

NOTICE INVITING TENDER FOR  
SUPPLY, INSTALLATION, TESTING  
AND COMMISSIONING OF HVAC  
SYSTEM FOR CLASSROOMS OF SRI  
GURU GOBIND SINGH COLLEGE  
OF COMMERCE, PITAMPURA, NEW  
DELHI

(TWO BID SYSTEM)

Tender shall be submitted in 3 separate envelopes

Envelope One: Technical Bid

Envelope Two: Financial Bid

Envelope Three: Earnest Money Deposit

Prepared by:  
Ranjit Singh and Associates  
1206 Surya Kiran Building, 19 K.G. Marg,  
New Delhi 110001

**Sri Guru Gobind Singh College of Commerce  
(University of Delhi) Pitampura, New Delhi**

Sealed Item rate tenders in two bid system (Technical Bid and Financial Bid) are invited by the Principal, Sri Guru Gobind Singh College of Commerce for Supply, Installation, Testing And Commissioning Of HVAC System for CLASSROOMS at Sri Guru Gobind Singh College of Commerce, New Delhi from reputed HVAC contractors who have executed similar works, having completed three similar works costing not less than 103 Lakhs or two similar works costing not less than 154 Lakhs or one similar work costing not less than 205 Lakhs in the last three years.

Tenderers shall furnish proof of satisfactory completion of such work issued by the client along with their full company profile including list of T&P, technical staff, PAN No., GSTN No., solvency certificate and 3-year ITR of company. **All these documents will be submitted in the technical bid for the tender.** Technical bid shall be opened first and after evaluation and finalization of technical bid, the list of eligible contractors shall be prepared and financial bid of the short-listed contractors shall be opened. The Principal, Sri Guru Gobind Singh College of Commerce or his authorised representatives may visit the work sites of the contractors to assess the quality of their works before opening of the financial bids

Tender documents can be obtained from the office of Principal Sri Guru Gobind Singh College of Commerce, Pitampura New Delhi 110034 from 09/10/2020 to 22/10/2020 during working hours on payment of Rs. 1000/- by DD in favor of Principal Sri Guru Gobind Singh College of Commerce

Estimated Cost of the work	Rs. 2,56,78,933
Earnest Money Deposit	Rs. 5,00,000/- (Rupees Lakhs Only) in a separate envelope
Start of Sale of Tenders	09/10/2020
Last date of Sale of Tenders	22/10/2020
Date of Submission of Tender	23/10/2020 by 3:00 pm
Date of Opening of Technical Bid	23/10/2020 at 3:30 pm

**Note:** Tender Document can also be downloaded from the college website [www.sggsc.ac.in](http://www.sggsc.ac.in) and Delhi University Website [www.du.ac.in](http://www.du.ac.in) Downloaded tender shall accompany a DD of Rs. 1000/- drawn in favor of Principal Sri Guru Gobind Singh College of Commerce, as cost of tender (Non-refundable). **Downloaded tender documents shall be spiral bound before submission. Loose, Stapled or incomplete bid documents can be rejected.**

Issued:

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Dated: \_\_\_\_\_

Principal,  
Sri Guru Gobind Singh College of Commerce  
Pitampura, New Delhi

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## APPENDIX

Defects Liability period	<b>24 Months (2 Years)</b>
Date of Commencement	The Next day after the date on which The Architect /Engineer-in-charge issues written orders to commence the works or the date of handing over the site whichever is later
Date of Completion	120 Days from the date of commencement
Penalty for delay	5,000/-per day up-to maximum 10% of the cost of the works.
Value of work for Interim Certificate (Minimum RA Bill Value)	Rs. 25,00,000/- (Rupees Twenty-Five Lakhs)
Earnest Money Deposit	Rs. 5,00,00/- (Rupees Five Lakh Only)
Retention Percentage	5% (As per the terms and conditions)
Performance Guarantee	<b>Before issue of letter to start the work, Contractor shall furnish a performance guarantee in the form of a Bank Guarantee to the tune of Five percent (5%) of the cost of the accepted tender amount, which will be kept valid up to 24 months after completion of the works.</b>

**Contractor**

**Employer**

**Sri Guru Gobind Singh College of Commerce,  
(University of Delhi) Pitampura, New Delhi**

Dated 09/10/2020

**NOTICE INVITING TENDER**

- 1) Sealed Item rate tenders in two bid system (Technical Bid and Financial Bid) are invited by the Principal, Sri Guru Gobind Singh College of Commerce for Supply, Installation, Testing and Commissioning of HVAC System for Classrooms at Sri Guru Gobind Singh College of Commerce, New Delhi.
- 2) The Architects for this job are M/s Ranjit Singh & Associates, 1206 Surya Kiran Bldg, 19 Kasturba Gandhi Marg, New Delhi –110001. Ph. 011-23312688, 011-43560879 Email: rsa1206@msn.com.
- 3) The Tender shall be submitted in the prescribed form only
- 4) The works are required to be completed within a period of 120 days from the date of commencement.
- 5) The date of commencement shall be from the next day after the date on which the Architect/Engineer-in-charge issues written orders to commence the work or from the date of handing over of the site whichever is later.
- 6) The work shall be carried out in accordance with the phasing plan approved by the college authorities to avoid disturbance to the normal working of the College. The site is expected to be handed over immediately. **The contractor will prepare and submit a Phasing Plan with Bar Chart with targeted dates of completion for all the activities and get it approved from the college authorities**
- 7) Tender documents consisting of terms and conditions and Tender schedule can be obtained from the office of the Principal, Sri Guru Gobind Singh College of Commerce, New Delhi on any working day from 09/10/2020 to 22/10/2020 on the payment of Rs.1,000/- by crossed cheque in favor of Principal Sri Guru Gobind Singh College of Commerce. This amount is non-refundable.
- 8) Completed Tender should accompany PAN number, GSTN Number, email address, phone number and registered address of the Contractor
- 9) Plans, specifications etc. pertaining to the works can be inspected in the office of M/s Ranjit Singh & Associates, 1206 Surya Kiran Bldg, 19 Kasturba Gandhi Marg, New Delhi 110001, during office hours on any working day OR in the office of the Principal, Sri Guru Gobind Singh College of Commerce, New Delhi with prior appointment.
- 10) CONTRACTORS are advised to inspect and examine the site and the surroundings and satisfy themselves before submitting their Tender as to the nature of the ground and sub-soil (so far as practicable), the form and the nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain

necessary information as to the risks, contingencies and other circumstances which may influence or affect their Tender. **CONTRACTORS shall be deemed to have full knowledge of the site, whether they inspect it or not and no extra charge consequent to any misunderstanding or otherwise shall be allowed.**

- 11) Submissions of the Tender by the CONTRACTOR implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and local conditions and other factors bearing on the execution of the works.
- 12) A CONTRACTOR should quote in figures as well as in words rate(s) quoted. The amount for each item should be worked out and the requisite totals given. Special care shall be taken to write rates in figures as well as in words and the amount in figures only in such a way that interpolation is not possible. The total amount shall be written both in figures and in words. In case of figures the words "Rs." should be written before the figure of rupees and the words "paise" should be written at the end. Unless the rate is in whole rupees and followed by the word "only" it should invariably be upto two places of decimals.
- 13) All rates shall be quoted on the Tender form only.
- 14) Tender shall be received by the office of the Principal, Sri Guru Gobind Singh College of Commerce, New Delhi up-to 1500 hours on 23/10/2020 and the technical bid shall be opened at 1530 hours on 23/10/2020 in the presence of the Contractors, who may be present or the earliest convenient time and day thereafter.
- 15) The Tender shall be accompanied by earnest money deposit of Rs. 5,00,000/- (Rupees Lakhs Only), in the form of a demand draft in favor of the Principal, Sri Guru Gobind Singh College of Commerce, New Delhi.
- 16) On acceptance of the Tender, earnest money will be treated as a part of the security. In addition, contractor shall furnish performance guarantee in the form of an F.D.R or bank guarantee of 5% of the accepted Tender cost in favor of Principal, Sri Guru Gobind Singh College of Commerce, New Delhi before issue of letter to start the work
- 17) The CONTRACTOR, whose Tender is accepted, shall permit of the Principal, Sri Guru Gobind Singh College of Commerce, New Delhi at the time of making any payments to him for works done under the contract to deduct towards security deposit such sum as will along with the amount of earnest money already deposited amount to the following % of the cost of the work: -
  - 5% of the bill amount.
  - 50% of the security money will be released along with the final bill and the balance after expiry of the successful performance of the Defects Liability Period of two year without any interest.
- 18) Sri Guru Gobind Singh College of Commerce, New Delhi will return the earnest money where applicable, to every unsuccessful contractor on return of all the Tender documents without any interest.

- 19) The contractor shall submit the Tender which satisfies each and every condition laid down in this notice, failing which the Tender will be liable to be rejected.
- 20) Sri Guru Gobind Singh College of Commerce, New Delhi does not bind itself to accept the lowest or any tender or to give any reasons for their decision.
- 21) Sri Guru Gobind Singh College of Commerce, New Delhi reserves the right of accepting the whole or any part of the Tender and contractor shall be bound to perform the same at his quoted rates.
- 22) All taxes including GST shall be payable by the Contractor and Sri Guru Gobind Singh College of Commerce will not entertain any claim whatsoever in respect of the same.
- 23) T.D.S. as applicable to union territory of Delhi shall be deducted from the payments to be made to the Contractor and tax deduction certificate shall be issued by Sri Guru Gobind Singh College of Commerce, New Delhi as per govt. guidelines
- 24) This notice of Tender shall form part of the contract documents.

