

STATE OF NORTH CAROLINA

Division of Purchase and Contract

Invitation for Bid #: DPC-924516120-SP

Type C (Conventional) School and Activity Buses

Date Issued: February 9, 2024

Bid Opening Date: March 15, 2024

At 2:00 pm ET

Direct all inquiries concerning this IFB to:

Shayla C. Parker

State Procurement Manager

Email: shayla.parker@doa.nc.gov

Phone: 984-236-0233

STATE OF NORTH CAROLINA
Division of Purchase and Contract

Refer *ALL* Inquiries regarding this IFB to: **The procurement lead through the Message Board in the Sourcing Tool. See section 2.6 for details:**	**Invitation for Bids # DPC-924516120-SP** **Bids will be publicly opened: March 15, 2024** **Virtual Microsoft TEAMS meeting:** **Join on your computer, mobile app or room device** Click here to join the meeting Meeting ID: 251 866 271 556 Passcode: VzBVHb Download Teams | Join on the web **Join with a video conferencing device** ncgov@m.webex.com Video Conference ID: 116 380 587 6 Alternate VTC instructions **Or call in (audio only)** +1 984-204-1487,,590716173# United States, Raleigh Phone Conference ID: 590 716 173# Find a local number | Reset PIN Learn More | Meeting options
	Commodity No. and Description: 7811 – Type C (Conventional) School and Activity Buses

EXECUTION

In compliance with this Invitation for Bids (IFB), and subject to all the conditions herein, the undersigned Vendor offers and agrees to furnish and deliver any or all items upon which prices are bid, at the prices set opposite each item within the time specified herein.

By executing this bid, the undersigned Vendor understands that false certification is a Class I felony and certifies that:

- this bid is submitted competitively and without collusion (G.S. 143-54),
- that none of its officers, directors, or owners of an unincorporated business entity has been convicted of any violations of Chapter 78A of the General Statutes, the Securities Act of 1933, or the Securities Exchange Act of 1934 (G.S. 143-59.2), and
- it is not an ineligible Vendor as set forth in G.S. 143-59.1.

Furthermore, by executing this bid, the undersigned certifies to the best of Vendor's knowledge and belief, that:

- it and its principals are not presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from covered transactions by any Federal or State department or agency.

As required by G.S. 143-48.5, the undersigned Vendor certifies that it, and each of its sub-Contractors for any Contract awarded as a result of this IFB, complies with the requirements of Article 2 of Chapter 64 of the NC General Statutes, including the requirement for each employer with more than 25 employees in North Carolina to verify the work authorization of its employees through the federal E-Verify system.

As required by Executive Order 24 (2017), the undersigned vendor certifies will comply with all Federal and State requirements concerning fair employment and that it does not and will not discriminate, harass, or retaliate against any employee in connection with performance of any Contract arising from this solicitation.

G.S. 133-32 and Executive Order 24 (2009) prohibit the offer to, or acceptance by, any State Employee associated with the preparing plans, specifications, estimates for public Contract; or awarding or administering public Contracts; or inspecting or supervising delivery of the public Contract of any gift from anyone with a Contract with the State, or from any person seeking to do business with the State. By execution of this bid response to the IFB, the undersigned certifies, for Vendor's entire organization and its employees or agents, that Vendor are not aware that any such gift has been offered, accepted, or promised by any employees or agents of Vendor's organization.

By executing this bid, Vendor certifies that it has read and agreed to the **INSTRUCTION TO VENDORS** and the **NORTH CAROLINA GENERAL TERMS AND CONDITIONS incorporated below**. These documents can be accessed from the Ariba Sourcing Tool.

Bid Number: DPC-924516120-SP Vendor: White's International Trucks / IC Bus

Failure to execute/sign bid prior to submittal may render bid invalid and it MAY BE REJECTED. Late bids cannot be accepted.

COMPLETE/FORMAL NAME OF VENDOR: White's International Trucks / IC Bus		
STREET ADDRESS: 7045 Albert Pick Rd	P.O. BOX: Po Box 18605	ZIP: 27409
CITY & STATE & ZIP: Greensboro, NC 27409	TELEPHONE NUMBER: 336-668-0491	TOLL FREE TEL. NO: 800-632-1050
PRINCIPAL PLACE OF BUSINESS ADDRESS IF DIFFERENT FROM ABOVE (SEE INSTRUCTIONS TO VENDORS ITEM #21): 1700 Highway 301 South, Wilson, NC 27893		
PRINT NAME & TITLE OF PERSON SIGNING ON BEHALF OF VENDOR: Mark Hunt General Manager		FAX NUMBER: 336-668-9536
VENDOR'S AUTHORIZED SIGNATURE:	DATE: 3/14/2024	E-MAIL: markh@whitestractor.com

VALIDITY PERIOD

Offer shall be valid for at least 120 days from date of bid opening, unless otherwise stated here: _____ days, or if extended by mutual agreement in writing of the parties. Any withdrawal of this offer shall be made in writing, effective upon receipt by the agency issuing this IFB.

BID ACCEPTANCE

If your bid is accepted, all provisions of this IFB, along with the written results of any negotiations, shall constitute the written agreement between the parties ("Contract"). The NORTH CAROLINA GENERAL TERMS AND CONDITIONS are incorporated herein and shall apply. Depending upon the Goods or Services being offered, other terms and conditions may apply, as mutually agreed.

FOR STATE USE ONLY: Offer accepted and Contract awarded on this date: 4/29/2024 as indicated on the attached certification, by DocuSigned by: Shayla Parker 4BE4E[illegible] (Authorized Representative of Purchase and Contract)

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1.0 PURPOSE AND BACKGROUND

The Department of Administration (DOA) serves as the business manager for North Carolina state government and provides leadership to state government for the effective, efficient, economical, and equitable delivery of services to the public. The department also aids and services several advocacy programs that serve diverse segments of the state's population that have traditionally been underserved. The Division of Purchase and Contract (P&C) is the strategic force to provide the State's entities with a catalog of Statewide Term Contracts (STC) that provide for an encompassing organized and efficient manner to pool resources to provide goods and services.

The State through the Department of Administration (DOA) Division of Purchase and Contract (P&C) is seeking Vendors to establish a Statewide Term Contract to furnish and deliver the State's requirements for Type C (Conventional) School & Activity Buses throughout the State of North Carolina, on an "As Needed" basis, if and when ordered by Sate Deprtments, Agencies, and Higher Education Institutions during the contract period.

The intent of this Invitation for Bid (hereinafter, "IFB") is to receive pricing from Vendors which will offer savings to the State and confirm, through Vendors' submission of bids, its ability to meet the State's needs.

The contract resulting from this IFB is mandatory for State departments and most State Agencies, and by State higher education institutions (except under the conditions specified in G.S. 115D-58.14(a) and G.S. 116-13). The Contract may also be utilized, without further competition, by non-mandatory State Agencies and Other Eligible Entities.

Bids shall be submitted in accordance with the terms and conditions of this IFB and any addenda issued hereto.

1.1 CONTRACT TERM

The Contract shall have an initial term of three (3) years, beginning on the date of final Contract execution (the "Effective Date"). At any time during the contract period the State may conduct an Open Enrollment process by posting a solicitation in the Ariba Sourcing Tool for the purpose of adding new manufacturer(s) to the contract, to provide a wide coverage of vehicles. The awarded Vendors will remain on the contract for the duration of the contract term unless terminated for convenience or (failure to perform under the original contract terms and conditions or cause (failure to perform under the original contract terms and conditions).

At the end of the Contract's initial term, the State shall have the option, in its sole discretion, to renew the Contract on the same terms and conditions for up to two (2) additional one-year terms. The State will give the Vendor written notice of its intent to exercise each option no later than 90 days before the end of the Contract's then-current term. In addition, the State reserves the right to extend a contract term after the last active term.

Bids shall be submitted in accordance with the terms and conditions of this IFB and any addenda issued hereto.

1.2 ESTIMATED SPEND

Based on the historical usage of the STC, the estimated spend for the term of this contract is X.

This amount is not guaranteed and could be more or less than the historical expenditure during the contract period. No maximum or minimum quantities are guaranteed.

2.0 GENERAL INFORMATION

2.1 INVITATION FOR BID DOCUMENT

The IFB is comprised of the base IFB document, any attachments, and any addenda released before Contract award, which are incorporated herein by reference.

2.2 E-PROCUREMENT FEE

ATTENTION: This is an NC eProcurement solicitation facilitated by the Ariba Network. The E-Procurement fee may apply to this solicitation. See paragraph entitled ELECTRONIC PROCUREMENT of the North Carolina General Terms and Conditions.

General information on the E-Procurement Services can be found at: http://eprocurement.nc.gov/.

What is the Ariba Network?

The Ariba Network is a web-based platform that serves as a connection point for buyers and vendors. Vendors can log in to the Ariba Network to view purchase orders, respond to electronic requests for quotes, participate in Sourcing Events, and collaborate with buyers on contract documents.

For training on how to use the Sourcing Tool to view solicitations, submit questions, develop responses, upload documents, and submit offers to the State, Vendors should go to the following site:

http://eprocurement.nc.gov/training/vendor-training.

2.3 NOTICE TO VENDORS REGARDING IFB TERMS AND CONDITIONS

It shall be the Vendor's responsibility to read the Instructions to Vendors, the North Carolina General Terms and Conditions, all relevant exhibits and attachments, and any other components made a part of this IFB and comply with all requirements and specifications herein. Vendors also are responsible for obtaining and complying with all Addenda and other changes that may be issued in connection with this IFB.

If Vendors have questions, or issues regarding any component within this IFB, those must be submitted as questions in accordance with the instructions in the BID QUESTIONS Section. If the State determines that any changes will be made as a result of the questions asked, then such decisions will be communicated in the form of an IFB addendum. The State may also elect to leave open the possibility for later negotiation and amendment of specific provisions of the Contract that have been addressed during the question-and-answer period.

Other than through the process of negotiations under 01 NCAC 05B.0503, the State rejects and will not be required to evaluate or consider any additional or modified terms and conditions submitted with Vendor's bid. This applies to any language appearing in or attached to the document as part of the Vendor's bid that purports to vary any terms and conditions or Vendors' instructions herein or to render the bid non-binding or subject to further negotiation. Vendor's bid shall constitute a firm offer that shall be held open for the period required herein ("Validity Period" above).

The State may exercise its discretion to consider Vendor proposed modifications. By execution and delivery of this IFB Response, the Vendor agrees that any additional or modified terms and conditions, whether submitted purposely or inadvertently, shall have no force or effect, and will be disregarded unless expressly agreed to during negotiations and incorporated by way of a Best and Final Ofer (BAFO). Noncompliance with, or any attempt to alter or delete, this paragraph shall constitute sufficient grounds to reject Vendor's bid as nonresponsive.

2.4 IFB SCHEDULE

The table below shows the *intended* schedule for this IFB. The State will make every effort to adhere to this schedule.

Event	Responsibility	Date and Time
Issue IFB	State	**February 9, 2024**
Hold Pre-Bid Conference	State	**February 20, 2024**
Submit Written Questions	Vendor	**February 20, 2024**
Provide Responses to Questions	State	**February 23, 2024**
Submit Bids	Vendor	**March 15, 2024 @ 2:00 pm EST**
Contract Award	State	**March 2024**

2.5 PRE-BID CONFERENCE

Instructions: Vendor representatives are URGED and CAUTIONED to attend the pre-bid conference and apprise themselves of the conditions and requirements which will affect the performance of the work called for by this IFB. A non-mandatory pre-bid conference is scheduled for this IFB. Submission of a bid shall constitute sufficient evidence of Vendor's compliance and no allowance will be made for unreported conditions which a prudent Vendor would recognize as affecting the performance of the work called for in this IFB.

Vendor is cautioned that any information released to attendees during the pre-bid conference, other than that involving the physical aspects of the facility referenced above, and which conflicts with, supersedes, or adds to requirements in this IFB, must be confirmed by written addendum before it can be considered as a part of this IFB and any resulting contract.

Urged and Cautioned Pre-Bid Conference

Date:	**02/20/2024**
Time:	**10:00 AM Eastern Time**
Location:	**Microsoft Teams Meeting**

Microsoft Teams meeting

Join on your computer, mobile app or room device

Click here to join the meeting

Meeting ID: 253 270 497 133
Passcode: NDgBej

Download Teams | Join on the web

Join with a video conferencing device

ncgov@m.webex.com

Video Conference ID: 111 103 786 2

Alternate VTC instructions

Or call in (audio only)

+1 984-204-1487,,261445498# United States, Raleigh

Phone Conference ID: 261 445 498#

Find a local number | Reset PIN

Learn More | Meeting options

2.6 BID QUESTIONS

Upon review of the IFB documents, Vendors may have questions to clarify or interpret the IFB in order to submit the best bid possible. To accommodate the Bid Questions process, Vendors shall submit any such questions by the "Submit Written Questions" date and time provided in the IFB SCHEDULE Section above, unless modified by Addendum.

Questions related to the content of the solicitation, or the procurement process should be directed to the person on the title page of this document via the Sourcing Tool's message board by the date and time specified in the IFB SCHEDULE Section of this IFB. Vendors will enter "IFB # DPC-924516120-SP– Questions" as the subject of the message. Question submittals should include a reference to the applicable IFB section. This is the only manner in which questions will be received.

Questions or issues related to using the Sourcing Tool itself can be directed to the North Carolina eProcurement Help Desk at 888-211-7440, Option 2. Help Desk representatives are available Monday through Friday from 7:30 AM ET to 5:00 PM ET.

Questions received prior to the submission deadline date, the State's response, and any additional terms deemed necessary by the State will be posted in the Sourcing Tool in the form of an addendum and shall become an Addendum to this IFB. No information, instruction or advice provided orally or informally by any State personnel, whether made in response to a question or otherwise in connection with this IFB, shall be considered authoritative or binding. Vendors shall rely *only* on written material contained in an Addendum to this IFB.

2.7 BID SUBMITTAL

IMPORTANT NOTE: This is an absolute requirement. Late bids, regardless of cause, will not be opened or considered, and will be automatically disqualified from further consideration. Vendor shall bear the sole risk of late submission due to unintended or unanticipated delay. It is the Vendor's sole responsibility to ensure its bid has been received as described in this IFB by the specified time and date of opening. Failure to submit a bid in strict accordance with instructions provided shall constitute sufficient cause to reject a Vendor's bid(s). Solicitation responses are subject to Sealed Bidding requirements.

Vendor's bids for this procurement must be submitted through the Sourcing Tool. For training on how to use the Sourcing Tool to view solicitations, submit questions, develop responses, upload documents, and submit offers to the State, Vendors should go to the following site: https://eprocurement.nc.gov/training/vendor-training

Questions or issues related to using the Sourcing Tool itself can be directed to the North Carolina eProcurement Help Desk at 888-211-7440, Option 2. Help Desk representatives are available Monday through Friday from 7:30 AM EST to 5:00 PM EST.

Tips for Using the Sourcing Tool

1. Vendors should review available training and confirm that they are able to access the Sourcing Event, enter responses, and upload files well in advance of the date and time response are due to allow sufficient time to seek assistance from the North Carolina eProcurement Help Desk.
2. Vendors may submit their responses early to make sure there are no issues, and then submit a revised response any time prior to the response due date and time. The State will only review the most recent response.
3. Vendors should respond to all relevant sections of the Sourcing Event. Certain questions or items are required in order to submit a response and are denoted with an asterisk. The Sourcing Tool will not allow a response to be submitted unless all required items are completed. The Sourcing Tool will provide error messages to help identify any required information that is missing when response is submitted.
4. Simply saving your response in the Sourcing Tool is not the same as submitting your response to the State. Vendors should make sure they complete the submission process and receive a message that their response was successfully submitted.
5. **Only Bids submitted through the Content Section of the Ariba Sourcing Event will be considered. Bids submitted through the Message Board will not be accepted or considered for award.**

2.8 BID CONTENTS

Vendors shall provide responses to all questions and complete all attachments for this IFB that require the Vendor to provide information and upload them to the Sourcing Event in the Sourcing Tool. Vendor may not be able to submit its response in the Sourcing Tool unless all required items are addressed. Vendors shall provide authorized signatures where requested. Failure to provide all required items, or Vendor's submission of incomplete items, may result in the State rejecting Vendor's bid, in the State's sole discretion.

Vendors shall upload the following items and attachments in the Sourcing Tool:

a) Completed and signed version of EXECUTION PAGES, along with the body of the IFB.

b) Signed receipt pages of any addenda released in conjunction with this IFB, if required to be returned.

c) Completed version of ATTACHMENT A: PRICING SUBMITTAL WORKBOOK

d) Completed and signed version of ATTACHMENT D: HUB SUPPLEMENTAL VENDOR INFORMATION

e) Completed and signed version of ATTACHMENT E: CUSTOMER REFERENCE FORM

f) Completed and signed version of ATTACHMENT F: LOCATION OF WORKERS UTILIZED BY VENDOR

g) Completed and signed version of ATTACHMENT G: CERTIFICATION OF FINANCIAL CONDITION

h) Attachment H: NORTH CAROLINA SPECIFICATION FOR TYPE C (CONVENTIONAL) SCHOOL AND ACTIVITY BUSES

i) Completed and signed version of CERTIFICATION FOR CONTRACTS, GRANTS, LOANS, AND COOPERATIVE AGREEMENTS and OMB STANDARD FORM LLL

2.9 ALTERNATE BIDS

Unless provided otherwise in this IFB, Vendor may submit alternate bids for comparable Goods, various methods or levels of Service(s), or that propose different options. Alternate bids must specifically identify the IFB requirements and advantage(s) addressed by the alternate bid. Each bid must be for a specific set of Goods and Services and must include specific pricing. Each bid must be complete and independent of other bids offered. If a Vendor chooses to respond with various offerings, Vendor shall follow the specific instructions for uploading Alternate Bids in the Sourcing Tool

2.10 DEFINITIONS, ACRONYMS, AND ABBREVIATIONS

Relevant definitions for this IFB are provided in 01 NCAC 05A .0112 and in the Instructions to Vendors found Sourcing Tool, which are incorporated herein by this reference.

3.0 METHOD OF AWARD AND BID EVALUATION PROCESS

3.1 METHOD OF AWARD

North Carolina G.S. 143-52 provides a general list of criteria the State shall use to award contracts, as supplemented by the additional criteria herein. The Goods or Services being procured shall dictate the application and order of criteria; however, all award decisions shall be in the State's best interest.

All responsive bids will be reviewed, and award or awards will be based on the responsive bid(s) offering the lowest price that meets the specifications provided herein, to include any required verifications set out herein such as but not limited to past performance, references, and financial documents.

The bid for a line item will be determined by the total for each line item, which is the base bus price plus the cost of all possible standardized options (see **ATTACHMENT A – PRICING SUBMITTAL WORKBOOK**).

It is the State's intent to have multiple manufacturers represented in each category. In the event that two (2), or more Vendors offer the same manufacturer's product(s), it is the intent of the state to make an award to the Vendor with the most complete offering per category, and lowest cost meeting specifications provided herein, for a particular manufacturer's product(s).

While the intent of this IFB is to award a Contract(s) to multiple Vendors, the State reserves the right to make separate awards to different Vendors for one or more line items, to not award one or more line items or to cancel this IFB in its entirety without awarding a Contract, if it is considered to be most advantageous to the State to do so. The awarded Vendor(s) shall not offer added incentives to users to purchase good(s) awarded under this contract.

The State reserves the right to waive any minor informality or technicality in bids received.

3.2 CONFIDENTIALITY AND PROHIBITED COMMUNICATIONS DURING EVALUATION

While this IFB is under evaluation, the responding Vendor, including any subcontractors and suppliers, is prohibited from engaging in conversations intended to influence the outcome of the evaluation. See the Paragraph of the Instructions To Vendors entitled COMMUNICATIONS BY VENDORS.

Each Vendor submitting a bid to this IFB, including its employees, agents, subcontractors, suppliers, subsidiaries and affiliates, is prohibited from having any communications with any person inside or outside the using agency; issuing agency; other government agency office or body (including the purchaser named above, any department secretary, agency head, members of the General Assembly and Governor's office); or private entity, if the communication refers to the content of Vendor's proposal or qualifications, the content of another Vendor's proposal, another Vendor's qualifications or ability to perform a resulting contract,

and/or the transmittal of any other communication of information that could be reasonably considered to have the effect of directly or indirectly influencing the evaluation of proposals, the award of a contract, or both.

Any Vendor not in compliance with this provision shall be disqualified from evaluation and award. A Vendor's proposal may be disqualified if its subcontractor and/or supplier engage in any of the foregoing communications during the time that the procurement is active (*i.e.*, the issuance date of the procurement until the date of contract award or cancellation of the procurement). Only those discussions, communications or transmittals of information authorized or initiated by the issuing agency for this IFB or inquiries directed to the purchaser named in this IFB regarding requirements of the IFB (prior to proposal submission) or the status of the award (after submission) are excepted from this provision.

3.3 BID EVALUATION PROCESS

Only responsive submissions will be evaluated.

The State will conduct an evaluation of responsive Bids, as follows:

Bids will be received according to the method stated in the Bid Submittal section above.

