	5.2	11,833	5.1	11,588	5.0	11,392	5.0	11,172	4.7	10,559	4.3	9,775
6" x 6"	35.5	7.7	17,324	7.6	17,146	7.5	16,898	7.4	16,649	7.1	16,046	6.8	15,300

APPENDIX V.

Loads on terraced floors and roofs.

Description of roof or floor.	Total weight of floor or roof per square foot in lbs.	Live load assumed in lbs. per square foot.	Total load per square foot provided for.	Load on joists per foot run with spacing in column 5.			Remarks.
				Spacing of joists, centre to centre.	Lbs. per foot run.	Tons per foot run.	
1	2	3	4	5	6	7	8
Madras terracing for dwelling or office floors or roofs, 9" thick.	LB. 90	LB. 80	LB. 170	INCHES. 18	255	0.11	For these timber joists (1 to 10 of appendix (III) of 2" X 6 1/2", 2" X 7", 2 1/4" X 8" and 3" X 9" may be used for lengths of bearing of 6 feet, 8 feet, 10 feet and 12 feet, respectively. { R. S. joist, 7" X 4" X 16 lbs., may be used for spans of 10 feet. R. S. joists, 8" X 4" X 18 lbs., may be used for spans of 12 feet. R. S. joists, 9" X 4" X 21 lbs., may be used for spans of 14 feet. R. S. joists, 10" X 5" X 30 lbs., may be used for spans of 16 feet. R. S. joists, 12" X 5" X 32 lbs., may be used for spans of 18 feet and 20 feet.
Madras terracing for public halls	90	110	200	15 FEET.	250	0.11	
Jack arch terrace for floors or roofs of 10, 12 or 14 feet span, 5' arches, 4 1/4" thick, rise 6 1/4", and 2" concrete and plaster 1/2" at top and bottom.	96	80	176	5.0	..	..	
Jack arch terrace for floors or roofs of 16 feet, 18 feet or 20 feet spans 6' arches and 7 1/4" rise, and 2" concrete and plaster 1/2" at top and bottom.	100	80	180	6.0	..	..	

N.B.—For floors of record rooms or libraries allow for a live load equivalent to 80 lbs. per cubic foot of book shelf or record rack space + 60 lbs. per square foot on the area of floor assumed to be unoccupied by the book shelves. If the book shelves be assumed to occupy one-fourth of the whole area 10 feet high, the live load thus arrived at amounts to 245 lbs. per square foot to which must be added the dead weight of the floor to get the total load.

APPENDIX VI.

LOADS on sloping roofs.

Description of roof.	Pitch.	Dead weight of roof covering.	Allowance for wind or casual loads.	Total load in lbs. per square foot.	Load on rafters per foot run with spacing in column 6.			Remarks.
					Space between rafters centre to centre inches, etc.	Lbs. per foot run.	Tons per foot run.	
1	2	3	4	5	6	7	8	9
Flat and pan tiles	1/4 to 1/2	30	20	50	IN. 15	63	0.0281	For rafters of unsupported lengths of 6, 8, 10 and 12 feet which will cover most cases these loads represent 1686, 2248, 2810, and 3372 tons, respectively. By the deflection figures in italics table I scantlings of 2" X 3 1/2", 2" X 4 1/2", 2" X 5 1/2" and 2" X 6 1/2" would be suitable. Reference to the Roman figures of appendix I shows that deflection apart these scantlings would take casual or wind loads of even double the 20 lbs. shown in column 4 without the loads approaching one-seventh of the breaking weights.
Plain pan tiles	1/4 to 1/2	22	20	42	18	63	0.0281	
Mangalore tiles with flat tiles and air spaces.	1/4 to 1/2	16	20	36	21	63	0.0281	
Mangalore tiles bedded in mortar over flat tiles.	1/4 to 1/2	22	20	42	18	63	0.281	
Plain Mangalore tiles	1/4 to 1/2	11	20	31	24	62 say 63	0.0381	
20 B.W.G. corrugated iron or boarding with Mangalore tiles.	1/4 to 1/2	13	20	33	21	57.75	0.0268 say 0.0281	
Bengal terrace	1/4 to 1/2	25	20	45	16	60	0.0267 say 0.0281	

N.B.—3 lbs. per square foot may be added to the weights in column 5 to allow for weight of rafters in computing scantlings of purlins, etc.

APPENDIX VII.

PROPOSED standard scantlings.

Number.	Size of scantling inches.		Cubic feet per foot run.	Remarks purpose for which required.
	b	d		
Joists and rafters.				
1	2"	3½"	·0486	For rafters of sloping roofs for unsupported bearing of 6 feet.
2	2"	4½"	·0625	Do. do. 8 feet.
3	2"	5½"	·076	Do. for 10 feet (and also for terracing 6 feet).
4	2"	6½"	·090	Do. for 12 feet.
5	2"	7"	·097	For joists of terracing bearing 8 feet.
6	2½"	8"	·1388	Do. do. 10 feet.
7	3"	9"	·1875	Do. do. 12 feet.
For posts and struts.				
8	2"	3"	·062	...
9	4"	4"	·111	...
10	5"	5"	·173	...
11	6"	6"	·25	...
For purlins and Bressummers and trusses.				
12	4"	5"	·1388	For principal rafters.
13	4"	6"	·1666	Purlins of king post trusses 8 feet apart on spans from 16 to 30 feet, also principals.
14	4"	7"	·1944	
15	5"	7"	·243	Purlins of king post trusses 10 feet apart on spans from 16 to 30 feet.
16	5"	8"	·277	
17	6"	8"	·333	Do. 12 feet apart on spans 16 to 30 feet.
18	6"	9"	·375	The above with the struts will also serve for the purlins principles, etc., of queen post trusses for spans from 31 to 45 feet.
For door and window frames, etc.				
19	3"	4"	·0833	
20	3"	5"	·1041	
21	3"	6"	·1250	

APPENDIX VIII.

List of British Standard Beams, prepared by Messrs. Dorman, Long & Co. (Limited), Middlesbrough, England.

Reference No.	Properties of Sections.												Table of safe distributed Loads in Tons on Beams of varying spans.																									Deflection co-efficient.	Reference No.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
	Size.	Weight per foot.	Area.	DIAGRAM.				MOMENT OF INERTIA.		RADIUS OF GYRATION, INCHES.		Resistance about x — x inch.	Cross centres of holes C.	LENGTH OF SPAN IN FEET.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
				Web. t.	Flange T.	Radius R1.	Radius R2.	About x — x.	About y — y.	About x — x.	About y — y.			2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48			50																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
B.S.B. 30	24 × 7½	100	29.4	.6	1.07	.7	.35	2,654	66.92	9.5	1.5	221.1	4.5																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												

NOTE.—1. A large stock of all these sections is kept in length of every foot from 10 feet to 40 feet or ordinary sections and longer lengths for the large sections.

2. The loads given in the table are based on an extreme fibre stress of 7½ tons per square inch, being one-fourth of the average breaking stress, and are calculated on the assumption that the beams receive the usual side support as in building work. For other cases, such as concentrated, or live loads special calculation is necessary.

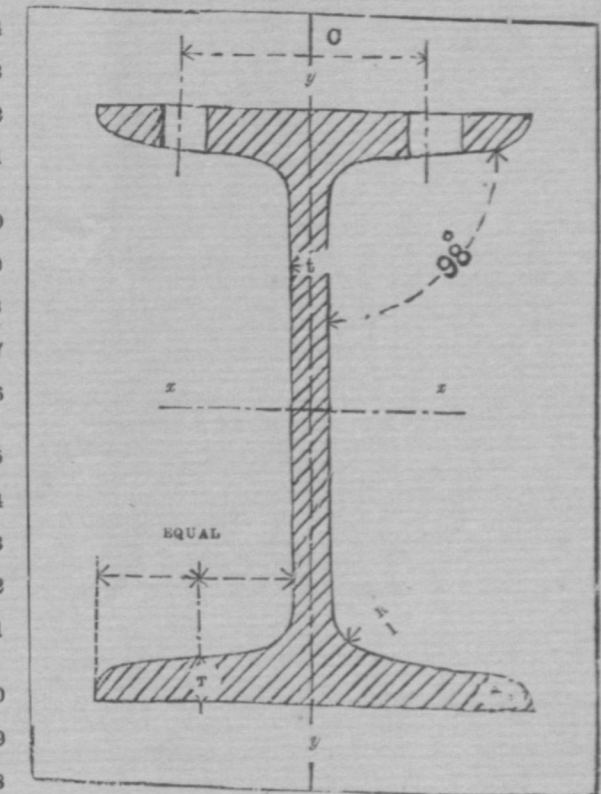
3. Care should be taken in selecting beams that the load is not so great as to cause excessive deflection, which may occur if the span exceeds 20 times the depth. This limit is indicated by the zig-zag line in the table.