**Contractor:**

Duly authorized to sign the  
On Behalf of M/s

.....  
.....  
.....

Signature.....

Date.....

Email.....

Phone.....

Postal Address.....

.....  
.....

**Owner:**

**For and on behalf of  
Sri Guru Gobind Singh College of  
Commerce**

Authorized Signatory

To,

The Principal  
Sri Guru Gobind Singh College of Commerce,  
Pitampura, New Delhi.

Dear Sir,

I/We have read and examined the following documents relating to Supply, Installation, Testing and Commissioning of HVAC System for Classrooms at Sri Guru Gobind Singh College of Commerce, New Delhi

- 1) Notice Inviting Tender Specifications
- 2) Drawings
- 3) General Conditions of Contract
- 4) Special Conditions
- 5) Tender Schedule

I/We hereby Tender for execution of the works referred to in the aforesaid, documents upon the terms and conditions contained or referred to therein and in accordance in all respects with the specifications, designs, drawings and other relevant details at the rates quoted by us in the Tender schedule. We have visited and examined the site of works and are fully aware of the site conditions, having a bearing on the contract.

In consideration of I/We being invited to the Tender, I/We agree to keep the Tender open for acceptance for 90 Days from the due date of submission thereof and not make any modifications in the terms and conditions which are not acceptable to Principal, Sri Guru Gobind Singh College of Commerce, New Delhi.

A sum of Rs. 5,00,000/- (Bank Draft No..... Dated.....) is hereby forwarded in Bank Draft in the favor of Principal, Sri Guru Gobind Singh College of Commerce, New Delhi as earnest money. If I/we fail to keep the Tender open as aforesaid or make any modifications in the terms and conditions of the Tender which are not acceptable to Principal, Sri Guru Gobind Singh College of Commerce, New Delhi. I/We agree that Principal, Sri Guru Gobind Singh College of Commerce, New Delhi. Shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Should this Tender be accepted, I/we hereby agree to abide by and fulfill all the terms, conditions and provisions of the aforesaid documents.

If after the Tender is accepted, I/we fail to commence the execution of the works as provided in the conditions, I/we agree that Principal, Sri Guru Gobind Singh College of Commerce, New Delhi shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely.



I/We agree that should Principal, Sri Guru Gobind Singh College of Commerce, New Delhi. decide to forfeit earnest money as aforesaid, unless a sum equal to the earnest money mentioned above is paid by us forth-with, the principal Sri Guru Gobind Singh College of Commerce, New Delhi may at its option recover it out of the deposit and in the event of deficiency, out of any other money due to me/us or otherwise.

Duly authorized to sign the Tender  
On behalf of M/s

.....

Signature.....

Dated.....

Postal Address.....

## BIDDERS' DETAILS

S.NO.	DESCRIPTION	DETAIL
1	Name of Company	
2	Address of Company	
3	PAN no.	
4	GSTN no.	
5	Telephone Number	
6	Email Address	
7	Name of Company Owner / Director / Partner	
8	Address of Company Owner / Director / Partner	
9	Telephone Number of Company Owner / Director/ Partner	

I/We hereby declare that the information furnished above is true and correct. In case the above information is found incorrect at any stage, the Principal SGGSCC Pitampura may take appropriate action as warranted.

Name:

Signatures:

Stamp/ Seal:

Place:

Date:

## **ELIGIBILITY CRITERIA**

- 1) Bidder should have executed similar works, having completed three similar works each costing not less than 105 lakhs or two similar works costing not less than 154 lakhs or one similar work costing not less than 205 lakhs in the last three years.
- 2) The bidder should have had average annual financial turn over (gross) of Rs. 128 lakhs on similar works during the immediate last three consecutive financial years. This should be duly audited by a Chartered Accountant. Year in which no turnover is shown would also be considered for working out the average.
- 3) The bidder should not have incurred any loss in more than two years during the immediate last five consecutive financial years, duly certified by the Chartered Accountant.
- 4) The bidder should have a solvency of Rs. 103 lacs certified by his Bankers.
- 5) The Proposal should be accompanied by Earnest Money Deposit (EMD) of Rs. 5,00,000/- drawn from any scheduled bank in favor of Principal, Sri Guru Gobind Singh College of Commerce, Pitampura, New Delhi in a separate sealed envelope.
- 6) Bidder should be the manufacturer/authorized dealer. Letter of authorization from original equipment manufacturer (OEM) specific to the tender should be enclosed.

## **DOCUMENTS TO BE PLACED IN TECHNICAL BID:**

- 1) Company Registration Certificate.
- 2) Complete company profile.
- 3) Valid GSTN copy.
- 4) PAN Card Copy.
- 5) EMD Demand Draft of Rs. 5,00,000/- (Separate Envelope).
- 6) Tender Fee Demand Draft of Rs 1000/- (Separate Envelope).
- 7) Turnover certificate (Annexure-1).
- 8) Solvency Certificate issued by the bank.
- 9) 3-year ITR of the company.
- 10) Experience proof documents (Valid Completion Certificates).
- 11) Letter of Authorization from OEM specific to this tender.

**ANNEXURE-1**

**ON THE LETTER PAD OF CHARTERED ACCOUNTANT**

This is to certify that the total turnover in the case of M/s ..... having PAN ----- is as under:

<b>Financial Year/Period</b>	<b>Amount in Rupees (Figures)</b>	<b>Amount in Rupees(words)</b>
2017-18		
2018-19		
2019-20		
<b>Total</b>		

**Average= Total/3**

It is further certified that the above-mentioned amounts have been derived from the books of accounts presented before us for the above-mentioned periods.

**Chartered Accountants**

## SPECIAL CONDITIONS

1. **The rates shall be inclusive of 2 years ON SITE comprehensive defect liability maintenance including all tools, plants, parts, labour, supervision and technical support.**
2. The work shall be carried out as per specifications in the Tender schedule/latest C.P.W.D. Specifications, along with the correction slips; issued up to date of acceptance of Tender in case of doubt the decision of the Architect shall be final and binding on the Contractor.
3. The Contractor shall carryout the work in stages as to cause minimum disturbance to the working of Sri Guru Gobind Singh College of Commerce, New Delhi and other organizations. He shall be responsible for any damage to the equipment or structures, injury to the personnel during the progress of the work and he shall be liable to pay compensation as may be decided by the Principal or his authorized representative in respect of such damages /injuries.
4. The serviceable materials out of the dismantled materials if any will be the property of the college and properly stacked by the Contractor as directed by the Engineer-in-charge. Decision of principal or his authorized representative on the service-ability of the dismantled materials shall be final and binding on the Contractor.
5. All labour Employed by the Contractor shall be covered by the workman's compensation act. Any death, injury or mishap to the workmen of the Contractor will entirely be the Contractor's responsibility and the College, shall not be liable to pay any damages for the same.
6. Contractor shall take adequate safety precautions to avoid any accident etc. at site. Shall erect proper barricades, sign boards, lights, etc. shall provide safety belts, safety shoes, head gears (helmet I.S.I standard) and shall be fully responsible for any criminal & civil liabilities. All safety arrangements are to be made by contractor at his own cost.
7. No labor or material rate escalation claims will be entertained from the contractor as this work has to be completed within 120 days from the date of commencement of work at site.
8. Rates quoted shall be applicable equally to all floors and shall include all lifts and leads. No extras on this account shall be payable.
9. The contractor shall provide training for operation and maintenance for the HVAC system to the college staff free of cost, where required
10. Rates quoted by the contractor shall be inclusive of all items of work listed below and Any work, supplies or services which might have not been specifically mentioned in the

specifications, schedule of items or drawings but are necessary for entire completion of the work shall be executed / provided/ rendered by the CONTRACTOR without any Extra cost and within the time schedule specified. Rates quoted shall be deemed to include such elements of labour and materials necessary to complete the items of work in all respects

11. Contractor shall submit only computerized Bills supported with computerized measurement sheets in A4 size hard copy prints and soft copy in Microsoft Excel Format. Manual Handwritten bills or measurement sheets will not be accepted.
12. Labor Camp will be arranged by the contractor outside the college premises. Sri Guru Gobind Singh College of Commerce does not have space for labour camps inside its premises.
13. Principal SGGSCC Pitampura reserves the right to decrease the items of work, change the specifications of works or remove the entire section of work as may be deemed necessary to finish the works within the available budget.
14. Contractor shall submit complete shop drawings for HVAC works for approval from the MEP engineer before proceeding with the work at site.

