



Business Department
School Administration Building
304 New York Ave
Oak Ridge, Tennessee 37830
Phone (865) 425-9003
Fax (865) 425-9060

Request for Proposal

Description of items/services requested:

The Oak Ridge Schools Board of Education is soliciting proposals for the **furnishing and installation of new steel lockers, accessories, and finish metal trim, (RFP 20-008) Jefferson Middle School Lockers.**

General Requirements:

Proposals, bids, or responses will be accepted by the Oak Ridge Schools Business Department no later than **10:30 AM, March 13, 2020 EDT**. Every document must be enclosed in a sealed envelope clearly marked as a bid document and include TN contractor license information. **Two full copies** of the proposal must be submitted, each with original signatures on both Bid Forms (included in this packet). Any response, bid, or proposal received after the above deadline shall be considered late, and will not be opened or considered. Facsimile or emailed responses will not be considered. Bid prices must be valid for no less than sixty (60) days from the date of the bid.

All documents shall be submitted to the following address:

Mary Ann Riley, Purchasing Specialist
RE: (RFP 20-008) Jefferson Middle School Lockers
School Administration Building
304 New York Avenue
Oak Ridge, TN 37830

Locker Specifications:

Student Wardrobe Lockers

**JEFFERSON MIDDLE SCHOOL
OAK RIDGE, TN**

Oak Ridge Schools is seeking proposals for the furnishing and installation of new steel lockers, accessories, and finish metal trim at
Jefferson Middle School,
200 Fairbanks Rd.
Oak Ridge, Tn 37830.

General: Lockers shall be "**Superior Classic KD Wardrobe Lockers**" as manufactured by List Industries Inc. or approved equal. Fabricate lockers square, rigid and without warp, with metal faces flat and free from dents or distortion. Make all exposed metal edges safe to touch. Weld frame members together to form rigid, one-piece structure. Weld, bolt, or rivet other joints and connections as standard with manufacturer. Grind exposed welds flush. Do not expose bolts or rivet heads on fronts of locker doors or frames except for fastening of number plates and recessed handle.

1. Contractor is required to inspect the site and installation conditions prior to submitting bid and shop drawings.
2. Contractor will obtain all required permits and required insurance.
3. Removal of existing lockers and bases will be performed by the Oak Ridge Schools Maintenance Department.

Uniformity: Provide each type of metal locker as produced by a single manufacturer, including necessary accessories, fittings and fasteners.

Job Conditions: Do not deliver metal lockers until site is ready for locker installation. Protect from damage during delivery, handling, storage and installation.

Student Corridor lockers to be 15" wide x 12" deep x 36"/72"h 2-Tier lockers. A total of 226 locker frames or 452 openings shall be constructed. Provide ADA openings for a full 5% of total openings.

Lockers shall be **GREENGUARD Children & Schools CertifiedSM**

Approved Manufacturers:

- 1) List Industries Classic KD Wardrobe Lockers
- 2) Art Metal Products Standard KD Wardrobe Lockers
- 3) Hallowell Standard KD Lockers

No substitutions allowed.

Finishing: All locker parts to be cleaned and coated after fabrication with a seven stage zinc/iron phosphate solution to inhibit corrosion, followed by a coat of high grade custom blend powder electrostatically sprayed and baked at 350 degrees Fahrenheit for a minimum of 20 minutes to provide a tough durable finish. Color to be selected from manufacturer's standard list of colors. Interior components to be painted #729 Parchment. **Two-Tone Color Combination: Shall be at no additional cost with the locker frame and trim chosen from one color and the doors may be one of any other color chosen from manufacturers standard selection.**

Frame: Fabricate of 16 gauge (minimum) channels, with integral continuous door stop/strike formed on both latch and hinge side vertical members. Cross frame members of 16 gauge channel shapes, including intermediate cross frame members on double and triple tier (frames with doors over 18" high) lockers shall be securely welded to the vertical framing members to ensure rigidity. Rubber bumpers shall be provided to cushion door closing.