4. The deflection (in inches) for tabular load is found by multiplying the square of the span in feet by the co-efficient which is given for each section. If the actual load is less than the tabular load, the deflection will be less in exactly the same proportion.

5. The customary margin required in rolling is 2½ per cent. over or under the specified weights, and no guarantee is given to roll sections without this allowance.

6. All beams, either from rolls or stock are cut to a margin of 1 inch over or under specified lengths.

7. An extra is charged for cutting beams to within an eighth of an inch of exact length and for machining square and for lengths over 36 feet.



APPENDIX IX.

Jack arched roofs.

In the case of jack arched roofs, the thrust of the last arch against the end wall is generally counteracted by means of a rolled steel joist running along the wall, and tie bars between it and the next rolled steel joists.

In some cases it is preferable to neutralise the thrust by building into the end walls rolled steel girders laid flat as shown in the accompanying diagrams, tying their ends by means of flat bars to holding-down bolts built into the walls. In cases where the room is not more than 20 feet long the holding-down bolts may be dispensed with, and the tie bars made continuous instead.

Jack arches of 4 feet span are not as economical as those of 5 feet or 6 feet, and in cases where the width of the room exceeds 20 feet, it will be found more economical to use main girders with cross joists, the spacings and sizes of which are given in the accompanying table.

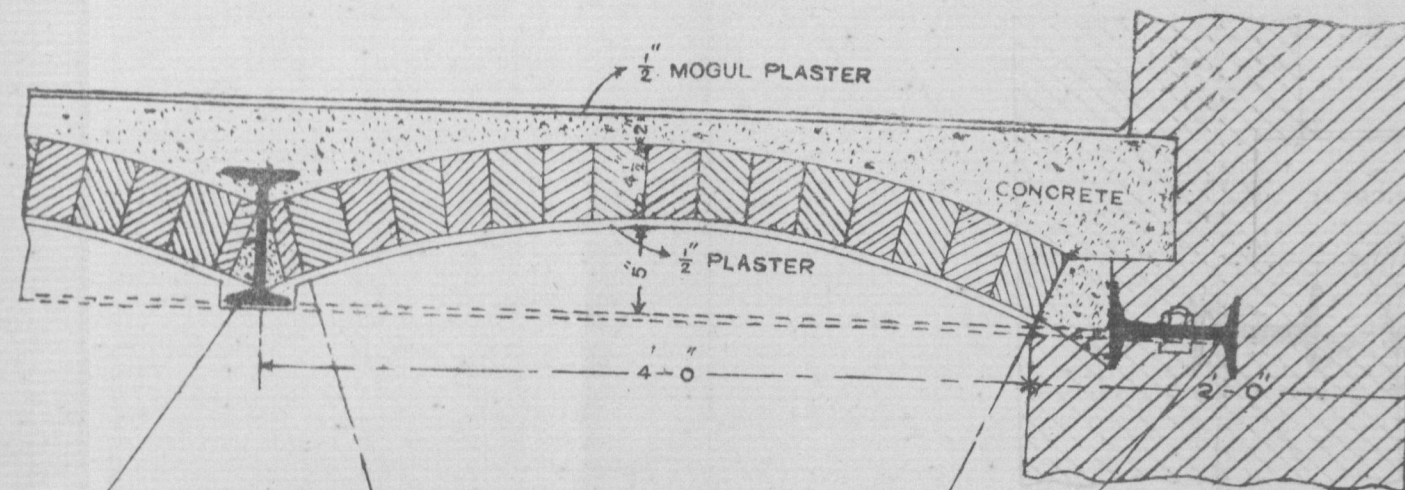
TABLE showing the arrangement and sizes of rolled steel girders, etc., for jack-arch roofs of spans over 20 feet to carry live loads of 80 lbs. and 110 lbs. per square foot.

Span in feet.	Live loads of 80 lbs. per square foot.				Live loads of 110 lbs. per square foot.				Holding-down bolts.	Flats.
	Main girders.		Cross joists.		Main girders.		Cross joists.			
	Distance centre to centre.	Section and weight per foot run.	Distance centre to centre.	Section and weight per foot run of intermediate joists.	Distance centre to centre.	Section and weight per foot run.	Distance centre to centre.	Section and weight per foot run of intermediate joists.		
22	FT. 6	16" × 5" × 42 lbs.	FT. 6	5" × 3" × 11 lbs.	FT. 9	16" × 6" × 62 lbs.	FT. 6	7" × 4" × 16 lbs.	1½" dia.	2½" × 2½"
24	12	18" × 7" × 75 "	6	9" × 4" × 21 "	10	18" × 7" × 75 "	6	8" × 4" × 18 "		
26	16	18" × 7" × 75 "	4	7" × 4" × 16 "	12	20" × 7½" × 89 "	6	9" × 4" × 21 "		
28	10	20" × 7½" × 89 "	6	7" × 4" × 16 "	12	24" × 7½" × 100 "	6	9" × 4" × 21 "		
30	12	24" × 7½" × 100 "	6	9" × 4" × 21 "	10	24" × 7½" × 100 "	6	8" × 4" × 18 "		

R. F. STONEY,
Officer in charge of the Technical Section.

JACK ARCH ROOF 4 SPAN

SCALE 1 INCH=1 FOOT



B.S.B. FOR 10' SPAN 7" x 4" x 16 LBS
 DO. FOR 12' SPAN 8" x 4" x 18 LBS
 DO. FOR 14' SPAN 9" x 4" x 21 LBS
 DO. FOR 16' SPAN 10" x 5" x 30 LBS
 DO. FOR 18' SPAN 12" x 5" x 32 LBS
 DO. FOR 20' SPAN 12" x 5" x 32 LBS (80 LBS LIVE LOAD)
 DO. FOR 20' SPAN 15" x 5" x 42 LBS (110 LBS LIVE LOAD)