## **GENERAL CONDITIONS OF CONTRACT**

**Definitions:** the contract document consists of the agreement, the special and general conditions of the contract, specifications and bills of quantities including all modifications and the contract drawings prepared by the Architect from time to time

1. **The site:** shall mean the site of contract work at Sri Guru Gobind Singh College of Commerce, New Delhi.
2. **Sub-Contractor:** includes those who have a direct contract with the Contractor.
3. **Notice:** written notice shall be deemed to have been served if delivered in person to a member of the Contractors firm.
4. **Owner:** Principal, Sri Guru Gobind Singh College of Commerce, New Delhi.
5. **Work:** the term “work” includes both labour and material of the Contractor/Sub-Contractor.
6. **Time limits:** time limits or 120 days stated in the contract are essence of the contract.
7. **Law:** law of the place of work shall govern the construction under this contract.
8. **Virtual completion:** date of virtual completion is the date when the construction is sufficiently completed in accordance with the contract documents, including modifications, if any.
9. **Contract documents:** shall consist of the following
  - a) Articles of agreement
  - b) General and special conditions of contract
  - c) Technical specifications
  - d) Bills of quantities

## **TYPE OF CONTRACT**

It is an item rate contract. The Contractor shall be paid for the actual quantity and quality of work done, as measured at site on the rates quoted by him, on the basis of a payment certificate issued by the Architect/ Engineer- In charge

## **SCHEDULE OF QUANTITIES**

Schedules of quantities given in the contract bill are provisional and are meant to indicate the intent of the work and to provide a uniform basis for the contract. The Owner reserves the right to increase or decrease any of the quantities or to totally omit any of them. Contractor shall be

bound to carry out the same without claiming any extras.

### CONTRACT DRAWINGS

1. In general, drawings shall indicate dimension, position & type of construction.
2. Specifications shall indicate the qualities, methods, and bill of quantities shall indicate the quantum and rates. Any work indicated in drawings and not mentioned in the specifications or vice versa shall be furnished as fully set forth in both.
3. Contractor shall not deviate from the drawings and Architects interpretation of the drawings shall be final and without appeal.
4. Errors/inconsistencies discovered in the drawings shall be instantly brought to the notice of the Architect for interpretation and correction, if any.
5. All drawings are the property of the Architect and shall not be used on any other project.

### ARCHITECTS INSTRUCTIONS

If within seven days of receipt of written instructions from the Architect, requiring compliance with an instruction the Contractor does not comply hence-with, then the Owner may get the work executed through another agency at the risk and cost of the Contractor.

### SCOPE OF WORK OF CONTRACTOR

The scope of work to be carried out by the CONTRACTOR shall also include the following:

- a) Setting out of the works in respect of position, level dimensions, alignments, etc. including establishment of bench marks, survey reference points, etc.
- b) Clearance of the site.
- c) Site leveling /terracing within the limits as shown in the drawings or as directed by the Engineer In charge.
- d) Disposal of debris, excavated materials, etc. as per the instructions of the Engineer In-Charge
- e) All scaffolding, shorting, centering, shuttering works, etc.
- f) Running and maintenance of all plants and equipment, tools and tackles, etc.
- g) Protection and maintenance of trees, shrubs, green and other surfaces as instructed by the Engineer In charge.
- h) Any other work required in connection with the execution of the contract work.

The cost of all the above-mentioned works shall be deemed to be included in the rates for various items of work although such inclusion may not be specifically spelt out.



### SAMPLES AND SHOP DRAWINGS

The Contractor shall submit samples of materials and shops drawings required by the Architect with promptness within a week.

### PROGRESS CHART

In order to achieve the completion time as stated above, the CONTRACTOR shall submit to the OWNER within 2 (two) days from the effective date of Agreement a detailed Bar chart/PERT Network. The list of activities for which the Bar chart/ PERT network has been worked out and their commencement, duration and completion shall be subject to the approval of the OWNER

### ACCESS FOR ARCHITECT/ENGINEER TO THE WORKS

The Architect and his representative shall have access, at all reasonable times, to the work and workshops of the Contractor.

### ARCHITECTS STATUS AND DECISIONS

The Architect shall be Owner's representative during the construction period. He shall periodically visit the site to familiarize himself generally with the progress and the quality of work and to determine, in general if the work is proceeding in accordance with the contract documents. The Architect shall not be required to make exhaustive or continuous on-site inspections to check the quality and quantity of the work, and shall not be responsible for the Contractors failure to carry out the construction work in accordance with the contract documents. During his site inspections the Architect shall inform the Owner about progress of work, defects and deficiencies if any.

The Architect may in his absolute discretion from time to time, issue further drawings, details, written instructions, written decisions and written explanations in regard to: -

1. Variation or modification of the design
2. Quality or quantity of work, addition/alteration/omissions and substitutions of any work
3. Any discrepancy and divergence between drawings and specifications.
4. Removal and re-erection of any works executed by the Contractor
5. Dismissal of any persons employed on the site, who in the opinion of the Architect is not fit for the job.
6. Opening up for inspection any work-covered up
7. Amending and making good any defects under defects liability period
8. Removal from site, any materials brought by the Contractor, which in the opinion of the Architect is not up to the desired standard.

9. Delay and extension of time
10. Postponement of any work

#### ENGINEER IN CHARGE

Engineer In-Charge shall mean the person approved by the Architect and appointed and paid by the Owner and acting under the directions of the Architect.

#### CONTRACTORS FIELD ORGANIZATION AND EQUIPMENT

1. The Contractor shall employ qualified and competent licensed Electricians on the site.
2. Contractor shall provide and install all necessary hoists, ladders, scaffoldings, tools, tackles, plants and machinery necessary for execution of the works
3. Contractor shall provide and maintain simple water tight office accommodation at site
4. Contractor shall make his own security arrangements at site and keep a 24-hour Watchman
5. Contractor shall provide sanitary convenience for site staff and labour to keep the site clean
6. A telephone line at site to be maintained and paid by the Contractor
7. Guardrails shall be provided by the Contractor for safety of labour and general public at the site of works.

#### TAXES

All taxes including GST, Labour Cess etc. applicable in respect of this contract shall be payable by the Contractor and Sri Guru Gobind Singh College of Commerce will not entertain any claim whatsoever in respect of the same.

#### STATUTORY OBLIGATIONS

The Contractor shall comply with and give all notices required by any Govt. authority and instrument, rule or order made under an act of parliament or state assembly or any regulation or bye-law of the local body, relating to the work and indemnify the Owner against any such liability arising out of noncompliance of the law.

By way of illustration of various Acts/statutory compliances as stated above, the following Acts as amended from time to time shall be complied with by the CONTRACTOR:

- a) Employee's Provident Fund Act 1952
- b) Contract Labour Act (Regulations and Abolition 1970)
- c) Minimum Wages Act 1948
- d) Payment of Wages Act 1936

- e) Workmen Compensation Act 1923
- f) Factories Act 1948
- g) Apprenticeship Act 1961

### SUB CONTRACTOR

Before awarding any sub contract, the Contractor shall notify the Architect in writing the names of the Sub-Contractors proposed. Contractor shall not employ the Sub-Contractor to whom Architect or Owner may have a reasonable objection.

### MEASUREMENT OF WORK

Unless otherwise specified, measurement of work shall be carried from the works actually executed. The measurements for the purpose of preparing Bills will be taken jointly by the CONTRACTOR's representative and the Engineer In charge. In measurement of work as stated above, the CONTRACTOR shall certify that the work has been carried out strictly as per the drawings, specifications and item of work in terms of the agreement. Such certificate shall require Engineer In-Charge's endorsement for the purpose of payment.

In the event of any dispute with regard to the measurement of the work executed, the decision of the OWNER shall be final and binding on the CONTRACTOR

In the case of site measurements, should the CONTRACTOR not attend or neglect or fail to send his representative for taking joint measurements, the measurements taken by the Engineer in Charge shall be deemed to be the correct measurement of work and shall be binding on the CONTRACTOR

### REJECTION

If the Contract work or any portion thereof, at any time, is found to be defective or fails to fulfill the requirements of the agreement, the Engineer In Charge shall give the CONTRACTOR notice in writing setting-forth particulars of such defects or failure and the CONTRACTOR shall forthwith make good the defects or replace or alter the same to make it comply with the requirements of the agreement.

Any materials, equipment, etc. brought to the site and found to be not in accordance with the agreement, shall be rejected by the Engineer In-Charge and the CONTRACTOR shall remove the materials from the site within the period specified by the Engineer In-Charge.

The CONTRACTOR shall not be entitled to any extension of time or extra cost for rejection as per above

### CERTIFICATES OF PAYMENTS

Architect shall issue an interim certificate of payment stating the amount due to the Contractor from the Owner and the Contractor shall be entitled to payment thereof within a period of two week after issue of the certificate. From the total amount, certified deduction shall be made towards payments already made, security deposit, TDS etc.as applicable to Delhi or any other tax applicable at the time of making payment.

All running payments shall be regarded as payment by way of advance against final payment only and not as payment for the work completed till the date of final payment. The running payment made shall not preclude the liability of the CONTRACTOR to finally complete the work strictly in accordance with the specifications and drawings, if required by re-constructing faulty work

#### CLAIM FOR EXTRA

In the case of extra item(s) (items that are completely new, and are in addition to the items contained in the contract), the contractor will submit rates, supported by rate analysis, for the work and the engineer-in-charge shall within one month of the receipt of the rates supported by rate analysis, after giving consideration to the analysis of the rates submitted by the contractor, determine the rates on the basis of the market rates and the contractor shall be paid in accordance with the rates so determined.