All bids must be received by the issuing agency not later than the date and time specified in the IFB SCHEDULE Section above, unless modified by Addendum. Vendors are cautioned that this is a request for offers, not an offer or request to contract, and the State reserves the unqualified right to reject any and all offers at any time if such rejection is deemed to be in the best interest of the State.

At the date and time provided in the IFB SCHEDULE Section above, unless modified by Addendum, the bids from each responding Vendor will be opened publicly and all offers (except those that have been previously withdrawn, or voided bids) will be tabulated. The tabulation shall be made public at the time it is created. When negotiations after receipt of bids is authorized pursuant to G.S. 143-49 and 01 NCAC 05B.0503, only the names of offerors and the Goods and Services offered shall be tabulated at the time of opening. Cost and price shall become available for public inspection at the time of the award... Interested parties are cautioned that these costs and their components are subject to further evaluation for completeness and correctness and therefore may not be an exact indicator of a Vendor's pricing position.

At their option, the evaluators may request oral presentations or discussions with any or all Vendors for clarification or to amplify the materials presented in any part of the bid. Vendors are cautioned, however, that the evaluators are not required to request presentations or other clarification—and often do not. Therefore, all bids should be complete and reflect the most favorable terms available from the Vendor. Prices bid cannot be altered or modified as part of a clarification.

Bids will generally be evaluated, based on completeness, content, cost, and responsibility of the Vendor to supply the requested Goods and Services. Specific evaluation criteria are listed in Section 3.1 METHOD OF AWARD.

Upon completion of the evaluation process, the State will make Award(s) based on the evaluation and post the award(s) to ***the electronic Vendor Portal (eVP), https://evp.nc.gov,*** under the IFB number for this solicitation. Award of a Contract to one Vendor does not mean that the other bids lacked merit, but that, all factors considered, the selected bid was deemed most advantageous and represented the best value to the State.

The State reserves the right to negotiate with one or more Vendors, or to reject all original offers and negotiate with one or more sources of supply that may be capable of satisfying the requirement, and in either case to require Vendor to submit a Best and Final Offer (BAFO) based on discussions and negotiations with the State.

3.4 PERFORMANCE OUTSIDE THE UNITED STATES

Vendor shall complete ATTACHMENT F: LOCATION OF WORKERS UTILIZED BY VENDOR. In addition to any other evaluation criteria identified in this IFB, the State may also consider, for purposes of evaluating proposed or actual contract performance outside of the United States, how that performance may affect the following factors to ensure that any award will be in the best interest of the State:

a) Total cost to the State

b) Level of quality provided by the Vendor
c) Process and performance capability across multiple jurisdictions
d) Protection of the State's information and intellectual property
e) Availability of pertinent skills
f) Ability to understand the State's business requirements and internal operational culture
g) Particular risk factors such as the security of the State's information technology
h) Relations with citizens and employees
i) Contract enforcement jurisdictional issues

3.5 INTERPRETATION OF TERMS AND PHRASES

This IFB serves two functions: (1) to advise potential Vendors of the parameters of the solution being sought by the State; and (2) to provide (together with other specified documents) the terms of the Contract resulting from this procurement. The use of phrases such as "shall," "must," and "requirements" are intended to create enforceable contract conditions. In determining whether bids should be evaluated or rejected, the State will take into consideration the degree to which Vendors have proposed or failed to propose solutions that will satisfy the State's needs as described in the IFB. Except as specifically stated in the IFB, no one requirement shall automatically disqualify a Vendor from consideration. However, failure to comply with any single requirement may result in the State exercising its discretion to reject a bid in its entirety.

4.0 REQUIREMENTS

This Section lists the requirements related to this IFB. By submitting a bid, the Vendor agrees to meet all stated requirements in this Section, as well as any other specifications, requirements, and terms and conditions stated in this IFB. If a Vendor is unclear about a requirement or specification or believes a change in a requirement would allow for the State to receive a better bid, the Vendor is encouraged to submit these items in the form of a question during the question and answer period in accordance with the Bid Questions Section above.

4.1 PRICING

Bid price shall include the total price for each item, including shipping, delivery, handling, administrative and other similar fees. Assembly and set-up at the State's location shall be shown as an additional line price for each applicable item. Complete ATTACHMENT A: PRICING SUBMITTAL WORKBOOK and upload in the Sourcing Tool. The pricing provided in ATTACHMENT A: PRICING SUBMITTAL WORKBOOK, or resulting from any negotiations, is incorporated herein and shall become part of any resulting Contract.

4.2 PRODUCT IDENTIFICATION

SUITABILITY FOR INTENDED USE

Vendors are requested to offer only items directly complying with the specifications herein or comparable items which will provide the equivalent capabilities, features and diversity called for herein. The State reserves the right to evaluate all bids for suitability for the required use and to award the one best meeting requirements and considered to be in the State's best interest.

4.3 ORDERING INFORMATION

Vendors are required, upon request, to provide the buying entity with catalogs and descriptive literature and/or URL address with bus manufacturer descriptive literature (including exterior and interior colors), manufacturer's user-accessible URL for MSRP of all OEM options and/or Aftermarket Components, and NC pricing for OEM options and/or Aftermarket Components. This information is to be provided to the buying entity within three (3) business days of the request. Such information shall be provided at no charge to the buying entity. Vendors are required to provide the buying entity with all information pertinent to the placement of and payment for orders to include the following information:

1. Contract number;
2. Vendor business name;
3. General description of Bus;
4. Make, Model and Model Code of the Bus;
5. Option Code(s) and descriptions, if applicable;

6. Make, Model, part numbers and descriptions, of Aftermarket Components/Options, if applicable;
7. NC Contract Price for Bus;
8. Quantity ordered;
9. Total Price; and
10. Total Aftermarket Component/Options cost, if applicable.

The buying entity shall issue a purchase order (PO) to the Vendor, and such purchase order shall bear the contract or bid number, vehicle specification make and model, and contact information (phone number and email address). The purchase order shall be placed by the buying entity directly with the Vendor and shall incorporate by reference the contract solicitation terms and conditions. Required delivery or due dates should be discussed between the buying entity and the Vendor at the time of the PO.

If a Vendor receives a purchase order for a bus for which they were not awarded, the Vendor must notify the buying entity and the Contract Manager and return the purchase order to the buying entity within three (3) business days.

4.4 TRANSPORTATION AND IDENTIFICATION

The Vendor shall deliver Free-On-Board (FOB) Destination to any requested location within the State of North Carolina with all transportation costs and fees included in the total bid price.

When an order is placed using a purchase order, the purchase order number shall be shown on all packages and shipping manifests to ensure proper identification and payment of invoices. If an order is placed without using a purchase order, such as via phone, the Buyer's name shall be show on all packages. A complete packing list shall accompany each shipment. Vendors shall not ship any products until they have received an order.

4.5 DELIVERY

The Vendor shall deliver Free-On-Board (FOB) Destination to the following location(s):

The Vendor's distribution point which shall be within a 100-mile radius of Raleigh, NC with all transportation charges prepaid and included in the bid prices. All buses will be picked up by the ordering agency at the Vendor's distribution point. Vendor to include the distribution complete physical address.

Vendor shall complete delivery of **school buses** within 210 consecutive calendar days after receipt of purchase order.

Vendor shall complete delivery of **activity buses** within 240 consecutive calendar days after receipt of purchase order.

4.6 QUALITY ACCEPTANCE INSPECTION

It is the responsibility of the receiving agency to inspect all materials, supplies and equipment upon delivery to ensure compliance with the Contract requirements and specifications.

INVOICES MAY NOT BE PAID BY THE USING AGENCY UNTIL AN INSPECTION HAS OCCURRED, AND THE GOODS ACCEPTED.

4.7 WARRANTY

Vendor warrants that all equipment furnished under this IFB will be newly manufactured, of good material and workmanship. The warranty will apply from date equipment is put into operation for a minimum period of twelve (12) months or the length of the manufacturer's warranty, whichever is longer. Such warranty shall cover the cost of all defective parts replacement, labor, freight, and technicians' travel at no additional cost to the State, or as specified by the Purchasing Agency herein. To the extent not superseded by the terms of this paragraph, manufacturer's warranty terms shall apply. Vendor's warranty shall be at least the level of coverage provided for its comparable customers. Additional warranties for specific components shall be covered as outlined in ATTACHMENT H: NORTH CAROLINA SPECIFICATIONS FOR SCHOOL AND ACTIVITY BUSES.

The report of a problem does not presuppose that every call must result in an "on-site" visit for service/repair. The Vendor and/or service sub-contractor shall utilize best efforts to resolve problems in a timely fashion by using acceptable servicing methods to include, but not limited to, verbal problem analysis and remote diagnosis. The warranty requirement does not impose any additional duty on the State to make other than normal and good faith problem resolution efforts or expenditures of time. Vendor shall be responsible for compliance with warranty terms by any third-party service provider. Vendor shall provide contact information for warranty service provider, below.

Vendor is authorized by manufacturer to repair equipment offered during the warranty period? [X] YES [ ] NO

Will the Vendor provide warranty service? [X] YES [ ] NO, a manufacturer-authorized third party will perform warranty service.

Contact Information for warranty service provider:

Company Name: White's International Trucks / IC Bus

Company Address: 7045 Albert Pick Rd

Greensboro, NC 27409

Contact Person (name): Ben Harris

Contact Person (phone number): 336-668-0491

Contact Person (email): benh@whitestractor.com

4.8 SAMPLES

SAMPLE

The State requires that a pilot model of each awarded bus configuration be made available for inspection within 60 days after request by the State. If a Vendor is not able to meet this requirement due to manufacturer production schedules or material lead times prior to production, the State will coordinate with the Awarded Vendor to schedule a separate pilot model inspection. If a Vendor does not anticipate being able to meet the 60-day requirement, please indicate the minimum number of calendar days that would be required to receive all awarded pilot models.

90 Days from date of request. Vendors are reminded that it is the intent of the State to make multiple awards and a delay in pilot model inspection for one Vendor will not delay the ordering process for pilot models that have been approved.

Strict compliance with all specifications is expected and units will be thoroughly reviewed for compliance at inspection. Repairs will not be allowed on pilot models until inspection by the State is complete. All pilot model inspection requests must be submitted in writing to the contract administrator.

The initial pilot model inspection will be in Raleigh, NC at a site designated by the State. The Vendor shall be required to deliver all pilot models required to the designated site and leave them for 2 business days for inspection by the state inspection committee. Personnel from the awarded company, dealership, or manufacturer may not participate or be present at the inspection. The contractor will be required to pick up the pilot models the morning following the inspection period and meet at that time with the inspection committee to discuss any concerns. The State will not be responsible for storing of the pilot models beyond the inspection/meeting time.

The State reserves the right to require a separate and prior chassis pilot model inspection, if deemed necessary, at a time, date and location determined by the State.

4.9 HUB PARTICIPATION

Pursuant to North Carolina General Statute G.S. 143-48, it is State policy to encourage and promote the use of small, minority, physically handicapped, and women contractors in purchasing Goods and Services. As such, this IFB will serve to identify those Vendors that are minority owned or have a strategic plan to support the State's Historically Underutilized Business program by meeting or exceeding the goal of 10% utilization of diverse firms as 1st or 2nd tier subcontractors. Vendor shall complete ATTACHMENT D: HUB SUPPLEMENTAL VENDOR INFORMATION.

4.10 REFERENCES

Vendors shall upload to the Sourcing Tool at least three (3) references, using ATTACHMENT E: CUSTOMER REFERENCE FORM, for which your company has supplied the exact model of equipment offered. The State may contact these users to determine the quality level of the offered equipment; as well as, but not limited to, user satisfaction with Vendor performance. Information obtained may be considered in the evaluation of the bid.

4.11 VENDOR'S REPRESENTATIONS

If Vendor's bid results in an award, Vendor agrees that it will not enter any agreement with a third party that may abridge any rights of the State under the Contract. If any Services, deliverables, functions, or responsibilities not specifically described in this solicitation are required for Vendor's proper performance, provision and delivery of the Service and deliverables under a resulting Contract, or are an inherent part of or necessary sub-task included within such service, they will be deemed to be implied by and included within the scope of the contract to the same extent and in the same manner as if specifically described in the Contract. Unless otherwise expressly provided herein, Vendor will furnish all of its own necessary management, supervision, labor, facilities, furniture, computer and telecommunications equipment, software, supplies and materials necessary for the Vendor to provide and deliver the Services and/or other Deliverables.

4.12 FINANCIAL STABILITY

As a condition of contract award, the Vendor must certify that it has the financial capacity to perform and to continue to perform its obligations under the Contract; that Vendor has no constructive or actual knowledge of an actual or potential legal proceeding being brought against Vendor that could materially adversely affect performance of this Contract; and that entering into this Contract is not prohibited by any contract, or order by any court of competent jurisdiction

Each Vendor shall certify it is financially stable by completing the ATTACHMENT G: CERTIFICATION OF FINANCIAL CONDITION. The State is requiring this certification to minimize potential performance issues from Contracting with a Vendor that is financially unstable. This Certification shall be deemed continuing, and from the date of the Certification to the expiration of the Contract, the Vendor shall notify the State within thirty (30) days of any occurrence or condition that materially alters the truth of any statement made in this Certification.

4.13 LOBBYING ACTIVITY CERTIFICATION FOR FEDERAL GRANTS

Federal law prohibits recipients of federal funds, whether through grants, contracts, or cooperative agreements, from using those funds to influence or attempt to influence (lobby) a federal official in connection with obtaining, extending, or modifying any federal contract, grant, loan, or cooperative agreement. Further, federal law requires that applicants for federal funds certify:

- that they abide by the above restriction;
- that they disclose any permissible (non-federal) paid lobbying on the Federal Awards being applied for; and
- that such certification requirements will also be included in any subawards meeting the applicable thresholds.

Vendors must complete and submit the CERTIFICATION FOR CONTRACTS, GRANTS, LOANS, AND COOPERATIVE AGREEMENTS and the OMB STANDARD FORM LLL when responding to this solicitation.

5.0 PRODUCT SPECIFICATIONS

5.1 GENERAL SPECIFICATIONS

The specifications herein (ATTACHMENT H) describe current model year production busses that shall be new, unused, and not a demo type, with no concealed damages and equivalent in style, quality, and appointments to those offered to the general public. The busses shall be supplied with all equipment and accessories indicated as standard equipment in the manufacturers' published literature, except for those accessories and equipment where furnishing such would conflict with a specific requirement otherwise called for herein. In such cases, the specific requirement herein takes precedence. Changes in standard equipment that the manufacturer may make after bid opening shall have no effect on the equipment included in vehicles delivered in response to this bid unless the State, at its sole option, elects to accept the changes. Vendor must be officially authorized to offer all makes and models included in its bid, whether requiring conventional fuels (including diesel) or alternative fuels.

Detailed specifications are outlined in **ATTACHMENT H: NORTH CAROLINA SPECIFICATIONS FOR SCHOOL AND ACTIVITY BUSES.**

5.2 CERTIFICATION AND SAFETY LABELS

All manufactured items and/or fabricated assemblies subject to operation under pressure, operation by connection to an electric source, or operation involving a connection to a manufactured, natural, or LP gas source shall be constructed and approved in a manner acceptable to the appropriate state inspector which customarily requires the label or re-examination listing or identification marking of the appropriate safety standard organization; such as the American Society of Mechanical Engineers for pressure vessels; the Underwriters Laboratories and /or National Electrical Manufacturers' Association for electrically operated assemblies; or the American Gas Association for gas operated assemblies, where such approvals of listings have been established for the type of device offered and furnished. Further, all items furnished shall meet all requirements of the Occupational Safety and Health Act (OSHA), and state and federal requirements relating to clean air and water pollution.

5.3 DEVIATIONS

The nature of all deviations from the Specifications listed herein shall be clearly described by the Vendor. Otherwise, it will be considered that items offered by the Vendor are in strict compliance with the Specifications provided herein, and the successful Vendor shall be required to supply conforming goods. Deviations shall be explained in detail below or on an attached sheet. However, no implication is made or intended by the State that any deviation will be acceptable. Do not list objections to the North Carolina General Terms and Conditions in this section.

IC Bus will deviate from section 13 page 48 & 49, the specification states there shall be no seam in the seat back pad crown and crash barrier crown. Please see attached deviation explanation.

6.0 CONTRACT ADMINISTRATION

All Contract Administration requirements are conditioned on an award resulting from this solicitation. This information is provided for the Vendor's planning purposes.

CONTRACT MANAGER: A representative of the agency or awarded vendor who ensures compliance with the contract terms and conditions while giving attention to the achievement of the stated output and outcome of the contract.

State Contract Manager Point of Contact	
Name:	Melissa Pressley
Office Phone #:	984-236-0257
Email:	melissa.pressley@doa.nc.gov

CONTRACT ADMINISTRATOR: A representative of the Agency who is responsible for the functions that are performed after all parties have signed a contract, including any modifications to the contract.

State Contract Administrator Point of Contact	
Name:	Shayla Parker
Office Phone #:	984-236-0233
Email:	shayla.parker@doa.nc.gov

6.1 CONTRACT MANAGER AND CUSTOMER SERVICE

The Vendor shall be required to designate and make available to the State a contract manager. The contract manager shall be the State's point of contact for Contract related issues and issues concerning performance, progress review, scheduling, and service.

Vendor Contract Manager Point of Contact	
Name:	Mark Hunt
Office Phone #:	336-668-0491
Mobile Phone #:	336-880-2039
Email:	markh@whitestractor.com

The Vendor shall be required to designate and make available to the State for customer service. The customer service point of contact shall be the State's point of contact for customer service-related issues.

Vendor Customer Service Point of Contact	
Name:	HankTrogdon
Office Phone #:	336-668-0491
Mobile Phone #:	336-688-3546
Email:	hankt@whitestractor.com

6.2 POST AWARD PROJECT REVIEW MEETINGS

The Vendor, at the request of the State, shall be required to meet quarterly with the State for Project Review meetings. The purpose of these meetings will be to review project progress reports, discuss Vendor and State performance, address outstanding issues, review problem resolution, provide direction, evaluate continuous improvement and cost saving ideas, and discuss any other pertinent topics.

6.3 CONTINUOUS IMPROVEMENT

The State encourages the Vendor to identify opportunities to reduce the total cost the State. A continuous improvement effort consisting of various ideas to enhance business efficiencies as performance progresses.

6.4 PERIODIC QUARTERLY STATUS REPORTS

The Vendor shall be required to provide quarterly Sales Management Reports, in the format of an Excel spreadsheet, to the designated Contract Administrator. Additional Ad Hoc reports will be required, as requested. The Quarterly Sales Management Report shall include, at a minimum:

1. **Sales Report (total cost):** by state entity, to include agencies, community colleges, universities, school systems, local government entities.

2. **Sales Report (Detail):** to include Category, Items Purchased (Manufacturer), Item Description, Quantity, Unit of Measure, List Price, Contract Price, Ordering Entity, Delivery Location (City), Order Date, Shipment Date, Delivery Date for consumables, and delivery date for non-routine consumables and equipment.

Quarterly Sales Management Reports shall be sent to PCReports@doa.nc.gov with the Contract Manager copied. Vendor shall include all issues identified by Vendor related to Vendor performance or to the State's usage of the Contract.

Each report shall be well organized and easy to read. Vendor shall submit these reports electronically using the Vendor Quarterly Spend Data Report. The Vendor shall submit these reports electronically using Microsoft Excel and as needed, either Microsoft PowerPoint or Microsoft Word. Vendor shall submit the Quarterly Management Reports by:

- **By October 15th:** Q1 Quarterly Management Report for July – September
- **By January 15th:** Q2 Quarterly Management Report for October – December
- **By April 15th:** Q3 Quarterly Management Report for January – March
- **By July 15th:** Q4 Quarterly Management Report for April – June.

This schedule aligns with the State's fiscal year. If the Contract start date does not align with the start of a quarter, the initial Quarterly Management Report shall be for the period from the Contract start date to the end of the existing calendar quarter. Timely submission of all reports shall be a material term of this Contract and failure to do so shall constitute a default.

Additional related sales information and/or details on user purchases may be required by the State and must be supplied within thirty (30) days of any such request. A template for any such reports may be provided by the State, at its discretion.

6.5 BUSINESS REVIEW MEETINGS

Business Review meetings shall be scheduled annually, Business review meetings shall be presented by the Vendor and be inclusive of the following:

1. Spend overview (State Agency Spend) FY Comparison
    a. Volume Discount
    b. Rebate (if applicable)
2. Product Cost Savings
3. Challenges
4. Improvement Ideas

6.6 POST AWARD PRODUCT SUBSTITUTIONS, ADDITIONS & REMOVALS

Post-Award product substitutions are not permitted without prior written approval from the Contract Specialist. Proposed substitutions shall be of the same or higher quality and at the same or lower price as the original item. Failure of the Vendor to comply with this requirement shall constitute sufficient cause to hold the Vendor in default or for removal from the contract.

The items included in this IFB are expected to cover the State's needs for the term of the contract. In the case that the State's needs change over the term of the contract, the State reserves the right to add additional products to the contract that can be supplied by the awarded Vendor. The price for these added products will be mutually agreed to by the State and the Vendor but are assumed to be priced at a discount similar to what is being offered on the products listed in the IFB.

