COLLEGE OF ENGINEERING AND MANAGEMENT, KOLAGHAT

P.O. KTPP TOWNSHIP, P.S. KOLAGHAT
DISTRICT: PURBA MEDINIPUR, WEST BENGAL – 721171

TENDER DOCUMENT

FOR

COMPREHENSIVE FIRE SAFETY WORKS INCLUDING SUPPLY, INSTALLATION, TESTING, COMMISSIONING AND OBTAINING FIRE SAFETY NOC / CERTIFICATE

Tender Reference No.: CEMK/ECS/TENDER/FIRE-SAFETY/141 /2026-27

Date of Issue	:	15-09-2026
Last Date & Time of Submission	:	By 5:00 PM on or before 30 September 2026
Date & Time of Opening of Technical Bid	:	01-10-2026 at 3 P.M
Date & Time of Opening of Financial Bid	:	01-10-2026 at 3 P.M
Completion Period	:	90 (Ninety) calendar days from the date of Work Order

ISSUED BY

COLLEGE OF ENGINEERING AND MANAGEMENT, KOLAGHAT

Technical Annexure:
Fire Safety Recommendation, Memo No. FSR/211862406300002829, Dated 19-08-2024.

1. NOTICE INVITING TENDER

College of Engineering and Management, Kolaghat (CEMK) invites sealed tenders from eligible and experienced Fire Protection / Fire & Safety System contractors/agencies for comprehensive execution of the fire safety works required for the existing campus/buildings of CEMK, including supply, installation, testing, commissioning, documentation, liaison with the competent Government Fire & Emergency Services authority, inspection coordination and obtaining the requisite Fire Safety NOC/Certificate.

The work shall be executed in accordance with the enclosed Fire Safety Recommendation issued by the West Bengal Fire & Emergency Services, Memo No. FSR/211862406300002829 dated 19-08-2024, together with applicable Indian Standards, National Building Code provisions and directions of the competent authority. A copy of the Fire Safety Recommendation is enclosed with this tender as **Annexure-I** for bidders to understand the nature, extent and technical requirements of the work.

Express exclusions: Section C - Staircase in full; Section E - Lift in full; fire-water reservoirs specifically identified in Section F, namely Underground 1,50,000 litres and Overhead 10,000 litres; and Section L - Alternative Power Supply/Generator in full. These works shall be arranged by another agency.

Principal contractual condition: The Contractor shall be responsible for testing, commissioning, coordination with the competent Fire Authority, rectification of observations within its scope, and obtaining the required Fire Safety NOC/Certificate. Payment shall be released only after successful completion and obtaining the required NOC/Certificate, subject to statutory deductions.

Tender documents (non-transferable) can be obtained from the Office of the Assistant Registrar (ECS) or downloaded from the college website (https://www.cemkolaghat.in). Any clarification, if required, may be sought through email at registrar@cemk.ac.in.

2. EARNEST MONEY DEPOSIT (EMD)

The bidder shall submit Rs. 50,000/- (Rupees Fifty Thousand only) in favour of the College of Engineering & Management, Kolaghat, by cheque or money receipt. The EMD shall be governed by the applicable CEMK procurement procedure and may be forfeited in case of bid withdrawal, refusal to accept the Work Order, failure to furnish Performance Security, or material breach of bid conditions.

3. TENDER FEES

Rs. 1000/- (Non-refundable) shall be deposited through cheque or money receipt in favour of the College of Engineering & Management, Kolaghat.

4. BACKGROUND OF THE WORK

The Fire Safety Recommendation relates to the existing construction comprising ten blocks of CEMK, including the Admin Block, Sub Station, Academic Building Mechanical Workshop, Workshop Complex, West Block, East Block, South Block, North Block, Annexed North Block and Canteen under Academic Building occupancy.

5. SCOPE OF WORK

The selected agency shall undertake a complete turnkey job, including but not limited to the following:

5.1. Survey, verification, detailed engineering, preparation of shop/as-built drawings where required, supply, installation, testing and commissioning of all fire safety systems and associated civil/electrical works necessary for compliance.

5.2. Fire-rated construction/compartmentation and sealing of vertical/horizontal ducts with approved fire-resisting materials; submission of fire-rating test certificates for constructional materials, as required by the Fire Safety Recommendation.

5.3. Ensuring/arranging required open-space and fire appliance access compliance, including unobstructed access, driveway/access arrangements and other applicable requirements identified by the Fire Safety Recommendation.

5.4. Exit-related compliance, including exit access, travel-distance requirements, unobstructed exit passage/discharge, exit signage and related works required for safe egress, as applicable to the premises.

5.5. Fire-fighting pump installation, including required electric/standby/diesel pump and jockey pump arrangements, manual/automatic starting facilities, controls, valves, accessories and commissioning, as applicable. The recommendation specifies 1620 LPM fire pumps and 180 LPM jockey pump capacity.

5.6. Wet-riser/down-comer, fire hydrant, hose-reel and fire-service inlet systems, including piping, hydrant valves, landing valves, hose reels, supports, pressure testing, painting/identification and commissioning, in accordance with applicable IS specifications and the Fire Safety Recommendation.

5.7. Automatic sprinkler installation wherever required, including sprinkler piping, alarm gong, valves, testing/drain arrangements and roof-level testing line, with coverage of areas identified in the recommendation.