#### DEDUCTION FOR UNCORRECTED WORK

If the Architect deems it in-expedient to correct work damaged or not done in accordance with the contract, an equitable deduction from the contract price shall be made thereof.

#### FLUCTUATIONS

The Contractor shall not claim any extras for fluctuation of price and the contract price shall not be subjected to any rise or fall in prices.

#### POSSESSION BEFORE VIRTUAL COMPLETION

If the Owner, with the consent of the Contractor takes possession of part of the works for handing over to the finishing Contractor, such part of the building shall not be deemed to be virtually completed. Virtual completion of such part would occur only on completion of every part of the contract work.

#### TIME EXTENSION

Upon it becoming reasonably apparent that the progress of the work is delayed, the Contractor shall forthwith give written notice of the cause of delay to the Architect, to enable the Architect and Owner to take a proper decision in the matter.

### INSPECTION AND TEST

- i. The CONTRACTOR shall ensure inspection and test of all materials and work at his cost through his ENGINEER IN CHARGE and other technical staff either at site or through any approved laboratory.
- ii. The CONTRACTOR shall ensure proper supervision and inspection during the progress of work at site.
- iii. All materials and work, whether at the site or in the CONTRACTOR's /Sub-Contractor's premises shall be subject to inspection and test by the ENGINEER IN CHARGE. The CONTRACTOR/ his Sub-Contractor shall provide all facilities free of cost to the ENGINEER IN CHARGE including all labor, materials, tools, tackles, instruments, appliances, etc. to enable the ENGINEER IN CHARGE to carry out inspection and/or test.
- iv. All test certificates shall be subject to certification by the ENGINEER IN CHARGE.
- v. The CONTRACTOR shall submit to the ENGINEER IN CHARGE three copies of all inspection/ test certificates.
- vi. The CONTRACTOR shall not be entitled to any claim for extra time or cost due to any delay in carrying out inspection and testing or re-inspection and re-testing if so, decided by the ENGINEER IN CHARGE.
- vii. The CONTRACTOR shall take adequate steps to rectify the defects or to replace such materials and work which have failed during inspection /testing

### RESPONSIBILITY OF COMPLETION

Any work, supplies or services which might have not been specifically mentioned in the specifications, schedule of items or drawings but are necessary for entire completion of the contract work shall be executed / provided/ rendered by the CONTRACTOR without any Extra cost and within the time schedule specified. Rates quoted shall be deemed to include such elements of labor and materials necessary to complete the items of work in all respects.

### DAMAGES FOR NON-COMPLETION

If the Contractor fails to complete the works by the date specified or within any extended time granted to him, the Contractor shall allow the Owner to deduct a sum calculated at the agreed liquidated damages, from the money due to him for the period the work remained incomplete, subject to a maximum amount of 10% of the Contract Value.

### LIQUIDATED DAMAGES FOR DELAY

If the CONTRACTOR fails to complete the work/item (s) of work in all respects and hand over the same to the OWNER within the time stipulated the CONTRACTOR, without prejudice to any other right or remedy of the OWNER on account of such breach, be liable to pay the OWNER liquidated damages at the rate of 1% (one percent) of the total contract price for delay of every week or part thereof.

The total amount of liquidated damages shall be limited to 10% (Ten percent) of the total contract price.

The above provisions shall not apply in cases of delay for which the CONTRACTOR is entitled to extension of completion time

#### VIRTUAL COMPLETION CERTIFICATE AND DEFECTS LIABILITY PERIOD

When in opinion of the Architect the works are practically completed, he shall forthwith issue a certificate to that effect, that date will be taken as the date of virtual completion.

The Architect shall prepare a schedule of defects, not later than 14 days after the expiry of the defect's liability period. The Contractor shall within a reasonable period of time after receipt of schedule of defects shall rectify the same, failing which the Architect will make suitable deductions from the contract sum.

#### MAINTENANCE GUARANTEE / DEFECTS LIABILITY PERIOD

Maintenance Guarantee period will be 24 months from the actual date of completion and handing over to the OWNER.

- a) The CONTRACTOR guarantees that within the maintenance guarantee period, the contract work shall not show any signs of defects, cracks, settlements, disfigurements, shrinkage, leakage, dampness or any other defects.
- b) The CONTRACTOR shall maintain and satisfactorily execute, at his own cost, all such works of repair, amendment, re-construction, rectification, replacement and any other work to make good the faulty work as stated in Article (a) during the maintenance guarantee period.
- c) The CONTRACTOR shall, if required by the ENGINEER IN CHARGE, search for the causes of any defects, imperfection or fault under the direction of the ENGINEER IN CHARGE. The cost of such search shall be borne by the CONTRACTOR.
- d) At intervals specified by the ENGINEER IN CHARGE the CONTRACTOR, along with the ENGINEER IN CHARGE, shall inspect the contract work to satisfy himself that no defects have cropped up in the contract work. Should there be any signs of defects, the CONTRACTOR shall take immediate steps to rectify the same, failing which; the ENGINEER IN CHARGE may get the defects rectified at the risk and cost of the CONTRACTOR.

- e) At the end of the maintenance guarantee period, the CONTRACTOR, along with the ENGINEER IN CHARGE, shall carry out final inspection of the contract work to prove that no defects had appeared in the contract work or that all defects which appeared in the contract work have been rectified to the entire satisfaction of the ENGINEER IN CHARGE. If during the final inspection it is found that the defects still remain in the contract work, the period of maintenance guarantee shall be extended at the discretion of the ENGINEER IN CHARGE and the CONTRACTOR shall be liable to make good the defects and be responsible for the maintenance of the work till the defects have been fully rectified.
- f) Upon successful completion of the maintenance guarantee period the OWNER shall issue final acceptance certificate to the CONTRACTOR

#### PAYMENT WITH HELD

The Architect may withhold or on account of subsequently discovered evidence nullify the whole or part of any certificate to such an extent as may be necessary in his reasonable opinion to protect the Owner from loss, for defective work, non- payment to Subcontractors, or other claims connected to this work.

#### INJURY TO PERSONS

The Contractor shall indemnify the Owner against any liability, loss, claim or proceedings whatsoever arising under any statutory or common law in respect of personal injury to or the death of any person, whomsoever arising out of or in the course of or caused by carrying out the work.

#### INSURANCE

Without prejudice to his ability to indemnify the Owner, the Contractor and his Subcontractors shall maintain such insurance as are necessary to cover the liability of the Contractor and the sub-Contractors.

#### INSURANCE AGAINST FIRE

The Contractor shall in the joint name of the Owner and the Contractor, insure the works against loss or damage due to fire, earthquakes and riots.

#### COORDINATION OF WORK

Contractor shall extend complete coordination to other agencies i.e. electrical, firefighting and interiors working on the same site.

## LABOUR

Contractor shall not employ child labour under 14 years of age and if female workers are employed, he should make provision for safeguarding the small children to keep them clear of the site. All labour shall wear safety helmets and shoes to protect them from injury.

## SAFETY

In respect of all labour directly or indirectly employed in the work for the performance of the contractor's part of this contract, the contractor shall at his own expense arrange for the safety provisions as per C.P.W.D. Safety Code framed from time to time and shall at his own expense provide for all facilities in connection therewith. In case the contractor fails to make arrangement and provide necessary facilities as aforesaid, he shall be liable to pay a penalty of Rs.200/- for each default and in addition, the Engineer-in- Charge shall be at liberty to make arrangement and provide facilities as aforesaid and recover the costs incurred in that behalf from the contractor.

## GUARANTEE

Besides guarantees required elsewhere, the Contractor shall guarantee the works in general for one year after completion of defects liability period.

## PERFORMANCE GUARANTEE

In addition to the Security Deposit the Contractor shall furnish a performance guarantee in the form of a Bank Guarantee to the tune of Five percent (5%) of the cost of the tender amount, which will be kept valid up to 24 months after completion of the work.

## WARRANTY

The Contractor shall give warranty that works to be done supplied shall be new and free from all defects and faults in material, workmanship, and manufacture and shall be of the highest grade and consistent with the established and generally accepted standards for materials of the type ordered and shall perform in full conformity with the specifications and drawings. The Contractor shall be responsible for any defects that may develop under the conditions provided by the contractor and under proper use, arising from faulty materials, design or workmanship such as corrosion of the equipment, inadequate contact protection, deficiencies in circuit design and or otherwise and shall remedy such defects at his own cost when called upon to do so by the Institute who shall state in writing in what respect goods are faulty. This shall survive inspection or payment for, and acceptance of goods, after the goods have been taken over.