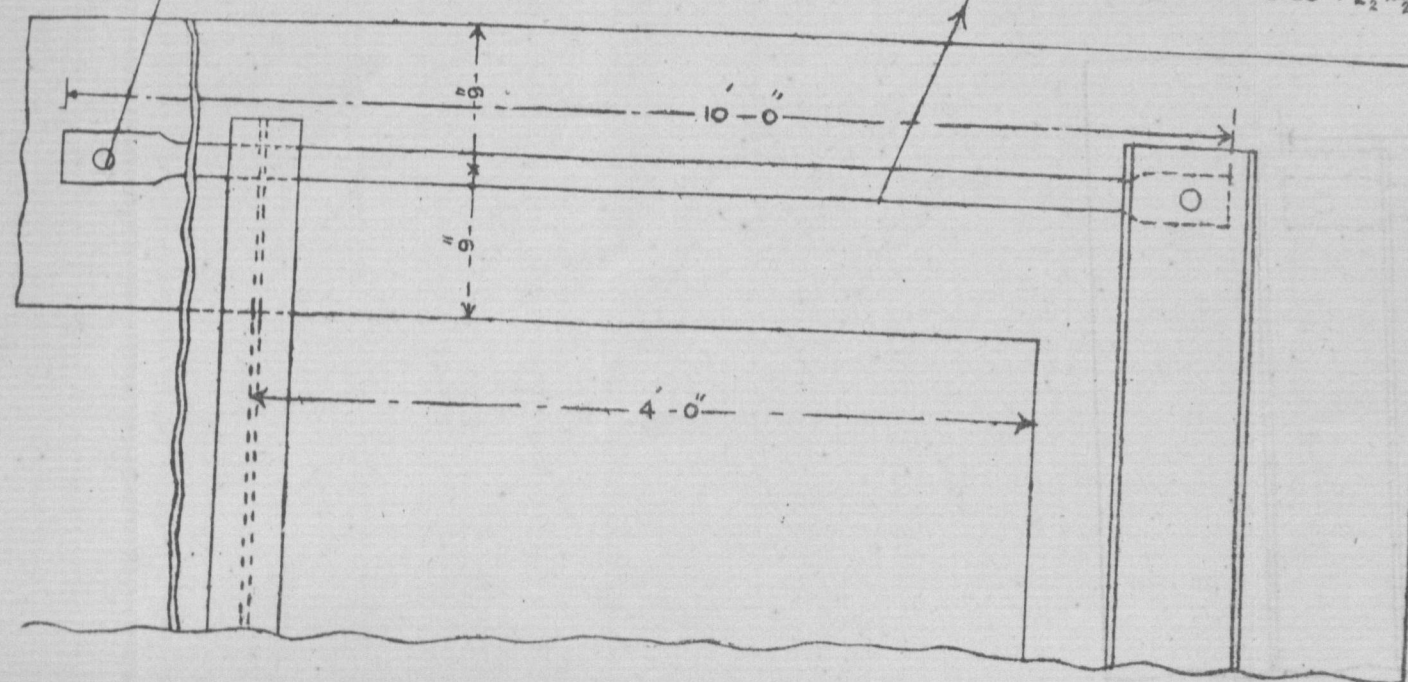
FOR LIVE LOADS OF
 80 & 110 LBS

FOR SPANS OF 10' TO 12'
 DO. 14' TO 18'
 DO. 20'

LIVE LOAD	
80 LBS	110 LBS
8" x 4" x 18 LBS	9" x 4" x 21 LBS
12" x 5" x 32 LBS	12" x 5" x 32 LBS
15" x 5" x 42 LBS	16" x 6" x 62 LBS

H. D. BOLTS FOR SPANS OF 10' TO 12'-1" DR
 FOR SPANS OF 14' TO 20'-1 1/4" DR

FLAT BAR FOR SPANS OF 10' TO 12'-2 1/2"
 FOR SPANS OF 14' TO 20'-2 1/2" x 1 1/2"

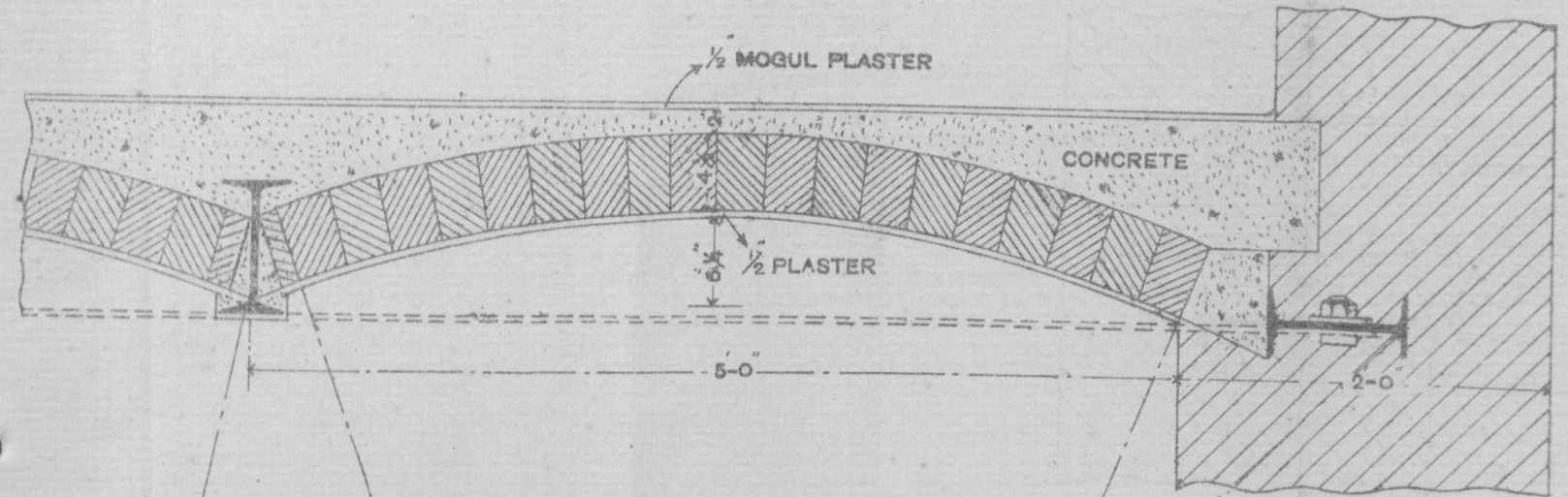


NOTE.—For spans greater than 20, it is found economical to introduce cross joists between main girders and then to have the arches turned over the former. In such cases the holding down bolts and end tie bars should be arranged as shown in Drawing No. 4

(Signed) R. F. STONEY,
 Officer in charge of
 Technical section.
 25-7-10.

JACK ARCH ROOF 5 SPAN

SCALE 1 INCH = 1 FOOT

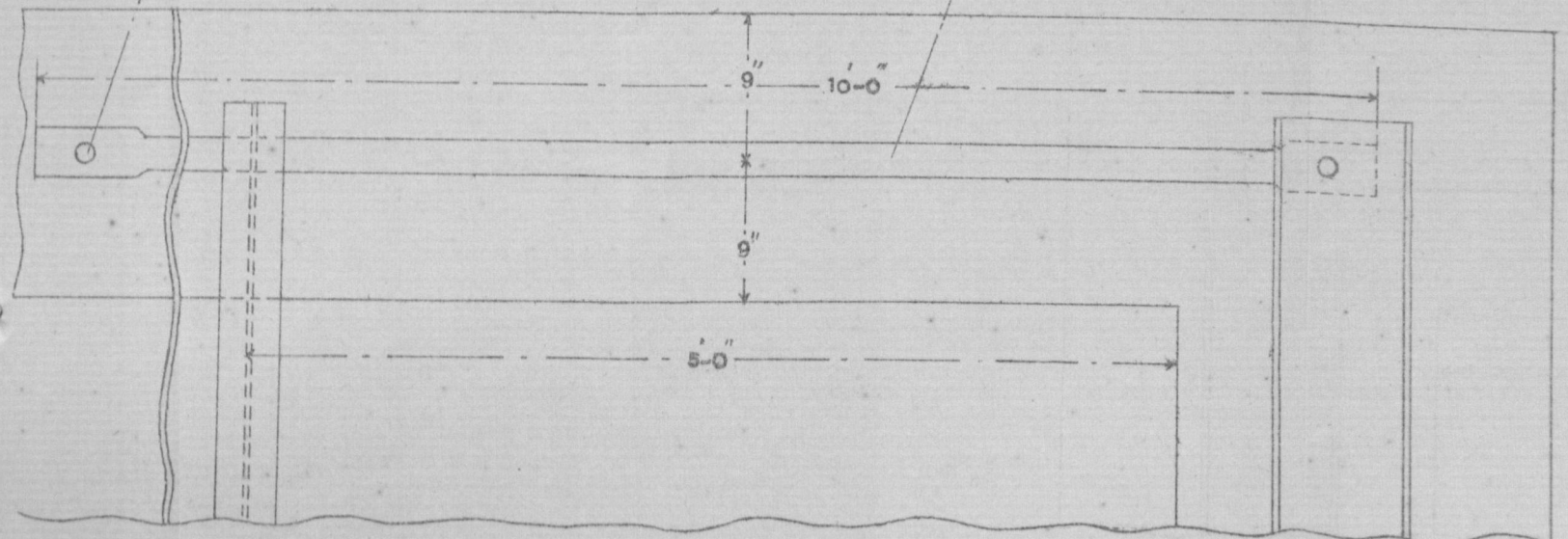


LIVE LOAD		
	80 LBS.	110 LBS.
FOR SPANS OF 10'	7" x 4" x 16 LBS.	7" x 4" x 16 LBS.
DO. 12'	8" x 4" x 18 LBS.	9" x 4" x 21 LBS.
DO. 14'	8" x 5" x 28 LBS.	10" x 5" x 30 LBS.
DO. 16'	10" x 5" x 30 LBS.	12" x 5" x 32 LBS.
DO. 18'	12" x 5" x 32 LBS.	12" x 5" x 32 LBS.
DO. 20'	15" x 5" x 42 LBS.	15" x 5" x 42 LBS.

