



Er. H.P. Singh
Executive Engineer

ਪੰਜਾਬ ਟੈਕਨੀਕਲ ਯੂਨੀਵਰਸਿਟੀ ਜਲੰਧਰ

PTU PUNJAB
TECHNICAL
UNIVERSITY

Estd. Under Punjab Technical University Act, 1996
(Punjab Act No. 1 of 1997)

Ref. No PTU/EC/289

Dated 25.03.2014

Sh. D.L. Sharma, President,
Vardhman Spg. & Gen. Mills Ltd.,
Chandigarh Road, Ludhiana.

Sh. S.L. Kaushal,
Chief Architect, Punjab (Retd),
2865, Sector 42-C, Chandigarh.

The Registrar,
Punjab Technical University,
Jalandhar.

Sh. A. N. Chowdhry (Special Invitee),
3-B, Jyoti Nagar,
Jalandhar.

Dr. Prabhjot Kaur (Special Invitee),
Officiating Director Mohali Campus,
C102B, Phase-7 Industrial Area, Mohali.

Sh. Amrit Sagar Mittal
CMD, Sonalika Tractors Ltd,
Hoshiarpur.

Dr. A. P. Singh,
Dean/P&D,
Punjab Technical University, Jalandhar.

The Director,
Department of Technical Education, Punjab,
Plot No. 1, Sector-36A, Chandigarh.

Sh. S. K. Mishra (Special Invitee),
Finance Officer,
Punjab Technical University, Jalandhar.

Sh. Rajiv Aggarwal, Architect
M/s Archigroup Architects,
A-14, Sector-15, Noida -201301.

Sub : Construction of new campuses of Punjab Technical University – 41st meeting of the Standing Building Construction Committee.

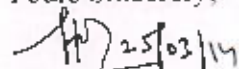
Dear Sir/Madam,

41st meeting of the Standing Building Construction Committee shall be held under the Chairmanship of Dr. R. S. Khandpur, Director General, PGSC at 1100 hours on 03.04.2014 in his office at SCO 60-61 (3rd floor), Sector 34-A, Chandigarh. Agenda and Agenda note for the meeting are enclosed.

You are requested to make it convenient to attend the meeting.

Thanking you

Yours Sincerely,



(H. P. Singh)

Executive Engineer

Copy to : Dr. R. S. Khandpur, DG, PGSC, SCO 60-61, Sector 34-A, Chandigarh.

eINDIA 2010

AWARDS
Recognising excellence in ICT

Award of the Year

ICT Enabled
University of the Year

Open & Distance Learning
Initiative of the Year

Punjab Technical University Jalandhar

Kapurthala Campus : Jalandhar-Kapurthala Highway, Kapurthala-144601

Mobile : 9478098017 www.ptu.ac.in E-Mail : exptu@gmail.com

PUNJAB TECHNICAL UNIVERSITY, JALANDHAR

Sub : Agenda for the 41st meeting of the Standing Building Construction Committee.

- Item No. 41.1 : To confirm the Minutes of 40th meeting of Standing Building Construction Committee held on 21.01.2014.
- Item No. 41.2 : Action taken on various items discussed during previous meetings of Standing Building Construction Committee.
- Item No. 41.3 : To discuss and finalize the plans of proposed convention centre at main campus, Kapurthala.
- Item No. 41.4 : To discuss and finalize the Master plan and buildings proposed to be constructed under Phase-I in respect of Punjab Institute of Technology, Arniwala, Fazilka.
- Item No. 41.5 : To discuss and finalize the Master plan and buildings proposed to be constructed under Phase-I in respect of Punjab Institute of Technology, Sikhwala, Mukatsar Sahib.
- Item No. 41.6 : To discuss and approve the rough cost estimate for construction of proposed hostels at main campus, Kapurthala.
- Item No. 41.7 : To discuss and approve the rough cost estimate for construction of Director office in balance portion of College Building-3 at Punjab Institute of Technology, main campus, Kapurthala.
- Item No. 41.8 : To discuss and approve the rough cost estimate for construction of buildings under Phase-I of Punjab Institute of Technology, Arniwala, Fazilka.
- Item No. 41.9 : To discuss and approve the rough cost estimate for construction of buildings under Phase-I of Punjab Institute of Technology, Sikhwala, Mukatsar Sahib.
- Item No. 41.10 : To discuss and approve the scheme and estimate for raising, repairing and painting of existing boundary wall of main campus, Kapurthala.
- Item No. 41.11 : To discuss and finalize the executing agency for construction of campus (Ist Phase) of Punjab Institute of Technology, Sikhwala, Mukatsar Sahib.
- Item No. 41.12 : To discuss and finalize the agency and its fee for obtaining 'Griha Rating' for new works being executed at main campus, Kapurthala.
- Item No. 41.13 : Any other point with the permission of the Chair.

42

PUNJAB TECHNICAL UNIVERSITY, JALANDHAR

Agenda Note for the 41st meeting of the Standing Building Construction Committee.

Item No. 41.1 : To confirm the Minutes of 40th meeting of Standing Building Construction Committee held on 21.01.2014.

The minutes of 40th meeting of Standing Building Construction Committee held on 21.01.2014 were circulated on 05.02.2014. The minutes circulated are to be confirmed.

Item No. 41.2 : Action taken on various items discussed during previous meetings of Standing Building Construction Committee.

Action taken on various items discussed during previous meeting of Standing Building Construction Committee is as under:

- The detailed design and estimation for External Electrical works for the new buildings being constructed for Punjab Institute of Technology, Kapurthala and Punjab Institute of Technology, Nandgarh based upon the electric load approved by the Building committee in the previous meeting have been started by the Architect.
- The Architect has submitted offer for taking up the works pertaining to 'Griha Rating' in respect of the works of new buildings of Punjab Institute of Technology, main campus, Kapurthala and the same is to be discussed in the present meeting.
- The Architect has prepared concept plans for Convention centre proposed to be constructed at main campus, Kapurthala based upon the seating capacity and scheme approved in the previous meeting and the same is to be presented in the present meeting.
- The Architect has submitted rough cost estimate for hostels proposed to be constructed at main campus, Kapurthala based upon the concept plans approved in the previous meeting and the same is to be discussed in the present meeting.
- PWD has awarded the works of parking area to be developed at PTU's main campus, Kapurthala and balance portion of boundary wall of Punjab Institute of Technology, main campus, Kapurthala.
- PTU has released advance payment to Punjab State Council for Science and Technology for conducting 'Energy Audit' for PTU's administrative building at main campus, Kapurthala. It has been informed by them that the audit will be taken up after commencement of running of central air-conditioning plant.

117

Item No. 41.3: To discuss and finalize the plans of proposed convention centre at main campus, Kapurthala.

In 40th meeting of Standing Building Construction committee, capacity of the auditorium in convention centre proposed to be constructed at main campus, Kapurthala was decided as 800 persons with a provision for air-conditioned VIP banquet of 200 persons and banquet for students etc. to be made in veranda/open space near the convention centre. The Architect was advised to prepare fresh design/plans and present the same in the next meeting.

Accordingly, the Architect has prepared a fresh concept plans for the convention centre and is being presented in this meeting.

The matter is placed before the Committee for discussions and approval please.

Item No. 41.4 : To discuss and finalize the Master plan and buildings proposed to be constructed under Phase-I in respect of Punjab Institute of Technology, Arniwala, Fazilka.


Punjab Govt. has made available about 12 acres of land at Arniwala, Fazilka to PTU for establishment of Punjab Institute of Technology. The work of construction of boundary wall for this campus is being executed by PWD and is nearing completion. Change of Land Use (CLU) has already been sanctioned for this land. During the various discussions held at PTU, it has been decided to take up the construction of campus buildings on modular basis. Accordingly, the Architect has prepared the master plan for this campus and buildings proposed to be constructed under Phase-I. The same will be presented by the Architect in the meeting.

The matter is placed before the Committee for discussions and approval please.

Item No. 41.5 : To discuss and finalize the Master plan and buildings proposed to be constructed under Phase-I in respect of Punjab Institute of Technology, Sikhwala, Mukatsar Sahib.

Punjab Govt. has made available about 13 acres of land at Sikhwala, Mukatsar Sahib to PTU on lease for establishment of Punjab Institute of Technology. The work of construction of boundary wall for this campus is being executed by Panchayati Raj Department and is nearing completion. Change of Land Use (CLU) has already been sanctioned for this land. During the various discussions held at PTU, it has been decided to take up the construction of campus buildings on modular basis. Accordingly, the Architect has prepared the master plan for this campus and buildings proposed to be constructed under Phase-I. The same will be presented by the Architect in the meeting.