Classic KD Wardrobe Doors: Doors 20" high and over to be fabricated from single sheet prime 16 gauge (18 gauge for doors 9" wide as well as Two-Person and Duplex doors) with single bends at top and bottom and double bends at the sides. The channel formed by the double bend at the latch side is designed to fully conceal the lock bar. Doors shall be louvered. Upper compartment doors of Two-Person shall be plain (non-louvered).

Stainless Steel Recessed Locker Handle: All wardrobe doors shall have recessed, not less than 304 stainless steel, deep drawn handle shaped to receive a padlock or built-in combination lock. The recess pan shall be deep enough to have the lock be flush with the outer door face. Box doors shall be equipped with a combination friction catch door pull as stated above.

Latch Assembly: The latching mechanism for wardrobe doors shall be finger lift control type constructed of 14 gauge (minimum) steel with a nylon cover that has a generous finger pull. Spring activated nylon slide latches shall be completely enclosed in the lock channel allowing doors to close with the lock in the locked position. Locking device shall be designed for use with either built-in combination locks or padlocks. Latch hooks shall be securely welded to the vertical frame channel on the strike side to engage the nylon slide latches. Three latch hooks for doors 48" and higher, two latch hooks for doors under 48" high.

Door Hinges: All doors shall include a 16 gauge continuous piano hinge welded to the door and riveted to the frame. All doors to be right hand, side hinged.

Body: Fabricate back and sides of 24 gauge (minimum) sheet steel, with double flanged connections extending full height. Form top and intermediate tier dividers of 24 gauge (minimum) sheet steel with single return bends at all sides. Form Locker Bottom of 16 gauge (minimum) sheet steel with single return bends at all sides. Bolt top and bottom as well as horizontal tier dividers of wardrobe openings to front horizontal frame members at not less than one place in addition to side panels. Form hat shelves at 60" and 72" high

single tier lockers of 24 gauge (minimum) sheet-steel with single bends at sides and back and a double bend at front.

Locks (Required): Shall be master-keyed controlled (F148 Master key system) to one system for the entire project. Provide Built-In Combination locks at all openings. Provide ADA Built-In Combination locks at all ADA openings (5% of total number of openings for project). Combination locks shall be capable of at least five combination changes. Contractor will provide a minimum of ten (10) master control keys and electronic and printed combination code list.

Equipment: Furnish each locker with the following items, unless otherwise shown.

Double tier lockers: Openings 30" and 36" high shall include one double prong ceiling hook and a minimum of two single prong hooks.

4" Continuous Z-Base: Shall be fabricated from 16 gauge cold rolled sheet steel fabricated in 72" lengths, flanged at the top to form a 1-3/8" toe space and at the bottom allowing concealed fastening to the finished floor. Continuous Front Bases include holes for use with splice plates where bases are joined end-to-end. End Bases are to be included at all exposed ends. Where additional support is desired, End Bases may be substituted for splices at Continuous Front Base joints. Finish to match lockers.

Minimum Punched End Panels: Shall be from 18 gauge cold rolled steel and formed to fit tightly over the universal side panel at exposed row ends. Holes are provided at perimeter for fastening to locker. Minimum Punched End Panels are designed to cover all fasteners other than those at the perimeter of the panel. Finish to match lockers. Provide at all exposed ends.

16 Gauge Continuous Slope Tops: Not less than 16 gauge cold rolled sheet steel, 18 degree pitch, in 72" lengths. A splice cover with concealed spring clip is used to cover joints where Continuous Slope Tops are joined end-to-end. To be installed in addition to the locker flat top with end closures for support. Finish to match lockers. Note: 20 gauge and 18 gauge cold rolled sheet steel will NOT be accepted.

Fillers: Provide where needed for finished installation at corners and between walls, of not less than 16 gauge cold rolled sheet steel, factory fabricated to and finished to match lockers.

Number Plates: Each locker shall have a polished aluminum number plate with black numerals not less than 1/2" high. Plates shall be attached with rivets to the lower surface within the recessed handle pocket. The numbering sequence will begin at 2001 and follow a sequential pattern with the locker assembly.