LIVE LOAD		
	80 LBS.	110 LBS.
FOR SPANS OF 10'	9" x 4" x 21 LBS.	9" x 4" x 21 LBS.
DO. 12'	9" x 4" x 21 LBS.	12" x 5" x 32 LBS.
DO. 14'	12" x 5" x 32 LBS.	12" x 5" x 32 LBS.
DO. 16'	12" x 5" x 32 LBS.	12" x 5" x 32 LBS.
DO. 18'	12" x 5" x 32 LBS.	15" x 5" x 42 LBS.
DO. 20'	15" x 5" x 42 LBS.	15" x 5" x 42 LBS.

H. D. BOLTS FOR SPANS OF 10' TO 12'-1" DR.
DO. 14' TO 18'-1 1/2" DR.
DO. 20' - 1 1/2" DR.

FLAT BAR FOR SPANS OF 10' TO 12'-2 1/2"
DO. 14' TO 18'-2 1/2"
DO. 20' - 3 1/2" x 1/2"

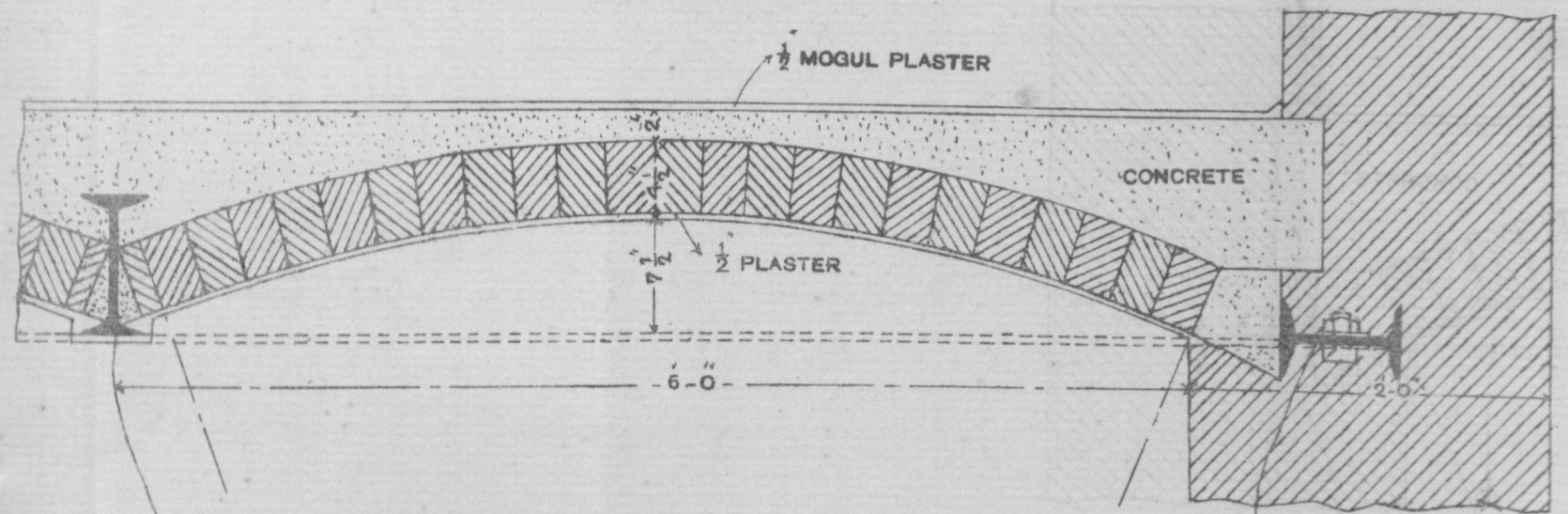


NOTE.—For spans greater than 20 it is found economical to introduce cross joists, between main girders and then to have the arches turned over the former. In such cases, the holding down bolts and end tie bars should be arranged as shown in drawing No. 4.

(Signed) R. F. STONEY,
Officer in charge of
Technical section,
25-7-10.

JACK ARCH ROOF 6' SPAN

SCALE 1 INCH = 1 FOOT

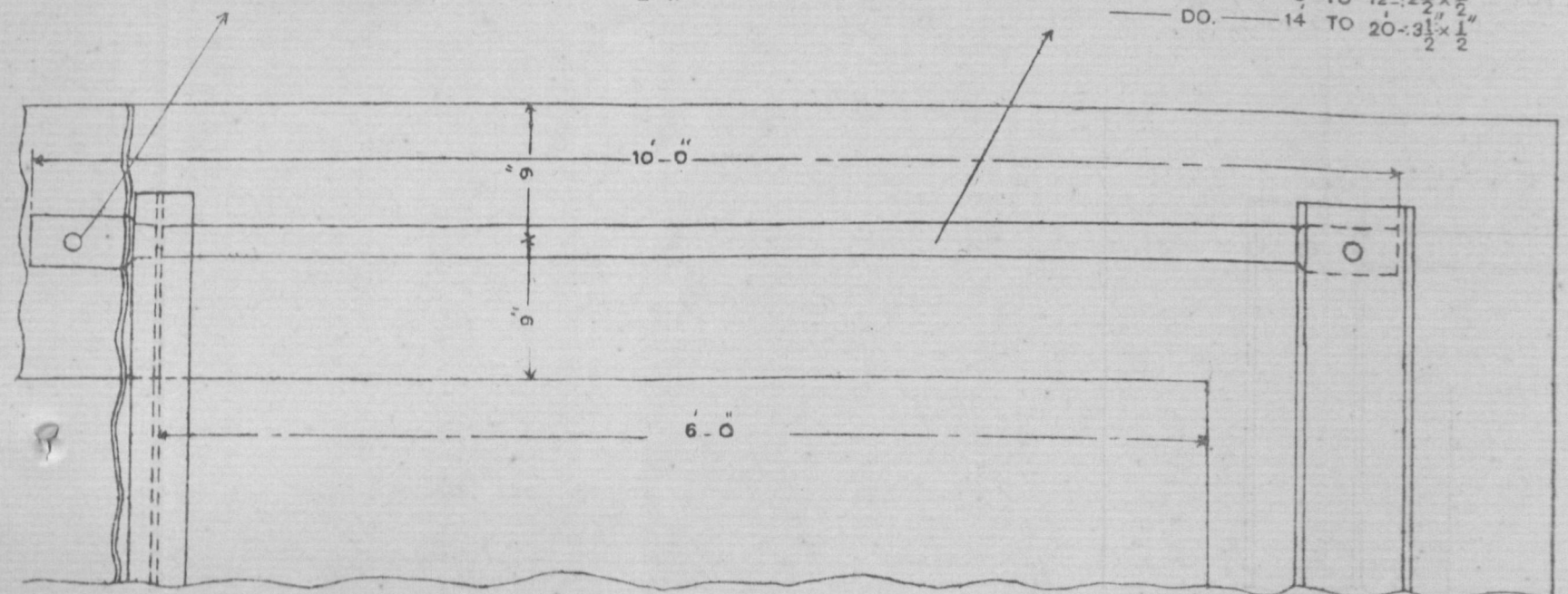


LIVE LOAD		
	80 LBS	110 LBS
FOR SPANS OF 10'-	7'x4'x16 LBS	8'x4'x18 LBS
DO. 12'-	9'x4'x21 LBS	9'x4'x21 LBS
DO. 14'-	10'x5'x30 LBS	10'x5'x30 LBS
DO. 16'-	12'x5'x32 LBS	12'x5'x32 LBS
DO. 18'-	15'x5'x42 LBS	15'x5'x42 LBS
DO. 20'-	15'x5'x42 LBS	15'x5'x42 LBS

LIVE LOAD		
	80 LBS	110 LBS
FOR SPANS OF 10'	9'x4'x21 LBS	12'x5'x32 LBS
DO. 12 TO 14	12'x5'x32 LBS	12'x5'x32 LBS
DO. 16 TO 20	15'x5'x42 LBS	15'x5'x42 LBS

H. D. BOLTS FOR SPANS OF 10' TO 12' $\frac{1}{4}$ " DB
DO. 14 TO 20 $\frac{1}{2}$ " DB

FLAT BAR FOR SPANS OF 10' TO 12' $2\frac{1}{2}$ " x $\frac{1}{2}$ "
DO. 14 TO 20 $3\frac{1}{2}$ " x $\frac{1}{2}$ "



NOTE.—For spans greater than 20, it is found economical to introduce cross joists, between main girders and then to have the arches turned over the former. In such cases, the holding down bolts and end tie bars should be arranged as shown in drawing No. 4.