If it becomes necessary for the contractor to replace or renew any defective Portion / portions of the equipment under this clause, the provisions of the clause shall apply to the portion / portions of equipment's replaced or renewed or until the end of the warranty



period of 24 months, whichever may be later. If any defect is not remedied within a reasonable time, the College may proceed to get the work done at the Contractor's risk and expenses, but without prejudice to any other rights which the College may have against the Contractor in respect of such defects. Replacement under warranty clause shall be made by the Contractor free of all charges at site including freight, insurance and other incidental charges

#### REPLACEMENT OF DEFECTIVE EQUIPMENT

If any equipment or any part thereof, is found defective or fails to meet the requirements of the contract before it is accepted College shall give the Contractor a notice setting forth details of such defects or failures and the Contractor shall forthwith arrange to set right the defective equipment or replace the same by the good one to make it comply with the requirements of the contract. This in any case shall be completed within a period not exceeding one month from the date of the initial report pointing out the defects. The replacement or rectification shall be made at site by the Contractor free of cost. Should the Contractor fail to do the needful within this stipulated time frame, the College reserves the right to reject the equipment in full or in part and get it replaced at the cost of the Contractor. The cost of any such replacement made by the College shall be deducted from the amount payable to the Contractor against this purchase order.

If any equipment or part thereof is lost or rendered defective during transit, pending settlement of the insurance claim, fresh order shall be placed on the Contractor for such loss or defective equipment and the Contractor shall arrange to supply the same within three months of such order at the same prices and on the same general terms and conditions as mentioned in this purchase order.

#### ADD ON ORDER

SGGSCC Pitampura reserves the right to place Add on order for additional quantity up to 100% of the original quantity at the same rate and terms & conditions of the purchase order within six months from the date of issue of purchase order.

#### ARBITRATION

In case of dispute, the difference of opinion on any matter pertaining to the works, the decision of the Architect shall be final and binding on the contractors and the owners. If either party is not satisfied with the decision of the Architect, within 28 days a notice to this effect will be sent to the Architect in writing. The matter can then be referred to sole arbitrator or a panel of two arbitrators who should be fellows of Indian Institute of Architect, for a final award. Decision of Principal SGGSCC shall be final and binding in this regard.

#### LIQUIDATION

If the CONTRACTOR commences to be wound up, not being a member's voluntary winding up for the purpose of amalgamation or reconstruction, or carries on his business under a receiver for the benefits of his creditor the OWNER shall be at liberty to:

i) Give such receiver the liquidator or other person the option of carrying out the performance under the Agreement, subject to the receiver, liquidator or other person providing a guarantee up to an amount to be agreed upon by the OWNER and such receiver liquidator or other person for the due and faithful performance of the CONTRACTOR's obligations under this Agreement, or

ii) If the receiver, liquidator or other person fails within 30 (thirty) days to exercise the option to carry out performance of the Agreement then the OWNER may terminate the Agreement and give notice in writing to the CONTRACTOR or to the receiver, liquidator or to any person in whom the Agreement may have become vested.

#### TERMINATION OF CONTRACT

If the CONTRACTOR violates the Agreement or shall neglect to execute the work with due diligence or expedition or shall refuse or neglect to comply with any reasonable directions, instructions or orders given to him in writing by the Architect/Engineer In-Charge in connection with the work or shall contravene or breach any provisions of the Agreement, the OWNER may give notice in writing to the CONTRACTOR to make good the failure, neglect or contravention complained of or cure that breach within a period of 30 (thirty) days of receiving such notice and in default of the compliance with the said notice, the OWNER without prejudice to his rights as below may rescind or terminate the Agreement stating therein the effective date of termination, holding the CONTRACTOR liable for the damages that the OWNER may sustain in this behalf.

Without prejudice to any of the rights or remedies under this contract, if the contractor dies, the Owner shall have the option of terminating the contract without compensation to the CONTRACTOR.

## BILL OF QUANTITIES

S.No	Description of Item	Unit	Qty.	Rate	Amount
<b>Part I</b>	<b>VRV / VRF Equipment's</b>				
<b>1)</b>	<b>Variable Refrigerant Volume / Flow Air-conditioning System</b>				
<b>1.1)</b>	<b>Outdoor Unit</b>				
	<p>Supply, Installation, testing and commissioning of Modular type outdoor units equipped with highly efficient scroll compressors with all inverter compressor(s), special heat exchanger, ODU dB level less than 50 at a distance 1 Meter, centrifugal fan for condenser, ODU having front suction &amp; top discharge, Y-branch as required, outdoor unit support, auto check function for connection error, auto address setting and capacity as mentioned below. VRF System shall be suitable for working on 48 °C ambient temperature, Refrigerant R 410A. Unit price shall be inclusive of full charge of Refrigerant Gas &amp; Oil, Freight, Insurance, all Taxes &amp; Duties etc. as applicable In INR. The COP of ODU mentioned below shall be at 100% load, 35 °C ambient temperature &amp; at 27 °C DB inside temperature. All interconnecting piping, joints and U bends within the condensing unit shall be painted with two coats of clear transparent polymer coating for protection against corrosion from ambient air pollution.</p> <p>Rates shall be inclusive of all labour, materials, lift, lead, Suitable aluminium floor stands etc. complete as required to complete the work to the satisfaction of the engineer in charge.</p>				
<b>1.1.1)</b>	18 HP Cool / Heat Pump Unit (Minimum COP 3.6 - Cooling Mode, Single Circuit, Additional Refrigerant As Required For The System)	NO.	4		

S.No	Description of Item	Unit	Qty.	Rate	Amount
1.1.2)	20 HP Cool / Heat Pump Unit (Minimum COP 3.6 - Cooling Mode, Single Circuit, Additional Refrigerant as Required for The System)	NO.	6		
1.1.3)	46 HP Cool / Heat Pump Unit (Minimum COP 3.6 - Cooling Mode, Single Circuit, Additional Refrigerant as Required for The System)	NO.	4		
1.2)	<b>Indoor Units (Ceiling Mounted Low / Medium / High Static Ductable / FCU / Outdoor Air Processing Unit (TFA) &amp; Cassette Units)</b>				
	Supply, Installation, testing and commissioning of Indoor units equipped with pre-filter, fan section with suitable static fan, multispeed motor, coil section with DX coil, outer cabinet, drain pan, insulation, pipe connections etc. of various capacities as per specifications and drawings.				
1.2.1)	<b>Ceiling Mounted Cassette Units</b>				
1.2.1.1)	Ceiling Mounted Cassette Type : 1.3 TR - Four Way (Size - 700 x 700 mm)	NO.	RO		
1.2.1.2)	Ceiling Mounted Cassette Type : 2.0 TR - Four Way (Size - 950 x 950 mm)	NO.	12		
1.2.1.3)	Ceiling Mounted Cassette Type : 3.2 TR - Four Way (Size - 950 x 950 mm)	NO.	8		
1.2.2)	<b>High Static Ductable Unit</b>				
1.2.2.1)	4.0 TR (1377 CFM) Ductable Type VRV Indoor Unit	NO.	6		
1.2.2.2)	5.5 TR (2047 CFM) Ductable Type VRV Indoor Unit	NO.	46		
1.2.2.3)	6.4 TR (2295 CFM) Ductable Type VRV Indoor Unit	NO.	9		
1.3)	<b>Y-joints (For Indoor Units)</b>				

<b>S.No</b>	<b>Description of Item</b>	<b>Unit</b>	<b>Qty.</b>	<b>Rate</b>	<b>Amount</b>
<b>1.3.1)</b>	Supply, Installation, testing and commissioning of Y-joints Including all Taxes & Duties, Freight, Insurance etc. In INR.	NO.	66		
<b>1.4)</b>	<b>Corded Self Diagnostic Type Remote Controllers</b>				
<b>1.4.1)</b>	Supply, Installation, Testing & Commissioning of Corded Self Diagnostic Type Remote Controllers Including all Taxes & Duties, Freight, Insurance etc. In INR. The remote wire shall be embedded in the walls in 2mm thick FRLS conduits of PolyCAB or equivalent make. Rates shall be inclusive of chase cutting in the walls and making good the same.	NO.	81		
<b>1.5)</b>	<b>Main Intelligent Central Controller System</b>				
<b>1.5.1)</b>	Supply, Installation, Testing & Commissioning of Main Intelligent Central Controller - I Touch System Suitable For 64 Indoor Units To Operate, Monitor, On / Off, Temperature Setting etc. Including all Taxes & Duties, Freight, Insurance etc. In INR.	Set	5		
	<b>Total of Part I Carried to Summary of Prices</b>				
<b>PART II AHU &amp; Controls</b>					
<b>2.1</b>	<b>Double Skinned Floor Mounted VRV DX AHU</b>				

S.No	Description of Item	Unit	Qty.	Rate	Amount
	Supply, installation, testing and commissioning of factory fabricated customized Double Skinned VRV DX Air-handling unit Floor mounted type fabricated out of extruded aluminium section with 0.8 mm pre-plasticized / pre-coated Galvanised steel sheet outside & 0.8 mm plain Galvanised steel sheet inside with blower, blower section and blower motor TEFC type suitable for operation on 415 volts $\pm$ 10%, 50 Hz $\pm$ 5% AC supply, 6 Row cooling coil made of Aluminium finned Copper tube with coil section, pre-filter section with non-woven synthetic media of 10 micron particle size with an efficiency of 90%, polished stainless steel drain pan made out of 22 G sheet duly insulated complete with motor, belt drive package, guard etc. without face and bypass dampers. The AHU panels shall be insulated with 23mm thick & 36 Kg/m <sup>3</sup> density PU foam & shall have thermal break.				
	The motor & blower assembly shall be mounted on Aluminium extruded section only. The complete AHU shall conform to specification & face velocity across cooling coil shall be limited to 152 MPM maximum. AHU DX coils shall be in tune with the requirement of VRV Outdoor Unit capacity and 1 / 2 / 3 / 4 equal divisions with respective HP ODU shall be made in cross sectional area of the coil respectively or as per manufacturer standard. The capacity of Air-handlers shall be as follows:				
<b>2.1.1</b>	For VRF DX AHU - 6,000 CFM, 50 mm St. Pr., 6 Row CC, 500 Dia Fan, 3.7 Kw Fan Motor.	NO	1		
<b>2.2</b>	<b>Expansion Kit, Communication PCB &amp; Thermostat</b>				