The matter is placed before the Committee for discussions and approval please.



Item No. 41.6 : **To discuss and approve the rough cost estimate for construction of proposed hostels at main campus, Kapurthala.**

In 39th meeting of Standing Building Construction committee, provision for hostels with a capacity of 400 students at main campus, Kapurthala was approved with the following break-up:

- a) Married accommodation : 50 students
- b) Girls hostel : 150 students
- c) Boys hostel : 200 students

In 40th meeting of Standing Building Construction committee, the concept plans for the above hostels were approved.

Based upon the above, the Architect has submitted rough cost estimates based upon plinth area rates of CPWD for an amount of Rs. 6097.44 lacs (Annexure-A).

The matter is placed before the Committee for discussions and approval please.

Item No. 41.7 : **To discuss and approve the plans and rough cost estimate for construction of Director office in balance portion of College Building-3 at Punjab Institute of Technology, main campus, Kapurthala.**

In 39th meeting of Standing Building Construction committee, construction of Director office in balance portion of college building-3 at Punjab Institute of Technology, main campus, Kapurthala was approved with the following suggestions:

- i. The plans presented by the Architect are for Ground and First floor only. Committee suggested that possibility of provision of second floor may also be explored as nearby building (college building No. 3) are having ground plus two floors.
- ii. The details of officers/teaching faculty proposed to be housed in this proposed office may be advised by the Director/PIT to the Architect so that all the required facilities are provided accordingly.


Based upon the above, the Architect has prepared plans for this area and will be presented in this meeting. The Architect has also submitted rough cost estimates based upon plinth area rates of CPWD for an amount of Rs.295.78 lacs (Annexure-B).

The matter is placed before the Committee for discussions and approval please.

Item No. 41.8 : **To discuss and approve the rough cost estimate for construction of buildings under Phase-I of Punjab Institute of Technology, Arniwala, Fazilka.**

Based upon the discussions held between PTU and the Architect, the Architect has submitted rough cost estimates based upon plinth area rates of CPWD for an amount of Rs. 1373.68 lacs (Annexure-C) for the works to be executed under Phase-I of Punjab Institute of Technology, Arniwala, Fazilka.

The matter is placed before the Committee for discussions and approval please.



- Item No. 41.9 :** To discuss and approve the rough cost estimate for construction of buildings under Phase-I of Punjab Institute of Technology, Sikhwala, Mukatsar Sahib.

Based upon the discussions held between PTU and the Architect, the Architect has submitted rough cost estimates based upon plinth area rates of CPWD for an amount of Rs. 1374.82 lacs (Annexure-D) for the works to be executed under Phase-I of Punjab Institute of Technology, Sikhwala, Mukatsar Sahib.

The matter is placed before the Committee for discussions and approval please.-

- Item No. 41.10 :** To discuss and approve the scheme and estimate for raising, repairing and painting of existing boundary wall of main campus, Kapurthala.

This is to bring to the kind notice of the committee that level difference between existing ground level (outside) and top of the boundary wall (on back side) of the main campus, Kapurthala is very less and animals (dogs etc) are entering the campus through this area and are causing nuisance in the campus. Moreover, the security of the campus is also getting affected. Based upon the discussions held between PTU and the Architect, the Architect has proposed to raise the wall height by 900 by using steel grills. In addition to the above, plaster/painting done on the wall has peeled off at many locations and requires repairs/repainting. For executing the works of raising of wall heights (three sides except front side), repair of plaster and repainting of all the walls, the Architect has submitted estimate for an amount of Rs.43.14 lacs (Annexure-E).

The matter is placed before the Committee for discussions and approval please.

- Item No. 41.11 :** To discuss and finalize the executing agency for construction of campus (1st Phase) of Punjab Institute of Technology, Sikhwala, Mukatsar Sahib.

This is to bring to the kind notice of the committee that PTU released payment to Deputy Commissioner, Mukatsar Sahib for execution of boundary wall works of Punjab Institute of Technology, Sikhwala, Mukatsar Sahib. Deputy Commissioner has released this payment to Panchayati Raj Department and thus the work of boundary wall for this campus is being executed by Panchayati Raj Department. PTU has already signed MOU with PWD for execution of various works. Panchayati Raj Department also agreed to execute the works as per the MOU signed between PTU and PWD and submitted a signed copy of MOU to PTU as a token of their acceptance.

The matter is placed before the Committee for discussions and taking a decision whether main campus works of this institute are to be got executed from Panchayati Raj Department or PWD.

47

Item No. 41.12 : To discuss and finalize the agency and its fee for obtaining 'Griha Rating' for new works being executed at main campus, Kapurthala.

In 39th meeting of Standing Building construction committee, it was suggested by the committee to Architect that efforts/provisions should be made in the new works being executed at main campus, Kapurthala to achieve 'level 4 of Griha Rating'. Accordingly, a presentation was made by the Architect in 40th meeting of Standing Building construction committee, wherein, the provisions to be made in the design were finalized.

It has been indicated by the Architect that consultancy charges for 'Griha Rating' are not included in his scope of work and submitted an offer for the same for an amount of Rs. 4.00 lacs plus taxes and visit charges etc.(Annexure-E).

The matter is placed before the Committee for discussions and further directions please.

Item No. 41.13 : Any other point with the permission of the Chair.



ANNEXURE-A

Punjab Technical University, Jalandhar
PRELIMINARY COST ESTIMATE

PRELIMINARY ESTIMATE

PREAMBLE TO PRELIMINARY ESTIMATE

1. State: PUNJAB

2. Name of Work

2.1. Construction of Punjab Technical University, Jalandhar.

2.2. This preliminary estimate of probable cost of Rs. 60,97,44,458 (Rs. Sixty crore, ninety seven lakh, forty four thousand, four hundred and fifty-eight) excluding contingencies, cost of external development and departmental charges has been framed by Archigroup Architects (Regd.)

3. History

3.1. This preliminary estimate covers the probable cost of construction of Boys hostel, Girls hostel and Married students hostel blocks along with boundary walls, roads & parking. This scope of work was finalized in the 40th meeting of the Standing Building Construction Committee held on January 21, 2014. This estimate is submitted for accord of Administrative approval and expenditure sanction by the competent authority.

4. Design & Scope:

4.1. The proposed buildings shall be constructed as RCC structure. The present estimate and campus consists of the following:

4.1.1. Boys hostel Block: - The block has two wings, one being G+8 and the other G+6 storied structure consisting of Single seated rooms for 200 students, warden office, laundry, sick-room, recreational hall, kitchen and dining area.

4.1.2. Girls hostel Block: - The block is a G+8 storied structure consisting of Single seated rooms for 145 students, warden office, laundry, sick-room, recreational hall, kitchen and dining area.

4.1.3. Married students hostel Block: The block is a G+6 storied structure comprising of accommodation for 50 married students.

4.1.4. Boundary Wall.

4.1.5. Roads & Parking.

5. Civil works: Most of the items to be executed in these buildings are already included in the provisions in the PAR - CPWD for year 2012.

6. The salient features of various provisions are as under:

6.1. Main Building: - The building shall be of R.C.C. framed structure with raft and combined footing.

6.2. Foundation: - As per structural design based on soil investigation.

6.3. Flooring: - As per PAR - CPWD for year 2012.

6.4. Doors and windows: -

6.4.1. Door frames shall be with MS sections and shutters flush doors. Windows shall be of MS sections & shutter as per architectural drawings. Structural glazing has been

provided at places in the elevation. Fitting shall be steel or aluminum as per architect's requirements.

6.5. **Staircase Railing:** Mild steel railing with multi surface paint/ synthetic enamel in other buildings

6.6. **Toilets:** Ceramic floor tiles and dado up to door level height with glazed ceramic tiles, vitreous china WC, washbasin and urinals.

6.7. **Roofing:** - Terrace shall have coba treatment.

6.8. **Internal Finishing:** All walls and ceilings to be treated with 2mm thick POP followed by plastic emulsion paint except ceiling which will be done with white wash. Synthetic enamel paint on all wood work and steel work.

6.9. **External Finishing:** Weather proof paint, stone cladding and structural glazing as per architectural drawings.

7. Electrical services:

7.1. Following provisions have been made in this preliminary estimate.

7.1.1. Fire fighting with wet riser system.

7.1.2. Automatic Fire alarm system.

7.1.3. Internal Electrical Installation, data, networking, power plugs etc.

7.1.4. Telephone conduits have been incorporated in Married students hostel block

7.2. All works shall be carried as per CPWD specification with up to date correction slips.

8. Exclusions:

8.1. No provisions have been made in the preliminary estimate for interior decorations, furniture façade lighting, for external development works like rain water harvesting bulk services such as tube wells, pumps, extension of lines, HT- substation equipment, LT distribution system, DG sets, external lighting, IBMS and CCTV access control system etc.