5.8. Gas-bank protection, where applicable, by suitable Medium Velocity Water Spray Projector System and associated controls/piping/accessories.

5.9. Electrical fire-safety protection works associated with fire safety installations, including protection of electrical installations with CO□/DCP extinguishers and sealing of electrical ducts with fire-resisting materials, as applicable.

5.10. Fire detection and alarm system, including manual call points/break-glass units, hooters, heat/smoke detectors, visual indication/control panel, control room interfacing, public address/two-way communication arrangements, cabling, power supply, testing and commissioning, as applicable. The recommendation requires conformity with IS 2189.

5.11. Suppression/protection for computer, electrical processing/data rooms and rooms containing irreplaceable articles, including appropriate portable extinguishers and total-flooding CO_2/FM-200 systems where required by the recommendation/design.

5.12. Air-conditioning/fire-safety interface works, where centralized A.C. exists, including fire dampers, AHU shutdown interlocking with fire alarm, sealing of duct penetrations, non-combustible insulation/materials, inspection panels and associated modifications required for compliance.

5.13. First-aid fire-fighting arrangements including portable fire extinguishers, fire buckets and accessories at required floors/vulnerable locations, in accordance with IS 2190 and the recommendation.

5.14. Fire notices, evacuation/escape-route signage, floor/directional signage and other safety signage required by the Fire Safety Recommendation.

5.15. All necessary testing, hydraulic testing, pressure testing, electrical testing, alarm/sprinkler/hydrant functional testing, demonstrations, mock inspection support and rectification of defects/observations raised by the competent authority.

5.16. Preparation and submission of technical documents, test certificates, manufacturer certificates, compliance statements, drawings, commissioning reports and any other documents required by the competent Government authority.

5.17. Liaison with West Bengal Fire & Emergency Services and other competent Government authorities, submission of applications/documents; arranging inspections, demonstrations and testing; attending observations; carrying out necessary rectification; and obtaining the final Fire Safety NOC/Certificate for the premises. The recommendation states that inspection/testing and issuance of the Fire Safety Certificate follow compliance with the prescribed life and fire safety measures.

6. GENERAL TERMS AND CONDITIONS

6.1. The bidder shall inspect the site and satisfy itself regarding existing conditions, access, building configuration, routing, quantities and all other factors affecting execution before quoting.

6.2. The bidder shall be deemed to have examined the enclosed Fire Safety Recommendation and shall make adequate provision in its offer for all works required for successful compliance within its quoted scope.

6.3. Any discrepancy in quantities discovered during execution shall not automatically entitle the contractor to additional payment where the work is necessary for achieving the intended functional and statutory compliance of the quoted item.

6.4. All materials shall be of standard quality and shall be supported by test certificates, type-test certificates, product datasheets and/or manufacturer certificates wherever required by CEMK or the competent authority.

6.5. The contractor shall maintain proper records of installation, pressure tests, cable tests, functional tests, commissioning and inspection observations.

6.6. The contractor shall provide operation manuals, maintenance instructions, warranties/guarantees and as-built drawings after completion.

6.7. The contractor shall rectify, at its own cost, any defect or non-compliance arising from defective workmanship/materials or from incomplete execution of its scope during the defect liability/warranty period.

6.8. CEMK reserves the right to accept or reject any or all bids, wholly or partly, without assigning any reason, subject to applicable procurement rules.

6.9. The bidder shall not subcontract the principal fire safety works without prior written approval of CEMK. Specialist OEMs may be engaged with approval where technically necessary.

6.10. The contractor shall comply with applicable safety, labour, electrical and site safety requirements during execution and shall be responsible for protection of persons and property arising from its work.

6.11. The contractor shall coordinate its work with CEMK's nominated representative and other agencies working at site.

6.12. The contractor shall not claim completion until all required tests have been successfully demonstrated and the final Fire Safety NOC/Certificate has been obtained.

6.13. The enclosed Fire Safety Recommendation (Annexure-1) shall form an integral part of the tender document and contract.

Bidders may visit the site on any working day during office hours with prior permission from the Registrar, CEMK.

7. TECHNICAL REQUIREMENTS

7.1. Complete turnkey responsibility for supply, installation, testing, commissioning and statutory compliance.

7.2. Compliance with enclosed Fire Safety Recommendation, Memo No. FSR/211862406300002829 dated 19-08-2024, to the extent applicable to the scope of this tender.

7.3. Compliance with applicable NBC provisions and relevant/latest applicable Indian Standards; the recommendation specifically refers to IS 3844, IS 9972, IS 2189 and IS 2190 in relevant sections.

7.4. All equipment/materials shall be new, reputed make, suitable for the intended duty and supported by manufacturer/test certificates where required.

7.5. Hydrant/wet-riser system capable of meeting the recommended hydraulic performance and pressure requirements; pump capacities as specified in the recommendation.

7.6. Automatic fire detection and alarm system with heat/smoke detectors, manual call points, hooters, control/visual panel and required public-address/talk-back arrangements.

7.7. Automatic sprinkler system, including alarm gong and testing arrangement, wherever required by the recommendation/design.

7.8. Fire extinguishers and first-aid fire-fighting equipment installed at required locations and conforming to applicable IS requirements.

7.9. All penetrations/ducts requiring fire stopping shall be sealed with approved fire-resisting materials and appropriately documented.

7.10. Contractor shall carry out integrated testing and demonstrate satisfactory operation of all installed systems to the competent authority.

