

Large accelerated filer S
Non-accelerated filer £

Accelerated filer £
Smaller reporting company £

CALCULATION OF REGISTRATION FEE

| Title of Securities to be Registered | Amount to be Registered(1)(2) | Proposed Maximum Offering Price Per Share(1) | Proposed Maximum Aggregate Offering Price(1) | Amount of Registration Fee(1) |
|--------------------------------------|-------------------------------|--|--|-------------------------------|
| Common Stock, \$1.00 par value(1)(2) | 3,000,000 shares(2) | \$31.34 | \$94,020,000 | \$10,774.69 |

The offering price per share, aggregate offering price, and registration fee with respect to the shares of Common Stock, par value \$1.00 per share, of Trinity Industries, Inc. issuable pursuant to the employee benefit plan (1) described herein have been calculated in accordance with Rule 457(c) and (h) under the Securities Act of 1933, as amended, based on the average of the high and low prices of the Trinity Industries, Inc. Common Stock on September 11, 2012 as reported in the consolidated reporting system of the New York Stock Exchange.

Pursuant to Rule 416 under the Securities Act of 1933, as amended, this Registration Statement also covers (2) additional shares of common stock of the registrant as may be offered or issued as a result of stock splits, stock dividends, or similar transactions.

EXPLANATORY NOTE

Pursuant to General Instruction E to Form S-8, Trinity Industries, Inc. ("Trinity") hereby incorporates by reference the contents of the Registration Statement on Form S-8 as filed with the Securities and Exchange Commission (the "Commission") on May 11, 2004 (Registration No. 333-115376), including any amendments thereto or filings incorporated therein. This Registration Statement is being filed to register an additional 3,000,000 shares of Common Stock of Trinity, \$1.00 par value per share, for issuance under the Amended and Restated Trinity Industries, Inc. 2004 Stock Option and Incentive Plan, pursuant to the terms of such plan.

PART I

INFORMATION REQUIRED IN THE SECTION 10(a) PROSPECTUS

The information specified by Item 1 (Plan Information) and Item 2 (Registrant Information and Employee Plan Annual Information) of Part I of Form S-8 is omitted from this filing in accordance with the provisions of Rule 428 under the Securities Act of 1933, as amended (the "Securities Act"), and the introductory Note to Part I of Form S-8.

PART II
INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

ITEM 3. INCORPORATION OF DOCUMENTS BY REFERENCE.

Trinity hereby incorporates by reference the documents set forth below in this Registration Statement. All documents subsequently filed by Trinity pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), prior to the filing of a post-effective amendment that indicates that all securities offered have been sold or that deregisters all securities then remaining unsold, shall be deemed to be incorporated by reference into this Registration Statement and to be a part hereof from the date of filing of such documents. Any statement contained in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes of this Registration Statement to the extent a statement contained herein or in any other subsequently filed document that also is or is deemed to be incorporated by reference herein modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this Registration Statement.

(a) Trinity's Annual Report on Form 10-K filed with the Commission for the fiscal year ended December 31, 2011;

(b) All other reports filed by Trinity with the Commission pursuant to Section 13(a) or 15(d) of the Exchange Act since the end of the fiscal year covered by Trinity's Annual Report on Form 10-K referred to in (a) above; and

(c) The description of Trinity's Common Stock, \$1.00 par value per share, contained in Trinity's Registration Statement on Form S-4 dated July 17, 1996 (Registration No. 333-8321), as amended by Post-Effective Amendment No. 1 dated July 19, 1996.

ITEM 8. EXHIBITS.

EXHIBIT DESCRIPTION

4.1 Specimen Common Stock Certificate of Trinity Industries, Inc. (incorporated by reference to Exhibit 4.1 to the Form S-8 Registration Statement (Registration Statement No. 333-159552) filed May 28, 2009).

5.1* Opinion of Locke Lord LLP.

23.1* Consent of Locke Lord LLP (included in Exhibit 5.1).

23.2* Consent of Ernst & Young LLP.

24.1* Power of Attorney (included on the signature pages of this Registration Statement).

99.1 Amended and Restated Trinity Industries, Inc. 2004 Stock Option and Incentive Plan (incorporated by reference to Exhibit 10.1 to Trinity's Form 8-K filed May 4, 2010).

*Filed herewith.

ITEM 9. UNDERTAKINGS.

(a) Trinity hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this Registration Statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act;

(ii) To reflect in the prospectus any facts or events arising after the effective date of this Registration Statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in this Registration Statement;

(iii) To include any material information with respect to the plan of distribution not previously disclosed in this Registration Statement or any material change to such information in this Registration Statement;

provided, however, that paragraphs (a)(1)(i) and (a)(1)(ii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in periodic reports filed with or furnished to the Commission by Trinity pursuant to Section 13 or Section 15(d) of the Exchange Act that are incorporated by reference in this Registration Statement.

(2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(4) That, for purposes of determining any liability under the Securities Act, each filing of Trinity's annual report pursuant to Section 13(a) or 15(d) of the Exchange Act that is incorporated by reference in this Registration Statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(5) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of Trinity pursuant to the foregoing provisions, or otherwise, Trinity has been advised that in the opinion of the Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by Trinity of expenses incurred or paid by a director, officer or controlling person of Trinity in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, Trinity will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

SIGNATURES AND POWER OF ATTORNEY

Pursuant to the requirements of the Securities Act of 1933, Trinity certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Dallas, State of Texas, on this 17th day of September, 2012.

TRINITY INDUSTRIES, INC.

By: /s/ James E. Perry

Printed Name: James E. Perry

Title: Senior Vice President and Chief Financial Officer

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that each individual whose signature appears below hereby constitutes and authorizes Timothy R. Wallace and Jared S. Richardson, and each of them, each with full power to act without the other, his or her true and lawful attorneys-in-fact and agents, each with full power of substitution and resubstitution for him or her and in his or her name, place and stead, in any and all capacities, to sign any or all amendments to this Registration Statement, and to file the same with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto each of said attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as he or she might or could do in person hereby ratifying and confirming that each of said attorneys-in-fact and agents or his or her substitutes may lawfully do or cause to be done by virtue hereto.

Pursuant to the requirements of the Securities Act of 1933, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated:

| Name | Title | Date |
|--|---|--------------------|
| /s/ Timothy R. Wallace Timothy R. Wallace | Chairman, President, Chief Executive Officer and Director (Principal Executive Officer) | September 17, 2012 |
| /s/ James E. Perry James E. Perry | Senior Vice President and Chief Financial Officer (Principal Financial Officer) | September 17, 2012 |
| /s/ Mary E. Henderson Mary E. Henderson | Vice President and Corporate Controller (Principal Accounting Officer) | September 17, 2012 |
| /s/ John L. Adams John L. Adams | Director | September 17, 2012 |
| /s/ Rhys J. Best Rhys J. Best | Director | September 17, 2012 |
| /s/ David W. Biegler David W. Biegler | Director | September 17, 2012 |
| /s/ Leldon E. Echols Leldon E. Echols | Director | September 17, 2012 |
| /s/ Ronald J. Gafford Ronald J. Gafford | Director | September 17, 2012 |
| /s/ Ronald W. Haddock Ronald W. Haddock | Director | September 17, 2012 |
| /s/ Adrián Lajous Adrián Lajous | Director | September 17, 2012 |
| /s/ Melendy E. Lovett Melendy E. Lovett | Director | September 17, 2012 |
| /s/ Charles W. Matthews Charles W. Matthews | Director | September 17, 2012 |
| /s/ Douglas L. Rock Douglas L. Rock | Director | September 17, 2012 |

INDEX TO EXHIBITS

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