Warranty and Guarantee:

Two-Year Warranty: Superior KD lockers should be covered against all defects in materials and workmanship excluding finish, damage resulting from deliberate destruction and vandalism under this section **for a period of two years.**

Installation: Lockers must be installed in accordance with manufacturer's approved drawings and assembly instructions. Installation shall be level and plumb with flush surfaces and rigid attachment to anchoring surfaces. Space fasteners at 36" O.C. or less, as recommended by manufacturer. Use fasteners appropriate to load and anchoring substratum. Use reinforcing plates wherever fasteners could distort metal. Various trim accessories where shown, such as sloping tops, fillers, bases, recessed trim, etc., shall be installed using concealed fasteners. Flush, hairline joints are provided at all abutting trim parts and at adjoining surfaces.

Adjustment: Upon completion of installation, inspect lockers and adjust as necessary for proper door and locking mechanism operation

Quality Assurance:

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- B. Source Limitations: Obtain metal lockers, and accessories from single source from single manufacturer.
- C. Regulatory Requirements: Where metal lockers are indicated to comply with accessibility requirements, comply with the U.S. Architectural & Transportation Barriers Compliance board's "Americans with Disabilities Act (ADA) and Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities: and ICC/ANSI A117.1/ 2
- D. Pre-installation Conference: Conduct conference at Project site

Schedule:

1. A pre-bid walkthrough will be held on Wednesday, March 4, 2020 at 2:30 PM EDT. Jefferson Middle School is located at 200 Fairbanks Road, Oak Ridge, TN 37830.
2. Sealed bids will be opened at the School Administration Building, 304 New York Avenue, Oak Ridge, TN 37830, at **10:30 AM EDT, March 13, 2020.**
3. **Two full copies of the proposal must be submitted**, with original Bid Forms included with each copy.
4. Work can begin June 3, 2020 and must be completed no later than July 20, 2020.

Bidding Procedures/Requirements

Location: All bids must be submitted to the Oak Ridge Schools Business Department at or before the announced deadline.

Mary Ann Riley, Purchasing Specialist

RE: **(RFP 20-008)**

Jefferson Middle School Lockers

Oak Ridge Administration Building

304 New York Ave

Oak Ridge, TN 37830

Award of Contract: The owner (Oak Ridge Schools) further reserves the right to reject any and all bids, to waive any and all informalities and to negotiate contract terms with the successful bidder, and the right to disregard all non-conforming, non-responsive, or conditional bids. Oak Ridge Schools may conduct such investigations as it deems necessary to assist in the evaluation of any bid to establish the responsibility, qualifications, and financial ability of the bidder, proposed sub-contractors and other persons and organizations to perform the work in accordance with the contract documents to the bidder who does not pass any such evaluation to the owner's satisfaction. The contract shall be awarded to the bidder, whose evaluation by the owner indicates to the owner that the award will be in the best interest of Oak Ridge Schools. It is also understood that the "apparent low bidder" will be announced at the bid opening; however, the "successful bidder," who may or may not be the lowest bidder, will not be announced until all issues, which include, but are not limited to quality, service, conformity to specifications, etc. have been resolved and until a period of review has been completed by the owner. Oak Ridge Schools does not enter into contracts that provide for mediation or arbitration. The owner (Oak Ridge Schools) further reserves the right to reject any and all bids, to waive any and all informalities, and to negotiate contract terms with the successful bidder (e.g., product line-item deletions or adjustments), and the right to disregard all non-conforming, non-responsive, or conditional bids.

Bid Document: For certain projects Oak Ridge Schools will supply a bid form to be completed by the bidder. When such forms are issued, only bids returned with the proper forms will be accepted. Envelopes must be sealed and marked as a bid document. Any bid may be withdrawn prior to the date and time as set forth in the "bid invitation." **On construction related bids, the envelope must contain the following information visible from the outside: TN License number, expiration date, classifications and limitations.**

Conflict of Interest: All bidders must disclose with their bid the name of any officer, director, or agent who is also an employee of the State of Tennessee, or any of its agencies (which includes Oak Ridge Schools). Further, all bidders must disclose the name of any state or Oak Ridge School employee who owns, directly or indirectly, an interest in the bidder's firm or any of its branches. Bidding by Oak Ridge School employees is prohibited.