S.No	Description of Item	Unit	Qty.	Rate	Amount
	Supply, installation, testing and commissioning of Electronic Type Expansion Kit, Communication PCB with Sensors, Corded Self Diagnostic Type Digital Thermostat, Y-joints etc. as required Including all Taxes & Duties, Freight, Insurance etc. In INR.				
<b>2.2.1</b>	For VRF DX AHU Of Capacity 6,000 CFM with 20 HP VRV ODU	Set	1		
	<b>Total of Supply Part II Carried to Summary of Prices</b>				
<b>PART III Ventilation, Pressurisation &amp; Smoke Extraction Fans</b>					
<b>3.1</b>	<b>Plastic Propeller Fans</b>				
	Supply, installation, testing and commissioning of propeller exhaust fans of various capacities as given below suitable for 240 volts, 50 Hz, single phase AC supply complete with gravity louvers & speed regulator etc.				
<b>3.1.1.</b>	150 CFM	NO	28		
<b>PART IV Refrigerant Piping, Drain Piping &amp; Insulation Work.</b>					
<b>4.1</b>	<b>Refrigerant Piping for VRV / VRF System</b>				
	Supply, installation, testing and commissioning of interconnecting high pressure copper refrigerant piping work suitable for refrigerant R 410A duly insulated with elastomeric nitrile rubber type tubular insulation of density 55+/-10% Kg/m <sup>3</sup> between indoor & outdoor units as per specifications. External refrigerant piping shall be laid on 16 G GI covered perforated cable trays. Piping inside occupied area & vertical shaft inside the AHU Room shall be supported using 16 G GI hangers. All exposed pipe shall have UV coating on insulation & cost to be included in the piping. Cable tray is quantified				

S.No	Description of Item	Unit	Qty.	Rate	Amount
	separately.				
4.1.1)	41.3 mm O.D. (Min. Wall Thickness - 1.1 mm, insulation - 19 mm thick)	RMT	45		
4.1.2)	34.9 mm O.D. (Min. Wall Thickness - 1.21 mm, insulation - 19 mm thick)	RMT	45		
4.1.3)	28.6 mm O.D. (Min. Wall Thickness - 0.99 mm, insulation - 19 mm thick)	RMT	91		
4.1.4)	22.2 mm O.D. (Min. Wall Thickness - 0.99 mm, insulation - 19 mm thick)	RMT	50		
4.1.5)	19.1 mm O.D. (Min. Wall Thickness - 0.99 mm, insulation - 13 mm thick)	RMT	99		
4.1.6)	15.9 mm O.D. (Min. Wall Thickness - 0.80 mm, insulation - 13 mm thick)	RMT	155		
4.1.7)	12.7 mm O.D. (Min. Wall Thickness - 0.80 mm, insulation - 13 mm thick)	RMT	140		
4.1.8)	9.5 mm O.D. (Min. Wall Thickness - 0.80 mm, insulation - 13 mm thick)	RMT	120		
4.1.9)	6.4 mm O.D. (Min. Wall Thickness - 0.80 mm, insulation - 13 mm thick)	RMT	RO		
4.2	<b>Condensate Drain Piping</b>				
	Supply, installation, testing and commissioning of UPVC condensate drain water piping of density 20 Kg/m <sup>3</sup> complete with fittings like elbows, tees, reducers, bends, flanges, supports, insulation etc. as required and of following sizes.				
4.2.1)	25 mm dia pipe, Insulation Thickness - 13 mm	RMT	355		
4.2.2)	40 mm dia pipe, Insulation Thickness - 13 mm	RMT	450		
4.2.3)	50 mm dia pipe, Insulation Thickness - 13 mm	RMT	30		
	<b>Total of Supply Part IV Carried To Summary Of Prices</b>				



S.No	Description of Item	Unit	Qty.	Rate	Amount
<b>PART V Air Distribution Work.</b>					
	<b>Rectangular/ Round/ Oval Ducting</b>				
<b>5.1)</b>	<b>Factory Fabricated GI Ducting</b>				
	Supply, installation, balancing and commissioning of Factory fabricated GSS sheet metal rectangular/round/oval ducting complete with neoprene rubber gaskets, elbows, splitter dampers, vanes, hangers, supports etc. as per approved drawings and specifications of following sheet thickness complete as require				
<b>5.1.1)</b>	24 G	SQ.MT	2000		
<b>5.1.2)</b>	22 G	SQ.MT	480		
<b>5.2)</b>	<b>Duct Insulation</b>				
	Supplying and fixing of following thickness duly laminated aluminium foil of mat finish closed cell Nitrile rubber (class "O") insulation on existing duct after applying two coats of cold setting adhesive (CPRX compound). The joints shall sealed with 50 mm wide and 3 mm thick self-adhesive nitrile rubber tape insulation complete as per specifications and as required.				
<b>5.2.1)</b>	19 mm	SQ.MT	2480		
<b>5.2.2)</b>	25 mm	SQ.MT	RO		
<b>5.3)</b>	<b>Acoustic Lining of Duct</b>				
	Supply and fixing of acoustic lining of supply air duct and plenum with 25 mm thick resin bonded glass wool having density of 32 kg/m <sup>3</sup> , with 25 mm X 25 mm GI section of 1.25 mm thick, at 600 mm centre to centre covered with Reinforced Plastic tissue paper and 0.5 mm thick perforated aluminium sheet fixed to inside surface of ducts with cadmium plated nuts, bolts, stick pins, CPRX compound etc. complete as required and as per specifications.	SQ.MT	390		

<b>S.No</b>	<b>Description of Item</b>	<b>Unit</b>	<b>Qty.</b>	<b>Rate</b>	<b>Amount</b>
<b>5.4)</b>	<b>Grills / Diffusers</b>				
	Supply, installation and testing of Powder coated Aluminium extruded grills / diffusers as per specifications given in tender and of following sizes.				
<b>5.4.1)</b>	Supplying & fixing of powder coated extruded aluminium Supply Air Grills with aluminium volume control dampers as per specifications.	SQ.MT	62		
<b>5.4.2)</b>	Supplying & fixing of powder coated extruded aluminium Return Air Grills without volume control dampers complete as required.	SQ.MT	72		
<b>5.4.3)</b>	Supplying, fixing testing commissioning of supply air diffusers of powder coated aluminium with aluminium volume control dampers with anti-smudge ring & removable core.	SQ.MT	10		
<b>5.4.4)</b>	Supplying, fixing testing commissioning of Return air diffusers of powder coated aluminium without volume control dampers with anti-smudge ring & removable core.	SQ.MT	10		
<b>5.4.5)</b>	Supplying & fixing of Fresh air intake / Exhaust air louvers with bird screen dampers (Aluminium extruded only)	SQ.MT	8		
	<b>Total Of Supply Part V Carried To Summary Of Prices</b>				
<b>PART VI Electrical Work.</b>					
<b>6.1)</b>	<b>M.C.C. VRV Outdoor Units (Panel Suitable For Outdoor Type - IP54), Location Near ODU</b>	Set	1		

S.No	Description of Item	Unit	Qty.	Rate	Amount
	Supply, installation, testing and commissioning of Cubical type sectionalised floor standing switch board by CPRI approved firms of 31 MVA fault capacity at 415 V complete with 4 strip, 630 A capacity Aluminium Bus - Bar Electrolytic grade E-91, cable alley, switchgears suitable for AC-23 duty & of following capacity & as per specification given in the tender.				
	<b>a) INCOMER</b>				
	500 A 4P MCCB with with overload, short circuit, earth fault, protection release, with 144 mm (0 - 500 A) ammeter with 3 CT and selector switch, 144 mm (0 - 500 V) Voltmeter with selector switch, phase indication light with protection fuse, on / off / trip indicating light with protection fuse. SET 01				
	<b>OUTGOINGS</b>				
	<b>i) For VRV ODU</b>				
	40 A 4P RCCB (300ma) SET 14				
	63 A 4P RCCB (300ma) SET 2				
	Controls & interlocking accessories as required. LOT				
<b>6.2)</b>	<b>M.C.C. For VRV Outdoor Units (Panel Suitable For Outdoor Type - IP54), Location Near ODU</b>	Set	10		

S.No	Description of Item	Unit	Qty.	Rate	Amount
	Supply, installation, testing and commissioning of Cubical type sectionalised floor standing switch board by CPRI approved firms of 31 MVA fault capacity at 415 V complete with 4 strip, 200 A capacity Aluminium Bus - Bar Electrolytic grade E-91, cable alley, switchgears suitable for AC-23 duty & of following capacity & as per specification given in the tender.				
	<b>a) INCOMER</b>				
	200 A TPN MCCB with with overload, short ckt., earth fault, protection release, with 144 mm (0 - 200 A) ammeter with 3 CT and selector switch, 144 mm (0 - 500 V) Voltmeter with selector switch, phase indication light with protection fuse, on / off / trip indicating light with protection fuse. SET 01				
	<b>OUTGOINGS</b>				
	<b>i) For VRV ODU</b>				
	40 A-63A 4P RCCB (300ma) SET 6				
	Controls & interlocking accessories as required. LOT				
	<b>Lump Sum Changes required in Main Panel</b>				
<b>6.3)</b>	<b>POWER CABLING</b>				
	Supply, laying, testing and commissioning of power and control cabling as per specification given in the tender.				
	A) Power cabling (XLPE insulated Aluminium / Copper conductor as given below armoured / unarmoured cables of 1.1 KV Grade) including cable end termination with brass compression glands & lugs etc as per specification.				