7.11. Contractor shall obtain all required inspection/testing clearances and final Fire Safety NOC/Certificate.

7.12. Any observation raised by the competent authority during inspection relating to the contractor's scope shall be rectified by the contractor at no additional cost.

8. STATUTORY / AUTHORITY APPROVAL AND NOC

The successful bidder shall be solely responsible for completing the statutory process necessary for obtaining the Fire Safety NOC/Fire Safety Certificate from the **Government authority**. This responsibility shall include preparation of drawings and documents, submission of applications, liaison, payment of statutory fees where specifically included in the bidder's quoted price, coordination of inspections/testing, demonstrations, compliance with observations and submission of the final NOC/Certificate to CEMK. No work shall be considered finally completed merely on physical installation. Completion shall mean successful testing and commissioning of the systems and obtaining the required Fire Safety NOC/Certificate from the competent authority.

9. PAYMENT TERMS

100% payment of the accepted contract value shall be released only after:

(i) Completion of the entire contractual scope

(ii) Successful testing and commissioning

(iii) Satisfactory inspection/testing by the competent Government authority
(iv) Rectification of all observations attributable to the contractor; and
(v) Submission of the final Fire Safety NOC/Certificate to CEMK.

Interim/provisional payments, if any, shall be subject to the specific approval of CEMK and shall not relieve the contractor of its obligation to obtain the final NOC/Certificate. No payment shall be treated as final acceptance until the statutory NOC/Certificate is obtained.

10. COMPLETION PERIOD

The entire work, including installation, testing, commissioning, documentation, authority inspection and obtaining the Fire Safety NOC/Certificate, shall be completed within **90 (Ninety)** calendar days from the date of issue of the Work Order, unless extended in writing by CEMK.

11. BID SUBMISSION – TWO BID SYSTEM

Bidders shall submit the offer in two separate parts:

- **A**. Technical Bid – without price information.
- **B**. Financial Bid – complete price schedule/BOQ with applicable taxes and all costs.

Interested contractors/bidders are requested to submit their tenders in a sealed outer envelope containing two separate sealed envelopes, (i) Technical Bid, (ii) Financial Bid, superscribed "**Tender for Fire Safety Works**", By 5:00 PM on or before **30 September 2026** to:

The Registrar
College of Engineering & Management, Kolaghat (CEMK)
Kolaghat, Dist: Purba Medinipur, West Bengal – 721171

Late submissions will not be entertained.

15-9-2026

Director
College of Engineering and Management, Kolaghat
P.O. KTPP Township, Dist. Purba Medinipur,
PIN : 721 171

Place : CEMK

ANNEXURE-I

Director
College of Engg. & Management
Kolaghat, West Bengal

Fire Safety Recommendation

Memo No.: FSR/211862406300002829 ,Dated: 19-08-2024

Issued by: Divisional Fire Officer, Paschim Medinipur, West Bengal Fire & Emergency Services

Fire Safety Note: The complete Fire Safety Recommendation is enclosed with this tender for reference and compliance with the specified technical and statutory requirements. Tenderers shall study the recommendation in full before submitting their Technical and Financial Bids. Upon satisfactory compliance, the competent authority will conduct the required inspection/testing and issue the Fire Safety Certificate.

ANNEXURE-2

12. TECHNICAL BID - DOCUMENT (*To be filled and documents submitted by the Bidder*)

Sl.	Document	Submitted (Yes/No)
1	Covering letter on bidder's letterhead.	
2	Company/firm registration certificate and constitution documents.	
3	GST Registration Certificate.	
4	PAN / Income Tax registration/Bank Account details/document.	
5	Relevant experience in fire protection/fire detection/hydrant/sprinkler works, preferably in institutional/educational buildings.	
6	List of similar completed/current works with client details and completion certificates/work orders, wherever available.	
7	Details of qualified technical personnel and competent supervisors/engineers proposed for the work.	
8	Manufacturer/OEM authorization or dealership documents for major systems/equipment, where applicable.	
9	Detailed technical compliance statement against this tender and Annexure-I.	
10	Preliminary work programme and completion schedule.	
11	Signed and stamped copy of all tender pages and annexures..	
12	Undertaking to undertake necessary authority liaison, inspection, rectification, and obtain the Fire Safety NOC/Certificate upon completion of the work.	

ANNEXURE-3

13. FINANCIAL BID / BOQ (*To be filled by the Bidder*)

The bidder shall quote firm rates for a complete turnkey execution. Rates shall include all labour, materials, equipment, tools, transportation, loading/unloading, scaffolding/access arrangements, installation, testing, commissioning, documentation, statutory coordination, rectification and all incidental costs necessary to obtain the Fire Safety NOC/Certificate, unless specifically stated otherwise in the BOQ.