9. Rates

9.1. Rates are based on CPWD PAR of 1.10.2012. For the items not covered under PAR 2012, rates have been derived from market-rates or DSR with appropriate cost index.

10. **T & P** : No special T&P is required all other shall be arranged by the contractor.

11. **Land** : Available.

12. **Method** : by contract after call of tenders.

13. **Time Allowed** : 24 Months from the award of work.

Punjab Technical University, Jalandhar
PRELIMINARY COST ESTIMATE

SUMMARY- PRELIMINARY ESTIMATE				
S. No.	Building / Component	Plinth Area* (Sqm)	Total Cost of building In Rs	Reference
1	2	3	4	7
1	Boys Hostel	11,116.03	289,057,530.15	Ref. Annexure 1
2	Girls Hostel	7,174.70	190,043,992.82	Ref. Annexure 2
3	Married Students Hostel	4,429.00	113,069,880.70	Ref. Annexure 3
4	Sub Total for Buildings (Sum- 1:3)	22,719.73	592,171,403.67	
5	Other Building Expenses (Bounday Wall, Roads & Parking, Richer Specifications)		17,573,054.34	Ref. Annexure 4
6	Total including other building expenses (4+5)		609,744,458.01	

* For areas refer Area Statement- Annexure 5

Punjab Technical University, Jalandhar
PRELIMINARY COST ESTIMATE

Annexure 1

Refer Drg No. PTU- IV/PRE/BH-01.01-18

Boys Hostel

Type of Building -
Total Plinth Area -
Building / Component
Total covered area-
Double height area-
Still area-
Total Plinth Area (Excluding Still)-
No. of storeys-
Floor height

Hostel
11,116.03 sq.m
1,928.35 sq.m
10,312.77 sq.m
414.17 sq.m
175.20 sq.m
10,940.83 sq.m
G+8
3.30 m

Sr.No.	Description	Unit	Qty	Nos	Rate	Amt	Explanation
1	2	3	4	5	6	7 = (4*5*6)	8
1	R.C.C. FRAMED STRUCTURE						
1.1	RCC framed structure upto six storeys						
1.1.1	Floor height 3.30m	sqm	10,940.83	1.0	16,500.00	180,523,695.00	
a.	Floors						
1.2	Extra for	sqm	11,116.03	2.00	560.00	12,449,953.60	
1.2.1	Every additional storey over 6 storeys upto 9 storeys	sqm	10,940.83	1.33	270.00	3,938,698.60	
1.2.2	Every 0.3m additional height of floor above normal floor height of 3.35m.	sqm	414.17	1.33	270.00	149,101.20	Double height areas
1.2.3	Every 0.3m additional height of floor above normal floor height of 3.35m. (Double height areas)	sqm	1,928.35	1.00	270.00	520,654.50	
1.2.4	Every 0.3m higher plinth over normal plinth height of 0.6m (on G.F. area only)	sqm	1,928.35	6.00	270.00	3,123,927.00	
1.2.5	Every 0.3m deeper foundation over normal depth of 1.20m (on G.F. area only)	sqm	11,116.03	1.00	1,140.00	12,672,274.20	
1.2.6	Resisting Earthquake forces						
1.2.7	Fire fighting	sqm	11,116.03	1.00	500.00	5,558,015.00	
1.2.7.1	With wet riser system						
1.2.8	Fire Alarm	sqm	1,928.35	1.00	500.00	964,175.00	
1.2.8.1	Automatic Fire alarm system						
1.2.9	Still portion	sqm	175.20	1.00	9,850.00	1,725,720.00	Still areas
1.2.9.1	Still portion of Multi-storey RCC structure (upto ht of 3.35m) Applicable area only						
	Total A (1.1.1.a + 1.2.2) =					184,462,393.80	
	Total B (1.2.1+1.2.3 to 1.2.9.1) =					37,163,820.50	
2	SERVICES						
2.1	Internal water supply & sanitary installations	% of A			@ 15%	27,669,359.07	
2.2	External service connections	% of A			@ 5%	9,223,119.69	
2.3	Internal Electrical Installation	% of A			@ 12.5%	23,057,799.23	
2.4	Extras for						
2.4.1	Lightning conductors	% of A			@ 0.33%	608,725.90	
a.	5 to 8 storeys buildings	% of A			@ 0.5%	922,311.97	
2.4.2	Data network conduits					61,481,315.85	
	Total C (2.1 to 2.4.2) =						
3	LIFTS						
3.1	Passenger Lift (13pax, 1.5m/s & G+8)	Nos		1.00	2,800,000.00	2,800,000.00	
3.1.1	Travel G+5	Addn floors		3.00	125,000.00	375,000.00	
3.1.2	Extra for every addn floor						
3.2	Passenger Lift (8pax, 1.5m/s & G+8)	Nos		1.00	2,400,000.00	2,400,000.00	
3.2.1	Travel G+5	Addn floors		3.00	125,000.00	375,000.00	
3.2.2	Extra for every addn floor						
	Total D (3.1.1 to 3.2.2) =					5,950,000.00	
	Grand Total E = A+B+C+D					289,057,530.15	

Punjab Technical University, Jalandhar
PRELIMINARY COST ESTIMATE

Annexure 2

Girls Hostel

Type of Building -

Hostel

Refer Drg No. PTU- IV/PRE/GMH-01.01-16

Total Plinth Area -

7,174.70 sq.m

Building / Component

1,211.86 sq.m

Total covered area-

6,706.29 sq.m

Double height area-

311.81 sq.m

No. of storeys-

G+8

Floor height

3.30 m

Sr.No.	Description	Unit	Qty	Nos	Rate	Amt	Explanation
1	2	3	4	5	6	7 = (4*5*6)	8
1	R.C.C. FRAMED STRUCTURE						
1.1	RCC framed structure upto six storeys						
1.1.1	Floor height 3.30m						
a.	Floors	sqm	7,174.70	1.0	16,500.00	118,382,550.00	
1.2	Extra for						
1.2.1	Every additional storey over 6 storeys upto 9 storeys	sqm	7,174.70	2.00	560.00	8,035,664.00	
1.2.2	Every 0.3m additional height of floor above normal floor height of 3.35m.	sqm	7,174.70	1.33	270.00	2,562,892.00	
1.2.3	Every 0.3m additional height of floor above normal floor height of 3.35m. (Double height areas)	sqm	311.81	1.33	270.00	112,251.60	Double height areas
1.2.4	Every 0.3m higher plinth over normal plinth height of 0.6m (on G.F. area only)	sqm	1,211.86	1.00	270.00	327,202.20	
1.2.5	Every 0.3m deeper foundation over normal depth of 1.20m (on G.F. area only)	sqm	1,211.86	6.00	270.00	1,963,213.20	
1.2.6	Resisting Earthquake forces	sqm	7,174.70	1.00	1,140.00	8,179,158.00	
1.2.7	Fire fighting						
1.2.7.1	With wet riser system	sqm	7,174.70	1.00	500.00	3,587,350.00	
1.2.8	Fire Alarm						
1.2.8.1	Automatic Fire alarm system	sqm	1,211.86	1.00	500.00	605,930.00	
	Total A (1.1.1.a + 1.2.2) =					120,965,442.00	
	Total B (1.2.1+1.2.3 to 1.2.8.1) =					22,810,769.00	
2	SERVICES						
2.1	Internal water supply & sanitary installations	% of A			@ 15%	18,144,816.30	
2.2	External service connections	% of A			@ 5%	6,048,272.10	
2.3	Internal Electrical Installation	% of A			@ 12.5%	15,120,680.25	
2.4	Extras for						
2.4.1	Lightning conductors						
a.	5 to 8 storeys buildings	% of A			@ 0.33%	399,185.96	
2.4.2	Data network conduits	% of A			@ 0.5%	604,827.21	
	Total C (2.1 to 2.4.2) =					40,317,781.82	
3	LIFTS						
3.1	Passenger Lift (13pax, 1.5m/s & G+8)						
3.1.1	Travel G+5	Nos		1.00	2,800,000.00	2,800,000.00	
3.1.2	Extra for every addn floor	Addn floors		3.00	125,000.00	375,000.00	
3.2	Passenger Lift (8pax, 1.5m/s & G+8)						
3.2.1	Travel G+5	Nos		1.00	2,400,000.00	2,400,000.00	
3.2.2	Extra for every addn floor	Addn floors		3.00	125,000.00	375,000.00	
	Total D (3.1.1 to 3.2.2) =					5,950,000.00	
	Grand Total E = A+B+C+D					190,043,992.82	