S.No	Description of Item	Unit	Qty.	Rate	Amount
	<b>Note:-</b> Power cable with earthing shall be made available near outdoor units. Only termination into HVAC equipment's (Indoor & Outdoor) shall be done by HVAC Contractor.				
<b>6.3.1)</b>	4C x 10 Sq. mm Copper Conductor (Armoured) For VRF Unit	RMT	15		
<b>6.3.2)</b>	4C x 16 Sq. mm Copper Conductor (Armoured) For VRF Unit	RMT	50		
	<b>Cable in Earth.</b>				
<b>6.3.3)</b>	4.0 C 300 Sqmm AL Armoured	RMT	100		
<b>6.3.4)</b>	4.0 C 240 Sqmm Al Armoured	RMT	450		
<b>6.4)</b>	<b>Communication &amp; Signal Cabling</b>				
<b>6.4.1)</b>	Providing & fixing of Communication & Signal Cabling 2C x 1.5 Sq. mm Shielded Tinned Copper Cable.	RMT	1200		
<b>6.4.2)</b>	MS Conduit 25 mm for Signal & Communication Cable	RMT	1200		
<b>6.5)</b>	<b>Cable Tray</b>				
	Supplying and installing following size of perforated GI cable trays including bends, tee, reducers etc with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with GI suspenders including bolts & nuts, suspenders etc as required.				
<b>6.5.1)</b>	150 mm x 50 mm x 1.6 mm	RMT	185		
<b>6.5.2)</b>	300 mm x 50 mm x 1.6 mm	RMT	115		
<b>6.5.3)</b>	450 mm x 50 mm x 1.6 mm	RMT	50		
	<b>Total of Supply Part VI Carried to Summary of Prices</b>				
<b>PART VII Split AC (UPS Room / Control Room)</b>					
<b>7)</b>	<b>Air-cooled Ductable Unit</b>				
<b>7.1)</b>	<b>Hi-wall Split Unit (5 Star Rated)</b>				

<b>S.No</b>	<b>Description of Item</b>	<b>Unit</b>	<b>Qty.</b>	<b>Rate</b>	<b>Amount</b>
	Supply, installation, testing and commissioning of Hi-wall Split Unit with rotary compressor & cordless control of following capacity with outdoor unit stand, power & control cabling, MCB, Voltage Stabilizer etc. as required.				
<b>7.1.1.)</b>	1.5 TR Hi-wall Split Unit	NO.	4		
<b>7.2)</b>	<b>Refrigerant Piping for Hi-wall &amp; Ductable Unit</b>				
	Supply, installation, testing and commissioning of additional refrigerant piping (two lengths) duly insulated with 13 mm for indoor application and 19 mm for outdoor application closed cell nitrile rubber of density 60+/-10% Kg/m <sup>3</sup> to interconnect indoor & outdoor units for each circuit. (Refrigerant piping for individual circuit shall be restricted to maximum length of 25 Meter by AC Contractor)				
<b>7.2.1)</b>	For Hi-wall Split Unit	RMT	100		
	<b>Total of Supply Part VII Carried To Summary Of Prices</b>				

<b>S.No</b>	<b>Description</b>	<b>Amount</b>
1	PART: I VRV / VRF Equipment	
2	PART: II AHU & Controls	
3	PART: III Ventilation, Pressurization & Smoke Extraction Fans	
4	PART: IV Refrigerant Piping, Drain Piping & Insulation Work	
5	PART: V Air Distribution Work	
6	PART: VI Electrical Work.	
7	PART: VII Split AC	
	<b>TOTAL OF HVAC WORKS (INCLUDING GST)</b>	

**RATES SHALL BE INCLUSIVE OF THE FOLLOWING:**

1. All tools, plants, labour, materials, equipment, technical staff etc. Required to complete the work up to the satisfaction of the engineer in charge.
2. All equipment stands, mounts, suspenders, brackets, gas and other consumables as may be required to complete the work satisfactorily.
3. Making shop drawings for the complete work, modifying them as may be required as per owners' requirements and taking approval of shop drawings before proceeding with the work at site.
4. 2 years on site comprehensive defect liability period with maintenance including all tools, plants, parts, labour, supervision and technical support staff.

<b>LIST OF APPROVED MAKES</b>		
<b>S.No.</b>	<b>ITEM DESCRIPTION</b>	<b>MAKES</b>
1	VRV / VRF AIR COOLED	O-GENERAL, TOSHIBA, MITSUBISHI, DAIKIN
2	Split AC Unit	O-GENERAL, TOSHIBA, MITSUBISHI, DAIKIN
3	AHU's (with DX-type coil)	Zeco Edgetech Ravi aircon VTS
4	FCU's	Zeco Edgetech Ravi aircon VTS
5	Motors	Siemens ABB General Electric
6	Filters	Mechmark Merchair Sterile air
7	Fans	
a	Centrifugal Fans	Kruger Green Heck Mico
b	Cabinet Fans Kruger Green heck Mico	Kruger Green Heck Mico
c	Vane/ Tube Axial Fans Kruger Green Heck Mico	Kruger Green Heck Mico



<b>LIST OF APPROVED MAKES</b>		
<b>S.No.</b>	<b>ITEM DESCRIPTION</b>	<b>MAKES</b>
d	Propeller Fans Kruger Green Heck Mico	Kruger Green Heck Mico
e	Inline Fans Kruger Green Heck Mico	Kruger Green Heck Mico
8	Electrical Panel	EAP RST Krypton
9	GSS Factory Fabricated Duct	Ductofab Zeco Rolastar
10	Flexible Duct	Thermafex Rolastar GP Spira
11	Duct Support	Hilti Gripple
12	Grills	Ruskin Titus Caryaire Glenstorms Cynor
13	Diffuser	Ruskin Titus Caryaire Glenstorms Cynor
14	Louvers	Ruskin Titus Caryaire Glenstorms Cynor
15	Fire Dampers	Ruskin Titus Caryaire Glenstorms Cynor

<b>LIST OF APPROVED MAKES</b>		
<b>S.No.</b>	<b>ITEM DESCRIPTION</b>	<b>MAKES</b>
16	Fire Damper Actuators	Johnson Honeywell Belimo
17	Volume Control Dampers	Ruskin Titus Conaire Glenstorms
18	Refrigerant	Piping Mandev Rajco Kembla
19	Welding Rods	Advani , L & T , Maruti weld
20	M.S Pipes	Sail Tata Jindal
21	Balancing Valves	Danfoss Belimo Advance
22	Flexible connection	Easyflex BDK Resistoflex
23	Duct Insulation	Thermobreak Torcellene K-flex
24	Pipe Insulation	Thermobreak Torcellene K-flex Armacell
25	Accoustic Insulation	Armacell Owen's Corning K- flex

<b>LIST OF APPROVED MAKES</b>		
<b>S.No.</b>	<b>ITEM DESCRIPTION</b>	<b>MAKES</b>
26	Aluminium Tape	Johnson Birla 3M Wonder Polymer
27	Adhesive	Pidilite Mechduct
28	PVC Pipe	Astral Supreme Finolex
29	Isolators	Indo-Asian ABB Schneider

**FORM OF PERFORMANCE SECURITY  
BANK GUARANTEE BOND**

In consideration of the Principal Sri Guru Gobind Singh College of Commerce (hereinafter called "The Owner") having agreed under the terms and conditions of agreement no.

Dated:

---

Made between the Owner and

---

(hereinafter called "the Said Contractor(s)) for the work of **"Supply, Installation, Testing and Commissioning of HVAC System for CLASSROOMS at Sri Guru Gobind Singh College of Commerce, New Delhi"** herein after called "the said agreement".

We (please mention name of the bank below)

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Undertake to pay to The Owner an amount not exceeding Rupees  
(In words)

---

On demand by The Owner.

2. We (please mention name of the bank below)

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Do hereby undertake to pay the amounts due and payable under this Guarantee without any demure, merely on a demand from The Owner stating that the amount claimed is required to meet the recoveries due or likely to be due from the said contractor(s). Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the bank under this Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rupees

(In words)

---

3. We, the Said Bank further undertake to pay to The Owner any money so demanded notwithstanding any dispute or disputes raised by the Said Contractor(s) in any suit or proceeding pending before any court or tribunal relating thereto, our liability under this present being absolute and unequivocal.