Sl.	Description	Unit	Qty.	Rate (Rs.)	Amount (Rs.)
1	Detailed site survey, assessment, engineering and fire-safety drawings	LS	As per site		
2	Fire hydrant/wet-riser piping including fittings/supports	LS	As per site		
3	Hydrant/landing valves and accessories	No./Set	As per site		
4	Hose reel system	No./Set	As per site		
5	Fire service inlet assembly	No./Set	As per site		
6	Fire pump system including main/standby/jockey pumps	LS	As per site		
7	Pump control panel and accessories	No./Set	As per site		

Sl.	Description	Unit	Qty.	Rate (Rs.)	Amount (Rs.)
8	Automatic sprinkler system	LS	As per site		
9	Sprinkler alarm/test arrangement	No./Set	As per site		
10	Fire Alarm Control Panel	No./Set	As per site		
11	Smoke detectors	No./Set	As per site		
12	Heat detectors	No./Set	As per site		
13	Manual Call Points / Break Glass Units	No./Set	As per site		
14	Hooters/Sounders and visual indicators	No./Set	As per site		
15	Fire alarm cabling, conduit/trunking	LS	As per site		
16	Public Address / Emergency Communication System	LS	As per site		
17	Portable fire extinguishers and first-aid equipment	No./Set	As per site		
18	Fire stopping / fire-rated duct sealing	LS	As per site		
19	Kitchen fire protection, where applicable	LS	As per site		
20	Gas bank protection, where applicable	LS	As per site		
21	Fire safety signage and evacuation notices	LS	As per site		
22	Fire Control Room / Command Centre equipment/interface	LS	As per site		
23	Testing and commissioning	LS	As per site		
24	Documentation/as-built drawings/test reports	LS	As per site		
25	Obtaining Fire Safety NOC / Fire Safety Certificate	LS	As per site		
SUB-TOTAL					
GST					
GRAND TOTAL					

BOQ Note: Quantities shall be verified by the bidder through site inspection. CEMK may finalize the BOQ based on site verification, approved design and procurement requirements. The bidder shall submit the Financial Bid along with **Item-Wise Detailed Rate Analysis (item-wise breakup).**

Recommended detailed rate-analysis format

For example

Sl. No.	BOQ Item	Component	Unit	Qty.	Rate (Rs.)	Amount (Rs)
1	Fire hydrant/wet-riser piping	Pipe	Mtr.			
		Fittings	Lot			
		Valves	No.			
		Supports/hangers	Lot			
		Primer/painting	Lot			
		Labour/installation	LS			
		Testing & commissioning	LS			
Total for Item 1						
2	Fire pump system	Main pump	No.			
		Standby pump	No.			
		Jockey pump	No.			
		Control panel	Set			
		Valves & accessories	Lot			
		Electrical cabling	Lot			
		Installation & commissioning	LS			
Total for Item 2						
3	Fire alarm system	Fire alarm panel	No.			
		Smoke detectors	No.			
		Heat detectors	No.			
		MCPs	No.			
		Hooters/sounders	No.			
		Cables/conduits	LS			
		Installation/testing	LS			
Total for Item 3						

General Conditions for Financial Bid

1. ***Quoted rates*** *shall be inclusive of all costs for complete execution, including materials, labour, transportation, installation, testing, commissioning, tools, consumables, supervision, overheads, profit and incidental expenses.*
2. *Rates shall be based on site conditions, approved drawings, specifications and actual requirements. Bidders shall inspect the site before quoting.*
3. *All materials and equipment shall comply with applicable IS Standards, NBC provisions, fire-safety requirements and competent authority specifications.*
4. *The bidder shall submit a* ***Detailed Rate Analysis*** *supporting the rates quoted in the Financial Bid. In case of discrepancy, the* ***Financial Bid shall prevail****, subject to tender conditions.*
5. ***GST shall be indicated separately*** *at the applicable rate. Other taxes, duties and levies shall be as per applicable rules.*
6. *The contractor shall be responsible for testing, commissioning, demonstration and rectification of defects.*
7. ***No additional payment*** *shall be made for incidental works necessary for complete and functional execution within the scope of the tender.*

ANNEXURE-4

14. BIDDER'S UNDERTAKING

We hereby certify that we have carefully examined the Tender Document and the enclosed Fire Safety Recommendation issued by the West Bengal Fire & Emergency Services and fully understand the scope and requirements of the work. We undertake to execute the entire work in accordance with the tender conditions, applicable standards and the directions of the competent authority. The rates quoted in our Financial Bid are inclusive of all costs necessary for complete execution of the work, including supply, installation, testing, commissioning, documentation, statutory coordination, inspection support, rectification of observations and completion of all formalities required for obtaining the final Fire Safety NOC/Certificate, except taxes specifically indicated separately in the Financial Bid.

Name of Firm/Agency	:
Authorized Signatory	:
Designation	:
Address	:
Mobile / Telephone	:
E-mail	:
GSTIN	:
Signature & Seal	:
Date	:

सत्यमेव जयते

ANNEXURE-1

Government of West Bengal

Office of the Divisional Fire Officer

West Bengal Fire & Emergency Services

First Floor of Midnapur Fire Station Sepoy Bazar, P.O.:- Medinipur, P.S.:- Kotwali, Pin:- 721101

Memo No.: FSR/211862406300002829 **Date : 19-08-2024**

From :
Divisional Fire Officer
Paschim Medinipur
West Bengal Fire & Emergency Services

To :
College Of Engineering And Management , Kolaghat
P.o.-KTPP Township , P.s.-Kolaghat , Dist.-Purba Medinipur , Pin-721171

Sub: Fire Safety Recommendation for Existing construction consisting of 10 Blocks like Admin Block Single Storied, Sub Station Single Storey, Academic Building Mechanical Workshop Single Storey, Academic Building Workshop Complex Single Storey, Academic Building West Block G+III Storied, Academic Building East Block G+II Storied, Academic Building South Block G+I Storied, Academic Building North Block G+II Storied, Academic Building Annexed North Block G+II Storied, Canteen Single Storey under group Educational Building in the name and style of "COLLEGE OF ENGINEERING AND MANAGEMENT" situated at Plot No.- 938, 939, & 627 JL No.- 293 and 294, KTPP Township, PS- Kolaghat District- Purba Medinipur, West Bengal..