6.7 ACCEPTANCE OF WORK

Performance of the work and delivery of Goods shall be conducted and completed at least in accordance with the Contract requirements and recognized and customarily accepted industry practices. Performance shall be considered complete when the Services or Goods are approved as acceptable by the buying entity.

Acceptance of work products shall be based on the following criteria:
The State shall have the obligation to notify Vendor, in writing ten (10) calendar days following completion of such work or delivery of a deliverable described in the Contract that it is not acceptable. The notice shall specify in reasonable detail the reason(s) it is unacceptable. Acceptance by the State shall not be unreasonably withheld; but may be conditioned or delayed as required for reasonable review, evaluation, installation, or testing, as applicable to the work or deliverable. Final acceptance is expressly conditioned upon completion of all applicable assessment procedures. Should the work or deliverables fail to meet any specifications, acceptance criteria or otherwise fail to conform to the Contract, the State may exercise any and all rights hereunder, including, for Goods deliverables, such rights provided by the Uniform Commercial Code, as adopted in North Carolina.

6.6 INVOICES

Vendor shall invoice the Purchasing Agency. The standard format for invoicing shall be Single Invoices meaning that the Vendor shall provide the Purchasing Agency with an invoice for each order. Invoices shall include detailed line-item information to allow

Purchasing Agency to verify pricing at point of receipt matches the correct price from the original date of order. At a minimum, the following fields shall be included on all invoices:

Vendor's Billing Address, Customer Account Number, NC Contract Number, Order Date, Buyer's Order Number, Manufacturer Part Numbers, Vendor Part Numbers, Item Descriptions, Price, Quantity, and Unit of Measure.

INVOICES MAY NOT BE PAID UNTIL AN INSPECTION HAS OCCURRED AND THE GOODS ACCEPTED.

6.7 DISPUTE RESOLUTION

During the performance of the Contract, the Parties agree that it is in their mutual interest to resolve disputes informally. Any claims by the Vendor shall be submitted in writing to the State's Contract Manager for resolution. Any claims by the State shall be submitted in writing to the Vendor's Project Manager for resolution. The Parties shall agree to negotiate in good faith and use all reasonable efforts to resolve such dispute(s).

During the time the Parties are attempting to resolve any dispute, each shall proceed diligently to perform their respective duties and responsibilities under this Contract. The Parties will agree on a reasonable amount of time to resolve a dispute. If a dispute cannot be resolved between the Parties within the agreed upon period, either Party may elect to exercise any other remedies available under the Contract, or at law. This provision, when agreed in the Contract, shall not constitute an agreement by either party to mediate or arbitrate any dispute.

6.8 PRODUCT RECALL

Vendor expressly assumes full responsibility for prompt notification to the State Contract Manager listed in section 6.1 of this IFB of any product recall in accordance with the applicable state or federal regulations. The Vendor shall support the State, as necessary, to promptly replace any such products, at no cost to the State.

6.9 PRICE ADJUSTMENTS

Prices proposed by the Vendor shall be held firm through the year model in production at the time of bid submittal.

Should the Vendor desire a price increase at the change of the model year, the requests shall be submitted in writing to the Contract Lead, which shall include the reason(s) for the request and contain supporting documentation for the need. Price increases will be negotiated and agreed to by both the State and Vendor in advance of any price increase going into effect. The State is not obligated to accept pricing adjustments or increases and reserves the right to accept or reject them in part or in whole. Price de-escalation or decreases may be requested by the State at any time.

It is understood and agreed that orders will be shipped at the established Contract prices in effect on the date an order is placed. Invoicing that deviates from this provision may result in Contract to cancellation.

6.10 CONTRACT CHANGES

Contract changes, if any, over the life of the Contract shall be implemented by contract amendments agreed to in writing by the State and Vendor.

6.11 ATTACHMENTS

All attachments to this IFB are the copies found within the Ariba Sourcing Tool, and are incorporated herein, and shall be submitted by responding in the Sourcing Tool.

ATTACHMENT A: PRICING SUBMITTAL WORKBOOK

Vendor shall reference **ATTACHMENT A: PRICING SUBMITTAL WORKBOOK** for items required by the State. All bid prices must be submitted using the following Excel Spreadsheet, following the instructions located therein.

The remainder of this page is intentionally left blank

ATTACHMENT H: NORTH CAROLINA SPECIFICATIONS FOR SCHOOL AND ACTIVITY BUSES.

ITEM	SPECIFICATION SECTION NUMBER
Accessories	19
Accessory Power Point Receptacle	14
Activity Bus Luggage Racks	24
Activity Bus Luggage Underbody	24
Activity Bus Paint	20
Adjustable Brake Pedal	24
Air Brakes	4
Air Cleaner	5
Air Conditioning	15
Air Tank Drain Control	4
Alternator	7
Alternator Wiring Harness	7
Anti-Lock Braking System	7
Anti-Corrosion Package	24
Assist Rail	13
Axles	4
Back Up Lights	14
Backup Warning Alarm	14
Battery	5
Battery Carrier	5
Belt Cutter	19
Body Construction Design Specifications	9
Body Material Sample Kit	9
Body Design for Flat Floor	23
Body Floor Description	10
Body Fluid Clean Up Kit	19
Body Framing	11
Body Sizes	9
Brake Sizes – Approved Brake Sizes	4
Brakes	4,6
Broom Holder	13

ITEM	SPECIFICATION SECTION NUMBER
Bumper (Front)	6
Bumper (Rear)	6
Chassis – Approved Chassis Requirements	4
Chassis Installation	20
Chassis Preparation	20
Child Safety Restraint Systems (CSRS)	13
Clearance/Makers Lights	14
Colorado Racking Test	2,9
Components	2
Construction	2
Control Panel	14
Crash Barrier	13
Crossing Control Arm	19
Crossover Mirror	18
Cummins Exhaust Brake	24
Driver Cup Holder	13
Daytime Running Lights	7
DEF Filler Opening Cover	6
Disability Identification Symbol (International Symbol of Accessibility)	22
DD5 Engine	24
DD5 Engine Brake	24
Disc Brakes	4
Documents and Publications	2
Doors	16
Door Switch	14
Driveline	5
Driver's Window	17
Driver's Fan	19
Driver's Seat	13
Driver's Seat Belt	13
Drum Brakes	4
Eight Light Warning Systems	14
Electrical System	14
Electronic Stability Control	4
Electronic Control Module Program Parameters and Password	5

ITEM	SPECIFICATION SECTION NUMBER
Emergency Door	16
Emergency Door Buzzer	14
Emergency Windows	17
Engine – Approved Electronic Diesel Engines	3
Engine Specifications	5
Entrance Door	16
Entrance Door Window	17
Evac Aide	22
Exhaust Brake	5
Exhaust System	5
Exterior Paint	20
Exterior Panel	12
Fenders and Hood	6
Fire Blanket	22
Fire Block Upholstery Fabric	13
Fire Extinguisher	19
First Aid Kit	19
Flat Floor Power Lift School Bus	23
Floor Covering	10
Floor Loads	10
Floor Plate	10
Floor Sills	10
Four Wheel Air Disc Brake	24
Frame	6
Front and Rear Door Locks	24
Front Axles	4
Front Framing	11
Front Lettering – Activity Bus	21
Front Lettering – School Bus	21
Fuel Filler Opening Cover	6
Fuel Tank	6
Gauge of Materials	9
Glass Quality	17
Grounding	7
Guard Rails	12

ITEM	SPECIFICATION SECTION NUMBER
Headlight Switch Audible Alarm	7
Heater	15
High Visibility Webbing on Lap/Shoulder Restraints	24
Horns	7
Hose and Hose Clamps	5
Ignition	7
Instrument Panel	7
Insulation – Material and Location	15
Interior Lettering	21
Interior Lighting	14
Interior Mirror	18
Interior Paint	20
Interior Panels	13
Kentucky Pole Test	2,9
Lettering	21
Lettering Type	21
License Plate Holders	19
License Plate Lights	14
Lighting	14
Lights	7
Lights – Daytime Running Lights	7
Load Base Shift Scheduling	8
Lubrication System	5
Manufacturer Logo	20
Metal Treatment	20
Minimum Requirements for Bus Bodies	9
Minimum Requirements of Type C School Bus Chassis	3
Mirrors	18
Moldings	13
Occupant Securement	23
Oil Filter	5
Openings	6
Optional Equipment	24
Outside Storage Compartment	24
Overhead Storage Compartment	19

ITEM	SPECIFICATION SECTION NUMBER
Paint	20
Panel Design	12
Parking Brakes	4
Passenger Advisory System	19
Power Lift	22
Power Lift Door	22
Power Lift School Bus Flat Floor	23
Propane Engine	24
Radiator	5
Radio System AM/FM/cd	24
Rear Axles	4
Rear Bumper Attachment	6
Rear Bumper Size	6
Rear Door Windows	17
Rear Framing	11
Rear Heater (optional)	24
Rear Lettering – Activity Bus	21
Rear Lettering – School Bus	21
Rear View Mirror	18
Rear Visibility Back Up Camera	18
Rear Windows	17
Reflectors	12
Relays	14
Road Speed Control	7
Roof Bow	11
Roof Stringers	11
Safety Equipment Storage Box	19
Safety Information License Plate	19
Safety Roof Vents	16
Seat Back Pad	13
Seat Cushion Pad	13
Seating	13
Seating Description	13
Serial Number Label	8
Service	2

ITEM	SPECIFICATION SECTION NUMBER
Service Brake	4
Sheet Metal Lining	13
Sheet Metal Skin	12
Shock Absorbers	6
Side Lettering – Activity Bus	21
Side Lettering – School Bus	21
Side Stringers	11
Side Windows	17
Skirt Reinforcement	11
Specification Committee Members	1
Splashguards	12
Springs	6
Standard Seat CSRS Add/Deduct Price	24
Steering	6
Step well	10
Stop Arm	14
Stop/Tail Lights	14
Strobe Light	14
Sun Visor	19
Technical Training	2
Three Point Lap/Shoulder Restraints	24
Tires	8
Tow Hooks	6
Transmission	8
Turn Signals	14
Undercoating	20
Vehicle Data Plate	9
Vinyl Lettering	21
Warning Devices	19
Warranty	2,14,20
Waste Basket	13
Water Test	12
Weather Protection	2
Wheel Housing	12

ITEM	SPECIFICATION SECTION NUMBER
Wheelchair Anchors and Occupant Securement System	23
Wheels	8
Window and Door Glass	17
Window Framing	11
Windows and Windshield	17
Windshield Glass	17
Windshield Steps	19
Windshield Wipers	19
Wiring – Body	14
Wiring – Chassis	6
Wiring Diagram	14

SPECIFICATION SECTION 1

SPECIFICATION COMMITTEE MEMBERS

This committee is comprised of NCDPI, NCDOA, NCDMV, and school district representatives charged with the task of revising and issuing the annual specifications for school buses and service vehicles. Goals of the committee are as follows:

1. To specify a school bus which is best suited to ensure the safety of North Carolina public school students and that is durable in construction in order to protect the investment of the taxpayer.

2. To gather feedback from local school transportation staff members from across the state regarding the vehicle specifications.

3. To research and increase familiarity with new technologies pertaining to school bus bodies and chassis among committee members.

4. To modify and revise specifications for school transportation service vehicles.

This document details terms of service for committee representatives. The committee shall consist of members as shown below.

A. Permanent Members By Position (voting)

1. DPI central field transportation consultant - Anthony Avant
2. DPI western field transportation consultant - Danny Reed
3. DPI eastern field transportation consultant - Shannon Ennis
4. Division of Motor Vehicles – School Bus & Traffic Safety - William Locklear and John Hoyle

B. LEA Representatives (voting, 2 terms each specification cycle is a term)

1. Western Area Representatives -

   Second Term: A.C. Sprinkle, Haywood County

   First Term: Brian McClung, Rutherford County

   First Term: William Todd Gaddy, Mecklenburg County

2. Central Area Representatives -

   Second Term: Steve Fagg Stokes County

   Second Term: Brian Moeller Rowan County

   First Term: Wendy Anderson, Randolph County

3. Eastern Area Representatives -

   First Term: Robert Lee, Wayne County

   First Term: James Tyndall, Greene County

   First Term: Brandon Lewis Jr, Carteret County

C. Ex-Officio Members (non-voting)

State Procurement Manager, DOA Division of Purchase & Contract – Frank Slifer

Section Chief, DPI Transportation Services – Kevin Harrison

Consultant, DPI Transportation Services –, Jaime Doran Executive Secretary

NCPTA School Bus Inspector Representatives - Mike Moriarty, Wake County

SPECIFICATION SECTION 2

NORTH CAROLINA TYPE – C
SCHOOL BUS SPECIFICATIONS

SPECIAL INSTRUCTIONS

CONSTRUCTION - It is the intent of these specifications to describe a Type – C school bus that shall be basically of all steel construction or of some other material which has at least equivalent strength of all steel construction as certified by the Vendor. All parts not specifically mentioned, which are necessary in order to provide a complete bus shall be furnished by the successful Vendor and shall conform in strength, quality of material and workmanship to which is usually provided by the engineering practice indicated in these specifications. The completed school bus shall meet all Federal Motor Vehicle Safety Standards (FMVSS), requirements of the State of North Carolina and, if not in conflict, requirements of the 2015 National School Transportation Specifications and Procedures" in effect on date of manufacture except as noted.

https://www.nasdpts.org/resources/Documents/NCSTFiles/NCST%202015%20Specifications%20and%20Procedures%204.20.18.pdf

Dealer modification may be required and must be of OEM quality where OEM equipment will not meet specifications.

All parts not specifically mentioned, but necessary to provide a complete school bus, shall be furnished by the contractor and shall conform in strength, quality of materials and workmanship to those provided by engineering practices indicated in these specifications.

NOTE: Where the specifications indicate 'or functional equivalent', functional equivalency is to be determined at the sole discretion of the State of North Carolina by request of the Vendor. It is highly recommended than any request occurs in advance of the pilot model inspection.

DOCUMENTS AND PUBLICATIONS - Successful Vendors shall furnish the following items:

1. Application for certificate of title for each vehicle.
2. Operator's manual, at a minimum one hard copy of each manual type per LEA
3. On-line access, available for current year model, within 30 days of first bus delivery, and shall include operator/repair/service/parts manuals. Access for 100 school districts plus 4 DPI staff; on-line format to be kept current for the life of the bus. *NOTE: Online access must be reviewed and approved prior to awarding of bid*. Hard copy/CD may be required.
4. Manufacturer's Statement of Origin for each vehicle.
5. One build sheet (line-setting ticket) including all parts information relating to the chassis/body, to include all engine information (serial number), transmission information (serial number), all emissions systems information, including DOC/DPF/SCR system serial numbers, for each vehicle.
6. Water Test results as specified on page 56 for each vehicle.
7. Certification of Colorado Racking and Kentucky Pole Tests for all models as part of the bid package

NOTE: Service policies, line setting tickets, parts and service/repair manuals and warranty cards shall be delivered directly to the LEA's (School Bus Garages). The service policy, warranty cards, and the line setting ticket shall NOT be left in or with the chassis during shipment, to include school and activity buses. One application for Certificate of Title for each unit purchased shall be filled out for vehicle identification section only.

WARRANTY - Vendor shall warrant the bus for five (5) years/100,000 miles bumper-to-bumper (whichever occurs first); not excluding or overriding OEM standard warranties that exceed this mileage requirement. Warranty must include ALL items on the bus with the exception of the following "wear" items: tires, brakes, fluids, filters, wiper blades, head lights, belts, and hoses.

Warranty will begin on day of delivery. All parts (including related cleaners, fluids, filters etc.), labor, and environmental fees, shall be the responsibility of the Vendor. Correction of latent defects, undiscovered during the initial acceptance inspection by the State but appearing before the applicable warranty period has elapsed, will be the full responsibility of the Vendor, at no cost to the State or the user and will require new OEM parts. Upon award, Vendor will provide the State with original copies of warranties offered on the above wear items. By execution of bid, Vendor agrees to the 5-years/100,000 miles bumper to bumper warranty requirement in its entirety as specified above. By execution of bid, Vendor also agrees that sample or specimen warranties which

may be included with the bid are provided for informational purposes only and are NOT intended to take exception to any requirement in the warranty section.

COMPONENTS - Vendors shall guarantee that chassis offered are current models, that assembly parts are in production for use in new chassis/body and that their manufacture and sale through dealer source will not be discontinued within ten years. All chassis components shall be the same as those accepted on the pilot model unless prior written approval is obtained from the contract administrator.

WEATHER PROTECTION - All dash instruments, horn button, ignition switch, etc., of the chassis shall be adequately protected against weather while chassis are in storage or in transit.

SERVICE - The complete bus shall be inspected and completely serviced before being delivered to the LEA.

This service shall include:

1. Complete lubrication of chassis.
2. Filling of steering, engine, cooling system, transmission, and rear axle to proper fluid capacities.
3. Adjustment of engine and all other mechanical features to assure perfect operation.
4. Inspect, adjust, correct, and replace any parts not in proper operating condition or are not in compliance with specifications.
5. Fill fuel tank and DEF tank to capacity with appropriate fuel.

TECHNICAL TRAINING - Successful Vendor or capital outlay provider will be required to furnish an average of six (6) classroom man-hours of technical training per bus purchased for North Carolina transportation personnel. The exact distribution of classroom hours will be made by NCDPI working with the Vendor. This training shall be provided at no additional cost and shall be completed within 1 year after the last replacement bus has been delivered. Training and schedule to be approved by NCDPI and held at locations to cover the nine established NCPTA regions (see www.ncptaonline.org). Class size will be limited to 25 technicians. Duration of any class session shall not exceed 8 hours per day. (See example below.) NCPTA (summer conference) training sessions will not count toward the required training hours unless training agenda approved in advance by NCDPI.

The required training shall cover the following topics: (hours for each topic to be determined by NCDPI).

- Online access training for parts and service manuals
- Engine maintenance/diagnostics
- Transmission maintenance/diagnostics
- Antilock brake maintenance/diagnostics
- Body electrical/ multi-plex wiring maintenance/diagnostics
- Air Conditioning maintenance/diagnostics
- Wheel chair lift maintenance/diagnostics

NCDPI may request training for other topics relating to school bus maintenance as needed. The training instructor provided by the successful Vendor is required to be exceptionally knowledgeable in the area of training that will be offered to NC School Bus technicians. NCDPI reserves the right to verify such instruction and to require a replacement instructor if deemed necessary.

Example: 300 buses are sold by Contractor A. The requirement for six (6) classroom man-hours per bus results in

6 x 300 = 1,800 classroom man-hours total. If the size of each class during the entire training was 20 technicians, a requirement for 1,800 / 20 = 90 hours actual classroom teaching time must be fulfilled by Contractor A. If each teaching day included 6 hours of actual classroom teaching time (start time to end time, excluding time taken for lunch), then there would be 90 / 6 = 15 such 6-hour teaching days provided by Contractor A. The computation of the training provided during the contract would account for the actual number of technicians per individual class, and for each class the resulting classroom man-hours (for that class) would be credited to Contractor A against the total above requirement based on the number of buses sold.

SPECIFICATION SECTION 3

MINIMUM REQUIREMENTS OF A TYPE-C SCHOOL BUS CHASSIS

APPROVED ELECTRONIC DIESEL ENGINES

Must meet Current EPA Emissions Level Standards at time of vehicle manufacture.

MAKE	MODEL	HORSEPOWER	TORQUE
Cummins	ISB	220	520

APPROVED CHASSIS REQUIREMENTS

Basic Pupil Load	41-42	53-54	65- 66	71-72
Wheel base (approximate inches)	165-199	198-236	238-259	258-279
Front Axle Capacity (lbs.)*	10,000	10,000	10,000	10,000
Rear Axle Capacity (lbs.)*	17,500	19,000	19,000	19,000
Minimum Transmission Speeds Forward	5	5	5	5

*Requirement is for the suspension/axle/tire assembly (system), not just the axle component alone.

SPECIFICATION SECTION 4

DETAIL REQUIREMENTS – TYPE C

CONVENTIONAL SCHOOL BUS CHASSIS

AXLES

FRONT AXLE - The front axle shall have gross weight capacity at the ground according to the chassis manufacturer's rating, equal to or exceeding that portion of the total load which is supported by the front axle. (See table for axle capacities). Include cast iron hub assemblies with unitized oil bath seals and Emgard, Mobil, or equivalent synthetic lubricant that meets all axle manufacturer's recommendations. Front axle housing to include tag or stamp indicating fluid requirement.

NOTE: Wheel alignment is to be checked and corrected AFTER body installation and before delivery, and to include caster, camber, toe-in, and rear axle tracking.