Contractors, Subcontractors and employees: If work is to be performed during regular school hours when children are present, the BOE reserves the right to require background checks, dress codes, and certain ethical standards of all employees on school property.

Controlling Documents: Compliance with Oak Ridge Schools' purchase order will be subject to all terms and conditions which comprise Oak Ridge Schools' General and Special Bid Conditions, if any, unless an exception is taken by the bidder to which Oak Ridge Schools has concurred in writing.

Criminal Background Compliance: Bidders shall be required to complete the attached Criminal Background Compliance Affidavit form in compliance with the provisions of Tennessee Code Annotated § 49-5-413.

Deadline: Any responses received after the scheduled closing time for the receipt for responses will not be considered.

Default of Contractor: In the event the Contractor defaults in performing this Contract, the Contractor agrees to pay Oak Ridge Schools all reasonable costs incurred in remedying such default, including a reasonable Attorney's fee.

Drug Free Work Place Affidavit (Attached Herewith): Bidders shall be required to complete the attached Drug Free Workplace Affidavit form in compliance with the provisions of Tennessee Code Annotated § 50-9-113.

Errors in Bids: When an error is made in extending total prices, the unit bid price will govern. Carelessness in quoting prices or in preparation of bid otherwise, will not relieve the bidder. Erasures or changes to bids must be initialed. Any alteration, erasure, addition to or omission of required information, change of the specifications, or bidding schedule, is made at the risk of the bidder.

Exceptions: If the bidder takes exception to anything in the specifications or terms and conditions, the exception must be listed in bid. If necessary, you may supplement with an attachment. If no exceptions are taken, mark bid "No Exceptions Are Taken". If no comments or exceptions are furnished, it will be assumed that no exceptions are being taken.

Facsimile or Electronic transmissions: Electronic transmissions will not be accepted except when in the course of the bidding process addendums or other notifications of errors on behalf of the owner places an undue hardship upon prospective bidders. Written notification by the owner must precede the acceptance of Facsimile transmissions.

Hold Harmless Agreement: Bidders shall be required to complete the attached Hold Harmless Agreement.

Laws and Regulations: The bidder's attention is directed to the fact that all applicable state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project and shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though herein written out in full.

Legal Issues: Contracts with Oak Ridge Schools will be subject to the laws of Tennessee. Disputes will be tried in the State of Tennessee and in the Court of Anderson County. Bid will be denied if these provisions are not included in the contract.

Legal Requirements: The successful bidder shall be responsible for compliance with all federal, state and local laws, ordinances, rules and regulations that in any manner affect the items covered herein. Lack of knowledge by the bidder will in no way be a cause for relief from responsibility for their bid.

Non-Collusion Affidavit: Bidder shall be required to complete the attached Non-Collusion Affidavit.

Payments: Invoices that are submitted to Oak Ridge Schools Business Department will be approved and processed for payment. The awarded bidder is required to provide accurate and current addresses. Payment terms shall be specified in the bid response, including any discounts for early payment. Payment will not be made by Oak Ridge Schools to contractor until the said Maintenance Storage Building is inspected and approved as meeting all specifications by persons appointed by Oak Ridge Schools.

Public Acts of 2006: In compliance with the requirements of Chapter 878, Public Acts of 2006, the Contractor hereby attests that the Contractor shall not knowingly utilize the services of an illegal immigrant in the performance of this contract and shall not knowingly utilize the services of any subcontractor who will utilize the services of an illegal immigrant in the performance of this contract.

Purchase: No purchase or contract is authorized or valid until the issuance of a Purchase Order from Oak Ridge Schools and the Board of Education approval of project in accordance with Oak Ridge Schools Policy. No employee is authorized to purchase equipment, supplies or services prior to the issuance of such Purchase Order and Board of Education approval.