The payment so made by us under this bond shall be a valid discharge of our liability for payment thereunder and the Said Contractors(s) shall have no claim against us for making such payment.

4. We (please mention name of the bank below)

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Further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and it shall continue to be enforceable till all the dues of The Owner under or by virtue of the said agreement have been fully paid and its claims satisfied or discharged or till Engineer-in-Charge on behalf of The Owner certified that the terms and conditions of the said agreement have been fully and properly carried out by the Said Contractor(s) and accordingly discharges this guarantee.

5. We (please mention name of the bank below)

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Further agree with The Owner that The Owner shall have the fullest liberty without our consent and without effecting in any manner our obligations hereunder to vary any of the terms and conditions of the said agreement or to extend time of performance by the said contractor(s) from time to time or to postpone for anytime of from time to time any of the powers exercisable by The Owner against the said contractor(s) and to for-bear or enforce any of the terms and conditions relating to the sad agreement and we shall not be relived from our liability by reason

of any such variation, or extension being granted to the Said Contractor(s) or for any forbearance, act of commission on part of The Owner or any indulgence by The Owner to the Said Contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

6. This guarantee will not be discharged due to the change in the constitution of The Bank or the Said Contractor(s)

7. We (please mention name of the bank below)

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Lastly undertake not to revoke this guarantee except with the previous consent of The Owner in writing.

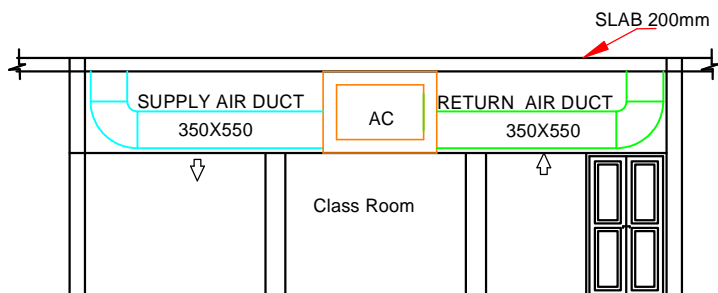
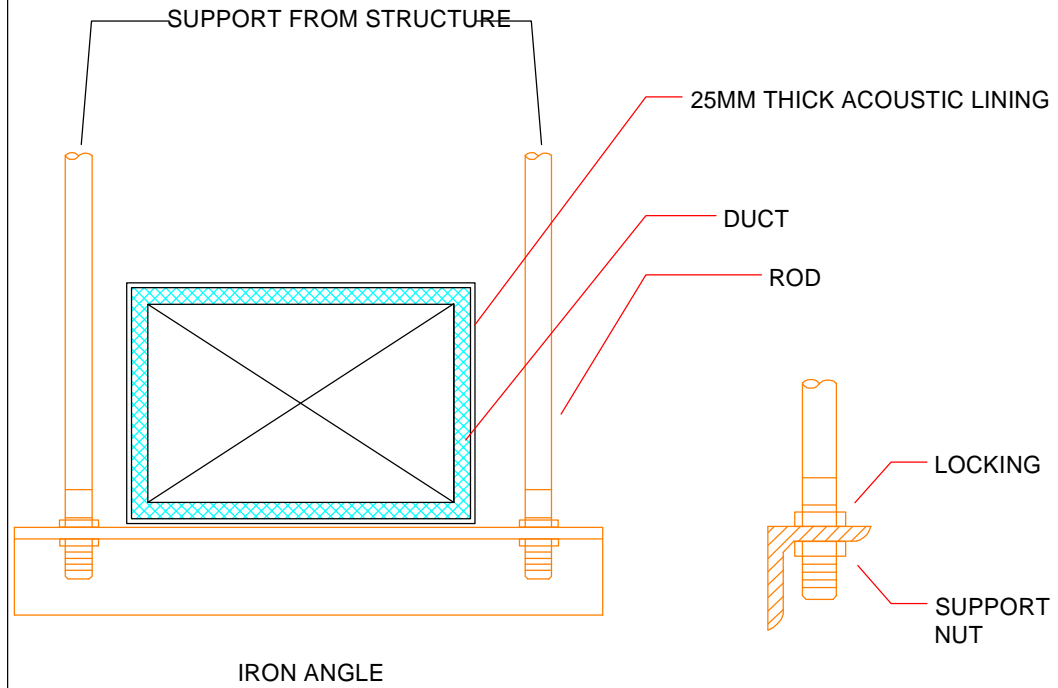
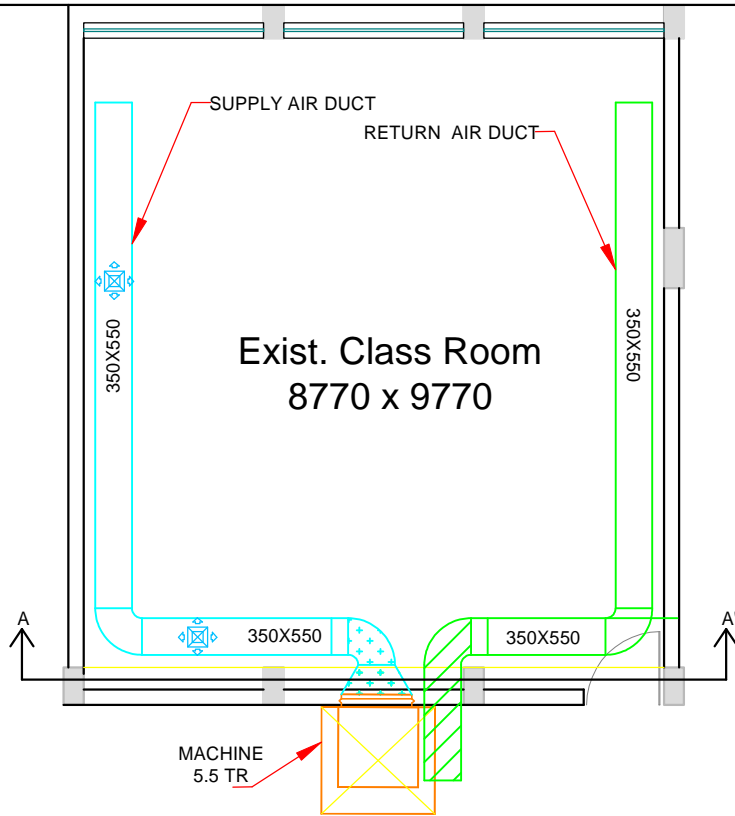
8. This Guarantee shall be valid upto \_\_\_\_\_. Unless extend on demand by The Owner. Notwithstanding anything mentioned above, our liability against this guarantee is restricted to Rupees

(In words)

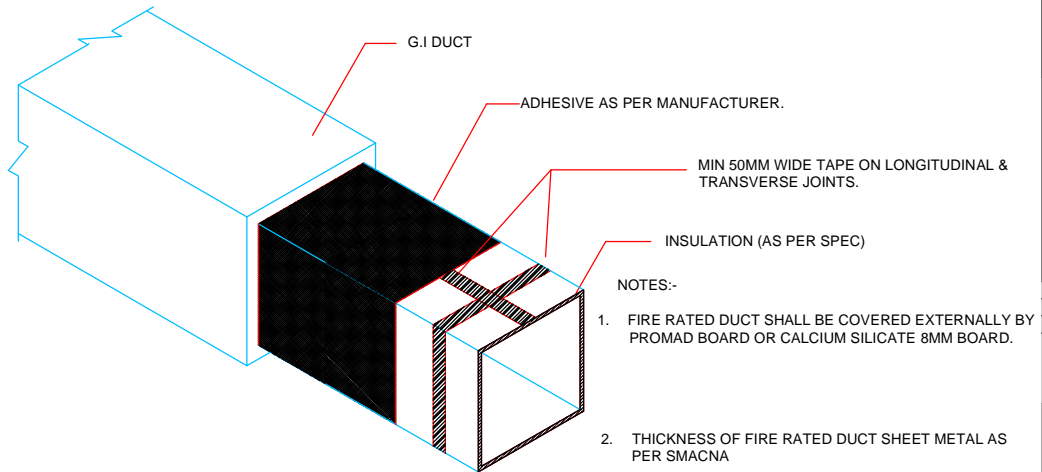
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And unless a claim in writing is lodged with us within six months of the sate of expiry of the extended date of expiry of this guarantee all our liablities under this guarantee shall stand discharged.

Dated: the \_\_\_\_\_ day of \_\_\_\_\_ for \_\_\_\_\_ (Bank).



SECTION- A A'



MEP CONSULTANT:-  
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REV 1	DATE: 29-09-2020	SHEET NO.
SCALE: 1:100		AR-1
DRAWN BY: SANJAY		
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SHEET TITLE  
SCHEMATIC DRAWING FOR HVAC

PROJECT:  
SRI GURU GOBIND SINGH COLLEGE  
OF COMMERCE PITAMPURA,  
NEW DELHI.

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Architects, Engineers & Interior Designers  
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