(Signed) R. F. STONEY,

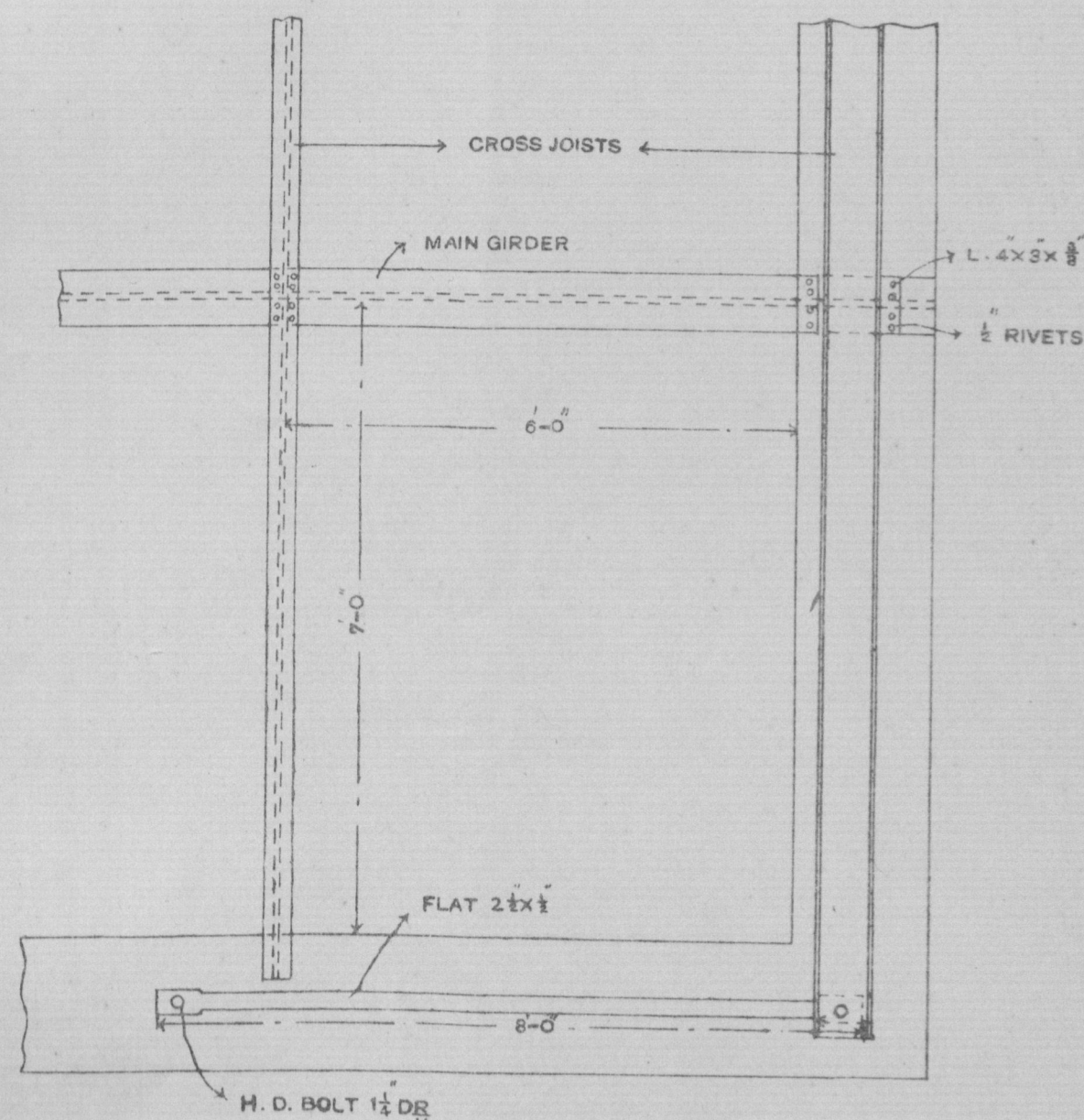
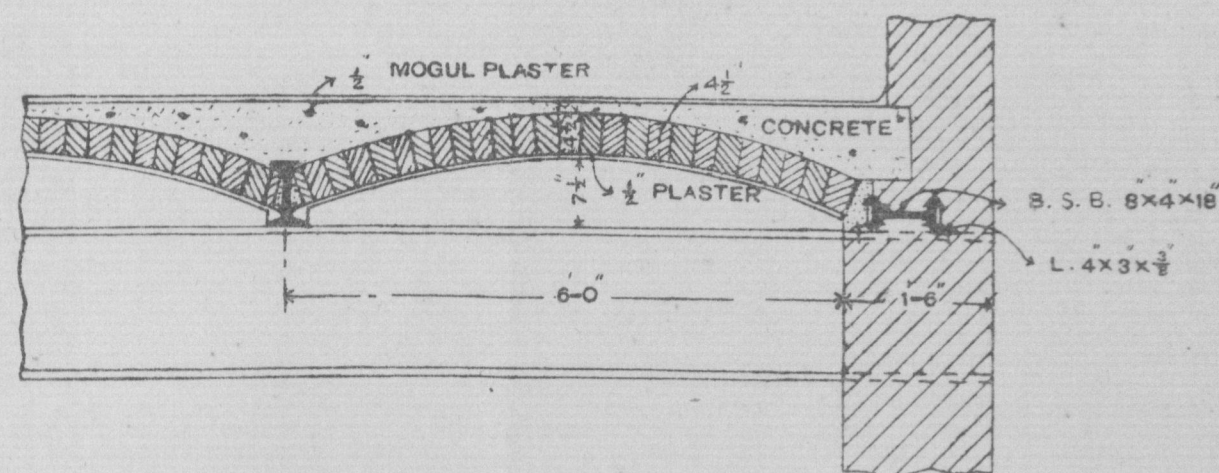
Officer in charge of

Technical section,

25-7-10.

JACK ARCH ROOF FOR SPANS OVER 20 FT

SCALE $\frac{1}{2}$ INCH = 1 FOOT



PLAN SHOWING ARRANGEMENTS AT A CORNER

Note.—For sizes of girders and cross joists, for spans over 20 ft.
see statement accompanying

(Signed) R. F. STONEY,
Officer in charge of
Technical section,
25-7-10.

NOTES CONNECTED WITH MEMORANDUM No. 116 C., DATED
4TH JANUARY 1913.[SUBJECT.—*Applications for building grants—Scrutiny of plans and estimates
by Public Works Department.*]

<i>To the Director of Public Instruction, dated 5th February 1912, No. 1347 C.</i>					
<i>From the</i>	<i>"</i>	<i>"</i>	<i>"</i>	<i>13th</i>	<i>"</i>
<i>To the</i>	<i>"</i>	<i>"</i>	<i>"</i>	<i>14th March</i>	<i>"</i>
<i>From the</i>	<i>"</i>	<i>"</i>	<i>"</i>	<i>8th June</i>	<i>"</i>
					<i>967.</i>
					<i>2663 C.</i>
					<i>4200.</i>

Joint Secretary—

The plans and estimates which accompany applications from managers of private educational institutions for grants for educational buildings are in most cases prepared in an unintelligible and incomplete manner and their scrutiny in this office throws much extra and illegitimate work on the technical section.

2. Under the present practice, all plans and estimates for buildings when the grant applied for requires the sanction of Government are sent by Educational to this office for scrutiny. They are scrutinised in the technical section so as to ensure—

(1) their structural stability.

(2) their suitability for the required purpose as regards light and ventilation,

and

(3) reasonable rates, which are criticised in this office when suspected and rarely appearance is also criticised but glaring extravagances are always noticed. Item (1) above entails the calculations in the technical sections of this office of pressures, girders, scantlings and abutments and often the preparation of explanatory sketches and flaps to correct elementary mistakes in construction. In some cases, the plans and estimates are so miserably got out that they have to be practically done over again in this office before they could be recommended for sanction. The Chief Engineer considers that this state of affairs is due to the managers not engaging competent professional men to prepare the plans and estimates. So long as the plans and estimates which are received incomplete are rectified and done over again in this office, the managers are tempted to avoid getting them properly prepared by professional persons — the employment of whom would involve payment of fees.

