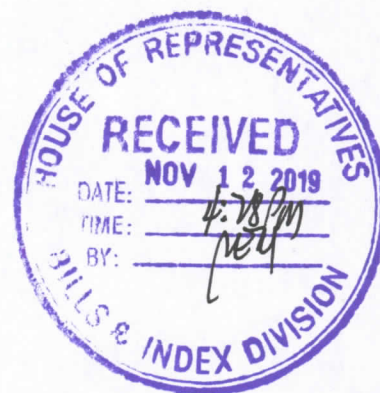


Republic of the Philippines
HOUSE OF REPRESENTATIVES
Batasan Hills, Quezon City

EIGHTEENTH CONGRESS
First Regular Session

House Bill No. 5447



Introduced by: HON. LORD ALLAN JAY Q. VELASCO

EXPLANATORY NOTE

This measure is proposed in order to require the use of grade 60 microalloyed steel rebars in the construction of high rise infrastructures in the country, which will ensure their durability and resilience against natural and man-made hazards that occur annually.

The Philippines sits on the "Ring of Fire," an area in the basin of the Pacific Ocean where many earthquakes and volcanic eruptions occur. Ninety percent (90%) of the world's earthquakes, and eighty-one percent (81%) of the world's largest earthquakes occur along the Ring of Fire. According to the Philippine Institute of Volcanology and Seismology, intense earthquakes will inevitably hit the Philippines' most densely populated areas and provinces. Such events will possibly collapse buildings, and consequently cause a catastrophic loss of life.

Aside from the earthquake threat, about twenty (20) major storms batter the Philippines each year. According to Time Magazine, the Philippines is "the most exposed country in the world to tropical storms." The high winds these storms bring pose significant risks to the stability of tall buildings.

According to the 2018 World Risk Report, Philippines is the country with the third highest risk percentage at 25.14%. This percentage is greater than that of Papua New Guinea, Brunei Darussalam and Bangladesh. The same study reported that the Philippines is the country with the fourth highest exposure percentage at 49.94%. This percentage outranked that of Japan at 46.55%, Costa Rica at 44.27% and Guatemala at 38.50%.

With the modern construction trend of developing multi-story buildings instead of traditional low rise infrastructures, the country must begin to adopt new measures that will future-proof establishments, offices, condominiums and other industrial, institutional, commercial and residential infrastructures from the threat of hazards. For one, a high rise infrastructure is highly vulnerable to wind and earthquake damage and seemingly large portions of Philippine metropolises are now comprised of these structures. These massive buildings now tower over millions of Filipinos, who live, work, shop, stroll, and play in them every day. Frequent typhoons and earthquakes are definitely risk factors that could affect the stability and durability of these high rise infrastructures.

The country must not wait for these modern towers to start falling apart and start crushing the people below them before we act. Looking back into the September 11, 2001 bombing of the World Trade Center, the victims were not limited to those people who were outside and below the devastated World Trade Center. People who were trapped inside of the

building were also among the casualties of the deadly and human-induced tragedy. As such, people within high rise infrastructures, such as those who were working inside the World Trade Center, are definitely at risk of injury and even death from any sudden collapse of high rise infrastructures.

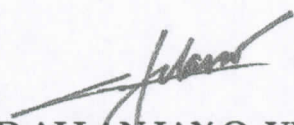
In the construction of these tall structures, steel reinforcing bars (hereinafter "rebars," for brevity) must now be given a critical role. Rebars impart toughness and resiliency to a building's concrete body. If a building's rebars were to fail under the stress of an earthquake or a typhoon's violent winds, the building would shatter and crumble. In this regard, the Philippine steel industry has long recognized that steel rebars in high-rises must meet a minimum grade of 60 to ensure safety.

In recent years, Quench Tempered (hereinafter "QT," for brevity) or Thermomechanically Treated ("TMT") rebars (collectively "QT rebars") have become commonly used in the construction of high rises in the Philippines. However, QT rebars have a fatal flaw – only the *outer skin* of the rebar meets the minimum grade. Once this thin skin is stressed or damaged, whether through welding, rebending or threading, the rebar experiences a critical loss of strength. Ironically, any high rise construction process will inevitably involve some degree of welding, rebending or threading of rebars. Therefore, any new high rise building constructed with QT rebars could have its strength *dangerously compromised*. In fact, the structural codes of seismically active countries, such as Taiwan, Australia, and New Zealand, already prohibit or discourage the use of QT rebars in high-rise buildings.