This is in reference to your AIN 211862406300002829 dated 27-Jun-2024 regarding Fire Safety Recommendation for Existing construction consisting of 10 Blocks like Admin Block Single Storied, Sub Station Single Storey, Academic Building Mechanical Workshop Single Storey, Academic Building Workshop Complex Single Storey, Academic Building West Block G+III Storied, Academic Building East Block G+II Storied, Academic Building South Block G+I Storied, Academic Building North Block G+II Storied, Academic Building Annexed North Block G+II Storied, Canteen Single Storey under group Educational Building in the name and style of "COLLEGE OF ENGINEERING AND MANAGEMENT" situated at Plot No.- 938, 939, & 627 JL No.- 293 and 294, KTPP Township, PS- Kolaghat District- Purba Medinipur, West Bengal.

The plan submitted by you was scrutinized and marked as found necessary from Fire Safety point of view. In returning one set of plan with recommendation, this office is issuing Fire Safety Recommendation in favor of the aforesaid building for compliance of the following fire safety measure.

Recommendation :

A) CONSTRUCTION:

1. The whole construction of the existing building shall be carried out as per approved plan drawings conforming the

relevant building rules of local Panchayat Body.

2. Every room with a capacity of over 45 persons in area shall have at least two doorways. Exit doors shall be operated by panic bars except that doors leading from classrooms directly to the outside may be equipped with the same type of lock as is used on classroom doors leading to corridor, with no provision whatsoever for locking against egress from the classroom.

3. Rooms or areas for use by the pre-school, kindergarten, Class/Grade 1 students shall be located on ground floor/level of exit discharge. Rooms or areas occupied by Class/Grade II students shall be located not above one floor higher than ground floor/level of exit discharge

4. Occupant load in educational building isprovided, shall be calculated at not less than 4SQMper person.

5. Construction and layout of the building shall remain same as per approved plan and shall never be altered in any part of the building except marked portion.

6. Material for rapid flame spread categories including untreated wood, fibred board etc. shall be not used. The doors and windows preferably shall be made of metal.

7. The floor area exceeds 750 m^2 shall be suitably compartmented by separation walls up to ceiling level having two hours fire resisting capacity.

8. All the marked construction should be done with proper fire rating things.

9. Fire rating test certificate of all constructional materials of the building should be submitted to this department before taking Fire Safety Certificate.

10. Areas of high risk of the building like kitchen, Main store and Engineering department should be separated from other parts of the building by the fire resisting wall.

11. All the marked construction should be done as soon as possible otherwise this should be treated as cancelled.

12. The interior finish decoration of the building shall be made low flame spread materials conforming I.S. specifications.

13. Provision of ventilation at the crown of the central core-duct of the building shall be provided.

14. Arrangement shall have to be made for sealing all the vertical and horizontal ducts by the materials of adequate fire resisting capacity.

B) <u>OPEN SPACE AND APPROACH:</u>

1. The open spaces surrounding the building shall conform the relevant building rules as well as permit the accessibility and maneuverability of Fire Appliances with turning facility.

2. The occupant load of each storey building is 1.4 m^2/person in such category of building.

3. The approach roads shall be sufficiently strong to withstand the load of Fire Engine weighting 45M.T.

4. The width and height of the access gate into the premises shall not be less than 4.5 mts. and 5.0 mts. respecting the abutting road.

5. Drive way should be free from any type of obstruction. No parking will be allowed on the drive way.

6. All the Passage way should be kept clear for free access.

7. Every room should have at least two gates.

C) <u>STAIRCASE:</u>

1. The staircase of the building shall be enclosed type. Entire construction shall be made of bricks/R.C.C. type having Fire Resisting capacity not less than 4 hours.

2. The minimum width of tread without nosing shall be250 mm for staircase of residential buildings. This shall be minimum 300 mm for assembly, hotels, educational, institutional, business and other buildings. The treads shall be constructed and maintained in a manner toprevent slipping. The maximum height of riser shall be190 mm for staircase of residential buildings (A-2) and150 mm for other buildings. The number of risers shall be limited to 10 max. 12 per flight. The staircases may be internal staircases or external staircases.

3. The staircase of the building shall have permanent vents at the top and openable sashes at each floor level in the external walls of the building.

4. The width of the staircase shall be made as marked in the pan. Corridors and the exit doors shall conform the relevant Building Rules with up-to-date amendment.

5. All the staircase shall be extended up to terrace of the building and shall be negotiated to each floor.

6. Stair shall be extended up-to roof in service utility block.

7. Four Nos. of External Stair case (Metal having 1.5 mtrs./flight.) showing in plan.

D) EXIT:

1. The portion of a means of egress that leads to an exit (for example, doorways, staircase lobby, ramps, Veranda, corridor or passageway leading to an exit)
2. Travel distance shall be maintained 30 M in educational and residential building.
3. Exit should be so arranged that at least two separate exits are available in area.
4. Every exit passageway and exit discharge shall be continuously maintained free of all obstructions or impediments to full use in the case of fire or other emergency.
5. In every building exit shall comply the minimum requirements of this part for general public use.
6. Free access and movement of fire vehicles shall confirm throughout the premises.
7. Exit shall be as remote from each other as practicable and so arranged that there are no
8. Pockets or dead end occurred in which occupants may be trapped.
9. Every exit door way shall be open into a horizontal exit of corridor.
10. Exit width will as be mentioned in the N.B.C. Part-IV.