3. With a view to ensure the correct preparation of the plans and estimates, the Chief Engineer has drafted a circular for the guidance of the managers embodying complete instructions as to how they should be prepared. The Director of Public Instruction to whom the draft circular was referred says that the procedure therein indicated may be adopted in the case of all buildings, the plans of which come to this office for scrutiny. The Chief Engineer is, however, of opinion that the instructions should be followed in all cases, so that additional unnecessary work may not be thrown on the officers of the Public Works Department in scrutinising the plans and in doing them over again to put them into proper shape. The Director of Public Instruction seems to fear that the managers would find it difficult to get competent professional persons for preparing the plans and estimates in accordance with the draft circular unless the Public Works Department is prepared to permit its officers to undertake freely the work of preparing plans and estimates. With reference to this, the Chief Engineer thinks that it is out of the question for Public Works Department officers to be ordered or even authorised "to undertake freely" the work of preparing plans and estimates for the managers of aided schools, that there are plenty of retired Public Works Department, Railway and District Board Engineers of sufficient competence for ordinary buildings and that it is contrary to policy to take the bread

out of the mouths of these. The Public Works Department officers could be permitted in special cases, when private practitioners of sufficient competence are not available to do the work subject of course to the rules as to fees, etc., which already govern such matters.

4. Submitted that the file may be sent to the Educational Department for favour of remarks of the draft circular. If the Educational Department approve of the draft, they may be requested to say if there is any objection to its being issued as an appendix to the Grant-in-aid Code and also to add a paragraph to the existing rules regarding applications for grants-in-aid to the effect that the plans and estimates should be prepared by competent professional persons and strictly in accordance with the circular and that the application is liable to rejection if not so prepared.

5. In this connection it is also brought to notice that the existing orders do not define clearly how far, and in what respects, the plans and estimates accompanying applications for grants should be scrutinised in Public Works Department. The Grant-in-aid Code does not expressly require that the scrutiny should be done by Public Works Department. Rule 53 only prescribes that before the grant is paid in full it shall be certified by the Engineer or other responsible officer deputed to examine the building that the work has been completed in accordance with the approved plan and estimate. Though the Code does not expressly require it, the plan and the estimate have been invariably referred to Public Works Department for professional sanction, mainly with a view to enable Public Works Department to issue the completion certificate without any objection to the plan and estimate after the work has been completed—page 2 of G.O. No. 1873 W., dated 20th July 1893. The procedure now followed in Public Works Department in regard to plans and estimates that come up to Government is as stated in paragraph 2 *ante*. The Chief Engineer considers that such detailed scrutiny as at present exercised is unnecessary especially in the case of buildings within municipal limits and he therefore recommends that the Public Works Department need not examine the plans and estimates for such buildings in regard to structural stability in as much as the municipal authority concerned are under section 180 of District Municipalities Act and Schedule XII of the City Municipal Act required to look to those matters. If the Educational Department agree, the scrutiny of the Public Works Department in regard to buildings within municipal limits will be confined in future to architectural features and rates, the Public Works Department offering their remarks on only outrageous architectural defects or extremely inaccurate rates. The Educational Department will presumably look to the requirements as to air capacity, floor space, etc. In the case of buildings in non-municipal areas, the scrutiny will be done in this office as at present. Submitted that the Educational Department may also be requested to say if the above course may be followed in future.

P. RAU—29-8-12.

Referred to the Educational Department for favour of remarks. The fundamental trouble is that plans are referred to Public Works Department, which are so badly prepared that all the trouble of re-designing, with calculations of strengths and pressures, has to be gone through afresh, *plus* the labour, often great and sometimes wholly vain, of penetrating the original draftsman's meaning.

Under "professional assistance" in the draft circular I would suggest substituting "a gazetted officer of the Public Works Department, present or retired, a present or retired District Board Engineer, a member or associate member of the Institute of Civil Engineers, or a recognised professional architect". And similarly under "additional storeys". Such men even excluding present members of the Public Works Department are plentifully sprinkled over the Presidency, and when aided buildings of importance are projected, I do not think it unfair to demand that the projectors should find such a man to make the plans and estimates. It is wrong that when such men certainly can be obtained, as in Madras City, Government should be put to great trouble in order that the persons concerned should save themselves a fee of Rs. 50 or 100. It is right too to encourage the creation of a class of private practitioners in architecture and engineering.

With regard to paragraph 2 of the Director of Public Instruction's letter, No. 4200, dated 8th June 1912, I consider that Superintending Engineers require relief nearly as much as the Chief Engineer.

S. D. PEARS—29-8-12.

To the Educational Department.

EDUCATIONAL DEPARTMENT.

The following three questions are for consideration in this department :—

(1) The draft circular prepared by the Chief Engineer for the guidance of managers of schools embodying complete instructions as to how plans and estimates should be prepared and submitted ;

(2) the extent of application of the instructions in this circular ; and

(3) the question whether any difference should be made in the scrutiny of plans and estimates by the Public Works Department in the case of buildings *within municipal limits*.

2. As regards the first question it is submitted that there is ample justification for the complaint made by the Public Works Department that plans and estimates accompanying applications for building grants are incorrectly prepared. In several cases estimates have to be returned to the Director of Public Instruction for revision and for supplying additional information. There seems therefore to be an imperative necessity for issuing further instructions in the

Page 10 of G.O. No. 370, Educational, dated 1st May 1912. matter. Article 52 (ii) of the Grant-in-aid Code requires that detailed plans, specifications and estimates should be prepared by a professional person. Notwithstanding this, the difficulty similar to the one now experienced was felt in 1908 ; and in G.O. No. 672, Educational, dated 21st September 1908, the Director was requested to see that the estimates were prepared by some *competent* person and that the instructions already issued by him in his Circular No. 3971, dated 29th May 1907, were complied with in all respects. Further directions regarding the submission of estimates were issued in G.O. No. 132, dated 6th March 1911.

The circular now proposed will be found on pages 1 and 2 of the current file. On a comparison of this with the instructions already issued, it will be observed that only in the important respect of the agency for the preparation of the plans and estimates there is any material difference between the two. The new circular requires that the estimates should be prepared "by a professional architect or engineer" and in the case of proposals for the construction of additional storeys to existing buildings they should be accompanied by "a statement signed by a Superintending Engineer, Executive Engineer or a member of the Institute of Civil Engineers or by a recognized professional architect" to the effect that the existing structure can withstand the extra load. The Chief Engineer proposes to introduce a further alteration on this point by substituting in both cases the following :—

"A gazetted officer of the Public Works Department, present or retired, a present or retired District Board Engineer, a member or associate member of the Institute of Civil Engineers or a recognized professional architect".

The Director of Public Instruction to whom the draft circular in its original form was forwarded for remarks observed that though the number of professional architects or engineers outside the Public Works Department was very limited, the procedure laid down in the circular might be adopted in the case of all buildings, the plans of which came before the Chief Engineer for scrutiny, that is, in all cases of building grant applications to be sanctioned by Government. There is thus no objection in this department to the draft circular so far as these cases are concerned. It may, however, be desirable to consult the Director of Public Instruction with reference to the alterations since suggested by the Chief Engineer in regard to the qualifications of the persons to be entrusted with the preparation of plans.

4. As regards the second question, namely, the applicability of the circular proposed to all cases of building grant applications the Director of Public Instruction, as observed above, is averse to its extension to cases finally sanctioned by him, in

which cases the scrutiny of the Superintending or Executive Engineers is now secured by the Director of Public Instruction. He is of the opinion that owing to the paucity of competent engineers outside the Public Works Department available for such work, the managers of aided schools and colleges will be put to a serious disadvantage. On the other hand, the Chief Engineer considers that such men, even excluding present members of the Public Works Department, are plentifully sprinkled over the Presidency. In his opinion, by the payment of a suitable fee of Rs. 50 or Rs. 100 competent men could be found and it would not be unfair to demand that the projectors should secure the help of such men to prepare the plans and estimates. The question now resolves into one of fact. There is no doubt that it is necessary and desirable that the plans and estimates should be prepared by the class of persons described by the Chief Engineer if such could be procured. The payment of a fee should not be an obstacle to the adoption of this course. Under article 52 (ii) of

Page 10 of G.O. No. 370, Educational, dated 1st May 1912.

the Grant-in-aid Code the architect's and draftsman's fees can be included in the estimates towards which aid is solicited.