REAR AXLE - The rear axle shall be of full-floating type and have a gross weight capacity at ground according to the chassis manufacturer's rating equal to or exceeding that portion of the total load which is supported by the rear axle, except minimum as specified in table "Minimum Requirements of a Type-C School Bus Chassis." Axle shall be equipped with a magnetic fill plug, magnetic drain plug and filled to recommended level with Emgard, Mobil, or equivalent synthetic lubricant that meets all axle manufacturer's recommendations. The required rear axle ratio for school buses with tire size 11R22.5 and equipped with the above listed engines is between 6:43 – 6:50 inclusive. The required rear axle ratio for school buses with Flat Floors and tire size 255/70R22.5 is between 6:43 - 6:50 inclusive. The required rear axle ratio for activity buses with tire size 11R22.5 and equipped with the above listed engines is between 6:43 – 6:50 inclusive. All buses to be equipped with these axle ratios. Rear axle housing to include tag or stamp indicating ratio and fluid requirement.

NOTE: AT ANY TIME DURING THE 5-YEAR WARRANTY PERIOD THAT A REAR AXLE IS DETERMINED TO BE THE CAUSE OF NOISE (SOUND PRESSURE RADIATED TO THE INTERIOR OF A SCHOOL BUS) THE CHASSIS MANUFACTURER SHALL BE RESPONSIBLE FOR MAKING REPAIRS within 45 days of dealer notification. THIS IS TO BE MEASURED AT A REFERENCE POINT OF ONE-INCH (1") FROM THE EAR OF ANY SEATED PERSON. IF THAT LEVEL EXCEEDS 85 DECIBELS, THE CHASSIS MANUFACTURER SHALL MAKE REPAIRS TO REDUCE THE NOISE LEVEL OF THE REAR AXLE TO ACCEPTABLE LIMITS.

BRAKES - The chassis shall be equipped with four-wheel S-cam type air brakes. All air brake systems shall meet current FMVSS 121. Approved brake shoe dimensions are specified by capacity size under Minimum Requirements. All brake lining is to be premium grade asbestos free material of FF friction rating.

DRUM BRAKES - All brake drums to be outboard mounted to facilitate brake maintenance without disturbing wheel bearings and seals. Brakes to have cast iron spider. Front air chambers to be no less than type 20 Long Stroke (MGM Model CS20L or Haldex SC20L). Rear chamber to be no less than type 30/30 Long Stroke (MGM Model TR 30/30 LP3 or Haldex GC3030LHDHO) and must be mounted on forward side of axle. Schrader valve required to be located in an accessible location in the engine compartment or on wet tank in order to recharge air brake system for towing. (Location to be approved at pilot model). Automatic slack adjusters (Haldex only) to be supplied on all air brake chassis.

APPROVED BRAKE SIZES

All chassis required shall be equipped with air brakes. No dust shields required.

Air - Front Outboard Drum	15 x 4"	Air - Rear Outboard Drum	16 ½ x 7"

AIR BRAKE SYSTEM - Air reservoirs shall be mounted with the top of tanks not to exceed 4 inches below top of frame rail. Air compressor may be either belt-driven or gear-driven and is to be at least 13.2 CFM with five-ring piston (2 oil and 3 compression); air compressor and air intake is to be routed through engine air cleaner. Approved compressors – Bendix TF550, Cummins-Wabco 15.2 CFM, and Wabco 18.7. Chassis to be equipped with an air dryer, Bendix AD-9.

AIR TANK DRAIN CONTROL - Electronic drain valve system controlled from driver's compartment, one electronic drain valve for each of the three air tanks. The drain system shall function on a single switch.

ANTI-LOCK BRAKING SYSTEM (ABS) - Bendix or Meritor four channel ABS or equivalent. Front and rear wheel speeds are to be sensed separately. Application of front brakes is to be controlled by application pressure modulator and governed by the wheel approaching lock-up to minimize steering input. Rear brake application pressure modulation is governed by individual wheel speeds to minimize braking effort. System must be activated by the ignition switch and actuated by brake application. System shall include blink code diagnostic capability.

ELECTRONIC STABILITY CONTROL (ESC)

Each unit shall come with an electronic stability control (ESC), meeting or exceeding the standards set forth in 49 CFR 571.136 – Standard No. 136; Electronic stability control systems for heavy vehicles.

PARKING BRAKES - Parking brake system shall be designed and constructed to meet the following requirements:

(1) Parking brake shall hold vehicle stationary or limit traction of braked wheels on 20 percent grade under any condition of legal loading when on surface free from snow, ice and loose material.

(2) When applied, the actuation of the parking brake shall be immediate, and parking brake shall remain in applied position with capability set forth in above, despite exhaustion of source of energy used for application or despite leakage of any kind.

(3) Buses with air brakes shall have parking brakes of the spring applied and air release type. Control shall be of the pull to apply and push to release type and mounted in manufacturer's standard location. This control shall be clearly marked yellow. All air brake buses shall be equipped with service brake interlock.

(4) Buses shall be equipped with Bendix Intellipark system or functional equivalent electronic parking brake technology with rollaway protection.

SPECIFICATION SECTION 5

BATTERY - Battery case is to be sealed maintenance free. Chassis must be equipped with two or three (2-3) BCI Group 31 batteries with a total of no less than 1900 CCA. Battery cables shall be long enough to allow full extension of battery tray. Battery cables to be one gauge or heavier, color-coded red-positive / black-ground and easily identified positive and negative. Battery ground cable shall be of the round covered type. Battery must be grounded to the rear of the engine or frame. If grounded to frame, frame must be grounded to engine with same size cable.

All battery cables to be routed to the left frame rail without crossing over the top of any frame member. Routing and clamping of conductors shall be pre-engineered to point of termination outside left frame rail. Both battery cables shall attach to the battery post or battery terminals with a bolted connector. Buses shall be equipped with an all-weather battery disconnect switch to isolate batteries, located in battery box or approved location.

NOTE: ANY WIRES PASSING THROUGH THE FRAME RAILS SHALL BE PROTECTED BY WIRE LOOM OR BRACKETED CLAMP, OR GROMMETED TO PREVENT CHAFING.

BATTERY CARRIER

The bus shall have a battery carrier with a pull-out roller bearing sliding tray located under the body floor with a lockable access door through the left body skirt panel. (All locks keyed the same.) Carrier must be protected against water and dirt and should have a drain shield over top of door. Inside of carrier should be primed and painted with (1) asphalt varnish, (2) acid resistant paint, or (3) E-coat primer with powder coat paint. Battery is to be fastened with a metal hold down device to the pull-out roller bearing sliding tray for easy servicing and sliding tray is to be provided with locking device to securely hold it in place in the battery carrier. Battery box shall - be approximately 14 inches high x 25 inches wide x 16 inches deep. Battery box shall be capable of

accommodating three (3) BCI Group 31 batteries with a total of no less than 1900 CCA. Battery door shall be lockable and keyed the same as any other lockable access panels and have metal pin-style hinge. The battery compartment door shall be identified with the word BATTERY in 2-inch Black lettering.

DRIVELINE - The torque capacity of the driveline assembly shall be equal to the maximum engine torque as developed through the first transmission gear. All bearings shall have an inner race so that failure of bearing shall not damage drive shaft. Each propeller shaft shall be equipped with a protective metal guard to prevent whipping through floor or dropping to ground if broken. Driveline guard is to be 7/16-inch round U-bolt or minimum 1" x1/4-inch flat bar.

LUBRICATION SYSTEM - Chassis lubricating system shall be of the high-pressure type, with hydraulic type fittings located in accordance with best commercial practice. The fittings are to be of a design that will permit quick attachment of the grease gun.

ENGINE SPECIFICATION - Diesel engines will be used in all size chassis. *(Propane-powered buses – see options listing)*

All engines are to have cold cranking ability to zero degrees Fahrenheit (ether assisted system not allowed). Acceptable engines are listed on Minimum Requirements page. Electrical system shall be of the single voltage type. All diesel engines, fuel lines, fittings, hoses, and tank components to be B20 compatible. B20 engine certification from engine manufacturer is required with bid package.

AIR CLEANER - Chassis is to be equipped with a dry, element-type air cleaner, mounted in a location that prevents rainwater from entering and prevents moisture from being trapped in air cleaner assembly with hood closed. Assembly is to include a moisture vacuator device. The air cleaner and the element shall meet all appropriate SAE J726 tests, per engine application. All air cleaner assemblies shall be single-stage or dual-stage and equipped with a locking restriction gauge.

ELECTRONIC CONTROL MODULE PROGRAM PARAMETERS AND PASSWORD – All ECM program parameters and password consisting of 0000 shall be discussed and established at the Post Award Meeting. Idle shutdown shall be programmable by the LEA through access to the ECM.

EXHAUST BRAKE – See options listing.

EXHAUST SYSTEM – The chassis manufacturer shall furnish a stainless-steel exhaust system from the DPF forward, and a tail pipe, aft of the DPF, of a minimum 16-gauge 409 stainless steel or aluminized coated carbon steel and it shall not be reduced in size after it leaves muffler. It shall be pre-engineered to go through the rear bumper and terminate at least ½ inch beyond rear bumper and shall not extend more than two inches beyond rear bumper meeting national standards (must meet FMVSS). Manufacturer drawings shall be provided to the North Carolina Department of Public Instruction and respective body companies, showing exhaust system routing and support bracket locations (upon request). The chassis manufacturer shall provide sufficient tail pipe length to allow body mounting without extension.

At any point the exhaust system is 12 inches or less from the fuel tank, the fuel tank shall be properly insulated with metal shield. No adhesive shields allowed. Exhaust system components located within 4 inches of any non-metallic part shall be properly shielded to prevent heat transfer. All connections shall be slip joint connections (no butt connections) using offset band clamps compression clamp, or Marmon compression joint.

OIL FILTER - The oil filter shall be of the manufacturer's standard full flow type with a dry capacity of at least one (1) quart. It shall be of the spin on, throwaway type or replaceable element type filter. Filter shall be easily accessible.

RADIATOR - The radiator shall be of heavy-duty construction with welded headers. The radiator core shall be a welded tube to header joint for increased life. Radiator core shall not be soldered. Radiators of heavy-duty aluminum construction are considered to be an acceptable alternative. Vehicle shall be equipped with an expansion and de-aeration tank with overflow vent hose to route coolant away from the engine. The radiator shall be of sufficient size to adequately cool the engine and transmission under all operating conditions and shall have a valve for drainage. The cooling fan, mechanically belt driven, shall be equipped with an

ambient-air-temperature-controlled fan clutch or an engine-water-temperature-controlled fan clutch to facilitate ease of operation and maintenance and meet or exceed OEM requirements. Coolant shall be Organic Acid Technology (OAT) Extended Life Coolant and shall meet all requirements of the respective engine manufacturer and radiator suppliers. Coolant/water mix shall be determined by engine manufacturer. Antifreeze/coolant provided shall be a type only requiring additive at midpoint of coolant life. This additive is an extender only, not containing SCA's. Coolant shall protect the cooling system to –30 degrees Fahrenheit. Engine coolant shall not cause any damage or other adverse effect on any component of the cooling system.

HOSE AND HOSE CLAMPS - All hoses shall be silicone or Ethylene Propylene Diene Monomer (EPDM) and all engine coolant hoses that require clamp connections of one inch diameter and larger on the engine or associated components shall be equipped with constant torque clamps, spring-equipped (Breeze or equivalent).

SPECIFICATION SECTION 6

BUMPER (FRONT) - The front bumper shall be of heavy duty, straight or wrap around/curved design and constructed of 3/16 or one-fourth (1/4) inch thick C - channel at least 11 inches wide. Bumper must extend to outer edges of fenders at bumper top line. Bumper shall be reinforced, if necessary, to allow jacking at the frame rails with minimal end deflection.

Demonstration required at pilot model inspection. Deflections which in the State's judgment are found to be excessive will result in rejection of the bumper.

BUMPER (REAR) - The rear bumper shall be of pressed steel channel at least 3/16 inch in thickness and minimum 8 inches high. It shall be wrapped around the back corners of the bus and it is to extend forward a minimum of 12 inches, measured from the rear most point of the body at the floor line. Rear bumper shall be equipped with 2-inch yellow diagonal Reflexite tape or 3M yellow for yellow bus, white for activity buses.

The bumper shall be attached to the chassis frame in such a manner as to be easily removed and be so braced as to develop the full strength of the bumper section. This is also to include rear or side impact and shall be so attached as to prevent hitching of rides. Rear bumper shall extend beyond the rear most part of the body surface at least one inch, measured at the floor line.

FENDERS AND HOOD - The total spread of outer edges of front fenders, measured at fender line, shall exceed total spread of front tires when front wheels are in straight-ahead position. The fenders shall be properly braced and free from any body attachment. Hood and fenders to be assembled as one unit and of the forward tilt type. The hood stop cable shall be equipped with a spring or damping device to prevent hood damage while being opened.

Under the tilt hood, there shall be installed in a convenient accessible location, a waterproof electrical disconnect plug(s) (quick disconnect of all electrical wiring to tilt hood) for all electric lines running to electric accessories mounted on the hood.

FRAME - Each frame side member shall be of one-piece construction (minimum 50,000 psi). Cross members and components attached to frame shall be installed with grade 8 fasteners. Frame shall be doubled from a point forward of front spring hanger, on rear axle, to a point equal to leading edge of rear air bag on side where torsion bar meets frame rail.

Routing of all brake lines and/or electrical wiring shall be located within the frame rail flanges.

NOTE: ANY WIRES OR BRAKE LINES PASSING THROUGH THE FRAME RAILS SHALL BE PROTECTED BY WIRE LOOM OR BRACKETED CLAMP, OR GROMMETED TO PREVENT CHAFING.

TOW HOOKS – Unit shall have a total of four (4) tow hooks as follows: Two heavy-duty black painted tow hooks shall be factory-installed one on each frame rail at front in an approved manner. Two heavy-duty black painted tow hooks shall be factory-installed just forward of the rear bumper and are to be attached to the chassis rails independent of the rear bumper. Both the front and rear tow hooks shall be capable of towing the fully loaded vehicle.

SHOCK ABSORBERS - Chassis shall be equipped with heavy-duty, double-action hydraulic shock absorbers front and rear.

SPRINGS – Chassis spring assemblies shall be of ample resiliency under all load conditions, except minimum as specified in table "Minimum Requirements of a Type-C School Bus Chassis." Center spring through bolt shall be of proper size for holes punched in spring leaves.

1. Front springs are to be anchored at the front end and stationary eye to be protected by a wrapper leaf in addition to the main leaf.

2. Spring saddles shall be of suitable cast iron construction.

3. Rear Suspension (Air Ride) - All configurations of buses shall be equipped with rear air-ride suspension.

STEERING - The steering gear shall be designed to assure safe and accurate performance of the vehicle under any and all conditions. Steering shall have full time power assist with an integral type steering gear (external hydraulic assist cylinder not acceptable). The mechanism must provide for easy adjustment for lost motion. The upper and lower kingpin shall have roller bearings or bronze bushings. The steering column shall be equipped with tilt feature. Tie rod ends, drag links and kingpins shall be equipped with Zerk type grease fittings unless permanently sealed.

FUEL TANK - The fuel tank shall conform to FMVSS 301 in construction and mounting. Fuel system to have a fuel filter and water separator per engine manufacturer's specifications which includes water sensor, primer pump, and drain. Fuel filter/water separator is to be located between fuel tank and engine and mounted on the firewall, engine, or other accessible location in the engine compartment, prior to any fuel pump. A separate engine mounted secondary fuel filter is also required. Tank to be equipped with a minimum of one internal baffles. Tank capacity on 41 and 54 capacity buses must be at least 60 gallons with aluminized interior. A 100-gallon capacity tank of same specifications is required on all 66 and 72 capacity buses. Tank shall be equipped for at least a 93-95% draw.

NOTE: One (1) tank with a 60 or 100-gallon capacity is to be provided on all chassis. Multiple tanks are not acceptable. Tank to be located immediately behind the entrance door such that fueling takes place just to the rear of the entrance door in order to maximize fueling flow and convenience of remote fueling.

Fuel tank may also be mounted between the chassis frame rails. However, fuel tank, regardless of installation location, must allow a fueling rate of minimum 25 gallons per minute, without activation of the automatic fuel dispenser shut-off feature before the tank is filled to minimum 80% of its full rated capacity, when the bus is elevated 5" from level as measured on the side of the bus AWAY from the fueling port (that is, for buses fueled from the right side, the left side of the bus must be elevated 5" from level for this test). There shall be no fuel splash-back at any time during the fueling operation, such that there is no risk of damage to asphalt in fueling areas by fuel exiting from the filler neck. Unless otherwise notified by the State, the contractor must demonstrate to the State's satisfaction during the pilot model, by means of an actual fuel fill operation, the ability of the installed fuel tank to accept fuel at the simultaneous conditions specified above. If the installed fuel tank and filling system fails to meet the above requirements in full (including splash-back restriction) during the pilot model demonstration, or in any demonstration thereafter, the bus will be considered unacceptable, and the contractor is expected to make immediate, permanent, and appropriate modifications to the tank location and/or filler tube configuration, or to other factors as may be necessary, in all affected buses.

FUEL FILLER OPENING COVER - A latchable door of 20-gauge metal is to be installed over fuel filler opening on side of body. The door must be held in the open and closed positions with a spring device. A suitable panel in the body floor shall provide access to the fuel sending unit and fuel lines. OEM recessed body mounted finished opening allowed without fuel door.

DEF FILLER OPENING COVER - A latchable or spring-loaded door which allows the door to be held in the closed position must be installed over the DEF filler opening on the side of the body. No lock mechanism will be accepted.

OPENINGS - All openings in floorboard or firewall between chassis and passenger carrying compartment, such as engine area and/or gearshift selector, shall be sealed. Any insulating or access panels on firewall or in floor shall be adequately fastened at both top and bottom and easily removable on completed bus. Maximum decibel level at driver seat to be no more than 83 d.b.a. when tested in accordance with procedures found in Appendix B of the 2015 National School Transportation Specifications and Procedures. It is the responsibility of the manufacturer to reduce the interior noise to acceptable levels.

SPECIFICATION SECTION 7

ALTERNATOR - Current shall be generated by use of an alternator of the heavy-duty 12-volt type with a built- in rectifier. Minimum output rating shall be at least 280 amperes. Voltage shall be controlled by a transistorized regulator of adequate capacity and matched to operate properly with alternator furnished. Alternator to be equipped with a SAEJ180 two-legged mount or acceptable easily accessible high position equivalent mount. All chassis on order are to be equipped with a Leece-Neville IdlePro Extreme Alternator, brushless, internally regulated, and with a minimum ampere rating of 280.

Serpentine belts shall be furnished to drive alternator and fan. Chassis/body grounding of electrical system shall be provided by the use of suitable grounding straps grounding the body to the frame, the engine to the frame and the batteries to the frame.

Chassis manufacturer shall install a readily accessible terminal so that body and chassis electrical load can be recorded through the chassis ammeter and/or voltmeter. Chassis terminal shall have a minimum -ampere capacity to accommodate the alternator capacity. Ammeter and/or voltmeter must give a true reading to show how the charging system is operating.

ALTERNATOR WIRING HARNESS - All conductors from the alternator to the battery shall be continuous in length and sized to provide at least a 25 percent greater current carrying capacity than the design output of the installed alternator. The conductor between the alternator and the battery shall be routed in a manner that will provide the least distance between points of termination. A separate ground conductor from alternator to engine or frame shall be provided. A separate ground wire from the bus body to the frame shall be provided. All wiring shall be required to meet Society of Automotive Engineering (SAE) Codes.

WIRING (CHASSIS): All wiring in the bus shall be in accordance with ALL applicable SAE standards, and must be of a gauge which is rated to handle on a continuous duty basis a load (amperage) which is 25% greater than the maximum rated load of the connected component, or which is 25% greater than the maximum rated combined load of all connected components if several components are served by a single conductor (whether positive or grounding side of the circuit). Any wiring serving to provide a duplication for the grounding a load must be of a gauge rated to handle on a continuous duty basis a load (amperage) which is 25% greater than the maximum rated load of the connected component. The conductors which run specifically from the alternator to the battery are addressed elsewhere herein.

GROUNDING - All grounding on the bus shall be in accordance with ALL applicable SAE standards and shall furthermore be consistent with best industry practice. For each grounding terminal, there shall be a SINGLE particular grounding terminal type specified in the manufacturer's authorized production drawings for the vehicle, and all units delivered to the State shall be furnished with the particular terminal type so specified, for each and every grounding connection throughout the vehicle. There shall be no case on the vehicle where a particular grounding terminal type is not specified in the production drawings, or where two vehicles of same model number use different grounding terminal types for the same connection. Grounding fastener means which are permitted include bolts and welded lugs, but each type shall be fully and permanently suitable for use in the location installed and for the number and gauges of wires served. In instances where welding is used to secure the fastener means to the vehicle frame or body component, the weld must be such that it will not fail in any expected service condition for the useful life of the vehicle. The voltage difference between any two grounding points shall be in accordance with SAE standards. For high current grounds which exceed 30 Amp loads, a cable or ground strap terminal must be bolted directly to the frame rail in pre-drilled mounting holes. During the pilot model inspection, the contractor shall make accessible any and all grounding connections which the State wishes to inspect and/or test.

ROAD SPEED CONTROL - The electronically controlled engine is to be programmed to establish the maximum road speed stated on order.

NOTE: 45 mph on all school bus chassis and 55 mph on activity bus chassis.