Punjab Technical University, Jalandhar
PRELIMINARY COST ESTIMATE

Annexure 3

Married Students Hostel

Type of Building -
Total Plinth Area -
Building / Component
Total covered area-
No. of storeys-
Floor height

Hostel
4,429.00 sq.m
733.09 sq.m
4,102.28 sq.m
G+6
3.30 m

Refer Drg No. PTU- IV/PRE/GMH-01.01-15

Sr.No.	Description	Unit	Qty	Nos	Rate	Amt	Explanation
1	2	3	4	5	6	7 = (4*5*6)	8
1	R.C.C. FRAMED STRUCTURE						
1.1	RCC framed structure upto six storeys						
1.1.1	Floor height 3.30m						
a.	Floors	sqm	4,429.00	1.0	16,500.00	73,078,500.00	
1.2	Extra for						
1.2.1	Every 0.3m additional height of floor above normal floor height of 3.35m.	sqm	4,429.00	1.33	270.00	1,594,440.00	
1.2.2	Every 0.3m higher plinth over normal plinth height of 0.6m (on G.F. area only)	sqm	733.09	1.00	270.00	197,934.30	
1.2.3	Every 0.3m deeper foundation over normal depth of 1.20m (on G.F. area only)	sqm	733.09	6.00	270.00	1,187,605.80	
1.2.4	Resisting Earthquake forces	sqm	4,429.00	1.00	1,140.00	5,049,060.00	
1.2.5	Fire fighting						
1.2.5.1	With wet riser system	sqm	4,429.00	1.00	500.00	2,214,500.00	
1.2.6	Fire Alarm						
1.2.6.1	Automatic Fire alarm system	sqm	733.09	1.00	500.00	366,545.00	
	Total A (1.1.1.a + 1.2.2) =					74,872,940.00	
	Total B (1.2.1+1.2.3 to 1.2.6.1) =					10,610,085.10	
2	SERVICES						
2.1	Internal water supply & sanitary installations	% of A			@ 15%	11,200,941.00	
2.2	External service connections	% of A			@ 5%	3,733,647.00	
2.3	Internal Electrical Installation	% of A			@ 12.5%	9,334,117.50	
2.4	Extras for						
2.4.1	Lightning conductors						
a.	5 to 6 storeys buildings	% of A			@ 0.33%	246,420.70	
2.4.2	Telephone conduits	% of A			@ 0.5%	373,364.70	
2.4.3	Data network conduits	% of A			@ 0.5%	373,364.70	
	Total C (2.1 to 2.4.3) =					25,261,855.60	
3	LIFTS						
3.1	Passenger Lift (8pax, 1.5m/s & G+8)						
3.1.1	Travel G+5	Nos		1.00	2,400,000.00	2,400,000.00	
3.1.2	Extra for every addn floor	Addn floors		1.00	125,000.00	125,000.00	
	Total D (3.1.1 to 3.2.2) =					2,525,000.00	
	Grand Total E = A+B+C+D					113,069,880.70	

Punjab Technical University, Jalandhar
PRELIMINARY COST ESTIMATE

OTHER BUILDING EXPENSES

Annexure 4

S. No.	Description	Unit	Quantity	Rate	Amount (INR)	Explanation
1	2	3	4	5	6 = (4*5)	7
A	Site Development					
1	Boundary Wall	m	590.00	5,248.47	3,096,595.23	Refer Appendix 1
2	Roads & Parking	sqm	3,004.15	1,863.74	5,598,966.75	
3	Sub-Total =				8,695,561.98	
B	Richer Specifications					
1	Stone Cladding	sqm	2,600.00	1,127.31	2,931,000.74	Refer Appendix 1
2	Structural Glazing	sqm	558.40	10,649.24	5,946,491.62	
3	Sub-Total =				8,877,492.36	
C	TOTAL				17,573,054.34	

Punjab Technical University, Jalandhar
PRELIMINARY COST ESTIMATE

Appendix 1

BOYS HOSTEL								
S.no.	Item/ Specification	Building	Unit	Rate (INR)	Quantity	No.	Amount (INR)	Remarks
A	Boundary Wall	Boys Hostel	m	5,248.47	330.00	1.00	1,731,993.94	Rates are derived from Awarded Tender of PIT, Arniwala
B	Roads & Parking		sq.m	1,863.74	1,438.29	1.00	2,680,604.46	Rates are derived from Awarded Tender of PTU Phase-III, Jalandhar
C	Stone Cladding		sq.m	1,127.31	780.00	1.00	879,300.22	Rates are derived from Awarded Tender of PTU Phase-III, Jalandhar
D	Structural Glazing		sq.m	10,649.24	422.20	1.00	4,496,065.48	Rates are derived from Awarded Tender of PTU, Phase-III, Jalandhar
E	TOTAL						9,787,964.10	

GIRLS & MARRIED STUDENTS HOSTEL BLOCK HOSTEL								
S.no.	Item/ Specification	Building	Unit	Rate (INR)	Quantity	No.	Amount (INR)	Remarks
A	Boundary Wall							
A.1.		Girls & Married Students Hostel		5,248.47	260.00	1.00	1,364,601.29	Rates are derived from Awarded Tender of PIT, Arniwala
A.2.	SUB-TOTAL				260.00		1,364,601.29	
B	Roads & Parking							
B.1.		Girls Hostel		1,863.74	1,060.64	1.00	1,976,761.51	Rates are derived from Awarded Tender of PTU Phase-III, Jalandhar
B.2.		Married Students Hostel		1,863.74	505.22	1.00	941,600.78	
B.3.	SUB-TOTAL				1,565.86		2,918,362.29	
C	Stone Cladding							
C.1.		Girls Hostel		1,127.31	1,250.00	1.00	1,409,134.97	Rates are derived from Awarded Tender of PTU Phase-III, Jalandhar
C.2.		Married Students Hostel		1,127.31	570.00	1.00	642,565.56	
C.3.	SUB-TOTAL				1,820.00		2,051,700.51	
D	Structural Glazing							
D.1.		Girls Hostel		10,649.24	136.20	1.00	1,450,426.15	Rates are derived from Awarded Tender of PTU, Phase-III, Jalandhar
D.2.	SUB-TOTAL				136.20		1,450,426.15	
E	TOTAL						7,785,090.24	

AREA CALCULATION										Annexure 5
		Building block/ Function								
		1			2			3		
		Boys Hostel			Girls Hostel			Married Students Hostel		
S.NO.		Covered Area (sqm)	Additional Area (sqm)	Plinth Area 1(a)- 1(b) (sqm)	Covered Area (sqm)	Additional Area (sqm)	Plinth Area 2(a)- 2(b) (sqm)	Covered Area (sqm)	Additional Area (sqm)	Plinth Area 3(a)- 3(b) (sqm)
		1 (a)	1 (b)	1(c)	2(a)	2(b)	2(c)	3(a)	3(b)	3(c)
1	Ground Floor	1,896.55	31.80	1928.35	1,194.19	17.67	1211.86	711.75	21.34	733.09
2	First floor	1,301.83	38.55	1338.18	761.09	89.52	850.61	729.62	21.34	750.96
3	Second Floor	1,342.09	320.29	1662.68	797.65	105.68	903.34	729.62	21.34	750.96
4	Third Floor	1,274.45	45.75	1320.20	798.30	29.20	827.50	729.62	21.34	750.96
5	Fourth Floor	1,254.30	80.61	1334.91	715.94	29.21	745.15	578.99	92.66	671.65
6	Fifth Floor	1,028.48	146.05	1175.53	700.46	72.49	772.94	311.34	139.16	450.50
7	Sixth Floor	894.45	87.41	981.86	563.60	84.78	648.38	311.34	9.54	320.88
8	Seventh Floor	659.76	22.40	682.16	563.60	24.93	588.53	-	-	-
9	Eighth Floor	659.76	22.40	682.16	611.46	24.93	636.39	-	-	-
10	Total Area/ block	10,312.77	803.26	11,116.03	6,706.29	468.41	7,174.70	4,102.28	326.72	4,429.00
11	Total Ground Coverage/ block	1,984.32 sq.m			1,204.36 sq.m			703.97 sq.m		

12	Total Covered Area 1(a)+2(a)+3(a)	21,121.34
13	Total Additional Area 1(b)+2(b)+3(b)	1,598.39
14	Total Plinth Area 1(c)+2(c)+3(c)	22,719.73
15	Total Ground Coverage (approx)	3,892.65

ANNEXURE-B

ANNEXURE - B.