E) LIFT: (if applicable)

1. The walls of the lift enclosure shall be at least two hours Fire Resisting type.
2. Collapsible gate shall not be permitted.

F) FIRE FIGHTING WATER:

1. Underground water reservoir having water capacity of 150000 ltrs. and Over Head Water Reservoir 10000 is to be provided exclusively for firefighting purpose with replenishing arrangements @ 1000 ltrs/min. preferably from two different sources of water supply shall be provided.
3. The water reservoirs shall have overflow arrangement with the domestic water reservoir as well as to avoid stagnancy of water. The water reservoir shall be kept full at all time.
4. Provision of necessary manhole shall be made on the top of the reservoir as per specification.
5. All the hydrants should be satisfying the code practice.
6. The deep tube well for the replenishment of the reservoir shall be incorporated with auto starting facility with the actuation of the auto detection and suppression arrangement of the premises and also be connected with dual power supply units.
7. Fire water reservoir will be so constructed that fire vehicles can be reached near the source to draw water in case of emergency.

G) PUMP

1. Provide required number of set of pumps each consisting of one electric pump, one standby pump (preferably diesel pump) of capacity 1620 LPM and one electric jockey pump of capacity 180 LPM confirming the table 7 of NBC Part IV.
2. All pump shall be shall be incorporated with both manual and auto starting facility. The suction of pumps shall preferably of positive type or in case of negative suction the system shall be wet-riser cum down comer with suitable terrace pump connected with overhead tank.

H) WATER LAYOUT SYSTEM and HYDRANT:

1. Wet riser should be provided two pipe line one in old building and one in new building stair with min. dia. 100 mm.
2. The system shall be so designed that shall be kept charged with water all the time under pressure and capable to discharge 1620ltrs /min. at the ground level outlet at the pressure of 3.5 Kg/sq.cm. at furthermost point. All the requirements of the water base fire protection system shall be made as per I.S. specification 3844-1989 with up to date amendment.
3. Provision for Hose Reel in conjunction with Wet Riser shall be made at each floor level in both stair landings/half-landingsand conforming the relevant I.S. Specifications in all floors and all blocks.
4. Provision for Hydrant Valve in conjunction with Wet Riser shall be made at each floor level in both stair landings/half-landings and conforming the relevant I.S. Specifications in all floors and all blocks.
5. Fire Service inlet with one hydrant valve shall be installed conforming the relevant I.S. Specifications.

I) SPRINKLER INSTALLATION:

1. Automatic sprinkler shall be installed wherever required in terms of Table 7 throughout the building in accordance

with good practice [4(20).

2. The automatic sprinkler installation shall be provided at Kitchen, Conference Hall, Hall, Dining, Lab Room, Laboratory, Computer Room, Cafeteria, Library, Stores etc. of the building as per I.S. 9972. Alarm Gong to be incorporated along with the sprinkler system.

3. A testing line of sprinkler shall be installed at roof level for routine inspection.

J) <u>GAS BANK PROTECTION (If available)</u>

Gas bank shall have to be protected with Medium Velocity Water Spray Projector System.

LPG Cylinders should be stored in a well-ventilated, outdoor area to avoid CO build-up. It should ideally be covered and on a dry and level surface to prevent pooling. Store them above ground level and away from doors, drains, or any combustibles to minimize risk

K) <u>ELECTRICAL INSTALLATION AND DISTRIBUTION:</u>

1. The electrical installation including Transformers, Switch Gear, Main and Meters etc. and the distribution system of the premises shall be made satisfying the code of practice for Fire Safety in general building as laid down in I.S. specification 1946-1982.
2. The vertical and horizontal electrical ducts shall be sealed at each floor level by fir resisting materials.
3. The electrical installation shall be adequately protected with CO2/D.C.P.
4. Arrangement for alternative power supply shall have to be made to supply power with the help of a generator to operator at least the Fire Pump, Deep Tube-Well Pump, Fire Alarm System etc. and also for illuminating the Staircase, Corridors, Lobbies etc. and other places of assembly of the building in case of normal power failure.

L) <u>ALTERNATIVE POWER SUPPLY</u>

1. Arrangement for alternative power supply shall have to be made to supply power with the help of a generator to operate at least the Fire Pump, Deep Tube-Well Pump, Fire Alarm System etc. and also for illuminating the Staircase, Corridors, Lobbies etc. and other places of assembly of the building in case of normal power failure.
2. Emergency Lighting — Lighting provided for use when the supply to the normal lighting fails.
3. Emergency Lighting System — A complete but discrete emergency lighting installation also fed from the standby power source to the emergency lighting lamp(s), for example, self-contained emergency luminaries or a circuit from central battery (with or without monitoring system) connected through wiring to several escape lighting luminaries.
4. Emergency power for fire and life safety systems- Emergency power supplying distribution system for critical requirement for functioning of fire and life safety system and equipment shall be planned for efficient and reliable power and control supply to the following systems and equipment where provided:

a) Fire pumps.
b) Exit signage lighting.
c) Emergency lighting.
d) Fire alarm system.
e) Public address (PA) system (relating to emergency voice evacuation and annunciation.