HORNS - The chassis shall be equipped with dual snail style horns of manufacturer's standard make and mounted above the frame rail so as not to collect water inside the horn.

IGNITION - All chassis shall be equipped with an ignition switch lock, which is set up on the master key system. One key will operate all chassis furnished by any one manufacturer regardless of year model.

Each unit shall be programed not to attempt engine start until the intake air heater is ready for engine starting.

LIGHTS - Each chassis shall be equipped with a minimum of two extended life headlights and two turn signal lights. An appropriate size fuse/breaker shall protect turn signal lights. Turn signal shall be wired to operate as hazard warning lights and shall be connected to a variable load flasher. If two flashers are used, both shall be of the heavy-duty variable load type. All lights shall be of the proper intensity and adjustment to meet the standards of the National Bureau of Standards. The headlight switch shall be of ample capacity to handle the load added by the addition of the clearance, marker lights, and strobe lights required on the body. There shall be provided on the inside firewall or electrical panel left of driver chassis terminals for the connection of the body tail lights, stop lights, backup light and license well light. Turn signal lights shall not operate unless the ignition switch is in the ACC or ON position.

HEADLIGHT SWITCH AUDIBLE ALARM - There shall be an audible alarm if the ignition switch is in the off position and the headlight switch is not in the off position.

NOTE: Multiplexing/Electronic System Control Technology shall be acceptable in lieu of fuses/circuit breakers or other electronic controls.

DAYTIME RUNNING LIGHTS - Low beam headlights, tail lights, parking lights, and marker lights operate at full voltage with the ignition switch on and the headlight switch off "regardless of park brake position". The lights shall not engage while the starter is engaged.

INSTRUMENT PANEL - The instrument panel shall be equipped with an ammeter or voltmeter, oil pressure gauge, water temperature gauge, one-million-mile odometer, vacuum or air pressure gauges, fuel gauge, DEF gauge, and a high-water temperature and low oil pressure light and buzzer. Light indicators will not meet these requirements. All instruments and gauges should be located within 12 inches to the right or left of steering column. The instrument panel shall have lights of sufficient candlepower to illuminate all instruments.

SPECIFICATION SECTION 8

TIRES - The chassis shall be equipped with six (6) machine-balanced tires, two on the front and four on the rear. Tires shall be of the tubeless type with full steel belted radial construction (sidewall and tread area). Tires furnished shall be tire manufacturer's top line tires and listed in the tire manufacturer's current published catalog and price list. All tires shall be 11R22.5 in size and at least sixteen- (16) ply rating and load range H.-Tires shall be Michelin XZE2, Bridgestone Model R250 ED, Goodyear Marathon, Goodyear Endurance, Hankook AH-37.

NOTE: Power lift buses designed to provide a solid platform for the flat floor body configurations must be equipped with Michelin XZE, Bridgestone Model R250 ED, Goodyear Marathon, Goodyear Endurance, Hankook AH-37 P255/70R22.5 radial tires. All wheel rims shall be 22.5-inch ten-stud hub-piloted.

WHEELS - The chassis shall be equipped with six (6) wheels and rims of the ten-stud hub piloted disc wheel design. All rims are to have a width of 8.25 inches. All rims to be painted black.

TRANSMISSION - Chassis shall be equipped with an Allison 2500 PTS series automatic transmission filled with TES-668 approved fluid. Automatic transmission shall have an integral torque converter. The transmission shifter shall be a manual selector. Within the range selected, ratio changes shall be affected automatically at full engine power if desired and without use of an engine disconnect clutch. It shall have an illuminated range indicator embossed or made of metal and properly fastened. Control shall be located to the right of the steering column and mounted to the dash.

Transmission required to have Allison Fuel Sense 2.0 Max.

SERIAL NUMBER LABEL – A metal label shall be furnished showing the Vehicle Identification Number, and permanently affixed on the firewall or dash panel visible from left front corner of bus in a position for maximum visibility and legibility (exact location to be approved). Letters and numerals shall be of the cut or embossed type. The serial letters and numerals should be a minimum of 4 mm in height.

SPECIFICATION SECTION 9

MINIMUM REQUIREMENTS FOR NC TYPE-C SCHOOL BUS BODIES

COLORADO RACKING TEST: All buses must meet the requirements of the Colorado Racking Test

KENTUCKY POLE TEST: All buses shall meet the requirement of the Kentucky Pole Test.

Manufacturer shall submit appropriate certification information.

DIMENSIONS

BODY SIZES - The following standards shall govern the sizes of school bus and activity bus Type-C bodies. The maximum overall outside width of the body shall be 96 inches. The height of the body from the top of the finished floor to the underside of the ceiling, at the center of the body, shall be approximately 77-78 inches.

NOTE: All wheel chair positions except flat floor configurations shall be aft of the rear wheel Housing.

The following table shall govern the body lengths as measured from centerline of first roof bow aft of entrance door to rear interior wall.

Maximum Seating Capacity	Maximum Body Length
41-42	248"
53-54	280"
65-66	330"
71-72	360"

VEHICLE DATA PLATE - On the inside of the bus, there shall be installed (1) on metal component of header, above the driver and to the left of the visor mounting bracket or (2) on ceiling, directly above the driver's head, a single manufacturer's name plate which can be easily read, on which shall be shown the name of the body manufacturer, the name of the chassis manufacturer, the serial number of body, the serial number of the chassis, seating capacity, actual fuel capacity, GVWR, date body built, date chassis built, actual bus height, length, curb weight, actual tire size installed on bus. Curb weight does not refer to G.V.W.R., but instead shall mean the actual weight of the completed bus full of fuel (60 or 100 gallons, in accordance with tank size furnished) and fluids.

Plate to be metal with all information embossed (for fireproofing). Additional vehicle manufacturer's data plate(s) are not acceptable; all vehicle data shall be on the above single data plate.

BODY CONSTRUCTION

GENERAL - Throughout the construction of the body, there shall be evidence of good workmanship and engineering ability.

DESIGN SPECIFICATIONS - Welds, rivets, or high strength bolts or a combination of these items in combination with adhesives may be used in connecting parts of the structural body. Bolts shall have a provision (self-locking nuts/lock-washers) to prevent loosening under vibratory loads. All bolts, nuts, washers and screws used throughout the body shall be cadmium or zinc plated, or thoroughly treated in a manner for prevention of rust (ECO 2000 coating or equivalent). Lock washer or locking devices shall be placed on all bolts used for structural purposes.

GAUGE OF MATERIALS - All gauge numbers used in these specifications refer to the U.S. Standard Gauge Number as published by the American Iron and Steel Institute. The following table lists the Manufacturer's Standard Gauge for Steel Sheets in thickness and equivalents:

Gauge Number	Non-coated Steel	Coated Steel
10	0.1345	0.1382
12	0.1046	0.1084
14	0.0747	0.0785
16	0.0598	0.0635
18	0.0478	0.0516
20	0.0359	0.0396
22	0.0299	0.0336
24	0.0239	0.0276

The above listed thickness, with the tolerances allowed by the American Iron and Steel Institute, are the minimum thickness acceptable for each given gauge number.

BODY MATERIAL SAMPLE KIT

Small sample of all required metal to be available for testing at the Pilot Model Inspection and upon request.

The following is a list of required metal to be in the sample kit. Please label with letters as stated below.

A. Floor Plate: 14 Ga. Galvalume or Zinc coated steel
B. Floor Sill: 14 Ga. or heavier
C. Main Sill: 10 Ga. or heavier
D. Intermediate Sill: 16 Ga. or heavier
E. Entrance Steps: 14 Ga. steel (sample need not be covered with ribbed rubber or Elastomer Material)
F. Side Stringers/Longitudinal members Formed: 16 Ga. or equivalent 3" wide before forming
G. Cowl Posts: 12 Ga. & attaching members 14 Ga. or Clam Shell design
H. Emergency Door Post: 14 Ga.
I. Window Framing: 14 Ga. to 16 Ga. formed header or stringer/longitudinal member
J. Continuous window Header inside and outside attached at each rafter: 18 Ga. minimum
K. Side Sheet Metal Skin: above floor 20 Ga.or heavier
L. Cowl Panel if supplied: 12 Ga. or heavier or 14Ga. with 12 Ga. framing or Clam Shell Design no Ga. specified
M. Interior Roof Sheet: 20 Ga. perforated sheet steel
N. Window Sill to seat rail or floor metal: 22 to 24 Ga. metal textured, embossed stainless, aluminized or clear coat galvanized sheet steel
O. Seat Back Reinforcement: equivalent to 24 Ga. metal

SPECIFICATION SECTION 10

BODY FLOOR

BODY FLOOR DESCRIPTION - The body floor panels shall consist of a steel floor plate(s) stiffened with sills running the full width of the floor. Sills may consist of cold-formed sections of steel or of suitable hot rolled sections. All panels or sections shall be joined so as to form a leak proof and dust proof floor and connected with longitudinal members running the length of the body which are capable of distributing the roof loads from the posts or bow frame to all supporting members.

FLOOR LOADS - The floor shall be designed to support all fixed and changeable loads. Fixed loads shall consist of all parts of the body supported by the floor system. Changeable loads are live loads determined on the basis of 125 pounds per passenger with three passengers per seat. The weights of the passengers and seats may be estimated at 70 pounds per square foot of floor area. To allow for vibration and shock, all loads shall be doubled.

FLOOR PLATE - The floor of the body shall be 14-gauge Galvalume and/or zinc coated steel floor plate or equivalent and shall be covered with a minimum of 5/8-inch thickness, 5-ply, Marine plywood (C/D or better). Vendor may seek DPI approval for an alternative material having equal or better insulation and water resiliency properties. Plates shall run the full width of the floor and be supported at all edges. Openings should be made only when required such as wheel housing. All openings to be reinforced so as to maintain the full strength of non-punctured floor and not interfere with floor tracking on raised floor models. The floor plates shall be connected to supporting members so as to function as a part of the sills in carrying loads. Access shall be provided through removable cover that provides access to fuel sending unit.

FLOOR SILLS - All cold formed floor sills are to be 14-gauge or heavier, or the main sill shall be equal to or heavier than a gauge of 10 and each intermediate sill shall be equal to or heavier than a gauge of 16. All sills shall extend the full effective width of the floor without splicing so the floor will support the roof load imposed by the side posts. Sills are not required to extend the full width of the body in the wheelhouse area, the fuel filler area, or where other structural members interfere. However, if sills do not run the full width of the body, they shall be connected to the adjacent sill for continuity of strength or by other approved methods. If two hot rolled sections or plates are used to form a sill, the two sections shall be connected so as to function as a unit with the rest of the floor system without spread or slip.

There shall be a main sill at each post or bow-frame, except in the wheelhouse area, and two intermediate sills. The intermediate sills shall be equal in depth to main sills. The maximum spacing of the sills shall be 10 inches.

The ends of all main sills shall be securely connected, top and bottom, to a longitudinal side rail running the length of the body or other equivalent floor assembly method providing the same level of floor structural integrity. The connections and side rail shall be capable of distributing loads from the posts or bow-frames to all sills.

The bus body's transverse and longitudinal frame members should allow stress to flow evenly throughout the bus body. The manufacturer should substantiate the strength integrity of any joint or gusset connection of these members to prove they are of equal or greater than a continuous constructed member is. If requested, this information shall be furnished to the State for review.

STEPWELL - A step well, having three steps, shall be built into the front assembly and completely enclosed with doors extending to bottom step. Each step shall be 14-gauge steel construction and covered with ribbed rubber or elastomer material as per the 2015 National Standards. The top step riser is to include a single decal with, at minimum, 2 inch tall white letters with black background at top edge of step riser stating "USE HANDRAIL". The top edge of riser for next lower step is to include, in same sized letters and a single decal in white letters with black background "NO TRESPASSING".



Separated decal location higher, out of the kick zone

Entrance step shall extend below skirt line to such depth as necessary to make the distance to the ground from the bottom of the step no less than 10 inches and no more than 14 inches.

FLOOR COVERING - The floor under seat area and drivers compartment shall be covered with black, smooth finish rubber covering or elastomer covering, at least 1/8" thick. The aisle and entrance area shall be covered with black, ribbed pattern rubber or elastomer covering at least 3/16" thick. The frontal area around the driver compartment is to be covered with black sound abatement. The adhesive for laminating the cover to the floor shall be water – resistant type of trowel or spray consistency. A rust proof molding strip shall be applied over the edges and joints of the covering. If the chassis is equipped with transmission cover, the cover shall be placed on top of floor board and securely fastened and sealed.

SPECIFICATION SECTION 11

BODY FRAME

BODY FRAMING - Where posts or bow frames are not loaded in a plane of symmetry, they shall be braced so as to deflect without twisting. The minimum depth of member shall be at least 1 and 1/2 inches and shall be 16-gauge or equivalent. The maximum spacing shall be 30 inches on centers with the exception of up to three oversized sections which shall be no greater than 40 inches on center. If any oversized sections are used, there shall be installed additional roof reinforcement in all such sections.

The section modulus of the cross section shall be not less than 0.22 (in^3).

NOTE: All Vendors shall submit with their proposal complete detailed engineering drawings detailing the size and shape of a cross section of the post or bow frame along with detailed calculations verifying that the section meets requirements.

ROOF BOW - A roof bow shall be located at each post to form a bow frame or bow frames may be formed in one piece. If side post members and bow frames are not one continuous piece, when framing members are joined the connections shall be such as to develop the full strength of the cross section of the two or more members joined. Roof bows shall not be buckled or distorted out of cross section during the process of bending to the curved shape. Each post shall be connected to a main floor sill, either directly through gussets or indirectly through the side rails. These connections shall consist of fasteners at a minimum of two elevations to effectively anchor the bow frame to the floor systems.

NOTE: All Vendors are to submit with their proposal complete detailed engineering drawings of the joint connection.

ROOF STRINGERS - Two or more roof stringers or longitudinal members shall be provided to space the roof bows and reinforce the flattest portion of the roof skin. These stringers may be installed between the roof bows or applied externally. They shall extend from the windshield header and when combined with the rear emergency doorposts, are to function as longitudinal members extending from the windshield header to the rear floor body cross member. At all points of contact between stringers or longitudinal members and other structural material, attachment shall be made by manufacturer's method of attachment. If stringers are applied internally, they shall be fastened to each roof bow. If stringers are applied externally, all joints must be lapped the full width of the roof bow and attached to each roof bow with four rivets or securely welded.

SIDE STRINGER(S) / LONGITUDINAL MEMBER(S) - There shall be one or more side stringers or longitudinal members to connect the vertical structural members and to provide impact and penetration resistance in the event of contact with other vehicles or objects.

The side stringers or longitudinal members shall be installed in the area between the bottom of the window and the bottom of the seat frame and shall extend completely around the bus body, except for the door openings and body cowl panel.

The formed side stringers or longitudinal members to be 16-gauge or equivalent metal, at least 3 inches wide before forming.

The side stringers or longitudinal members are to be fastened to each vertical structural member, in any one or a combination of the following methods as long as stress continuity of the member is maintained:

1. Installed between the vertical members.
2. Behind the panels but attached to the vertical members.
3. Outside of the external panels.

The side stringers or longitudinal members may be combined with a rub rail or be in the form of an additional rub rail, so long as the separate conditions and physical requirements for the longitudinal rub rails are met.

FRONT FRAMING -The design shall recognize the weakness at the windshield by provision of frame action to carry lateral loads. The front assembly shall be sufficiently heavy to withstand vibrations transmitted to it through chassis cowl.

Cowl posts shall be 12-gauge and attaching members shall be 14-gauge or two-section, pre-stressed, "Clam shell" pillar assemblies may be utilized in lieu of cowl posts. There shall be a roof bow or reinforced header installed over these posts.

Windshield or cowl posts must be of sturdy construction and so designed that the posts will not be so wide as to unnecessarily obstruct the driver's view. If cowl posts are made in two sections, the sections should be joined together by overlapping and welding in an approved manner or the sections should have an insert and be welded. The body shall be fastened to the chassis cowl in a waterproof manner.

REAR FRAMING - The emergency doorposts shall extend from the floor sill to the window header and shall be 14-gauge. There shall be installed on each side of the emergency doorposts an additional post equal in strength to the side posts, which shall extend from the floor sill to the windowsill.

SKIRT REINFORCEMENT - There shall be installed at the bottom of the outer paneling a continuous skirt stiffener, equal in strength to a 1-inch by 1/8-inch angle. If body construction is of such a design that this type stiffener cannot be used, an additional 4th guardrail shall be applied externally. Guardrail to be equal in strength and construction to the guardrails required in the Guardrail Section. This stiffener shall be supported by extending posts or bow-frames or by 16-gauge gussets.

WINDOW FRAMING - Window framing shall be constructed of a 14 to16 gauge formed header or stringer (not a flat strip) with a minimum depth of 1 ½ inches perpendicular to the side of the body. This stringer shall extend completely around the bus body. There shall be installed at the windowsill a stringer which extends completely around the body except for the door opening. A continuous internal and external header constructed of a minimum 18 gauge material, extending the full length of the body and attached to each rafter is acceptable. All construction must meet FMVSS.

SPECIFICATION SECTION 12

EXTERIOR PANELING

PANEL DESIGN - Joints in roof panels should occur only at roof bows, roof stringers and window headers.

SHEET METAL SKIN - All paneling above the top of the floor except the cowl panel (structure between firewall and hood), wheel housing, and body hoods shall be 20-gauge or heavier. The cowl panel shall be of 12-gauge or heavier metal, or cowl panel may be 14-gauge metal with 12-gauge framing. Side lower skirt edge shall be at a horizontal line from the center of the front spindle to the center of the rear axle plus or minus 2 inches.

WHEEL HOUSING - The wheel housing shall be rigidly reinforced and shall be attached to the floor in such a manner as to prevent any water or dust from entering the body. They shall be designed for easy removal of tires. External wheel housing opening shall be equipped with a steel or rubber fenderette that extends past outermost portion of tire.

SPLASHGUARDS – Each school bus and activity bus shall be equipped with rubber front and rear splashguards to prevent debris from being thrown under the bus body. Width to be approved at pilot model inspection.

REFLECTORS - There shall be installed on the bus body (2) amber and (4) red reflectors that meet FMVSS 108 requirements. The lenses are to be 3 inches in diameter and made from acrylic plastic with six reflecting angles. Frame (if used) is to be polished aluminum or zinc plated steel. Diamond grade vinyl reflectors will be accepted.

GUARD RAILS



In addition to the side stringer or rub rail required in the above wheel housing section, there shall be applied to the outside of the body, three guard rails. These members to be corrugated so as to provide maximum stiffness and shall be 16-gauge or heavier. Pressed-in guardrails will not meet these requirements. Guardrails shall be located at the following approximate locations: floor level, seat level, and windowsill level. The seat level and window level rails shall begin at the entrance door posts on the right side of the body and, except for the rear emergency door, extend around the rear of the body to left windshield post. Where design problems cause difficulty in installing one of the above guard rails, the floor level rail may be extended in its place or an additional stringer installed. Floor level guardrails are to begin at the entrance doorposts on the right side of the body and, except for the wheel house and fuel filler and lift door area, extend to the right rear body post, and to the left windshield post. Except for the wheelhouse, they are to extend to the left rear body post, except where design does not permit installation. The guardrails are to be vented and attached at least twice to each post within their lengths. Splices, if any, are to be located at posts by lapping the full width of the supporting part of the posts. All guardrails to be cleaned primed and rust proofed underneath before being installed on body. Guardrails shall be installed utilizing Pan Head Carbon Steel Screws/stainless steel sheet metal screws/ or Drive rivets in all attaching positions.

NOTE: In the event that continuous guard rails are not possible as stated above, reinforcement shall be installed inside the bus body to compensate for the absence of rails.

WATER TEST

All buses shall be water tested for leaks in a high-pressure multi-angle test chamber.

The manufacturer shall be required to water test each vehicle for no less than five (5) minutes, in order to determine whether or not there are any body leaks. Manufacturer shall take the necessary corrective action when body leaks are found to exist as a result of the above test and conduct a second water test to recheck for body leaks following corrective action. This test information shall be furnished with the bus upon delivery.

SPECIFICATION SECTION 13

INTERIOR PANELS

SHEET METAL LINING - The roof section of the body is to be lined entirely with 20-gauge perforated sheet steel. Lining panels to have a minimum of at least 2 inches of un-perforated steel for attaching to roof bows. Panels must be designed and fastened to minimize vibration and to be installed for easy removal. Panels from the windowsill to seat rail or to floor shall be 22 to 24 gauge metal textured and embossed stainless, aluminized, or clear-coated galvanized steel sheet.

MOLDINGS - At the junction of the interior paneling and the floor, there shall be installed a galvanized, aluminum or other corrosion resistant molding.

Note: No sharp edges allowed in bus interior.

All interior lining shall be secured to meet FMVSS 221.

SEATING

SEATING DESCRIPTION - Seats shall be forward facing and be spaced with the maximum knee room available within standard body lengths. All seats shall be 39" or 30" wide, 15 inches deep, and 28" seat back height. Seats are to be arranged in rows of two or staggered with a minimum 12-inch center aisle. All seats shall meet the requirements of FMVSS 222 and 302. Standard bus seat models approved: IC 39" "two-leg style", IMMI Safeguard S3B style and the "standard 39" Blue Bird style"). Seating form and securement changes require approval in advance of pilot model inspection.