PUNJAB TECHNICAL UNIVERSITY, KAPURTHALA

DIRECTOR'S OFFICE AND FACULTY BLOCK

PRELIMINARY ESTIMATE

SUMMARY- PRELIMINARY ESTIMATE				
S. No.	Building / Component	Plinth Area(Sqm)	Total Cost of building in Rs	Reference
1	2	3	4	5
1	College building-1	807.51	28,090,676.04	Ref. Detailed calculation
2	AC cost		1,497,520.22	Ref. Annexure 1
3	Total (1+2)		29,578,196.26	
4	SAY		29,578,196	
	Two crore, ninety five lacs, seventy eight thousand, one hundred & ninety six only			

Director's office & Faculty Block							
Type of Building -		Admin		Refer Drg No. PTUPREDIR OFC/01/01-03			
Total Plinth Area -		807.51 sq.m					
Plinth area on ground floor		278.76 sq.m					
Total covered area-		798.76 sq.m					
No. of storeys-		G+2					
Floor height		3.70 m					
Sr.No.	Description	Unit	Qty	Nos	Rate	Amt	Explanation
1	2	3	4	5	6	7 = (4*5*6)	8
1	R.C.C. FRAMED STRUCTURE						
1.1	RCC framed structure upto 3 storeys						
1.1.1	Floor height 3.70m						
a	Floors						
1.2	Extra for	sqm	807.51	1.0	23,500.00	18,976,485.00	
1.2.1	Every 0.3m additional height of floor above normal floor height of 3.35m.	sqm	807.51	1.17	270.00	254,365.65	
1.2.3	Resisting Earthquake forces	sqm	807.51	1.00	1,140.00	920,561.40	
1.2.4	Large modules over 35 sq.m	sqm	485.13	1.00	1,500.00	727,695.00	
	Total A (1.1.1.a + 1.2.1) =					19,230,850.65	
	Total B (1.2.2 to 1.2.5) =					1,648,256.40	
2	SERVICES						
2.1	Internal water supply & sanitary installations	% of A			@ 15%	2,884,627.60	
2.2	External service connections	% of A			@ 5%	96,154.25	
2.3	Internal Electrical Installation	% of A			@ 12.5%	2,403,856.30	
2.4	Extras for						
2.4.1	Data network conduits	% of A			@ 0.5%	96,154.25	
2.4.2	Power wiring & plugs	% of A			@ 4%	769,234.03	
2.4.3	Telephone conduits	% of A			@ 0.5%	96,154.25	
	Total C (2.1 to 2.4.3) =					7,211,568.99	
	Grand Total E = A+B+C					28,090,676.04	

PUNJAB TECHNICAL UNIVERSITY, KAPURTHALA

DIRECTOR'S OFFICE
AND FACULTY BLOCK

PRELIMINARY ESTIMATE

Cost of Airconditioning					Annexure-1
S.No.	Building	Unit	Area	Refrigeration Provided @ 1 TR/100sq.ft	Cost @ 36,000/ TR
1	2	3	4	5	6
	A.C Areas				
1	Faculty rooms	Sqm.	394.84	42.50	1,487,520.22

AREA CALCULATION		Annexure-3		
		Building block/ Function		
		Director's office & Faculty Block		
		Covered Area (sqm)	Additional Area (sqm)	Plinth Area 1(a)+1(b) (sqm)
S.NO.		1 (a)	1(b)	1(c)
1	Ground Floor	278.76	-	278.76
2	First floor	246.72	3.27	249.99
3	Second floor	274.28	4.48	278.76
10	Total Area	799.76	7.75	807.51
11	Total Ground Coverage/ block	278.76 sq.m		

ANNEXURE-C

ANNEXURE - C

PUNJAB INSTITUTE OF TECHNOLOGY, ARNIWALA

COLLEGE BLOCK- 1, PHASE - I

PRELIMINARY ESTIMATE

SUMMARY- PRELIMINARY ESTIMATE				
S. No.	Building / Component	Plinth Area (Sqm)	Total Cost of building in Rs	Reference
1	2	3	4	5
1	College building-1	3,885.37	133,956,948.88	Ref. Detailed calculation
2	Other Building Expenses/ Rafter Specifications)		1,742,839.64	Ref. Annexure 1
3	AC cost		1,558,317.74	Ref. Annexure 2
4	Total (1+2+3)		137,358,106.25	
5	SAY		137,368,106	
Thirteen crore, seventy three lacs, sixty eight thousand, one hundred & six only				

College building - 1 Type of Building - college Total Plinth Area - 3,865.37 sq.m Plinth area on ground floor 2,057.37 sq.m Total covered area- 3,700.70 sq.m Double height area- 241.77 sq.m No. of storeys- G+1 Floor height 3.75 m Refer Org No. PIT-I/PRE/CBI-01/01-06							
Sr.No.	Description	Unit	Qty	Nos	Rate	Amt	Explanation
1	2	3	4	5	6	7 = (4*5*6)	8
1	R.C.C. FRAMED STRUCTURE						
1.1	RCC framed structure upto 2 storeys						
1.1.1	Floor height 3.75m						
a	Floors	sqm	3,865.37	1.0	23,500.00	90,836,195.00	
1.2	Extra for						
1.2.1	Every 0.3m additional height of floor above normal floor height of 3.35m.	sqm	3,865.37	1.33	270.00	1,391,533.20	*
1.2.2	Every 0.3m additional height of floor above normal floor height of 3.35m (Double height areas)	sqm	241.77	1.00	270.00	65,277.90	Double height areas
1.2.3	Every 0.3m deeper foundation over normal depth of 1.20m (on G.F. area only)	sqm	2,057.37	4.33	270.00	2,407,122.90	
1.2.4	Resisting Earthquake forces	sqm	3,865.37	1.00	1,140.00	4,406,521.80	
1.2.5	Large modules over 35 sq.m	sqm	176.60	1.00	1,500.00	264,900.00	
	Total A (1.1.1.a + 1.2.1) =					92,227,728.20	
	Total B (1.2.2 to 1.2.5) =					7,143,822.60	
2	SERVICES						
2.1	Internal water supply & sanitary installations	% of A			@ 15%	13,834,159.23	
2.2	External service connections	% of A			@ 5%	4,611,386.41	
2.3	Internal Electrical Installation	% of A			@ 12.5%	11,526,466.03	
2.4	Extras for						
2.4.1	Data network conduits	% of A			@ 0.5%	461,138.64	
2.4.2	Power wiring & plugs	% of A			@ 4%	3,889,109.13	
2.4.3	Telephone conduits	% of A			@ 0.5%	461,138.64	
	Total C (2.1 to 2.4.3) =					34,585,398.08	
	Grand Total E = A+B+C					133,958,948.88	

OTHER BUILDING EXPENSES

Annexure-1

S. No.	Description	Unit	Quantity	Amount (INR)	Explanation
1	2	3	4	5	6
A	Richer Specifications				Rates have been derived from CSR
1	Pergola	cum	156.96	1,742,939.64	

Cost of Airconditioning				Annexure-2	
S.No.	Building	Unit	Area	Refrigeration Provided @ 1 TR/100sq.ft	Cost @ 35,000/ TR
1	2	3	4	5	6
	A.C Areas				
1	Faculty rooms	Sqm.	267.30	28.77	1,007,026.02
2	Seminar hall	Sqm.	175.53	18.59	661,291.72
3	Total				1,668,317.74

AREA CALCULATION					Annexure-3
		Building block/ Function			
		College Building- 1			
		Covered Area (sqm)	Additional Area (sqm)	Plinth Area 1(a)+1(b) (sqm)	
S.NO.		1 (a)	1(b)	1(c)	
1	Ground Floor	1,972.24	85.13	2,057.37	
2	First floor	1,728.46	79.54	1,808.00	
10	Total Area	3,700.70	164.67	3,865.37	
11	Total Ground Coverage/ block	2,000.47 sq.m			

ANNEXURE-D

ANNEXURE - D

PUNJAB INSTITUTE OF TECHNOLOGY, SIKHWALA

COLLEGE BLOCK- I, PHASE - I

PRELIMINARY ESTIMATE

SUMMARY- PRELIMINARY ESTIMATE				
S. No.	Building / Component	Plinth Area (Sqm)	Total Cost of building in Rs	Reference
1	2	3	4	5
1	College building-1	3,862.48	133,665,099.40	Ref Detailed calculation
2	Other Building Expenses(Richer Specifications)		2,330,451.22	Ref Annexure 1
3	AC cost		1,486,314.65	Ref Annexure 2
4	Total (1+2+3)		137,481,865.27	
5	SAY		137,481,865	
Thirteen crore, seventy four lacs, eighty one thousand, eight hundred & eighty five only				