M) <u>KITCHEN PROTECTION (If available) :</u>

1. Kitchen using open flames or fat fryers should be compartmented from rest of the floor areas with fire separation wall of minimum 60 minutes fire resistance capacity.
2. Fire Doors should be implemented with 60 minutes fire resistance capacity with automatic self closing device.
3. The kitchen should be adequately ventilated.
4. The entire kitchen areas should be protected with automatic water sprinklers extended from the existing water base system in the building. However, no sprinklers should be provided within 3 m of cooking equipment and kitchen hood. Temperature rating of sprinklers should be 30°C above the anticipated maximum temperature within the kitchen. Sprinklers installed inside exhaust ducts should be of temperature rating of 141°C.
5. Kitchen hoods and areas of cooking equipment should be protected with Ansul R-102 nozzles.
6. The entire kitchen areas should be installed with automatic thermal detectors of approved rating. The installed thermal detectors should be connected to the existing fire detection alarm panel of the building.
7. First aid fire-fighting equipment of approved class should be installed as per provisions of IS: 2190-2010.
8. Cleaning of kitchen exhaust ducts should be done periodically to ensure that carbon soot does not accumulate in the

duct to avoid chances of outbreak of fire.

9. Installed detectors and sprinklers should be checked periodically to ensure that the sensors detecting equipment are not coated with grease and other suspended particular matter and thus their sensing capabilities are desensitized.

10. Grease strip should be available for efficient and regular cleaning of concrete or paved floors of kitchen and also drainage areas.

11. The exhaust should terminate outside the building with a fan or duct with a minimum horizontal clearance of 3 m from the outlet.

12. Haphazard storage of items should be strictly prohibited. Storage should be made in non combustible metal racks with proper aisle width, without encroachment of egress routes of the kitchen.

13. All other safety measures should be in compliance to the existing provisions of Clause 6 Annex G of National Building Code of India, 2016, Part 4.

Pantry.—

(1) No pantry shall have a floor area of less than 3 sq. meters and a width of less than 1.4 meters.

(2) Every pantry shall have a means of the washing kitchen utensils, if not provided in the kitchen, the effluent from which shall lead directly or through a sink to grated and trapped connection to waste water drainage system.

N) DETECTION AND ALARM SYSTEM:

1. Manually operated Electrical Fire Alarm System with at least three numbers of break glass type call boxes fitted with Hooters along with Public Address System at each floor connecting with visual panel board shall be made in Control Room. The Control Room shall be located at entrance of ground floor of the building, other requirements of the system shall be made conforming I.S. 2189-1988.

2. The suppression system shall be made with Fire Extinguishers and total flooding system with CO2/F.M.-200 particularly in Computer, Electrical processing and Data Room and in all rooms of irreplaceable articles.

3. PUBLIC ADDRESS SYSTEM: A system of two way talk back speaker with push to talk speakers to be provided at every staircase or firemen telephone to be provided at every staircase. Necessary console and amplifier with micro phone to be provided at ground floor in fire command center.

4. Auto Fire Detection System with the help of Heat and Smoke Detectors shall be installed in al places of below and preferably above false ceiling of the building. The system shall also be made in place of rooms where valuable articles have been kept. The other requirements of the system shall be made in accordance with I.S. 2189-1988.

5. Hooters will be sounded in such a manner so that an operation of a Detectors or Manual Call Point. Hooters will be sounded on the same floor and immediate alternate floor.

6. Public Address System linked between all floors and Control Room shall have to be established.

O) AIR CONDITIONING SYSTEM (If centralized A.C. is there):

1. The A.H.U. shall be separated for each floor with the system. Air Ducts for individual floors.

2. Arrangement shall be made for isolation at the strategic locations by incorporating auto dampers in the Air Conditioning System.

3. The system of auto shut down of A.H.U. shall be incorporated with the Auto Detection and Alarm System.

4. The Air Handling Units room shall not be used for storage of any combustible materials.

5. Escape routes like staircase, common corridors, lift lobbies etc. shall not be used as return air passage.

6. Wherever the ducts pass through fire walls of floors, the opening around the ducts shall be sealed with fire resisting materials such as asbestos rope vermiculite concrete etc.

7. As far as possible metallic ducts shall be used even for the return air instead of space above the false ceiling.

8. The materials used for insulating the ducts system (inside or outside) shall be of non-combustible materials glass wool shall not be wrapped or secured by any materials of combustible nature.

9. Area more than 750 sq. m. on individual floor shall be segregated by a fire wall and automatic fire dampers for isolation shall be provided.

10. Air ducts serving main floor area, corridors etc. shall not pass through the staircase enclosure.

11. The Air Handling Units shall be separated and in no way interconnected with the ducting of any other floor.

12. If the Air Handling Units serve more than one floor, the recommendation given above shall be complied with in addition to the conditions given below:-

a) Proper arrangements by way of automatic fire dampers working on fusible links for isolating all ducting at every

floor from the main riser shall be made.

b) When the automatic fire alarm operates the respective Air Handling Units of the air conditioning system shall automatically be switch off.

13. The vertical shaft for treated fresh air shall be of masonry construction.

14. The air filters for Air Handling Units shall be of non-combustible materials.

15. Inspection panel shall be provided in the main trucking facilitate the cleaning of ducts of accumulated dust and to obtain access for maintenance of fire dampers.