CHILD SAFETY RESTRAINT SYSTEMS (CSRS) - All North Carolina school buses shall be equipped with Integrated Child Restraint Seats that meet FMVSS 210, 213, 222, 225 and 302 (Fire Block Test). Approved models are: CE White Model #CR11-39, IMMI Safeguard Model #ICS-39, , or IMMI Safeguard SABRE series seat. Upholstery material shall meet FMVSS 302 and shall match seat upholstery material used on all other passenger seats.

CSRS compliant seats shall be installed in the following standard locations;

All bus configurations require -1st Two Rows (total of 8 seating positions)



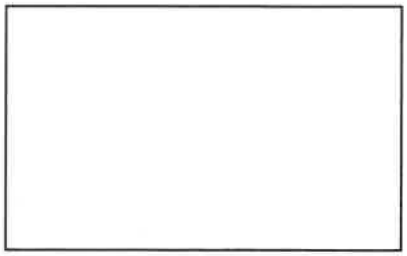
Some units may be ordered with additional CSRS seats up to 14, 18, 22, or 24 depending on the capacity of bus. However, some units may be ordered with NO CSRS seats which will require a deduction in price.

SEAT CUSHION PAD - The top of the seat crown should be approximately 16 inches above the floor. The cushion material should be a minimum thickness of 3 ½-inches front 2 inches rear, excluding plywood base. The cushion shall have a ½-inch thick mounting board and shall be secured to the seat frame to meet the cushion retention requirements of FMVSS 222. Seat cushion is to be covered with an approved (fire block type) upholstery fabric to include underside of seat cushion. The cushion pad is to be secured by a positive locking mechanism that requires the removal of a securing device before latch mechanism will unseat from frame. Approval prior to pilot model inspection is required.

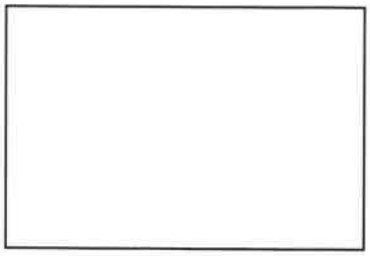
IC Seat Securement



Thomas Seat Securement



Blue Bird Seat Securement



SEAT BACK PAD – All seat backs shall have reinforcing material equivalent to 24-gauge metal between the front and rear padding and it shall be properly fastened to the seat frame. The back pad and cover shall meet requirements FMVSS 302 and 222. No seam may exist in the back pad material from the crown of the seat back pad to an area 1" below the top of the metal framing. The seat back is to be covered with (fire block type) upholstery fabric.

DRIVER'S SEAT – The driver's seat shall be of a high-back air suspension type with a minimum seat back adjustment of fifteen (15) degrees and a head restraint accommodating sizes through ninety-five (95) percentile adult male (as defined in FMVSS 208). The driver's seat shall be covered with black fire-block material. The driver's seat shall have minimum distance between the steering wheel and the seat back not less than eleven inches (11"), with a minimum aft adjustment of six inches (6"). The driver's seat shall provide for fore-and-aft and up and down adjustment and shall be contoured with adequate support on the sides. The seat shall be designed to provide lumbar support and positioned on the centerline of the steering wheel. Driver seat shall be C. E. White ISH-2002, The Seats Inc., or National Model 2000 school bus driver seat with integrated 3-point lap and shoulder harness. Seat air controls must have push-lock air line fittings, no crimped or heat-shrink fittings will be accepted, no plastic F-shaped fitting manifolds will be accepted.

Seat shall be identified by permanently attached / approved vinyl tag containing seat manufacturer, model number, serial number and build date.

DRIVERS SEAT BELT - The amount of usable belt, as measured from the top point of the seat back, through the sliding buckle, to the point on the left side of the seat cushion where it joins the seat back (that is, near the drivers left hip) shall be at least 103". The ability to quick-release driver seat latch with weight applied is required.

NOTE: Seat belt webbing shall be bright orange.

DRIVER'S CUP HOLDER - A cup holder may be provided to the right of the steering column in the lower portion of the dash. Placement should be as far from the entrance and handrail as is feasible. The design and location are to be presented at the post award meeting with final approval at the pilot model inspection. No device with sharp edges or catch-points will be approved.

FIRE BLOCK UPHOLSTERY FABRIC - The upholstery material used to cover all seat cushions and backs shall conform to requirements of the following product specifications and testing:

The base fabrics shall be fire block, un-dyed, and the minimum finished weight per square yard shall be 25 oz., lock stitch knit backing. The breakdown of the material shall be as follows:

Mfg: Prevail, Kevlar Mfg., or Spradling

Weight of Film: 38-oz linear yd.

Finish Weight of Material: 25-oz/sq. yd.

Product Specifications/Testing:

Grab tensile (lbs.) ASTM-D751

Tongue tear (lbs.) Fed 191A-51334

Tack tear (lbs.) ASTM D751-79 mod.

Trapezoid tear (lbs.) ASTM D1117

Adhesion (lbs./in.) ASTM D751

Seam breakage - AMC method

Flex testing (1 hr.) CFFA-10

Blocking-Fed Standard 191-5872

Low temperature (-20) #5 roller Fed STD 191A-5872

Abrasion (Wyzenbeek) Fed standard 191A-5304 240 grit-1000

Puncture Test 28 lbs.

Minimum 6 Stitches Per Inch using Tex 105 30/6 Spun Kevlar or Higher Thread

Flammability Testing:

FMVSS - 302

FAR 25.853

Boston bag

National School Bus Standards fire block material

All sewing on cushions and backs to be securely stitched with all seams lock stitched or double stitched with Tex 105 30/6 Spun Kevlar or higher thread or equal fire block thread. Seam ends should be backstitched to prevent unraveling. The same grade of material and construction shall be used in all activity buses. Seat color shall be blue.

ASSIST RAIL AND CRASH BARRIER

ASSIST RAIL - Two safety assist handles or rails shall be provided at the front entrance, located on the right and left, securely mounted inside of body and should extend to bottom step to be within approximately 28 inches of ground. The right-side assist handle shall be braced to dash firewall or approved floor location. Assist handles shall be made from 1 ¼" inch OD round stainless architectural tubing or 1 ¼" inch OD anodized aluminum meeting ADA minimum requirements.

CRASH BARRIER - Crash barrier shall meet FMVSS 222 & 302 and shall be constructed and covered as per seat backs with blue seat material. No seam may exist in the barrier pad material from the crown of the barrier pad to an area 1" below the top of the metal framing. Crash barrier material shall be fire block type. Crash barrier on right and left side of bus shall have a modesty panel between the stanchion bars of crash barrier from floor level to bottom of crash barrier.

BROOM HOLDER - An O-ring style securely mounted base plate broom securement device shall be mounted in a location to be approved before construction of pilot model. Finished installation location to be approved upon inspection of pilot model.

NOTE: Spring clip and Velcro Type not allowed.

WASTE CAN - Each unit shall have a bucket style waste container which securely attaches to a base which is mounted to the floor or side panel. The container shall be removeable without tools, a minimum of 7-16-quart size, and black or gray in color.

SPECIFICATION SECTION 14

ELECTRICAL SYSTEM

WIRING DIAGRAM - A complete schematic diagram covering all wiring in the bus is required to be furnished and delivered to each LEA school bus garage statewide which orders buses from this contract. The diagram may be provided in either hard copy or digital form (including online). The same diagram may be requested by the State and will be required to be delivered (at no charge) within 3 days of the initial request to the requestor.

NOTE: Multiplexing/Electronic System Control Technology shall be acceptable in lieu of fuses/circuit breakers or other electronic controls.

WIRING (BODY) - All wiring shall conform to the standards of the Society of Automotive Engineers. It shall be color and number coded, insulated and protected by covering with fire suppressant cover. All fuse/circuit breaker blocks shall have circuit identification decals.

Wiring should be in circuits as follows: dome and step well lights, flasher lights and stop arm lights, emergency door buzzer, windshield wipers, heaters and defroster, and turn signal system. The body wiring shall be enclosed with a removable cover extending from front to rear of body. All electrical connections between body and chassis should be made at the connection furnished on the chassis. Wires will not be spliced into existing chassis wiring.

Located in panel left of driver or in adjacent outside electrical panel shall be two accessory studs: one (1) each fused, functioning in "run" or "accessory" positions only, and one (1) each battery voltage fused 50 amp minimum, each such stud labeled as specified. Alternatively, six (6) each, fused 20-amp minimum accessory drop wires, with four (4) functioning as accessory and two (2) functioning as continuous hot, and so labeled. Access from driver area is required if outside electrical panel is used.

CONTROL PANEL - To the left of the driver, there shall be installed an enclosed electrical accessory panel that can be easily removed for servicing. Inside the panel shall be located all relays, switches (including heater and defroster), junction block, circuit breakers, flasher units, and door buzzer. The accessory panel should be grounded to cowl of chassis by use of 10-gauge wire. All electrical connections inside panel to be constructed so as to eliminate heat buildup in wires. Control panel shall have heavy duty, rocker type or equivalent switches that are identified using international symbols.

RELAYS - There shall be provided two constant service, heavy-duty master relays (Essex or Tyco) or an integrated power distribution board that provides the same function as the heavy-duty master relays. These are to be actuated by the ignition switch and through which all electrical accessories except the turn signal units are to be wired. Wiring from the chassis to the relays and from the relays to the fuse block shall be number 10-gauge wire. One master relay or integrated power distribution board to supply current for the dome lights, step well light, windshield wipers, and emergency door buzzer. There shall also be a manual noise abatement switch installed in the control panel, labeled and alternately colored, and wired into the activation circuit for the master body circuit relay. This shall be an on/off type switch that deactivates all body equipment that produces noise, including, at least the heaters, air conditioners, fans, and defrosters. This switch shall not deactivate safety systems such as windshield wipers or lighting systems. **(Once the noise switch is reactivated all affected systems shall return to previous settings).**

The other master relay to supply current for the flashing stoplights, stop arm lights, strobe lights and flashers.

LIGHTING

All vehicle lighting systems shall be LED and meet or exceed all applicable FMVSS requirements.

All LEDs must be sealed units with no weep holes.

Lens screws on all exterior lamps shall be stainless steel.

INTERIOR LIGHTING - Interior lights shall consist of at least four flush mounted LED ceiling lights and one adequately protected inside step well LED light. All interior lights, including the step well light, shall be activated when door is opened, and engine switch is on.

When the rear emergency exit is opened, regardless of ignition position, interior dome lighting should illuminate for at least 2 minutes but no more than 10 minutes.

CLEARANCE/MARKER LIGHTS LED (LIGHT EMITTING DIODE) – Combination clearance/marker lights shall be installed per specifications. These lights shall be LED (light emitting diode) with sealed electrical plugs. Lamps are required to be LED with sealed electrical plugs. Lamp model to be approved at pilot model inspection for center triple clearance lamps. Front lenses are to be yellow in color and rear lenses are to be red in color. On bodies over 30' in length an amber marker light is to be located midway of the bus body. Lights shall be Truck-Lite 35375Y (yellow), 35375R (red) 5 LED pattern, Weldon 5181 - 4 LED pattern, OptiLuxx ECVML155Y (yellow) ECVML155R (red) – 4 LED pattern (dual circuit), Optronics MCL11 Series (MCL11ABP red and amber)and Weldon 5213-0100 (amber and red), or Weldon 5045 series.

NOTE: All LED lights, except clearance/marker lights, must contain multiple circuits which assure that failure of a single LED or circuit does not render the entire light inoperative.

EIGHT LIGHT WARNING SYSTEMS LED (LIGHT EMITTING DIODE) – Each school bus (not activity bus) shall be equipped with four (4) Weldon LED-flashing stoplights with replaceable circuit board and lens. Lens shall be at least seven inches in diameter, or if in a shape other than round, a minimum of 38 square inches. The light assembly shall be of LED design. Location of lights and direction of beam are to be approved upon inspection of pilot model. The circuit shall be wired so that one front, one rear, and stop arm light shall flash alternately with the other front, rear, and stop arm light. The switch to operate flasher lights is to be located in the control panel in the closest location to the end adjacent to the air door switch and will activate the relay from the ignition switch (location to be approved upon inspection of pilot model). Any light activation switch must have cancellation capability so that the amber lights may be deactivated without opening the door. The flasher light activation switch is to be red in color. The flasher shall be electronic (Weldon 7000 or InPower SBF94) unless the functionality is provided by an electronic system controller. System shall also include an LED Strobe Circuit Flasher.

The eight-light system switches shall have no fixed switch position which permits the eight-light system to be disarmed. Any such switch position which cancels or otherwise deactivates the eight-light system shall only be a momentary position.

NOTE: Deactivation of eight-light system must occur by closing of entrance door.

*NOTE: LED lighting to be provided with **vehicle manufacturer warranty of 5 years**, and to include labor reimbursement through same period.*

For each school bus, (not activity bus), in addition to four red lamps described in the above section, four (4) amber Weldon LED lights with replaceable circuit board and lens shall be installed as follows: one amber lamp shall be located near each red signal lamp at same level, but closer to vertical centerline of bus. Lens shall be at least seven inches in diameter, or if in a shape other than round, a minimum of 38 square inches. A system of red and amber signal lamps shall be wired so that amber lamps are energized manually, and red lamps, and stop arm are automatically energized (with amber lamps being automatically de-energized) when bus service door is opened. Amber lights must be wired with the capability to be deactivated without opening the door. Eight light warning lenses shall be covered with black hoods.

DOOR SWITCH

The door switch shall include three positions:

1. Closed position.
2. Eight light reds, stop sign
3. Eight light reds, stop sign, crossing arm and entrance door.

Switch should require significant pressure to move between positions. The door switch shall be of a paddle-style or rotary switch. Switch to be approved at the pilot.

NOTE: Vendors should seek prior approval if intending to bid a "rocker" or "up and back" type switch.

STOP ARM – Each school bus (not activity bus) shall be equipped with an air operated strobe flashing stop signal. This signal shall be equipped with two (2) flashing strobe lights, at least 4 inches in diameter, red in color, and double faced. The word "STOP" shall be placed on both sides of the blade in letters at least 6 inches high. The stop arm shall be First Light Safety Products fully illuminated stop arm and shall have a retroreflective surface. The stop arm air supply is to have

an independent solenoid valve and regulator. Air line to be metal or nylon with suitable fittings. Assembly shall be installed as recommended by arm Manufacturer.

TURN SIGNALS LED (LIGHT EMITTING DIODE) – Each school and activity bus shall be equipped with two- (2) amber LED, surface mounted, 7-inch round (or, if in a shape other than round, 38 square inch) directional turn signals. Lights shall be Truck-Lite Model 91251Y, Weldon 5802-2100-20, Weldon 9186-5586-23, or functional equivalent. Directional turn signals shall be wired to hazard warning switch.

In addition to the rear directional turn signals, LED side directional lights shall be installed on the body to work in conjunction with the directional turn signals. Lights shall be Truck-Lite 21251Y or Weldon 5180 Series.

STOP/TAIL LIGHTS LED (LIGHT EMITTING DIODE) – All buses shall be equipped with four (4) combination stop/tail lights.

1. Each school and activity bus shall be equipped with two (2) red LED, surface mounted, 7 inch round (or, if in a shape other than round, at least 38 square inches), combination brake/tail lights. Lights shall be Truck-Lite 91252R, Weldon 5802-2100-10, or functional equivalent.
2. Each school and activity bus shall be equipped with two (2) red LED, recessed, 4 inch round brake/tail lights (or, if in a shape other than round, at least 12 square inches). Lights shall be Truck-Lite 44302R, Weldon 4040, or functional equivalent. Lights shall be placed on the rear of the body between the belt line and the floor. The stop lamps shall be activated by the service brakes and the tail lamps by the parking lamp circuit.

STROBE LIGHT – An LED strobe light with integrated power pack (if required) is to be mounted on top of the bus body centered above the rear emergency door 12 – 18 inches from rear edge of roofline. Location to be approved at pilot model. The light is to be wired in conjunction with the ignition switch and be activated only when the ignition switch is in the on position. The light shall meet or exceed Class II SAE J845 standards. Strobe light is to be Specialty Model 845-3000, Specialty Model #845-3020-100 or Ecco model 7460CC. (See picture for approved light location.) Light shall be grounded to structural support.



BACK-UP LIGHTS LED (LIGHT EMITTING DIODE) – Each school and activity bus shall be equipped with two (2) white LED, recessed, 4 inch back-up lights, Truck-Lite Model 44041C or 44240C, Weldon 5802-2100-30, or functional equivalent. Weldon 7" LED backup light, model #9186-5586-30 is acceptable when recessed lights are not available. Lights should be mounted in a location to provide the best illumination for the driver when backing the vehicle. The LED light may be either circular or rectangular, provided the lighted surface area of each light is a minimum of 12.5 square inches.

Additionally, there shall be two (2) 4" white LED Curb/Entry lights to illuminate the area behind the rear wheels. The lights shall be located behind the wheel well and below the floor rub rail angled approximately 45 degrees to the rear. Lights shall be SoundOff # ECVCBLTST or #01-ZBS-275, International # 4067239C1, or functional equivalent.

NOTE: All backup lights shall be wired to the switch on transmission and be activated in reverse gear only.

LICENSE PLATE LIGHTS LED (LIGHT EMITTING DIODE) – Each school and activity bus shall have a LED license plate light. The light is required on the right side over the NC State license plate. A light is not required over the safety message plate, but it is acceptable. Lights shall be Truck-Lite Model 15205 or Weldon 8102-0000-30.

BACKUP WARNING ALARM - An automatic audible alarm shall be installed behind the rear axle and shall comply with the Society of Automotive Engineering Standard (SAE 994b). The alarm shall be activated when the transmission is placed in reverse gear only.

EMERGENCY DOOR BUZZER - On the rear/side emergency door post at the emergency door lock there shall be installed a switch which is actuated by a maximum of ¼ -inch travel of the lock bolt. The switch shall be covered and wired to an approved buzzer and panel light system, which meets FMVSS 217. The buzzer and panel light shall be activated to warn the driver when the emergency door is not properly fastened.

12V ACCESSORY POWER POINT RECEPTACLE – Panel location to be approved at the pilot model inspection and must be mounted in the driver's area or on a side of the driver's storage compartment on a flat surface. 10 amperes minimum. USB connections will not be accepted in place of this receptacle.

SPECIFICATION SECTION 15

HEATING AND VENTILATION

HEATER - All body heaters will be supplied with a replaceable filter. On buses equipped with elevated driver seat platform, and if the air intake for the heater faces the rear of the bus, there shall be a steel kick plate barrier to protect the filter from damage. The barrier shall be designed to allow sufficient air intake to the heater and be designed for easy filter removal with quick-release fastener(s) on cover and without deforming filter. A heavy duty, fresh air, heater shall be provided which uses the hot engine water as a heat source. The heat exchanger shall be of the coil type and capable of withstanding an internal pressure of 175 psi for 3 minutes. Along the windshield sill, there shall be installed a metal or plastic ducting having a capacity of not less than 150 cubic feet of air per minute. The duct shall have sufficient louvers or adjustable diffusers to direct a strong flow of properly heated air over the entire windshield surface. Windshield will have an equal volume of airflow provided to each side (left and right).

The heaters shall have the capability of providing evenly distributed heat, creating a temperature rise to 50 deg. F. inside the body shell in 20 minutes when soaked in an ambient temperature of 0 deg. F. for 15 hours. The Bus Body Heating System Test as defined in Appendix B of the 2015 National School Transportation Specifications and Procedures is the heater performance test to be used.

NOTE: Vehicle engine shall be capable of producing and maintaining 170 degree water within 12 minutes of normal operation at 25 degrees Fahrenheit ambient air temperature, or otherwise an auxiliary heating device shall be installed to fulfill this requirement in its entirety.

All 42 lift, 54, 66, and 72 passenger buses shall have an additional plumbed heater (min. 80,000 BTU on 54, 66 & 72 pass. and min. 50,000 BTU on 42 passenger lift). Rear heater is to be located aft of wheel Housing under seat. No portion of the heater may protrude from under the seat frame.

All fittings and installation shall be above the floor level of the body and contained in a track designed to prevent steam or water from contacting passengers in the event of a leak, fitting separation, or other malfunction. Heater hose shall conform to SAE specifications 20R3 class D1. All fittings shall be brass, copper, or steel. Rustproof metallic adapters shall be installed in water hose connections to the engine. There shall be installed in the water lines, between the water manifold and the engine water pump, one all-brass master shutoff in each supply and return line. Regardless of plumbing configuration, each heater core within the bus body shall have a dedicated pair of shutoff valves located at the core, one valve in the supply line and one valve in the return line, except when doing so would conflict with FMVSS requirements for windshield defrosting. Shutoff valves to be of the quarter-turn ball valve type.

No rear heater required on 42-passenger non-lift bus. Heater location for flat floor units shall be aft of lift and on same side as lift. Front heater on all models shall be in manufacturer's standard location, to be approved at pilot.