There seems therefore no serious objection to giving a trial to the Chief Engineer's proposal to extend the provisions of the circular to cases falling within the sanctioning powers of the Director also. The Director of Public Instruction may perhaps be consulted on this point also.

4. If these proposals are approved, there will, it is submitted, be no objection to issuing the circular as an appendix to the Grant-in-aid Code as suggested in paragraph 4 of the Public Works Department office-note on page 2 *supra*.

5. In respect of the last question raised by the Public Works Department whether in the case of buildings within municipal limits a restricted scrutiny in the Public Works Department will not suffice, it is observed that the Chief Engineer offers no remarks thereon. According to paragraph 5 of the Public Works Department office-note—

(1) scrutiny with reference to architectural features and rates will be conducted in the Public Works Department,

(2) the requirements as to the air capacity and floor space will be examined by the Educational Department, and

(3) the structural stability and the sanitary aspect of the building will be scrutinized by the municipal authorities.

6. Granting that the arrangement proposed is feasible, it is submitted in the first place that it is highly doubtful whether a piecemeal scrutiny by three different agencies will conduce to any satisfactory result. No doubt the Director under

Page 10 of G.O. No. 370, Educational, dated 1st May 1912.

article 52 (i) of the Grant-in-aid Code examines proposals at a preliminary stage before allowing detailed plans and

estimates to be prepared. But it is not clear how far he can be held responsible to the scrutiny of the estimates in respect of the air capacity and floor space requirements. His examination in the absence of any professional assistance can only be of a crude nature. The scrutiny of estimates and plans by municipal agency, on which the Public Works Department proposes to place much reliance, is intended for a purely different purpose than that contemplated by an examination by the Public Works Department. Sanitary requirements and safety are the main objects of a municipal scrutiny. Municipalities, especially those in the mufassal, have seldom the right sort of men to conduct a scrutiny to satisfy the purpose the Government have in view. Extravagances can rarely be detected by them and suggestions for economy can hardly be within their province to make. Scrutiny by the Public Works Department cannot in these circumstances be dispensed with. The opinion of the Director of Public Instruction may be invited on this point also.

C. RAMANUJACHARI—17-9-12.

Please print the case and then refer u.o. to Director of Public Instruction.

L. DAVIDSON—18-9-12.

The case has been printed. As directed by the Secretary on the previous page it may now be referred to the Director of Public Instruction u.o. for remarks.

P.R.—16-10-12.

C.R.—16-10-12.

T. E. MOIR—18-10-12.

To the Director of Public Instruction Department u.o.

OFFICE OF THE DIRECTOR OF PUBLIC INSTRUCTION.

U.O. No. 139, dated 25th October 1912.

I would accept the circular and the definition of competent professional assistance now proposed.

2. I would certainly not make it applicable to elementary school buildings. The limit might be grant amounting to Rs. 1,000. In all cases it must be borne in mind that the management has a stake as large or larger than the Government. There is moreover such a thing as a difference of opinion among doctors. I can quote one case at any rate where the management refused grant rather than accept the Engineer's ultimatum. The building is now many years old and thoroughly satisfactory.

3. I see no reason for a different treatment so far as the Public Works Department are concerned in the case of buildings within municipal limits. The managers are bound by any municipal regulations that may be in force.

4. The circular might well be a separate pamphlet as the majority of those wanting the Grant-in-aid-Code do not want it. A note may be added to the Code stating that managers contemplating building operations should apply to the Inspector for—

(1) A form of application for grant.

(2) Instructions for the preparation of plans and estimates (*i.e.*, this circular).

EDUC. A. G. BOURNE—25-10-12.

To the Educational Department u.o.

EDUCATIONAL DEPARTMENT.

It is for consideration whether this department may concur in the Director of Public Instruction's remarks. With reference to paragraph 4 of the Director's note above it is submitted that the objection raised by him against printing the circular as an appendix to the Grant-in-aid Code does not appear to be a serious one. The note proposed by Doctor Bourne may escape notice. But if the circular is printed as an appendix to the Code managers will not be able to plead ignorance of it.

P.R.—29-10-12.

Of the three questions referred to—please see paragraph 1 of office-note on page

Yes.
L. DAVIDSON—31-10-12.

3 *supra*—the Director of Public Instruction agrees to the first, viz., the issue of the circular. This department may also accept it.

2. As regards the second, viz., the extent of its application, while the Public Works department will make it of general applicability, the Director of Public Instruction will restrict it only to cases involving a grant of Rs. 1,000 and above. This is in modification of the original proposal of the Director to apply the circular only to

Article 50 of the Grant-in-aid Code, page 10 of G.O. No. 370, dated 1st May 1912.

Yes.
L. DAVIDSON—31-10-12.

Article 52 (ii) of the Grant-in-aid Code—page 10 of G.O. No. 370, dated 1st May 1912.

L. DAVIDSON.

cases that come up before the Chief Engineer, *i.e.*, cases involving a grant exceeding Rs. 2,500. Perhaps the modified proposal of the Director of Public Instruction may be accepted. Even in the excepted cases, the Grant-in-aid Code will still be applicable and will require the preparation of plans and estimates by a "professional person".

I am afraid I must endorse this view. I should like to relieve Public Works department of the labour of scrutinizing estimates and plans in order to verify the structural soundness of the buildings proposed, and I quite agree that the Municipal authorities ought in theory to carry out this scrutiny, but in practice I doubt very much whether any municipality in the mufassal possess a staff professionally competent and otherwise able to check the aspects of building estimates.

L. DAVIDSON—3-10-12.

4. The manner of publication of the circular is a minor matter. The Director of Public Instruction's suggestion may be agreed to. In any case a form of application for grant is to be applied for; a copy of instructions will accompany it. It is not likely that this will be overlooked; but even if it is, it will be immediately set right by the department.

C.R.—30-10-12.

To the Public Works Department u.o.

Under Secretary—

The points to be attended to are—

(1) *Issue of the circular*—Both the Director of Public Instruction and the Educational Department agree to the issue of the circular. The Educational Department may therefore be requested to have this done, with the modification suggested under "professional assistance" and "additional storeys".

(2) *Extent of the application of the instructions in the circular*—At first the Director of Public Instruction to whom the draft circular was sent for remarks suggested that the procedure laid down in the circular may be adopted in the case of all buildings the plans of which come to the Chief Engineer, Public Works department, for scrutiny (*i.e.*) in cases involving a grant exceeding Rs. 2,500.

Letter No. 1347-C., dated 5th February 1912.
Page 10 of G.O. No. 310, Educational, dated 1st May 1912.

On again being referred to in the matter by the Educational department, that officer in supersession of the suggestion previously made proposed that the instructions in the circular should be made applicable only to cases involving a grant of Rs. 1,000 and above. This proposal has been accepted in Educational. Thus it will be seen that while the Public Works department wants the circular to be one of general applicability the educational restricts it only to cases involving a grant of Rs. 1,000 and above. This point is therefore submitted for orders.

(3) *The question whether any difference should be made in the scrutiny of plans and estimates by the Public Works department in the case of buildings within municipal limits.* The Chief Engineer expressed the opinion that such detailed scrutiny as at present exercised is unnecessary in the case of buildings within municipal limits and recommended that the Public Works department need not examine the plans and estimates for such buildings in regard to structural stability in as much as the municipality is required to look to these matters. In this connection please see paragraph 6 of Educational (Local and Municipal) office-note on page 4 of the notes. The Director of Public Instruction agrees with the views expressed therein. The Educational department endorses this view as it doubts whether municipalities in mufassal possess a staff professionally competent to deal with plans and estimates for such works. From this it is presumed that the Educational department agrees with the Chief Engineer as regards scrutiny of plans and estimates for buildings within the Madras municipal limits. This question is also submitted for orders.

T.V.K.—9-11-12.

T.S.R.—11-11-12.

3. In respect of the third question, relating to cases within municipal limits, the Director of Public Instruction agrees with the office-note—paragraph 6, page 4 *supra*—that no difference in treatment is needed. This may also be accepted.

PUBLIC WORKS DEPARTMENT.

I think we must accept the Educational view.

As regards up-country municipalities the technical adviser is usually the Executive Engineer.

Now get the circular issued as agreed to by Educational.