In contrast, higher quality *microalloyed* rebars have a consistent hardness and toughness throughout their *entire cross-section*, not just the outer skin.

Hence, in order to mitigate damage and loss of life, there is a need to standardize the use of high quality rebars in all high rise infrastructures across the nation. The use of higher quality rebars which are more resistant to the effects of wind and earthquakes should be made mandatory in high rise infrastructures. Furthermore, these rebars should have embossed labels and grades, not merely color-coded, so as to ensure quality control. After all, the safety and welfare of Filipinos should never be compromised.

In view of the foregoing, the early passage of this bill is sought.


LORD ALLAN JAY Q. VELASCO

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AN ACT ORDAINING THE STANDARDIZATION OF STEEL REINFORCING BAR
QUALITY IN HIGH RISE INFRASTRUCTURES IN THE PHILIPPINES TO RESIST
AGAINST WIND AND EARTHQUAKE AND FOR OTHER PURPOSES

*Be it enacted by the Senate and the House of Representatives of the Philippines in Congress
assembled:*

1 **SECTION 1. *Short Title.*** – This Act shall be known as the “*Philippine Wind & Earthquake*
2 *Resilience Standardization Act (PWERSA).*”
3

4 **SECTION 2. *Declaration of Policy.*** – Powerful earthquakes and typhoons pose a constant threat
5 because the Philippines sits on the “Ring of Fire,” and in the midst of the Pacific cyclone corridor. In
6 particular, high rise structures are extremely vulnerable to these natural disasters. Earthquakes and
7 typhoons could knock down or damage these buildings, and possibly cause catastrophic loss of life.
8 Furthermore, taking into consideration the threat of “the Big One,” the State hereby declares the
9 policy of strengthening the disaster resilience capabilities of high rise infrastructures through the
10 standardization of steel reinforcing bar quality in high rise infrastructures. The use of high quality
11 rebars would mitigate destruction and loss of life.
12

13 The State also declares the policy of protecting the general public against deceptive, unfair and
14 unconscionable sales acts and practices by making it compulsory to emboss the manufacturer’s label
15 and steel grade in each and every rebar. To this end, all fraudulent and manipulative activities in the
16 market, among others, that would circumvent the provisions of this Act would be penalized as defined
17 and described in the succeeding sections of this law.
18

19 **SECTION 3. *Definition of Terms.*** – As used in and for purposes of this Act, the following terms,
20 whether in singular or plural form, are hereby defined as follows:

- 21 a. “*Certifying Authority*” refers to the Bureau of Philippine Standards (BPS) of the Department
22 of Trade and Industry (DTI);

- b. *“Steel industry”* refers to the group of persons, entities, or enterprises engaged in the preparation, smelting, crushing, soaking, blooming, slabbing, melting, firing, rolling, casting, shaping, plating, galvanizing of steel and all other processes involved in transforming raw materials into semi-finished steel products or semi-finished products into finished steel products;
- c. *“Steel manufacturers”* refer to any person, whether natural or juridical, that manufactures, produces, or otherwise causes the manufacture or production of steel and steel products within the steel industry;
- d. *“Steel importers”* refer to any person, whether natural or juridical, that bring in steel from a foreign territory into Philippine territory, whether for consumption, warehousing, or admission within the steel industry;
- e. *“Reinforcing bar (rebar)”* refers to a steel bar or mesh of steel wires used as a tension device in reinforced concrete and reinforced masonry structures to strengthen and aid the concrete under tension;
- f. *“High rise structure”* refers to any multi-story building or structure with an occupied floor located more than 23 meters (75 feet) above the lowest level of fire department vehicle access, or the ground floor, whichever is more accessible;
- g. *“Quench Tempered (QT) or Thermomechanically Treated (TMT) rebars”* are steel rebars manufactured by rapid cooling of plain low carbon steel by a fine water spray or otherwise rapidly cooled by liquid, resulting in a quenched surface which is tempered by the heat of a red hot core;
- h. *“Microalloyed (MA) rebars”* refer to rebars which derive strength from alloying materials such as, but not limited to, vanadium and carbon, and consists of a uniform material cross section manufactured from steel billets;
- i. *“Mislabeling”* refers to the embossing or labelling of steel grades or types which do not reflect the actual grade or type of the steel, or otherwise indicating steel grades and types which are false, or indicating a steel grade or type which is different from that of its original raw material;
- j. *“Cyclic loading test”* refers to the application of repeated or fluctuating stresses, strains, or stress intensities on the rebars; and
- k. *“Grade 60 rebar”* refers to steel rebars which offer a minimum yield strength of 60,000 pounds per square inch, or 420 megapascals on the metric grading scale, which features a continuous line system, with one line running along the length of the bar which is offset a minimum of five spaces from the center.