AIR CONDITIONING - Air conditioning shall be provided and installed on all configurations of North Carolina school buses. Air conditioning should be capable of reducing school bus inside air temperature by 20 degrees F within a 20-minute time frame. Test results shall be provided upon request. All buses shall be equipped with one (1) inside roof-mounted free blow type unit mounted in passenger compartment and one (1) flush mounted unit in rear bulkhead or inside roof mounted free blow type on side in rear portion of passenger compartment (in approved location) with driver controlled thermostat for each unit located left of driver except for the 41-passenger size, which shall be equipped with one (1) inside free blow type unit mounted at the midpoint of the passenger compartment from front to rear of bus with driver controlled thermostat located left of driver. Drawings will be required showing exact location of units prior to approval being granted for location. Optional location for driver-controlled A/C Thermostat, for all passenger sizes, shall be dash panel right of driver if bus is equipped with additional ventilation controls in that location. All refrigerant lines located in rear wheel Housing area shall be shielded by metal protective covering.

Sight glass required with moisture indicator.

NOTE: Carrier, Transair, Rifled, ACC & MCC are acceptable manufacturers. All A/C manufacturers shall use a Model # TM43 compressor for passenger compartment AC units.

- 41 - passenger – 60,000 BTU minimum
- 53 - passenger - 96,000 BTU minimum
- 66 - passenger - 120,000 BTU minimum
- 72 - passenger - 120,000 BTU minimum

NOTE: Air conditioning is optional on all activity buses.

INSULATION

INSULATION MATERIAL AND LOCATION The space between the exterior and interior perforated roof panels shall be completely covered with a minimum 1-½ -inch thick layer of fiberglass or acceptable equivalent. Insulation must be installed above the perforated roof panels in such a manner as to prevent any insulation from filtering through the perforations into the passenger compartment. The space from the bottom of the side windows to the floor level shall be completely covered with a minimum 1-½ inch thick layer of fiberglass insulation or acceptable equivalent.

The rear wall of bus from the bottom of rear windows to the floor level shall be completely covered with a minimum 1-½ inch thick layer of fiberglass insulation or acceptable equivalent. The firewall area of the bus shall also be insulated against engine noise, heat loss and fire penetration in the event of an engine fire.

SPECIFICATION SECTION 16

DOORS

ENTRANCE DOOR - The entrance door shall be located at the front of the bus and on the driver's right. Entrance door shall be air operated on all chassis, panic free, outward opening under control of driver and so designed as to prevent accidental opening. The door switch is to be mounted to the left of the driver seat adjacent to the warning light switch. Door control mechanism shall be located overhead of door and concealed behind a removable panel and be secured with easily removed fasteners. Door shall seal against a stationary rubber and bottom step edge. An emergency release properly identified and located inside the body, forward of the entrance door is required. When activated, it releases pressure on the entrance door mechanism so that it may be pushed open if the driver's control is in the closed position. Entrance door shall be made of steel or aluminum. It shall be securely hinged with approved piano type hinges, two point steel pins, bronze bushing and/or bearing hinges or pivots. No permanent thread-lock compound shall be used in securing the hinges. It shall be fastened to the adjoining member and shall be provided with suitable weather stripping top and bottom to prevent leaks. Minimum vertical clearance shall be 73 inches. An exterior handle for operating outward opening doors is required. A suitable safety pad shall be installed on interior of door header. Front and rear entrance door leafs to be sealed where door shafts extend into body to prevent dust and contamination from entering door actuator area. A decal shall be affixed adjacent to the emergency release valve giving instructions on the safe operation of the release valve.

The location of the decals is to be approved upon inspection of pilot model. (Decal to include explicit instructions for the operation of door release valve in an emergency and normal situation).

EMERGENCY DOOR - An emergency door shall be located in the center of the rear of the body. It shall have a minimum horizontal clearance of 24 inches and a minimum vertical clearance of 48 inches. Door shall be hinged on the right side (when facing bus from rear) with an approved type of hinge meeting FMVSS 217 requirements. It shall open outward and shall be designed to open from both inside and outside of bus. Door should be equipped with a metal or approved strap doorstop, which shall limit its opening to a minimum of 95 degrees. A suitable safety pad shall be installed on interior of door header that will provide padding for vertical and horizontal surfaces. The words "EMERGENCY DOOR" shall be lettered on or above door on inside. Rear emergency door and side emergency door (if required by FMVSS 217) must be equipped with a hold open device which complies with FMVSS 217.

When the rear emergency exit is opened, regardless of ignition position, interior dome lighting should illuminate for at least 2 minutes but not more than 10 minutes.

The emergency door is to be equipped with a gear and rack-fastening device or equivalent. Rack shall be 1-¼ inches by 5 ½ inches by 3/8-inch steel and shall be designed for 1 ¼ inch of travel in locking. Rod for operating lock should be a minimum of ½ inch by 4 ¾ inches long with non-detachable handles.

SAFETY ROOF VENTS - All buses except 41-passenger shall be equipped with two roof hatch-type emergency exits: one to be located in the front 1/3 of the body and one to be located in the rear 1/3 of the body. The 41-passenger bus shall have one roof vent centrally located. Hatches must meet the following:

1. Shall comply with all requirements of FMVSS 217 for emergency exits.
2. Simple release handles shall be provided permitting operation as emergency exit(s), accessible inside and outside the vehicle.
3. All emergency exits shall be marked with instructions for proper use and all emergency exits must be outlined with reflective tape which meets FMVSS 217.
4. Hatch to be supported on all four sides by structural bracing.

Hinged low profile roof escape hatch shall include an internal and external release mechanism and a buzzer (audible warning tone not allowed) which alerts the driver when the hatch is open. Hatch to be secured with adhesive to eliminate leaking. Specialty Model 9245-0200 or 9245-0300, or Safe Fleet Advantage Hatch H1975-015-131.

SPECIFICATION SECTION 17

WINDOWS AND WINDSHIELD

SIDE WINDOWS - There shall be installed on each side of the body an adjustable split sash window between each framing post. Bottom sash shall be stationary with a minimum clear vertical opening of not less than 12 inches. The 12-inch clear vertical opening would be accomplished by lowering the top sash. A finger touch type opener shall control window opening.

Window visors/drip rail are to be provided for all side windows. All side passenger windows shall be tinted glass as per requirements in Glass Section.

EMERGENCY WINDOWS -The minimum number of push out windows (location to be approved upon inspection of pilot model) must be installed in order to meet FMVSS 217. The same number of windows should be installed on each side. All push out windows must be marked with reflective tape which complies with FMVSS 217 and be of the side-hinged design. Use yellow tape on yellow buses, and white tape on all other colors of buses. Instructions to operate emergency exit windows shall be permanently affixed to both the inside and outside of the window glass/frame. Both sets of instructions must be legible from the inside of the bus. Instructions shall be clear and concise for the operation of the emergency window handles. The words "EMERGENCY EXIT" to be lettered on inside at top of windows.

Heavy Duty window latch required see picture of handle style **not allowed** below. Latch to be approved at the pilot inspection.



DRIVER'S WINDOW - There shall be installed to the left of the driver a window with a sliding sash, easily operated from the driver's seat, and which is to include a metal locking device. Adjoining the ventilator sash, there shall be a window, which will permit easy exit in case of emergency. Glass used in driver's window is to be installed in sash of the same quality as side windows.

REAR DOOR WINDOWS - There shall be installed in the rear door, two windows, which are set solid in a suitable and waterproof manner. The upper window shall have a minimum glass area of 400 square inches and the bottom window shall have a glass area of approximately 350 square inches. Rear door glass is to be tinted same as indicated below.

REAR WINDOWS - There shall be installed at the rear of the body on each side of the emergency door, a window set solid in a suitable and waterproof manner-to be tinted same as side passenger windows.

ENTRANCE DOOR WINDOWS - There shall be installed in each section of the entrance door one or two glasses.

GLASS QUALITY - All glass used in the body shall be of the laminated or tempered safety type conforming to requirements of the American Safety Code for Safety Glazing Materials. All glass should be legibly and permanently marked with safety code.

WINDSHIELD GLASS - The glass in windshield shall be heat-absorbent, laminated plate. It shall have a horizontal gradient band starting slightly above the line of the driver's vision and gradually decreasing in light transmission to 20 percent or less at top of windshield.

WINDOW AND DOOR GLASS - The glass used in the doors and windows shall be of the AS-2 quality meeting FMVSS 205.

Glass shall be high quality tinted safety glass.

Percentage of light transmission shall be as specified below. "Light transmission" means the amount of natural light transmitted through the glass:

Side Windows: 26% -31% light transmission

Driver's Window: 70% - 78% light transmission

Rear Door Windows: 50% - 53% light transmission

Rear Windows: 26% - 53% light transmission

Entrance Door Windows: 70% - 76% light transmission

SPECIFICATION SECTION 18

MIRRORS

INTERIOR MIRROR - There shall be securely installed on the windshield header a 6"x30" driver-adjustable rearview mirror so located as to maximize the drivers view of the interior of the bus and the road behind. Interior mirror must be mounted securely enough to prevent mirror vibration over the life of the bus. Securement to be approved at pilot model. Manufacturer and model number shall be attached to mirror. Rear visibility camera system shall be integrated into the interior mirror.

MIRROR BACK-UP CAMERA SYSTEM

Rear visibility camera system to augment the existing interior mirror.

REAR VIEW MIRROR SYSTEM - There shall be installed on each side distortion-free glass mirrors. Mirrors shall be mounted on both the left and right side of the bus in an anodized or etched aluminum frame. Mirrors shall be fully adjustable so as to give the driver a clear view of the rear wheels of the bus and be mounted in accordance with FMVSS 111. The rear vision mirror system shall be capable of providing a view along the right and left sides of the vehicle which will provide the driver a view of the rear tires at ground level, and a minimum distance of 200 feet to the rear of the vehicle. Mirror system shall be Mirror Lite Super Double Nickels or Rosco Open View ES Mirror System, heated (all models), with remote controls. Both mirror heads must be of similar size and viewing area. Switch must be rocker type – no joystick.

NOTE: The mirror manufacturer and model number shall be stamped or permanent vinyl tag attached to mirror housing.

CROSSOVER MIRROR SYSTEM - There shall be installed on each front fender of the chassis one heated mirror. These mirrors shall be mounted on the front corners of the hood assembly. These mirror brackets shall have sufficient supports (steel plate or approved equivalent) located on the inside of the hood to prevent the fasteners from pulling through the hood assembly (Rosco Hawk-Eye Model 2365H).

NOTE: The mirror manufacturer and model number shall be stamped or permanent vinyl tag attached to mirror housing.

NOTE: The heating elements in rearview and crossover mirrors must all be controlled by a single momentary switch incorporated with a 15-20 minute timer located left of driver.

SPECIFICATION SECTION 19

ACCESSORIES

SUN VISOR - There shall be installed on the windshield header an interior sun visor which is double bracketed, adjustable, and not less than 6 inches x 24 inches in size. Visor is to be mounted in a manner that will not interfere with opening and closing of the overhead storage compartments and centered with steering wheel and driver seat. Sun visor must have a non-tool-based tightening or securement mechanism such as a lever-lock or finger-grip knob.

WINDSHIELD WIPERS – The bus shall be equipped with two heavy-duty electric windshield wipers. The wipers shall be equipped with one (1) or two (2) windshield wiper motors. The design of the wiper shall be such to afford the maximum wiped area and good driver view. If a single wiper motor is used, the system shall meet the requirements of SAE standard J198. Wiper motor(s) shall have a minimum of two (2) speeds with intermitting feature, operated by a single switch. Electric powered windshield washers shall be installed as per FMVSS 104 to operate through "wet" wiper arms, operated by the same switch.

LICENSE PLATE HOLDERS – Two license plate holders shall be located on the rear of the body with indentions on left and right sides. Holes for license plates shall be bored on the left and right sides.

SAFETY INFORMATION LICENSE PLATE – A safety information license plate shall be mounted on the left side license plate holder. The plate will be supplied by DPI and installed by Vendor.



FIRST AID KIT - There shall be installed a Grade A first aid kit in a transparent box which shall contain the following contents:

4-inch bandage compresses	2 pkg.
2-inch bandage compresses	2 pkg.
1-inch adhesive compress (16 per pkg.)	2 pkg.
40-inch triangular bandage with two safety pins	2 pkg.
Non-latex exam gloves 2 pair (1 medium, 1 large)	

First aid kit to be secured in "Safety Equipment Storage Box" and is to include breakable tamper seal.

FIRE EXTINGUISHER - One 5-pound dry chemical stored pressure type with pressure gauge meeting UL and U.S. Coast Guard requirements is required. Fire extinguisher shall have an all metal discharge head and valve (no plastic valves). The fire extinguisher is to be secured in "Safety Equipment Storage Box" in an Amerex model 862 bracket.

WARNING DEVICES – Each school bus shall contain at least three reflective triangle road- warning devices enclosed in a storage box which is mounted securely in the "Safety Equipment Storage Box" and must meet requirements of FMVSS 125.

BELT CUTTER - A Tie-Tech belt cutter shall be installed on all school buses in the side pouch on left side of driver seat cushion.

BODY FLUID CLEAN-UP KIT - Each bus shall have a removable and moisture-proof body fluid clean-up kit accessible to the driver. It shall be properly mounted and identified as a body fluid clean-up kit in a transparent box.

Kit shall contain:

1 - 2 oz. package T.I.L.S.C. powder, sanitizes-deodorizes-encapsulates

1 - Odor reducing mask

1 - pr. – non-latex exam gloves (large)

2 - Antiseptic wipes

2 - Paper crepe towels

1 - Scraper

1 - Plastic disposal bag w/scoop and tie

Body fluid clean-up kit to be secured in the "Safety Equipment Storage Box" and is to include breakable tamper seal.

OVERHEAD STORAGE COMPARTMENT - A lockable compartment, separate from the safety equipment storage box, shall be located left of driver over side window or in other approved location. Compartment is to have a hinged door and metal prop rod is required.

SAFETY EQUIPMENT STORAGE BOX – Each bus shall be equipped with a safety equipment storage box of sufficient size to house the fire extinguisher, first aid kit, body fluid clean-up kit and road warning triangles. Each item in the box should be easily accessible and this compartment shall be located in the front bulkhead. In the event structural bracing will not allow space for safety equipment in the specified location, the storage box shall be located left of driver over side window. The approved location shall not interfere with the driver fan. Outside lid of box is to be lettered in 2" vinyl lettering with the following "SAFETY EQUIPMENT INSIDE".

Safety equipment box latches shall not be equipped with locks.

The compartment door shall be hinged and metal prop rod is required.

WINDSHIELD STEPS - There shall be installed on each side of the body on the lower section of the cowl, a folding windshield step and a suitably located handle for easy cleaning of windshield. Handle may be either chrome-plated, black poly material, or painted National School Bus Yellow.

CROSSING CONTROL ARM - An air-operated polycarbonate crossing control arm shall be mounted on the right end of front bumper and operated in conjunction with the entrance door opening and closing while the 8-light system is active. Arm shall extend approximately 5 ½ feet when in operation. Crossing arm is to have an independent solenoid valve and regulator (Specialty Model 28000 series air operated or Specialty 8100 series). An approved retention mechanism*; NOTE: (approval must be requested no later than 10 days before bid opening)* shall be installed on the left side of the front bumper that secures the crossing arm stationary. Arm shall not exceed 90 degrees when fully deployed and be parallel to ground.

NOTE: Crossing control arm not required on activity buses.

DRIVER'S FAN - A 12-volt electric fan shall be installed to the left of the driver or a suitable automotive style ventilating system providing air conditioning and heat through ducted vents in the driver's compartment shall be provided. The driver's fan shall have a separate switch with high, low and off positions. The fan shall be a Bergstrom motor # 202270 having a metal housing, mounting bracket, fan guard, and blade. Fan shall be fully adjustable and not block the view of any mirror. If standard dashboard air conditioning is provided, the electric driver's fan may be eliminated.

PASSENGER ADVISORY SYSTEM – Each school bus shall be equipped with a passenger advisory system that is armed when the red eight-way lights are activated for the first time. If the driver attempts to exit the bus prior to deactivation procedures, the horn shall sound immediately. The proper procedure for deactivation is by placing the ignition key in the "OFF" position and then pressing a button located on the rear bulkhead on driver's side of bus prior to opening passenger door to exit. The deactivation device shall be tamper-proof such that it cannot be disabled by students or other passengers. Explicit instructions for operating this system shall be installed above entrance door. Instructions shall be on a plastic type material that will adhere to the applied surface.

NOTE: Passenger advisory system is not to sound the horn unless passenger door or rear emergency door are opened prior to system deactivation, at which time the immediate sounding of horn shall occur. Timer delays of any type are prohibited.

Each activity bus shall be equipped with a passenger advisory system that is armed when the ignition switch is turned to the 'On' or 'Run' position for the first time; It shall not activate in the 'accessory' position

SPECIFICATION SECTION 20

CHASSIS MOUNTING

CHASSIS PREPARATION - In preparing the chassis frame for body mounting, rivet heads shall not be removed except on the extreme rear cross member and then only when necessary to move rear cross member to conform to body length. If tail pipe brackets must be removed due to body obstructions, they shall be replaced with new ones of equal strength as supplied by the chassis manufacturer.

CHASSIS INSTALLATION - The bid price shall include mounting the body upon the chassis. The body shall be securely attached to each chassis side rail. At the front and rear ends of the body on each chassis side rail there shall be installed a through bolt of not less than seven-sixteenth inch in diameter. Bolts to be grade 5 with S.A.E. threads and lock nut. All attachments shall be made at main body sills. In addition to the above required tie downs, the following minimum number of approved type tie downs will be required: 41 passenger - 6; 54 passenger - 8; and 66 passenger - 10. Bolts for these attachments shall be not less than 7/16 inch in diameter with S.A.E. threads and lock nuts. Floor channel shall be reinforced a minimum of 4 inches on each side of the bolt.

Rubber and fiber inserts, equal to or thicker than chassis rivet heads, shall be securely attached to each body sill and installed at all points of contact between sills and chassis.

At any point where body sill sits on a rivet head, the rubber and fiber insert shall deform so that floor will be smooth.

METAL TREATMENT AND PAINTING

METAL TREATMENT - All metal used in construction of bus body is to be mill applied zinc-coated, copper bearing steel, aluminum-coated, or treated by an equivalent process before bus is constructed. (Included is such items as structural members, inside and outside panels, floor panels and floor sills; excluded are door handles, grab bar handles, stanchions, interior decorative parts, and other interior plated parts.) All structural members lighter than 12-gauge, the wheel housing and the step well, are to be zinc-coated steel (mill applied) or equivalent. All metal parts that are to be painted shall be, in addition to above requirements, chemically cleaned etched, zinc-phosphate coated, and zinc-chromate or epoxy-primed or conditioned by equivalent process. Documentation to be provided upon request. In providing for these requirements, particular attention shall be given to lapped surfaces, welded connections of structural members, cut edges, punched or drilled hole areas in sheet metal, closed or box sections, non-vented or non-drained areas, and surfaces subjected to abrasion during vehicle operation.

NOTE: 10 year no-rust-through warranty is required on all exterior sheet metal, sheet metal flooring components, and rub rails (if metal).

PAINT - All paint shall be unleaded. The body, hood, fenders, and cowl of all school buses shall be painted with National School Bus Yellow polyurethane paint which meets Federal Standard No. 595a, color 13432. The same brand of paint must be used on the body and chassis. Bumper, frame, driveline, and wheels shall be painted with jet-black enamel, e-coated or powder coated. The paint shall be covered by a **5-year unlimited-mileage warranty** against all defects in materials and workmanship.

EXTERIOR PAINT - The exterior of the complete school bus body shall be painted with National School Bus Yellow polyurethane per Federal Standard No. 595a. The same brand of paint must be used on the body and chassis. The applied primer and polyurethane shall yield a dry film thickness of 2 to 3 mils. A 1 ½-inch thick black border shall be painted around the flashing stoplights with approved type polyurethane or high grade black vinyl overlay. Alternatively, a black polycarbonate bezel meeting the same border requirements may be utilized in place of the black paint/vinyl. Rear bumper shall be painted black and shall be equipped with 2-inch yellow diagonal Reflexite or 3M. School bus rub rails shall be painted National School Bus Yellow same as bus body. Activity bus colors may vary. Activity bus rub rails may be painted different colors (no decals).

Add one (1) full length reflective stripe minimum 1-3/4" width, position reflective strip below floor level guard rail. Yellow on yellow bus, white on activity buses.

INTERIOR PAINT - The entire interior paneling of the bus, except the sections of aluminized steel and /or clear coated metal, shall be painted. Paint color to be approved at post award meeting. All other interior items such as the heater, instrument control panel, seat frames, chassis cowl and modesty panel may be painted a compatible color. One prime coat and finish coat shall be required.

UNDERCOATING - The underside of the floor including the chassis, metal fenders, cowl, and all other exposed structural metals used in the body inside of the skirting from the floor to its bottom edge shall be completely undercoated with rust-proofing material for which the material manufacturer has issued to the bus body manufacturer a notarized certification that materials meet or exceed all performance requirements of SAE J1959. For any undercoating that is determined to be missing/thin at pre-delivery inspection, vendor shall use same material and type used at the plant (when unit was built) for touch ups. Underside of wheel housing shall be coated with same material. Air brake control valves and brake lines are color-coded and are not to be undercoated.

