

Annexure XX(1)  
(Vide Article-20.03.02)

XX 20.3.2 (iv)

detailed drawings and estimates, necessary for the purpose of technical sanction of projects which they consider likely to cost a sum greater than that which can be administratively approved by the local head of the department concerned, or those, however small their probable cost, in the necessity for which they do not concur. Officers of this department should assist other departments in the matter of evolving cheap designs as far as possible, so as to suit the amount available for the works.

139. The Executive Engineer must in each case exercise his judgement on the demand made, giving all proper weight to the opinions of the officers of the departments concerned; but it is his duty to oppose any application for the funds at his disposal to works the real necessity of which he is not satisfied and in each case in which he thinks that he cannot recommend the execution of a work called for by a duly constituted authority, he should explain his objections to the officer concerned, and if he fails to convince him, should refer the matter for the orders of the Superintending Engineer.

140. The actual execution of works, asked for by civil officers, will, in every case, depend on the availability of funds.

F.—PREPARATION OF PROJECTS

(a) General

141. (1) The papers to be submitted with the project for a work will consist of a report, a specification, a detailed statement of measurements, quantities and rates, with an abstract showing the total estimated cost of each item. These documents together form what is called the "estimate". In the case of a project consisting of several components the report may be a single document for all the components and likewise the specification; but details of measurements and abstracts may, conveniently, be prepared for each sub-component and accompanied by a general abstract bringing the whole together. In the case of estimate for "repairs" or "maintenance", only the specifications and the detailed statement of measurements and quantities with the abstracts will do. The report should state in clear terms the object to be gained by the execution of the work estimated for, and explain any peculiarities which require elucidation, including where necessary the reasons for the adoption of the estimated project or design in preference to others. Necessary drawing showing the proposals should accompany the "estimate" and should be in sufficient detail to enable the entries in the estimate to be followed.

The officers submitting the projects should sign fully their names with the date, month and year on the plans and estimates.

(2) Estimates should always be prepared in sufficient detail to ensure that the responsible officer has given proper consideration to the requirements of the work, and is in possession of as much information as it is possible to

obtain before hand. The estimate also puts results on record for the guidance of subordinates and the successor, and for effective check over unauthorised outlay by a comparison of the work executed with outlay incurred. Lump-sum provisions should be made in estimates only when it is impossible to give details to arrive at these figures. Even then the basis for the lump-sum provision made should be indicated. Minute calculations with decimals running through to the abstract should be avoided. It will be unnecessary, for instance, to calculate the quantities of earth work, masonry and such other items in decimals, but items such as woodwork and reinforced cement concrete where the unit is small or the rate is high should be so calculated. In the abstract, however, no decimals are required, the nearest whole numbers in cost and quantities being sufficient. Calculations should be made and checked with cheap labour (computers, calculators, etc.), but a rough check to avoid serious errors in tens, hundreds or thousands (which occur occasionally) should be made by the officers and subordinates concerned. Detailed estimate for the construction of a building should further show the rates (i) per square metre of plinth area and (ii) per cubic metre of cubic contents.

(3) Before detailed plans and estimates are prepared the administrative approval of Government or the head of the department concerned or other officer competent to accord such approval should be obtained. For this purpose only general drawings on a small scale are required to indicate roughly what the proposals are. In the case of buildings a plinth area or cubic rate calculation to arrive at the approximate cost of the project is all that need be placed before the approving authority. Administrative approval by authorities other than Government should not be accorded unless it is probable that funds can be provided within a reasonable time. Before preparing detailed plans and estimates the countersignature of the head of the administrative department concerned should be obtained on the rough pencil drawings. The fair copies of the detailed plans and estimates when prepared should similarly be countersigned by these officers before they are technically sanctioned. Heads of departments must understand that before signing such plans and elevations, it is their important duty to satisfy themselves that the work so constructed will be, in all respects, suited to the purposes for which it is required, and that they will be held responsible for any shortcoming or lapse in this behalf. Superintending Engineers and Executive Engineers should personally explain and discuss the plans and elevations with the heads of departments concerned whenever special features are involved and it is possible to do so, as much time and correspondence will be saved thereby and this will help materially to lessen the possibility of this department being called upon to effect alterations later on, the necessity of which could have clearly been foreseen at the time of examining the drawings. The department should not be required to undertake such alterations.

(4) The plans and estimates should be prepared most expeditiously in the case of works (a) which are included in the budget, or (b) for which administrative approval has been accorded. Preparation of detailed plans and estimates in other cases should not be undertaken.