16. No combustible materials shall be fixed near than 15 cm. to any ducts unless such duct is properly enclosed and protected with non-combustible materials (glass wool or spun wool with neoprene facing enclosed and wrapped with Aluminum sheeting) at least 3.2 cm. thick and which would not readily conduct heat.

P) FIRST AID FIRE FIGHTING SYSTEM:

1. First Aid Fire Fighting arrangement in the style of portable Fire Extinguishers, Fire Buckets etc. in all floors and vulnerable locations of the premises shall be made in accordance with I.S. 2190-1992.

Q) GENERAL RECOMMENDATIONS:

1. Fire License under Section 12 of WBFS Act 1950, shall have to be obtained for proposed storing and processing with L.P.G. and other highly combustible articles.
2. Buildings intended for educational occupancy shall not be used for storage of any hazardous material.
3. Fire Notice for Fire Fighting and evacuation from the building shall be prepared and be displayed at all vulnerable places of the building.
4. Floor numbers and directional sign of escape route shall be displayed prominently.
5. The employees and security staffs shall be conversant with installed Fire Fighting Equipment's of the building and to operate in the event of Fire and Testing.
6. Arrangement shall be made for regular checking, testing and proper maintenance of all the Fire Safety installation and equipment's installed in the building to keep them in perfectly good working conditions at all times.
7. A crew of trained Fireman under the experienced Fire Officer shall be maintained round the clock for safety of the building.
8. Mock Fire practice and Evacuation Drill shall be performed periodically with participation of all occupants of the building.
9. Alternative power supply should be provided for the operation of all the fire protection system in the building.
10. Proper housekeeping should be maintained in the building both in storing and processing areas.
11. An independent two pump fire station with requisite men power, equipments and appliances as per norms shall be incorporated immediately.
12. Provision to be made to switch off the flow fuel from day-tank to the boiler, in case of exigency and to be installed with one number of 22.5 ltrs. capacity trolley mounted AFFF/DCP extinguisher.
13. Generator room should be protected by suitable suppression system.
14. Storing of combustible, non-combustible and flammable materials should be separated by the fire resisting walls in the building.
15. Explosion vents should be provided as per norms mentioned in the NBC part-IV in the building.
16. All the due protection should be taken for chemical used by the building.
17. Storage and kitchen area should be separated from each other by using fire resisting wall.
18. Entry should be restricted for entry of any unwanted person to avoid sabotage in the building.
19. The building should be abided by all building rules.
20. In case of fire only trained person will fight the fire specially husk fire.
21. Portable fire extinguishers should be installed as per I.S. specification.
22. Fire resisting wall to be constructed in between storing room and workshop, or between two different occupancies.
23. No hazardous substance to be stored within the building premises.

R) GOOD HOUSE-KEEPING includes the following:-

a) Maintaining the entire premises in neat and clean condition. 124 Model Building-Bye-laws Chapter-7 Fire Protection and Fire Safety Requirements

b) Ensuring that rubbish and combustible material are not thrown about or allowed to accumulate, even in small quantity, in any portion of the building. Particular attention must be paid to corners and places hidden from view.
c) Providing metal receptacles/waste paper basket (of non-combustible material) at suitable locations for disposal of waste. Separate receptacles must be provided for disposal of cotton rags/waste, wherever it is generated, these must under no circumstances be left lying around in any portion of the building.
d) Ensuring that receptacles for waste are emptied at regular intervals and the waste removed immediately for safe disposal outside the building.
e) Ensuring that all doors/fixtures are maintained in good repairs, particular attention must be paid to self-closing fire smoke check doors and automatic fire/doors/rolling shutters.
f) Ensuring that self-closing fire/smoke check doors close properly and that the doors are not wedged open.
g) Ensuring that the entire structure of the building is maintained in good repairs.
h) Ensuring that all electrical and mechanical service equipments are maintained in good working condition at all times.
i) Ensuring that Cars / Scooters etc. are parked systematically in neat rows. It is advisable to mark parking lines on the ground in the parking areas near the building and in the parking area on ground floor and in basement(s); as applicable, inside the building. A parking attendant must ensure that vehicles are parked in an orderly manner and that the vehicles do not encroach upon the open space surrounding the building.

Certificate is to be obtained from the Director General, West Bengal Fire and Emergency Services certifying about the building services, performance of all the Life and Fire Safety arrangements installation of the building.

On compliance of all the above Life and Fire Safety Recommendation, the Director General, West Bengal Fire and Emergency Services shall be approved for necessary inspection and testing of all the installation, Fire Safety Certificate in favour of the occupancy shall be issued on being satisfied with the tests and performances of safety aspects of installation of the building.

N.B. :ANY DEVIATION AND CHANGES THE NATURE OF USE OF THE BUILDING IN RESPECT OF THE APPROVED PLAN DRAWING, WITHOUT OBTAINING PRIOR PERMISSION FROM THIS OFFICE, THIS FIRE SAFETY RECOMMENDATION WILL BE TREATED AS CANCELLED.

Memo No.: FSR/211862406300002829

Divisional Fire Officer

West Bengal Fire & Emergency Services

The authenticity of this document can be verified by accessing the URL: edistrict.wb.gov.in and then clicking on the 'Verification of Digitally Signed Document' link and keying in Unique Number : 211862406300002829