Sub-contracts: The Bidder is specifically advised that any person, firm, or other party to whom it is proposed to award a sub-contract under this contract must be acceptable to the Owner.

Taxes: Oak Ridge Schools is exempt from federal excise taxes and from state sales taxes on purchases of tangible personal property. Copies of the appropriate exemption documentation will be provided upon request. Contractors are responsible for the payment of taxes on tangible personal property which they use in the completion of their contracts, for which sales taxes have not otherwise been paid, irrespective of who holds title to the property or for whom the work is done.

Tie Bids: If two or more bidders submit identical bids and is equally qualified; selection shall be made at the discretion of the owner.

Title VI of the Civil Rights Act of 1964: All interested parties, without regard of race, color, or national origin, shall be afforded the opportunity to bid and shall receive equal consideration. Title VI states “No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program activity receiving Federal financial assistance.” Oak Ridge Schools strives to protect individuals’ civil rights through active compliance with the requirements of Title VI.

Vendor Indemnify: Oak Ridge Schools will indemnify vendor to the extent Tennessee law allows.

Warranty: The vendor shall provide warranty information on the equipment, components and items bid with the bid submittal.

Bid Form

Owner: Oak Ridge Schools Board of Education
Mary Ann Riley, Purchasing Specialist
RE: (20-008) Jefferson Middle School Lockers
School Administration Building
304 New York Ave
Oak Ridge, TN 37830

Project: **Jefferson Middle School Lockers**
RFP (20-008)

Bid Opening: **Friday, March 13, 2020, 10:30 AM EDT**
Business Services Conference Room

Company Name: _____

Address: _____

Phone Number: _____

Email: _____

Main Bid: This amount is for the **furnishing and installation of new steel lockers, accessories, and finish metal trim, (RFP 20-008) Jefferson Middle School Lockers.**

Bid Amount: _____ USD.

Company: _____

Signature: _____

Title: _____

Date: _____

Please attach detailed specifications for the furnishing and installation of lockers.

Please include TN License number, expiration date, classifications and limitations on outside of bid envelope.

DRUG-FREE WORKPLACE AFFIDAVIT

STATE OF _____
COUNTY OF _____

The undersigned, principal officer of _____, an employer of five (5) or more employees contracting with Oak Ridge School District to provide construction services, hereby states under oath as follows:

1. The undersigned is a principal officer of _____ (hereafter referred to as the "Company"), and is duly authorized to execute this Affidavit on behalf of the Company.

2. The Company submits this Affidavit pursuant to T.C.A. § 50-9-113 which requires each employer with no less than five (5) employees receiving pay who contracts with the state or any local government to provide construction services to submit an affidavit stating that such employer has a drug-free workplace program that complies with Title 50, Chapter 9, of the Tennessee Code Annotated.

3. The Company is in compliance with the terms of T.C.A. § 50-9-113.

Further affiant saith naught.
Principal Officer

STATE OF _____
COUNTY OF _____

Before me personally appeared _____ with whom I am personally acquainted (or proved to me on the basis of satisfactory evidence), and who acknowledged that he/she is the _____ of _____ and is authorized to execute this instrument on behalf of the principal for the purposes therein contained.

Witness my hand and seal at office this _____ day of _____, 20_____.

Notary Public

My commission expires: _____

CRIMINAL BACKGROUND COMPLIANCE AFFIDAVIT

STATE OF _____
COUNTY OF _____

The undersigned, principal officer of _____, an Employer contracting with the Oak Ridge School Board of Education to provide services having direct contact with children or access to grounds of an Oak Ridge public school while students are on grounds, hereby states under oath as follows:

1. The undersigned is a principal officer of _____ (hereafter referred to as the "Company"), and is duly authorized to execute this Affidavit on behalf of the Company.