(5) In the case of every estimate for buildings, whether the estimate be an approximate one accompanying a block plan for the purpose of obtaining administrative approval or a detailed estimate submitted for technical sanction, information in the following form should be furnished as an accompaniment to the general description of the estimate :—

Name of work			
I. Accommodation provided.—			
(1) In main building	.. .. .		
(2) In out building	.. .. .		
II. Whether provision is made for the following (if so, nature of provision made) :—		Main building	Out building
(1) Water-supply (piped supply, stand pipes or wells).			
(2) Sanitary arrangements	.. .. .		
(3) Electric lighting and fans	.. .. .		
(4) Fittings (cupboards, shelves and other such fixtures).			
(5) Bathing places	.. .. .		
(6) Cooking places	.. .. .		
(7) Motor sheds	.. .. .		
(8) Stables	.. .. .		
(9) Compound walls	.. .. .		
(10) Gates	.. .. .		
(11) Service roads	.. .. .		
(12) Dhobi ghats	.. .. .		
(13) Howds	.. .. .		
(14)	.....		
(15)	.....		
(16)	.....		
Cost of land, Rs. . . . .			
III. Provision has still to be made for the following items which are special to the project.—			
(1)	.....		
(2)	.....		
(3)	.....		

(6) The designs for all public buildings costing above Rs. 5 lakhs should be prepared in consultation with the Architect to Government. The cost limit for total cost of the buildings project should be taken into account and not for the individual buildings included in the project.

The plans for the following buildings should be prepared by the Architect to Government irrespective of their cost :—

(a) Monumental structures or buildings built to commemorate the memory of high dignitaries;

(b) Buildings which require architectural treatment in view of their special importance or significance; and

(c) Buildings for Assembly Halls, theatres, etc., which require designing and planning from the point of acoustics or peculiar features.

(7) Rough plans for Government and aided educational works should be submitted to the sanitary authorities concerned for approval from the sanitary and hygienic points of view.

(8) Superintending Engineers and Executive Engineers should consult the Architect to Government before detailed plans of important public buildings requiring architectural treatment are prepared. See paragraph 146.

(9) The department does not undertake the supply of furniture which should be purchased by the departments requiring it. Furniture for new offices may, however, be supplied by the Executive Engineer provided the cost of such furniture is included in the estimates of those offices.

(10) The electrical branch should be consulted before provision for electric installation is made in building estimates. The Executive Engineer, Electrical Division, should be communicated with direct and building plans and site plans should be sent to him in good time to enable him to ascertain the probable requirements in connection with electric installations, and furnish an estimate for incorporation of the amount in the main estimate.

(11) Proper co-ordination should exist between various branches of the department and officers of other departments in respect of preparation of plans and estimates and execution of works. The following points should also be borne in mind :—

(i) Estimates should be prepared and submitted in a complete form so that it may not be necessary to prepare supplementary estimates for such items as kitchens, out-houses, drainage, water-supply and electric installations.

(ii) Minor structural additions or alterations in connection with an electrical work, such as making holes for wires or fixing bed plates, etc., in walls might be carried out by the electrical branch instead of by the staff of this department in charge of the building, provided this can be done without causing any risk or damage to the building and due intimation is given to the Executive Engineer in charge of the building.

(iii) All plans and estimates for sanitary, electrical and special fitting or fixtures should be prepared and the approval of competent authorities obtained before the construction of a building is commenced, and during construction officers of the electrical branch should visit the building and satisfy themselves that all holes, plugs, etc., necessary for the work with which they are concerned are being provided for in their proper places.

(iv) Officers of other services, e.g., Medical and Educational should examine as closely as possible, plans and estimates for buildings sent to them for approval with regard to the provision made for, and the position of sanitary and electric fittings and other fixtures so that unnecessary changes and work may be avoided.

(12) Before detailed estimates for bridges are prepared, trial pits or boring should be taken for each pier and abutment. It is necessary to make a careful preliminary investigation of the subsoil in order to ascertain the exact nature of the strata and determine accurately the suitability of sites for bridges, large buildings etc., and the depths to which foundations should be taken.

(13) While framing the plans and estimate it should be ensured that the topography, and other aspects of the site are also taken into account and that mention to that effect be made in the general description of the estimate.

142. The rates entered in the estimate shall generally agree with those in the schedule of rates maintained in each division as per paragraph 187, but substantial variations are necessary, the circumstances demanding them may be explained in the body of the report or the general description of the project.

The estimate for a work should allow for variables such as lead, etc., and for other special local conditions such as difficult approach, tidal conditions, non-availability of water which should be clearly stated so that any excess over the estimated rates over the schedule rates is properly accounted for. In each full para shall be devoted in the general description for discussion of the rates adopted in the estimates.

In view of the above provision any plea for revising an estimate on the ground that leads, lifts and special circumstances were not taken into account originally will have an adverse reflection on the officer preparing the original estimate.

In respect of estimates for works which are taken up in emergencies such as danger of breach in canals etc., provision shall be made for contingencies such as (i) recruitment of labour (ii) transport charges and (iii) providing material for hutments etc., on the basis of actual expenses incurred during the emergency without reference to the schedule of rates.

143. The abstract of the estimate will show the total cost, in rupees only of each kind of work, the only exception to this rule being the case of miscellaneous petty works which may be entered in the abstract without measurements; the estimated cost being alone given.