ACTIVITY BUS PAINT - Activity bus paint must meet the same standards as the school bus paint except the bus manufacturer shall be required to paint the hood and cowl to match final body color. This cost shall be included in bid price. Bus bodies shall be painted one solid color with appropriate lettering from manufacturer's selection of standard colors.

MANUFACTURER LOGO - No manufacturer logo or names are permitted on the bus exterior except a small nameplate may be installed on the bus exterior in a location to be approved upon inspection of the pilot model.

(NOTE: includes activity bus body)

SPECIFICATION SECTION 21

LETTERING

LETTERING TYPE - Lettering and numbering shall conform to "Series B of Standard Alphabets for Highway Signs".

VINYL LETTERING - The material should be a premium 2-mil high gloss cast vinyl for solvent resistance, fade resistant and withstand severe weather and handling conditions. The vinyl will have permanent acrylic adhesive with an adhesion factor of 4/lbs per square inch and should not lose its shape or adhesion due to extreme temperatures from -40 to 100+ degrees Fahrenheit. The backing paper sheet for the vinyl should be standard #78 lb. Kraft liner.

INTERIOR LETTERING- Above the windshield or other approved acceptable location; the words "SEATING CAPACITY" shall be in letters at least 1 inch high. The seating capacity will be based upon the number of seats installed and listed as follows:

14 Seats	18 Seats	22 Seats	24 Seats
K-5 (42 Pupils)	**K-5 (54 Pupils)**	**K-5 (66 Pupils)**	**K-5 (72 Pupils)**
6-8 (35 Pupils)	**6-8 (44 Pupils)**	**6-8 (54 Pupils)**	**6-8 (60 Pupils)**
9-12 (28 Pupils)	**9-12 (36 Pupils)**	**9-12 (44 Pupils)**	**9-12 (48 Pupils)**

NOTE: Any lift-equipped bus must reflect the seating capacities for K-5, 6-8, and 9-12 plus 2 wheelchair positions. Activity bus capacities must be adjusted for optional seating configurations.

NOTE: K-5 capacity may need to be adjusted due to the small rear seat.

SCHOOL BUS LETTERING

SIDE LETTERING – SCHOOL BUS - The words "North Carolina Public Schools" shall be on each side of body in letters 6 inches high. The county number assigned to bus shall be on each side of the bus in an approved place in numerals 6 inches high and shall be on retro-reflective high intensity material (Reflexite or 3M). The name of the county or school unit to which bus is assigned shall be placed below the words "North Carolina Public Schools" on each side in letters 3 inches high.

SIDE LETTERING – DIESEL AND DEF - The words "Diesel Only" shall be within 2" of the filler neck on the door or outside body of the bus in 1" lettering. The words "DEF Only" shall be within 2" of the filler neck on the door or outside body of the bus in 1" lettering or other approved decals.

FRONT LETTERING – SCHOOL BUS – See Electrical System section for front "School Bus" sign information. County number assigned to bus shall be on front of body or chassis in an approved location in letters 6 inches high and shall be on retro-reflective high intensity material (Reflexite or 3M).

REAR LETTERING – SCHOOL BUS - See Electrical System section for rear "School Bus" sign information. On or over the emergency door shall be the words "EMERGENCY DOOR" in letters 2 inches high. County number assigned to bus shall be centered on rear door in letters 6 inches high and shall be on retro-reflective high intensity material (Reflexite or 3M).

See "Disability Identification Symbol" section for proper placement of ADA symbols.

ACTIVITY BUS LETTERING

SIDE LETTERING – ACTIVITY BUS - The applicable school system name is to be on each side of the body in letters approximately 6 inches high; such to be designated on the purchase order or by the owner. The county number assigned to bus shall be on each side of the bus in an approved place in numerals 6 inches high and shall be on retro-reflective high intensity material (Reflexite or 3M).

SIDE LETTERING – DIESEL AND DEF - The words "Diesel Only" shall be within 2" of the filler neck on the door or outside body of the bus in 1" lettering. The words "DEF Only" shall be within 2" of the filler neck on the door or outside body of the bus in 1" lettering or other approved decals.

FRONT LETTERING – ACTIVITY BUS County number assigned to bus shall be on front of body or chassis in an approved location in letters 6 inches high and shall be on retro-reflective high intensity material (Reflexite or 3M). At the option of the purchaser the activity bus shall include, on the roof panel of outer visor, the words "ACTIVITY BUS" in letters 8 inches high. "ACTIVITY BUS" to be in retro-reflective high intensity or equal material (Reflexite or 3M).

REAR LETTERING – ACTIVITY BUS - County number assigned to bus shall be on rear in letters 6 inches high and shall be on retro-reflective high intensity material (Reflexite or 3M). At the option of the purchaser the activity bus shall include, on the rear of the body, the words "ACTIVITY BUS" in letters 8 inches high. "ACTIVITY BUS" to be in retro-reflective high intensity or equal material (Reflexite or 3M).

NOTE: Any particular bus number and/or color lettering will be designated on the purchase order or by the owner. Bus bodies to be painted standard one solid color with appropriate lettering from manufacturer's standard body color selections.

SPECIFICATION SECTION 22

POWER LIFT (when requested)

All lift-equipped buses shall be equipped with a Braun Century NCL 1000-2 series. Lift must meet all ADA regulations and FMVSS 403 and 404.

NOTE: Front or rear mount pump to be determined by bus manufacturer.

1. The lift shall have a rated lifting capacity of 1000 pounds and shall have been successfully tested to a minimum static load of 2400 pounds. Lift to be of the gravity down power-up type.

2. When the platform is in the fully up position, it shall be locked in position mechanically by means other than a support or lug in the door.

3. Controls shall be provided that enables the operator to easily open and close the lift door from inside the bus. The door control mechanism and handle shall be located adjacent to the lift door in a readily accessible location. The handle shall be padded. The lift mechanism must be operable from either inside or outside the bus. There shall be means of operating the lift in the event of power failure. Design to be presented to staff at the post bid-award meeting. Final design to be approved at the pilot model inspection.

4. Power lifts shall be so equipped that they may be manually raised in the event of power failure of the power lift mechanism.

5. Lift travel shall allow the lift platform to rest securely on the ground.

6. All edges of the platform shall be designed to protect the wheelchair, wheelchair occupant's feet and operator's feet from being entangled during the raising and lowering process.

7. Platform (minimum size of 33 inches in width and 51 inches in length) shall be fitted on both sides and rear with full width shields (which extend above the floor line of the lift platform).

8. A restraining device shall be affixed to the outer edge (curb end) of the platform that fully extends to ground level.

9. A self-adjusting, skid-resistant plate (ramp) shall be installed on the outer edge of the platform to minimize the incline from the lift platform to the ground level. This plate, if so designated, may also suffice as the restraining device described in the above item. The lift platform must be skid resistant.

10. A circuit breaker or fuse shall be installed between the power source and lift motor.

11. The lift mechanism shall be equipped with adjustable limit switches or by-pass valves to prevent excessive pressure from building in the hydraulic system when the platform reaches the full up position.

12. Lights shall be provided in the wheelchair area, over lift mechanism and exterior position (location to be approved upon inspection of pilot model). Doorways in which lifts are installed shall have, when a lift is to be used, illumination sufficient to light the entrance, and on the lift, when deployed at the vehicle floor level or at ground level. All lights shall be LED.

    NOTE: Lighting must meet the above requirements and the FMVSS requirements.

13. All sharp edges in power lift area, including door, shall be properly padded.

    NOTE: Rear heater housing edges to be rounded or may have a rounded cap securely and permanently affixed thereto. Exposed sharp edges are not acceptable.

14. All school buses equipped with a power lift shall provide a 30-inch aisle leading from any wheelchair/mobility aid position to at least one emergency door and the lift area.

POWER LIFT DOOR - The door shall be located on the right side (when facing bus from the rear) of the bus. It shall have a minimum horizontal clearance of 42 inches and a minimum vertical clearance of 58.5 inches. Door shall be hinged on the forward side with an approved type of hinge and open outward meeting FMVSS 217 requirements. Door is to be designed to open and close from inside AND outside the bus. Door release and opening and closing device to be approved upon inspection of pilot model. Lift door closing handle to be equipped with a stop to prevent handle from swinging out of reach of operator during lift operation. On interior lift door latch assembly, the handle in closed position is to be horizontal positioned and pointed toward rear of bus, and in the open position is to be vertical with the handle pointing upward. Latch must be of the same design as the rear emergency door latch. Lift door shall be metal, double wall and shall be provided with suitable weather stripping to prevent leaks. An audible buzzer shall sound when the lift door is opened and will deactivate when the lift door reaches the fully opened position. A red light shall be activated in the dash area (location to be approved at the pilot model inspection) at all times that the lift door is opened.

NOTE: Must have handle which is easily reachable from inside the bus to assist in closing door during latch procedure.



INTERNATIONAL SYMBOL OF ACCESSIBILITY – Buses with power lifts used for transporting individuals with disabilities shall display below the window line the International Symbol of Accessibility. Such emblems shall be white on blue background, shall be four (4") to six (6") inches in size, and shall be of high-intensity reflective material meeting U.S. Department of Transportation's Federal Highway Administration (FHWA) FP-85 Standards. Location of symbols to be as follows: (A) on the rear door adjacent to bus number; (B) on the right lettering belt, rear of entrance door after bus number; (C) aft of the stop sign.







FIRE BLANKET - Each lift-equipped school bus shall be equipped with a Tietech Model #1007 fire blanket. It shall be a 62" x 80" wool blanket. The blanket shall be enclosed in a non-metallic pouch. It shall be identified on the front as to the contents. The pouch shall be mounted on the left side interior wall in the buffer zone, behind the left rear seat as close to the rear entrance door opening as practical on a horizontal and vertical line no higher than the horizontal metal portion of the seat frame.



EVAC AIDE - Each lift-equipped school bus shall be equipped with an EVAC-AIDE model #1003. It shall be 30" x 94", have multiple-hand holds, reinforced edges, and be constructed of heavy fire-resistant material. The blanket shall be enclosed in one non-metallic pouch. The pouch shall be identified on the front as to the contents. The pouch shall be mounted on the left side interior wall in the buffer zone, behind the left rear seat as close to the rear entrance door opening as practical on a horizontal and vertical line no higher than the horizontal metal portion of the seat frame.




EVAC-AIDE

SPECIFICATION SECTION 23

WHEELCHAIR ANCHORS AND OCCUPANT SECUREMENT SYSTEM

1. The Mobility Aid Securement and Occupancy Restraint System shall be designed, installed and operated to accommodate passengers in a forward facing orientation within the vehicle.

2. For each Mobility Aid Securement System provided, a Type 2, three point occupant restraint system consisting of a lap (pelvic) belt and a shoulder (upper torso) belt complying with all applicable provisions of 49CFR, Part 571, shall be provided for use by mobility aid users.

3. The Occupant Restraint System shall be equipped with a single point, push-button "quick disconnect" for the lap belt and the lower end of the shoulder belt, to provide immediate release of the occupant in the event of an emergency evacuation.

4. The shoulder belt system shall provide a vertical height adjuster with 12 inches of vertical adjustment for proper placement of the shoulder belt.

5. The Mobility Aid Securement System shall utilize four adjustable securement strap assemblies that attach to structural members of the mobility aid at four separate points: two strap assemblies for attachment to the front of the mobility aid, and two strap assemblies for attachment to the rear of the mobility aid.

6. Each front securement strap assembly shall be capable of withstanding a minimum static load force of 5,000 pounds. Each rear securement strap assembly shall be capable of withstanding a minimum static load force of 6,000 pounds.

7. The Mobility Aid Securement System shall utilize positive-locking anchorage and attachment hardware to prohibit accidental or inadvertent release of the system.

8. The Mobility Aid Securement Strap Assemblies shall be composed of a different size or color of material than the Occupant Restraint Belts to provide quick visual identification of the two systems and to distinguish the separate function.

9. Each of the individual securement straps and restraint belt assemblies shall be marked with the *manufacturer's name, part number, month and year of manufacture.*

10. Occupant Restraint System (WTORS) tracking shall comply and be compatible with WC18 compliant restraints as well as SAE J2249 compliant restraints. Wheelchair Tiedowns provided shall comply with SAE J2249.

11. A storage container shall be provided for each securement station to allow for clean storage of the system straps and belts when not in use. A separate space within the container shall also be provided to insert detailed operation instructions for use of the entire system.

OCCUPANT SECUREMENT

All wheelchair positions shall be equipped with a "Type II" occupant protection and securement system meeting the requirement of FMVSS 209 and 210. The design of the securement system shall reference, as a standard, the Surelock or Q'Straint four point wheelchair anchorment part number FF612-4c-7 or -9

Continuous button tracking (4 pieces) for wheelchair and passenger securement is required from rear of passenger seat forward of wheelchair area to rear wall of bus, which meets all ADA requirements. Upper tracking shall have rounded ends. (no sharp edges)

NOTE: All lift-equipped school buses shall be equipped with shoulder attachments for two (2) wheelchair positions and have reinforcement full length of bus to allow additional button type track installation (not to include flat floor buses).

(See Flat Floor Power Lift School Bus section for flat floor requirements).

FLAT FLOOR - POWER LIFT SCHOOL BUS (Additional/requirements/specifications and/or modifications)

BODY DESIGN FOR FLAT FLOOR CONFIGURATION - The floor shall be designed to provide a solid platform for the flat floor body configuration that allows the elimination of wheelhouse intrusion.

This floor design shall have been successfully crash tested to provide compliance with FMVSS. In addition, the floor shall be equipped with (4 pieces) continuous aluminum button tracks full length of bus floor to include wheel chair securement and CSRS seats. Button style tracking shall be installed continuous length of bus above all windows on flat floor buses for shoulder belt attachment. This will provide maximum flexibility in seating and wheelchair positions. Fully seat remainder of bus with 39-inch seats and leave space for two wheelchair positions.

NOTE: Flat floor buses shall come equipped with securement belts for two wheelchairs.

Rivet heads or other protrusions inside the mounting track shall be low enough to allow attachment in any position in the track.

SPECIFICATION SECTION 24

OPTIONAL EQUIPMENT

ENGINE OPTIONS:

DD5 Engine

Alternative diesel engine

Must meet Current EPA Emissions Level Standards at time of vehicle manufacture.

MAKE	MODEL	HORSEPOWER	TORQUE
Detroit	DD5	220	560

Gasoline Engine

Engine to be powered by gasoline with deviations from the specifications ONLY to the extent needed for the Vendor to offer the gasoline-powered powertrain.

Vendor shall provide literature with the solicitation outlining the Engine Manufacturer, Model, Rated Horse Power, and Rated Torque. **Vendor shall also outline on a separate document all deviations to the specification that shall be required to add this option.**

Electric Powertrain

Vehicle to have a fully electric powertrain with deviations from the specifications ONLY to the extent necessary for the Vendor to offer the electric powertrain option.

Vendor shall provide literature with the solicitation outlining the motor and battery manufacturers, models, rated horsepower, rated torque, and battery capacity. **Vendor shall also outline on a separate document all deviations to the specification that shall be required to add this option.**

Required Minimum Capabilities:

1. Able to handle grades at least as effectively as the diesel powertrain
2. Vehicle to grid bi-directional charging and discharging capability
3. SAE J1772 / CCS1 compatible charging
4. 8-year 100,000 mile battery warranty
5. Zero emission (no fuel-powered accessories)
6. Sound generation – Minimum requirements as outlined in FMVSS 141
7. 120 mile minimum range under normal operating conditions and use of no more than 90% of available battery capacity at delivery.

Propane Engine

Engine to be powered by propane with deviations from the specifications ONLY to the extent needed for the Vendor to offer the propane-powered powertrain.

Vendor shall provide literature with the solicitation outlining the Engine Manufacturer, Model, Rated Horse Power, and Rated Torque. **Vendor shall also outline on a separate document all deviations to the specification that shall be required to add this option.**

Cummins Exhaust Brake

This option should include activation of the option in the ECM and the installation of a switch which permits the system to be enabled and disabled by the driver. The system should disengage with the activation of ESC or ABS systems, and at speeds at or below 10 MPH. Service brake lights must illuminate when the system is actively braking the vehicle.

DD5 Engine Brake

The compression brake option shall include any hardware and ECM changes necessary as well as a switch which permits the system to be enabled and disabled by the driver. The system should disengage with the activation of ESC or ABS systems, and at speeds at or below 10 MPH. Service brake lights must illuminate when the system is actively braking the vehicle.

SCHOOL BUS CHASSIS OPTIONS

Anti-Corrosion Package

High performance coating resistant to road de-icing chemicals shall be added to the following areas and provide enhanced protection against corrosion, abrasion, impact and weather. Standard undercoating to be replaced with enhanced formula. Documentation on the enhanced undercoating materials shall be provided with the bid documents.

- Enhanced undercoating on the underside of the body in all expected areas per the specifications
- Front and rear bumpers (coated on all sides)
- Stepwell area
- Above Fuel tank

Coating to be black in color.

Four Wheel Air Disc Brakes

The chassis drum brakes are replaced by components for four-wheel Air Disc type Brakes. All air brake systems shall meet current FMVSS 121.

SCHOOL BUS BODY OPTIONS:

Adjustable Brake Pedals

Electrically adjustable pedal package that positions throttle and brake controls to operator's preference. A rocker-style dash switch will provide at least 2 inches of range of movement with parking brake set and ignition on. Brake and throttle pedals move an equal amount simultaneously.

OUTSIDE STORAGE COMPARTMENT

An outside storage compartment to be installed on the right side of the body in front of the rear wheels and labeled in letters two inches high "STORAGE." The storage compartment shall be approximately thirteen inches (13") high, fifteen (15") inches deep, and twenty-five inches (25") wide and be located under the floor in the body skirt. The door and box shall be sealed to minimize water and dust leakage. All doors shall be equipped with locks and keyed the same as all other external locks.



STANDARD SEAT CSRS SEAT ADD/DEDUCT PRICE
The price of the option should indicate the cost to replace a standard bus seat with a CSRS seat. This price would be deducted for each seat less than four if less than 4 CSRS seats are ordered in the vehicle.

THREE-POINT LAP/SHOULDER RESTRAINTS
From the base configuration (including 4 CSRS Seats) this option should indicate the cost of adding 3-point lap/shoulder restraints to all seats in the passenger compartment. The base configuration of all vehicles would then be 4 CSRS Seats with lap/shoulder restraints and all other seats 3-point lap/shoulder only.

Lap/shoulder restraint seats shall accommodate two or three students, depending on their size, with the exception of lap/shoulder CSRS seats, where this is requested but not required.

Approved Models: HSM Quasi-Static Seat, IMMI BTI Seating System, IMMI Safeguard SABRE Series

Cost on each standard body size is requested:

72, 66, 54, and 42 elementary capacity.

HIGH VISIBILITY WEBBING ON LAP/SHOULDER RESTRAINTS
Additive cost on each body size to change from manufacturer's standard colors of belt webbing to high visibility belt webbing on all lap/shoulder restraints (orange/green/yellow tones):

72, 66, 54, and 42 elementary capacity.

THREE-POINT LAP/SHOULDER CSRS SEAT ADD/DEDUCT PRICE
The price of the option should indicate the cost to replace a standard Lap/Shoulder restraint seat with a CSRS Lap/Shoulder restraint seat having two CSRS positions. This price will be deducted if less than the standard 4 CSRS seats are required in a 3-point lap/shoulder belt equipped bus

ADDITIONAL REAR HEATER
An additional rear heater installed beyond those required by the specifications

FRONT AND REAR DOOR LOCKS (VANDAL LOCKS)

Requires electronic interface to ensure emergency exits are unlocked before the bus will start. All locks shall be attached to the vehicle warning buzzer and ignition interlock system. Vendor to supply information regarding manufacturer and model with the bid package.

SAFETY EQUIPMENT BOX LOCKS

All latches for the safety equipment box shall be equipped with locks, all keyed the same as other lockable compartments, and all locks shall be attached to the vehicle warning buzzer and ignition interlock system.

ACTIVITY BUS SPECIFIC OPTIONS

LUGGAGE RACKS INSIDE OVERHEAD
Inside Overhead Luggage Racks - Deluxe Tubular Type (72 Passenger Size)
Inside Overhead Luggage Racks - Deluxe Tubular Type (66 Passenger Size)
Inside Overhead Luggage Racks - Deluxe Tubular Type (54 Passenger Size)
Inside Overhead Luggage Racks - Deluxe Tubular Type (42 Passenger Size)

Luggage Racks shall present no sharp edges in the passenger compartment.

LUGGAGE UNDERBODY
Small - Luggage Space Underbody Approximately 17 3/4"H x 24"D x 56"L
Large - Luggage Space Underbody Approximately 17 3/4"H x 24"D x 84"-86"L

AM/FM/CD RADIO SYSTEM

Complete with minimum 4 inside speakers installed, not including any dash speakers. 42 passenger bus may have only 2 speakers, plus dash speakers.

END OF SPECIFICATIONS