2. The Company submits this Affidavit pursuant to T.C.A. § 49-5-413 as amended effective September 1, 2007, for entities entering into contracts with a local board of education where the Company's employees will have direct contact with school children or access to the grounds of a school when children are present. It is the duty of the Company to require applicants supply a fingerprint sample and submit to a criminal history records check to be conducted by the Tennessee Bureau of Investigation and the Federal Bureau of Investigation prior to permitting the person to have contact with such children or enter school grounds and to take certain other actions based upon the results of the records check.

3. The Company is in compliance with the terms of T.C.A. § 49-5-413.

Further affiant saith naught.
Principal Officer

STATE OF _____
COUNTY OF _____

Before me personally appeared _____ with whom I am personally acquainted (or proved to me on the basis of satisfactory evidence), and who acknowledged that he/she is the _____ of _____ and is authorized to execute this instrument on behalf of the principal for the purposes therein contained.

Witness my hand and seal at office this _____ day of _____, 20_____.

Notary Public

My commission expires: _____

HOLD HARMLESS AGREEMENT

This Hold Harmless Agreement is between

_____ Name of Contractor
(hereinafter Contractor), and Oak Ridge Schools named in this bid.

Contractor agrees that as a condition precedent to "Contractor" being awarded a contract from Oak Ridge Schools, "Contractor" agrees to indemnify, protect, defend, and hold harmless Oak Ridge Schools, its Board Members, agents, and employees from all judgments, claims, demands for payment, suits or actions of every nature and description brought against Oak Ridge Schools, its Board Members, agents, and employees alleging injuries or damages sustained by any person arising out of or in the course of "Contractor's" providing goods or services to Oak Ridge Schools.

Name of Contractor: _____

By: _____

Title: _____

STATE OF TENNESSEE

County of Anderson

_____ personally appeared before me, the undersigned, with whom I am personally acquainted and who, upon oath, acknowledged that he/she/it executed the within instrument for the purposes therein contained, and who further acknowledge that he/she/it is authorized to execute this interment on behalf of

_____.

Signature

Witness by hand and Notaries seal at office this _____ day of _____, year of _____.

Notary Public

My Commission Expires: _____

NON-COLLUSION AFFIDAVIT

NON-COLLUSION AFFIDAVIT TO BE EXECUTED
BY DESIGN-BUILDER

State of _____

County of _____

_____, being first duly sworn, deposes and says that he or she is of the party making the foregoing bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder neither possesses a business relationship with any employee of the District which may be involved in the award or administration of the project nor has received or solicited either directly or indirectly any inside information from an employee of the District which would give the bidder an advantage over any other bidder; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract or any interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price of any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

Subscribed and sworn to (or affirmed) before me this _____ day

of _____, 20_____.

Signature of Officer

Notary Signature

Typed Name of Officer

Office

Notary Seal

WARNING! PROPOSALS WILL NOT BE CONSIDERED UNLESS THIS AFFIDAVIT IS COMPLETED AND EXECUTED, INCLUDING THE AFFIDAVIT OF THE NOTARY AND THE NOTORIAL SEAL.

IRAN DIVESTMENT ACT REQUIREMENTS

Pursuant to *Tennessee Code Annotated* § 12-12-106 (as enacted by Chapter 817 of the Public Acts of 2016) the chief procurement officer for the State of Tennessee shall publish a list of persons determined to be engaging in investment activities in Iran. The list is posted on the website of the Tennessee General Services Department’s Central Procurement Office*. When competitive bidding is required, *Tennessee Code Annotated* § 12-12-111 requires every bid or proposal submitted to a local government for goods or services to include the following statement, subscribed or affirmed by the bidder as true under the penalty of perjury:

CERTIFICATION

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to *T.C.A.* § 12-12-106.

Signature

Date

Printed Name

Title

Name of Firm/Company

*[https://tn.gov/assets/entities/generalservices/cpo/attachments/List of persons pursuant to Tenn. Code Ann. 12-12-106. Iran Divestment Act-July.pdf](https://tn.gov/assets/entities/generalservices/cpo/attachments/List%20of%20persons%20pursuant%20to%20Tenn.%20Code%20Ann.%2012-12-106.%20Iran%20Divestment%20Act-July.pdf)