C. A. SMITH—12-11-12.

Under Secretary—

The file may now, it is submitted, be sent to Educational where orders on the subject will issue.

T.V.K.—14-11-12.

T.S.R.—14-11-12.

W. G. MOLESWORTH—15-11-12.

To the Educational Department u.o.

EDUCATIONAL DEPARTMENT.

The circular is to issue as a separate pamphlet and not as an appendix to the Grant-in-aid Code. The question for consideration is as to who should issue circular—Educational or Public Works department.

2. The circular embodies revised instructions and copies of tables in force in Public Works department for the guidance of Public Works officers and other professional men who undertake the preparation of plans and estimates for managers of aided schools. The object of the circular is to facilitate the scrutiny of such plans and estimates both in the Chief Engineer's office and in the Superintending Engineer's offices. The circular thus contains merely professional matter with which the officers of this department are not directly concerned. Seeing that the previous circulars bearing on the subject were issued in Public Works department, it is only appropriate that that department as the professional department of Government should issue the present revised instructions also.

3. It is true that G.O. Nos. 672, Educational, dated 21st September 1908, and 132, Educational, dated 6th March 1911, issued in this department. They, however, contained departmental instructions to the Director of Public Instruction. Submitted that the character of the present circular differs widely from that of the two Government Orders quoted above.

4. If the above view is concurred in the file may be returned to the Public Works department for issue of the circular in that department in the name of the Chief Engineer. That department may be requested to communicate a copy of the orders and notes in this case to Educational for information. The number of copies to be struck off may be ascertained by the Public Works department from the Director of Public Instruction direct.

P.R.—2-11-12.

Attention is invited to the terms of the Chief Engineer's letter No. 1347 C., dated 5th February 1912, to the Director of Public Instruction on page 1 of current file. The circular is intended for "the guidance of the Educational and other bodies in the matter of the preparation of plans and estimates which are to be ultimately forwarded to the Public Works department for scrutiny." To this end the circular is in general terms and not restricted only to educational buildings. It is

L. DAVIDSON.

therefore appropriate that it should issue in Public Works department, copies being communicated to Educational. In this department an order will issue communicating the circular to the Director of Public Instruction and restricting the scope of its application to Educational buildings to the limit already agreed upon. The Director of Public Instruction will then reprint copies of it in pamphlet form to be distributed to applicants for building grants along with application forms.

C.R.—28-11-12.

" Any correspondence con-
templating building operations
should apply to the Inspector for
(1) a form of application for plans
and (2) instructions for the prepa-
ration of plans and estimates

for which he desires a
grant from Government

2. Orders will issue in the P.W.D. in regard to the Director's ^{reporting} suggestion for the modification of the limit prescribed in para 3 of the P.W.D. circular No 116 C, dated 4th January 1913

3. The D.P.D. will ^{be requested to arrange} for the reprinting of copies of the circular in pamphlet form and for their supply ^{through inspectors} to applicants for building grants along with application forms.

HE G
30/10/13 11/11/13

UF 6/11

para. 3 - page 2 of note file

The D.P.D. with 10 cc
- P.W.D. with a copy
- Supd. of works
E.T. (para 1 only) for publication
further corrected
24/12/13

added for the
P.W.D. note
the day
11/11/13

added
11/11/13

PRESS SLIP.

ORDINARY.

PREFERENCE.

URGENT (a).

DEPARTMENT.

Current No. 26661 dated 11-8-1913.

G.O. No. 1048 dated 17-11-1913.

Number of MS. pages sent { Correspondence 5
(b) Notes 7

Brief subject. vide next page

(c) Number of copies required when struck off (not including copies for volumes and editors' table which are retained in the Press).	E. T. copies to supply requisitions for purchase by the public.	Complete correspondence and orders.	Notes.
FOR RECORD.*			
Madras Records	4	30	25
Ooty Records		15	10
For filing with original		1	1
Total			

FOR ISSUE.†

	Letter only.	Complete G.O.	(b) Special issue copies of G.O.		Notes
			No.	Papers.	
Signature copies.....		6			
India Office.....					
Govt. of India.....Dept.					
Revenue Department.....					
Public Works Department.....		4			
Local and Municipal Department.....					
Educational Department.....Dept.					
Public Dept.....					
Judicial Dept.....					
Political.....					
Financial Dept.....					
Marine Dept.....					
Ecclesiastical Dept.....					
Total					
Spare copies					
The.....		10			
The.....		4			
The.....					
The.....					
The.....					
The.....					
The.....					
The.....					
The.....					
The.....					
The.....					
Total					

INSTRUCTIONS FOR THE SECRETARIAT.

(a) If a paper is marked to be printed urgently, the Superintendent of the section concerned should sign the Press slip. The Superintendent should exercise a careful discretion in the matter.

(b) Each letter, memorandum, or order, or set of orders, in the file of correspondence should be headed in succession with the Roman numeral I, II, III, etc., the number being written in red ink or blue chalk above the item. The particular papers to be printed in the special issue-copies should be indicated by the Roman numeral (I, II, etc.) by which that item has been headed in the correspondence file. All matter, including marginal remarks or references, to be printed should be written in ink and matter which should not be printed should be encircled. Initials and signatures that are not quite legible should be re-written distinctly.

(b¹) For rules regarding printing of notes, see rule 315 of the office Manual.

(c) The number of copies and the details of distribution should be filled in by the Superintendent or Referencer concerned.

(d) In the absence of special instructions to the Press to keep matter standing for a specified period, ordinary papers of 8 pages and under will be kept standing for one week, and larger papers for two weeks only. The type of notes and of all confidential papers is distributed immediately after striking.

(e) This slip, properly and completely filled in, should accompany every paper sent to Press; it will be returned by the Press when proofs are furnished; it should be sent to the Press when a call is made for revised proofs or when a corrected proof is sent for striking. When finally returned by Press it should be filed with the original order or letter.

INSTRUCTIONS FOR THE PRESS.

(a) If, in the opinion of the Superintendent of the Press, a paper has been marked urgent unnecessarily, he should send the Press slip to the Registrar with a remark to that effect.

(b) Unless a note to the contrary is made against the matter, pencil entries should not be printed. The Superintendent of the Press may bring to the notice of the Registrar any instance of incomplete or careless editing.

(c) Signature copies of letters to the Secretary of State or to the Government of India should be printed on hand-made paper.

(d) This slip should be returned by the Press to the Secretariat when proofs are furnished; it will be sent back to the Press when proofs are returned corrected and should be finally returned to the Secretariat when struck-off copies are supplied.

(e) The names of the Secretary and Members should be printed in full when they occur on the right hand side, only the first time when they appear on the left side, the initials alone being printed later.

* Copies distributed on.....‡(Press Clerk.)

† Copies distributed on.....‡(Press Despatcher.)

‡ To be initialled and dated.

[P.T.O.]

TO PRESS, MADRAS OOTY.

A	B	C
Please send proof in duplicate. The papers have been carefully edited.	Proof returned corrected. Please strike off and send number of copies as indicated.	As the matter is clear manuscript and has been carefully edited, (b) proof need not be sent. Please print and supply number of copies as indicated.
Type may be released after usual interval at once.	Type may be released after usual interval at once.	Type may be released after usual interval.
Referencer. Clerk.	Referencer. Clerk.	Referencer. Clerk.
Supdt.	Supdt.	Supdt.

SPECIAL INSTRUCTIONS.

Abstract

Grant in aid Code

Ordering the publication in the Fort St George Gazette of a notification in regard to the addition of a note to article 52 of the — regarding any correspondent contemplating building operations for which he desires a grant from Govt. To apply to the Inspector for a form of application and for instructions for the preparation of plans and estimates.

TO BE FILLED IN BY THE PRESS.

Diary.	Initials of Press official.
Received in Press on.....	18/11/13 Lb
First proof furnished on.....	
Call for revised proof received on.....	
Revised proof furnished on.....	
Corrected proof received for striking on.....	
Final copies supplied on.....	29/11/13 Lb

Account of copies.	Complete copies.	Notes.	Issue copies.	Special E.T. edition
Supplied to Secretariat for Record.....	26			
" " " Issue.....	24			
" " " for Extra E.T. copies to supply requisitions for sale to the public.				4
For Volumes.....	16			
For supply to newspapers and institutions admitted to the privileges of the E.T.				
Total ...	86			