College building - 1							
Type of Building -		college		Refer Drg No. PIT-I/PR/CI-01.01-06			
Total Plinth Area -		3,862.48 sq.m					
Plinth area on ground floor		2,047.44 sq.m					
Total covered area-		3,737.76 sq.m					
Double height area-		237.24 sq.m					
No. of storeys-		G+1					
Floor height		3.75 m					
Sr.No.	Description	Unit	Qty	Nos	Rate	Am't	Explanation
1	2	3	4	5	6	7 = (4*5*6)	8
1	R.C.C. FRAMED STRUCTURE						
1.1	RCC framed structure upto 2 storeys						
1.1.1	Floor height 3.75m						
a	Floors	sqm	3,862.48	1.0	23,500.00	90,768,280.00	
1.2	Extra for						
1.2.1	Every 0.3m additional height of floor above normal floor height of 3.35m.	sqm	3,862.48	1.33	270.00	1,390,482.80	
1.2.2	Every 0.3m additional height of floor above normal floor height of 3.35m. (Double height areas)	sqm	237.24	1.00	270.00	64,054.80	Double height areas
1.2.3	Every 0.3m deeper foundation over normal depth of 1.20m (on G.F. area only)	sqm	2,047.44	4.33	270.00	2,395,504.80	
1.2.4	Resisting Earthquake forces	sqm	3,862.48	1.00	1,140.00	4,403,227.20	
1.2.5	Large modules over 35 sq m	sqm	56.00	1.00	1,500.00	84,000.00	
	Total A (1.1, 1.2.1 + 1.2.2) =					92,168,772.80	
	Total B (1.2.3 to 1.2.5) =					6,946,786.80	
2	SERVICES						
2.1	Internal water supply & sanitary installations	% of A			@ 15%	13,823,815.92	
2.2	External service connections	% of A			@ 5%	4,807,938.64	
2.3	Internal Electrical Installation	% of A			@ 12.5%	11,519,846.60	
2.4	Extras for						
2.4.1	Data network conduits	% of A			@ 0.5%	460,793.86	
2.4.2	Power wiring & plugs	% of A			@ 4%	3,686,350.91	
2.4.3	Telephone conduits	% of A			@ 0.5%	460,793.86	
	Total C (2.1 to 2.4.3) =					34,659,639.80	
	Grand Total E = A+B+C					133,685,099.40	

OTHER BUILDING EXPENSES

Annexure-1

S. No.	Description	Unit	Quantity	Amount (INR)	Explanation
1	2	3	4	5	6
A	Richer Specifications				Rates have been derived from CSR
1	Pergola	cum	165.98	2,330,451.22	

Cost of Airconditioning					Annexure-2
S.No.	Building	Unit	Area	Refrigeration Provided @ 1 TR/100sq.ft	Cost @ 35,000/ TR
1	2	3	4	5	6
	A C Areas				
1	Faculty rooms	Sqm.	218.99	23.57	825,022.93
2	Seminar hall	Sqm.	175.53	18.89	681,291.72
3	Total				1,486,314.65

AREA CALCULATION		Annexure-3		
		Building block/ Function		
		College Building- 1		
		Covered Area (sqm)	Additional Area (sqm)	Plinth Area 1(a)+1(b) (sqm)
S.NO.		1 (a)	1(b)	1(c)
1	Ground Floor	1,994.70	52.74	2,047.44
2	First floor	1,743.06	71.98	1,815.04
10	Total Area	3,737.76	124.72	3,862.48
11	Total Ground Coverage/ block	2,002.42 sq.m		

ANNEXURE-E

ABSTRACT OF ESTIMATED COST (CIVIL WORKS)			
SUBHEAD	DESCRIPTION		AMOUNT (Rs.) CSR
Sub-Head -No-I	Concrete Work	Rs	85,628
Sub-Head -No-II	Steel Work	Rs	36,89,547
Sub-Head -No-III	Plaster Work	Rs	1,48,130
Sub-Head -No-IV	Painting Work	Rs	2,94,339
Sub-Head -No-V	Dismantling Work	Rs	33,024
	TOTAL		42,50,668
	Add 1.5% Contingency Charges as per MOU		63,760
	GRAND TOTAL A		43,14,428
	SAY		43,14,428
Rs. Forty three lacs, Forteen thousand, Four hundred & Twenty eight only			

BILL OF QUANTITIES							
SL. NO.	Ref. No.	DESCRIPTION	UNIT	Quantity	Through Rate /MR /DSR-2012 Rate	Premium on CSR (%)	CSR with Premium /MR /DSR-2012 Rate Amount (CSR)
I		CONCRETE WORKS					
1	CSR 10.11	Cement Concrete 1:3:6 with stone ballast or shingle (20mm gauge)	cum	26.94			3,178.96 85,628
		TOTAL OF CONCRETE WORKS					85,628
II		STEEL WORK					
1	CSR 18.4	Wrought iron and mild steel ladders, framed grills, grating etc with ends of bars, riveted or welded or forged, framed window guards, barred iron doors, stair case, iron railing including cost of bolts and nuts or screws or welding rod, complete fixed in position.	qtl	461.30	6,894.90	16%	7,998.08 36,89,547
		TOTAL OF STEEL WORKS					36,89,547
III		PLASTER WORKS					
1	CSR 15.10	12.5 mm thick cement plaster 1:5	sqm	621.17			90.85 56,431
2	CSR 15.21	20mm thick cement plaster 1:5 in two coat work	sqm	621.17			123.56 76,753
3	CSR 15.75	Forming groove of uniform size from 12x12mm and upto 25x15mm in plastered surface as per approved pattern using wooden battens, nailed to the under layer including removal of wooden battens, repairs to the edges of plaster panel and finishing the groove complete as per specifications and direction of the Engineer-in-Charge.	m	917.78	14.16	15%	16.28 14,945
		TOTAL OF PLASTER WORKS					1,48,130
IV		PAINTING WORKS					
1	CSR 16.18	Painting two coats excluding priming coat with synthetic enamel paint in all shades on wood work, metallic or plastered, concrete surface to give an even shade.					
1.1	(a)	With special quality paint	sqm	1742.77	46.48	15%	53.45 93,155
2	CSR 18.21	Applying priming coat with metal primer on new steel or iron work including preparation of surface.					
2.1	(a)	With special quality paint	sqm	1742.77	13.79	15%	15.86 27,638
3	CSR 16.15	Finishing walls with exterior decorative cement based such as snowcem, robicoem etc. on old work one coat to give an even shade.	sqm	4673.55	19.00	15%	21.85 1,02,117

PTU, KAPURTHALA

Additional repair of Boundary wall at
Punjab Technical University, KapurthalaEstimate
Civil Work

SL. NO.	Ref. No.	DESCRIPTION	UNIT	Quantity	Through Rate /MR /DSR-2012 Rate	Premium on CSR (%)	CSR-with Premium /MR /DSR-2012 Rate	Amount (CSR)
4	CSR 16.14	Finishing walls with exterior decorative cement based paint such as snowcem, robblacem etc. two coats to give an even shade.	sqm	1242.34	43.54	15%	50.07	62,205
5	CSR 18.32	Applying priming coat with cement primer in all shade on newly plastered or concrete exterior surface	sqm	1242.34	5.94	0.25	7.43	9,224
		TOTAL OF PAINTING WORKS						2,94,339
V		DISMANTLING						
1	CSR 8.39	Dismantling of brick work in cement sand mortar / lime mortar including T&P scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material & stacking the serviceable material with all lifts & load of 100 metre (By Mechanical Means)	cum	26.94	207.34	15%	238.44	6,423
2	8.31	SCRAPING	sqm	1242.34	12.75	75%	22.31	27,720
2.2	(c)	Cement Plaster.						
		CREDIT OF OLD BRICKS AND BATS						
3	M12 (d)	Bricks First Class (at kiln site). Brick bats from well burnt or burnt bricks	cum	2.69	307.50	35%	415.13	1,118
		TOTAL OF DISMANTLING						33,024

Archigroup Architects (R)
March 2014

BOQ-3 of 5

Addition/repair of Boundary wall at Punjab Technical University, Kaurthala

S.NO	ESTIMATE	BOUNDARY WALL	NOS.	HEIGHT	WIDTH.	LENGTH	RMTR/SQM	kg/ mtr	WEIGHT, IN (KG)
1	BALUSTER (M.S BOX SEC 50X50X3)		3	2			6.00	4.39	26.34
2	M.S FLAT (50X5)MM		4			1.20	4.80	1.96	9.408
3	M.S PLATE (100X100X3)MM		6	0.1	0.1		0.06	1.413	1.413
4	M.S BAR(16X16)MM		14			1.10	14.30	2.01	28.743
5	SPIKE		14					0.5	7
									72.904
									29.16
									1506.56
									43934
									461.30
6	CEMENT CONCRETE	PANEL	607	0.23	0.35	0.175	3	25.65	CUM
7	PAINT		607	1.7		2.500	1	2579.75	ADD 5%
			607	1.7		0.115	2	237.34	
								2817.087	SQMT
								5634.174	SQMT
								5915.883	ADD 5% SQMT
8	PLASTER 20% OF PAINT							1183.177	ADD 5% SQMT
								1242.335	ADD 5%
	GROVE								
			607	1.2			4	2913.600	
			607	2.4			2	5827.200	
								8740.800	MTR.
								9177.840	ADD 5% RMTR.
								917.784	
9	PAINT WORK ON RAILING								
	BALUSTER 50X50MM		607	0.2		1.8	3	655.56	SQMT
	M.S FLAT 50X5MM		607	0.11		2.4	2	320.496	SQMT
	M.S BAR 16X16 MM		607	0.064		1.1	16	583.7248	SQMT
								1659.7808	SQMT
								1742.7698	ADD 5% SQMT

Archigroup Architects (R)
March 2014

Take off sheet -4 of 5

PTU, KAPURTHALA

Assessment made of Boundary wall at
Punjab Technical University, Kapurthala

Take off -Carriage

DETAIL OF RATES OF ITEMS OF BOUNDARY WALL FOR PTU KAPURTHALA																									
Description of item	CSR RATE				Consumption of material								Extra carriage beyond 5 Kms								Difference in Rates as per Premium List				Total
	CSR reference	Unit	Basic Rate	Premium in	Total Rate	Cement	Local Sand	Coarse Sand	Bagri	Brick Ballast	Bricks	Tiles	Local Sand	Coarse Sand	Bagri / Stone Ballast	Brick Ballast	Bricks	Tiles	Coarse Sand	Bagri	Bricks	Tiles			
Cement concrete 1:3:6 with stone ballast 20mm	10.11	Cum				Bagri	Cum	Cum	Cum	Cum	Nos	Nos	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount		
			2250.72	18%	2596.85	4.5	0	0.47	0.94				0.00	182.70	381.79	0.00	0.00	0.00	-8.17	-62.71	0.00	0.00	3090.46		
Extra for using Cost Mixer volumetric type where not including in the rate	10.40	Cost											0.00	182.70	381.79	0.00	0.00	0.00	-8.17	-62.71	0.00	0.00	3090.46		
			71.00	18%	83.50								0.00												
Total		Cum	2250.72	0.36	2656.85	4.50	0.00	0.47	0.94				0.00	182.70	381.79	0.00	0.00	0.00	-8.17	-62.71	0.00	0.00	88.50		
12.5 mm thick cement plaster 1:5 on walls	15.10	Sqm											0.00	182.70	381.79	0.00	0.00	0.00	-8.17	-62.71	0.00	0.00	3178.98		
			78.18	15%	87.61	0.094	0.016						3.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	90.85		
20mm thick cement plaster 1:5 on walls in two coat work	15.21	Sqm											4.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	123.56		

ANNEXURE-F



Archigroup Architects (Regd.)

UDIO : A-14, FIRST FLOOR, SECTOR-15, NOIDA-201301 (U.P.) TEL : (91-120) 4312431, 32 FAX : (91-120) 4312430 E-MAIL : mail@archigroup.org WEBSITE : www.archigroup.org

bdg. committee file
for 17/2

128

19/02/14

Reference No. : AA (R)/PTU/Phase III/ Volume VI/4051
Date : February 17, 2014

The Executive Engineer,
The Punjab Technical University,
Jalandhar Kapurthala Highway
Jalandhar

Project: PTU -Phase III

Subject: Offer for providing consultancy for GRIHA rating

Sir,

With reference to the instructions from the Chairman of standing building committee in the meeting no. 40, please find attached with this note the offer for providing consultancy for GRIHA rating.

Please contact us if you have any questions.

Thanking you,

Truly yours,

for [signature]
Rajiv Aggarwal



**V. S. KUKREJA
& ASSOCIATES PVT. LTD.**
CONSULTING ENGINEERS
(ISO 9001-2008)

165-A, GAUTAM NAGAR,
(Adjoining Gulmohar Enclave Com. Complex)
NEW DELHI - 110 049 INDIA
TEL. : +91 (011) 2652 1075/76
TEL. : +91 (011) 4606 6460
FAX : +91 (011) 2696 7867
E-MAIL : vskukreja@gmail.com
Website: www.vskukreja.com

To,
Mr. Rajiv Agarwal,
Archigroup Architects
A-14, 1st Flr, Sec-15,
Noida. U.P.

Date: February 07, 2014

Subject: Providing Consultancy Services for achieving GRIHA certification for Punjab Technical University, Kapurthala project (College Buildings 1 & 2; Library block; and Seminar block)

Dear Sir,

In reference to our meeting with the Chairman of the Tending Building Committee of Punjab Technical University (PTU), in Chandigarh on January 21, 2014; thank you for inviting VSKgreen, part of V. S. Kukreja & Associates Pvt. Ltd. (VSKAPL), for providing consultancy for Griha Certification and related services for the Punjab Technical University, Kapurthala project.

Project Brief:

Presently, PTU, Kapurthala campus consists of only the Administration building. The construction for the second phase has already begun. It has now been suggested that the second phase buildings, constituting of the Technical College Building 1 & 2, Library and Seminar blocks should be considered for GRIHA certification. Since, the Architectural design stage & Tender stage have already been over for this project phase, so incorporating GRIHA measures at this stage of the project may involve few revisions in the building envelope and project tender documents.

The process of GRIHA certification involves the following design, construction, operation and maintenance related aspects for the project that are required to be dealt with at different stages:

- Resource Conservation & Efficient Utilization of Resources

Scope of Work:

VSKgreen scope of work for rendering services for GRIHA certification shall include:

1. Facilitation for obtaining the aspired rating under GRIHA (Green Rating for Integrated Habitat Assessment) rating system.
2. Provide suggestions for incorporating sustainable green building measures in Architecture & MEP design in order to comply with the requirements of GRIHA.
3. Generate computer based model simulation for the buildings to analyze energy efficiency.

The above-mentioned scope shall be divided in the following stages:

1.0 Preliminary Assessment

2.0 Schematic Design

3.0 Design Development

4.0 First Documentation

5.0 Second Documentation

1.0 Preliminary Assessment Stage

- 1.1 As per the present project design (Architectural and services), carry out the feasibility study and advise on achievable star rating under GRIHA rating system
- 1.2 Discuss with the project team on the Green building program, its requirements and the feasibility of incorporating these in the current designs.
- 1.3 Facilitate the project design team to advise on materials/ equipments to meet GRIHA requirements.
- 1.4 Overall facilitation to obtain the anticipated star rating under GRIHA rating system.

2.0 Schematic Design Stage

- 2.1 Solar Analysis for optimizing shading and glazing areas.
- 2.2 Detailed whole building Energy Simulation for optimizing energy efficiency in
 - a. Envelope (Wall, Windows, Skylights, Roof etc.)
 - b. Lighting Systems and Controls
 - c. HVAC systems and components
- 2.3 Day lighting Simulation for optimizing natural lighting and lighting controls.
- 2.4 Provide assistance in identifying Green building material suppliers/ vendors for the project.
- 2.5 Prepare and provide all necessary templates for the design team, so as to meet GRIHA requirements.

2.6 Organize workshop with the GRIHA team (After the project is registered for GRIHA rating, ADaRSH arranges for a post registration orientation workshop for the entire project team comprising of the owner, architect, MEP Consultants, Landscape consultants, project manager, etc., and the green building consultants. The workshop serves the dual purpose of awareness of GRIHA System for all involved and identification and evaluation of the optional criteria to enhance the rating of the project.)

2.7 Carry out project review meetings as required.

3.0 Design Development Stage

3.1 Analysis for mandatory ECBC compliance and discuss any possible changes with the team.

3.2 Energy Simulation and Analysis for Optimized Energy Performance (Energy Simulation shall be conducted to show that utilization of energy systems in a building, under a specified category, is less than the benchmarked energy consumption figure).

3.3 Energy Use Calculation for Renewable Energy Credit

3.4 Day lighting Analysis

4.0 First Documentation Stage

4.1 Facilitate project team in preparing the documentation as stipulated by GRIHA.

4.2 Co-ordinate with the project team to prepare drawings & documents required for submission.

4.3 Prepare and provide necessary templates for the project team, so as to meet GRIHA requirements.

4.4 Scrutinize, verify consistency, add value and consolidate to make the document suitable for submission.

4.5 Review the documents before submission.

5.0 Second Documentation Stage

5.1 Carry out meetings for analyzing first review from ADaRSH and advise project team.

5.2 Prepare review document in consultation with the team for second submission to ADaRSH for award of GRIHA certification for the project.

Detailed Scope of Facilitation

S. NO.	CRITERION	AVAILABLE POINTS	SCOPE
Resource Conservation & Efficient Utilization of Resources			
Criterion 1	Site selection	1	A sustainable site has already been selected for this project, which has proper connectivity of the public transport through the adjoining highway.
Criterion 2	Preserve and protect landscape during construction/Compensatory depository forestation	4	Suggest the project team to implement Erosion and sedimentation control plan on site.
Criterion 3	Soil conservation (post construction)	2	Cross check and validate the site soil test report confirming that the topsoil is not fertile and hence cannot be later reused for

			vegetation.
Criterion 4	Design to include existing site features	4	Zoning on site has already been done so a detailed site analysis shall be conducted highlighting all existing site features considered in the design.
Criterion 5	Reduce hard paving on site	2	Suggest the project team to reduce the non roof hard surface which is directly exposed to the sun like road, paving etc. by shadings or use of high albedo materials.
Criterion 6	Enhance outdoor lighting System Efficiency	1	Suggest the project team to consider enhanced outdoor lighting system efficiency and use renewable energy system for meeting outdoor lighting requirements.
Criterion 7	Plan utilities efficiently and Optimize on-site circulation Efficiency	3	Suggest the project team in ways to minimize roads and pedestrian walkway lengths.
Criterion 8	Provide, at least, minimum level of sanitation/safety facilities for construction workers	2	Suggest the project team methods to protect the health of construction workers and prevent pollution.
Criterion 9	Reduce air pollution during construction	2	
Building Planning & Construction			
Criterion 10	Reduce landscape water demand	3	Suggest the project team ways to maximize resource (water, energy, and materials) conservation during the construction and later at building operations stage.
Criterion 11	Reduce water use in the building	2	
Criterion 12	Efficient water use during construction	1	
Criterion 13	Optimize building design to reduce conventional energy demand	8	Ensure that the building design meets the maximum permissible WWR and/or SRR and ensure that all the fenestrations meet the SHGC requirement of ECBC 2007.
Criterion 14	Optimize energy performance of Building within specified comfort limits	16	Ensure that the building complies with the mandatory compliance requirement of ECBC 2007 and meet thermal comfort conditions as per NBC 2005.
Criterion 15	Utilization of fly-ash or equivalent industrial waste in building structure	6	Ensure replacement of high energy intensive materials with low energy intensive materials, to utilize regionally available materials, materials which use low energy in their manufacturing process.
Criterion 16	Reduce embodied energy of construction	4	
Criterion 17	Use low-energy material in interiors	4	
Criterion 18	Renewable energy utilization	8	Encourage project team to use renewable energy sources in buildings.

Criterion 19	Renewable-energy-based hot water system	3	
Criterion 20	Waste water treatment	2	Ensure that a facility for the treatment of wastewater generated in the building is provided so as to have safe disposal and use of by-products.
Criterion 21	Water recycle and reuse (including rainwater)	5	Suggest the project team to utilize the treated wastewater and rainwater for various applications.
Criterion 22	Reduction in waste during construction	1	Suggest the project team to use recyclable materials to reduce the construction waste.
Criterion 23	Efficient waste segregation	1	Suggest the project team to have in place a space for storage & collection of waste materials for recycle use.
Criterion 24	Storage and disposal of wastes	1	
Criterion 25	Resource recovery from waste	2	Suggest the project team methods to maximize the recovery of resources from the recyclable and biodegradable waste and to reduce the burden on landfills.
Criterion 26	Use low-VOC paints / adhesives / sealants	3	Suggest the project team to select a low or no VOC material for possible interior materials.
Criterion 27	Minimize ozone depleting substances	1	Ensure that base building level HVAC and refrigeration equipment do not contain HCFCs or Halons.
Criterion 28	Ensure water quality	2	Ensure provision of drinking water with quality conforming to IS standards.
Criterion 29	Acceptable outdoor and indoor noise levels	2	Ensure compliance with the allowable noise levels for indoor and outdoor areas.
Criterion 30	Tobacco and smoke control	1	Suggest the project team to identify/ implement the best possible way to avoid environment tobacco smoke control inside (if applicable) the building.
Criterion 31	Provide at least the minimum level of accessibility for persons with disabilities	1	Ensure that adequate design feature to facilitate provisions for physically challenged have been incorporated in the project.
Building Operations & Maintenance			
Criterion 32	Energy audit and validation	-	Suggest the project team to engage a BEE Certified energy auditor to carry out the energy audit.
Criterion 33	Operation and Maintenance	2	Suggest the project owner to ascertain efficient functioning of the building's systems through regular monitoring of building's energy and water consumption.

Detailed Scope of Simulation

Broad category of Simulations is:

- Energy Simulation
- Solar Simulation

Energy Simulation: To optimize use of energy systems those maintain a specified indoor climate conducive to the functional requirements of the building.

1. Ensure compliance as recommended in the Energy Conservation building Code 2007 of the BEE, Government of India.

2. Energy Simulation shall be conducted to show that utilization of energy systems in a building, under a specified category is less than the benchmarked energy consumption figure.

The energy systems shall include air conditioners, indoor lighting systems, water heaters, air heaters and air circulation devices.

3. It shall be ensured that the annual energy consumption of energy systems does not exceed the limits of benchmarked energy consumption figure in GRIHA.

Solar Simulation: The analysis shall be conducted to evaluate whether the project complies with the requirements of GRIHA rating system, Criterion 13- according to which at least 25% of the living areas should be enshrouded by daylight factor as stipulated in the GRIHA rating system. Scope would include fenestration analysis and design with the help of software Tools to achieve diffused sunlight penetration and provide direct line of site to occupied spaces.

1. Daylighting – The Team will utilize computer based day lighting & Solar software to assess self-shading of the building.

2. Glazing Specification – The Team will assist in identifying proper glazing specifications that shall enhance shading and sun control while optimizing day lighting effectiveness and improving the overall energy efficiency of the project.

The results of this analysis are documented in written and graphic form, usable by the design team to quantify and qualify.

General Terms & Conditions

Deliverables

VSKgreen shall provide the following:

A) GRIHA Feasibility Study Report

B) GRIHA Submittal Matrix

C) Green Building Construction Requirements (Tender documents to be revised accordingly)

D) Daylight Simulation Report

E) Energy Simulation Report

Exclusions

VSKgreen services shall not include the following:

A) Design and planning of Architectural and MEP services.

B) Fee payable to ADaRSH for GRIHA registration and certification.

C) Fee payable for Energy audit by a BEE certified Energy auditor

Green Building Consultancy Charges

Consultancy Charges:

- A) VSKgreen consultancy charges for the above scope of work shall be a lump sum amount of **Rs.4,00,000/-** on total built-up area of 3,46,250 sqft.
- B) All local taxes/duties applicable to Consultancy Agreement shall be borne by the Employer. Any enhancement in taxes / levies announced by Government shall be applicable to payments to be released subsequently.
- C) Regarding entire project specific outstation travels, the arrangement shall be done by the employer in first AC or equivalent and boarding and lodging for all our concerned representatives. In addition **Rs. 2000/-** per day to be paid.

Note: The above mentioned fee shall be valid for a period of 3 years from the date of the project start and shall be required to be suitably modified after such period.

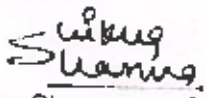
Payment Stages:

Payment for the Consultancy charges shall be made in the following installments for each of the scopes of work mentioned above:

- A) 15% of total fees as retainer.
- B) 15% of total fees upon completing preliminary assessment stage i.e. submitting Feasibility Study Report & Submittal requirements (documentation required from all the project consultants).
- C) 15% of total fees upon completing schematic design stage i.e. submitting Preliminary Daylight & Energy Simulation Report.
- D) Additional 15% of total fees upon completing Design Development stage i.e submitting the Final Simulation Report.
- E) Additional 20% of total fees after the GRIHA first documentation submission.
- F) Additional 15% of total fees after the GRIHA second documentation submission.
- G) Balance 5% of total fees after receiving the GRIHA rating.

Best Regards,

(for VSKAPL)



Shikha Sharma
Principal - Sustainability Services