1 **SECTION 4. *Institutional Mechanism.*** – The Consumer Protection Group (CPG) of the Department
2 of Trade and Industry (DTI), with the Bureau of Philippine Standards (BPS) as the lead unit, in
3 coordination with the Construction Industry Authority of the Philippines (CIAP) of DTI, Bureau of
4 Customs (BOC), local government units with respect to high rise infrastructures within their
5 jurisdiction, Housing and Land Use Regulatory Board (HLURB) and other relevant government
6 agencies and units shall ensure the effective implementation of this Act.

7
8 **SECTION 5. *Minimum Steel Grade for High Rise Structures.*** – All high rise structures shall make
9 use of, at the minimum, grade 60 microalloyed steel rebars, which are capable of passing the cyclic
10 loading test.

11
12 **SECTION 6. *Cyclic Loading Test.*** – The Certifying Authority shall prescribe the manner and the
13 parameters of the cyclic loading test, which shall be conducted on a random sampling basis. The
14 Certifying Authority may accredit independent, non-commercial centers or institutions to carry out
15 the actual testing. Upon passing the cyclic loading test, the Certifying Authority shall issue a
16 Certificate of Conformity to the steel manufacturers or importers concerned. The Certificate of
17 Conformity shall be renewable at such times as may be determined by the Certifying Authority. A
18 more comprehensive procedure regarding this Section shall be written down in the implementing
19 rules and regulations of this Act.

20
21 **SECTION 7. *Certification of Conformity.*** – No Building or Construction permit shall be issued, nor
22 construction, conversion, repair, alteration, or renovation be permitted until the person or entity that
23 owns the high rise structure or causes such aforementioned works upon a high rise structure possesses
24 a Certification issued by the Certifying Authority that the rebars to be used are in conformity with
25 Sections 5 and 6 of this Act.

26
27 **SECTION 8. *Embossing of Manufacturer Label and Steel Grade.*** All rebars must have their steel
28 grade embossed distinctly and clearly on each rebar so as to properly identify the quality of the steel.
29 All steel manufacturers shall similarly emboss their name or logo distinctly and clearly on each rebar,
30 as well as the date of production of the rebar. Painting or color-coding the steel grade, or other means
31 of identifying the steel grade in a manner that may easily be removed or changed, is expressly
32 prohibited.

33
34 **SECTION 9. *Periodic and Random Testing and the Power to Seize Noncompliant Rebars.*** – The
35 Certifying Authority shall have the authority to periodically and randomly test steel manufacturers
36 and importers for their steel rebar quality. The Certifying Authority may take custody of rebars

1 available in the market for this purpose. To ensure the effective enforcement of this Section, the
2 Certifying Authority shall have the power to seize all rebars found to be not in conformity with the
3 standards set forth in this Act and as stated under Sections 5, 6 and 8 of this law. Within one (1) week
4 upon sequestration of these noncompliant rebars, the Certifying Authority must test and confirm that
5 these rebars are not grade 60 microalloyed. If the seized rebars do not meet such grade, the Certifying
6 Authority must cause their immediate destruction within three (3) days and they cannot be re-sold or
7 recycled into the market. However, if these seized rebars are tested to be grade 60 microalloyed, they
8 shall be promptly returned within three (3) days to the concerned steel manufacturer or importer.

9
10 **SECTION 10. *Enforcement of the Act by Officers of the Law.*** – It shall be the duty of all duly
11 constituted law officers of the national, provincial, city, and municipal governments, or any political
12 subdivisions thereof, to enforce the provisions of this Act and to prosecute any person or entity
13 violating the same.

14
15 **SECTION 11. *Prohibition Against Fraudulent Activities In The Market.*** A steel manufacturer or
16 importer who is found, through fraud, deceit, stealth, strategy, or any other means, to have been
17 manufacturing, importing, using, or selling steel rebars of lower quality and against the standards
18 mandated under Sections 5, 6 and 8 of this Act will have their business and any other similar kind of
19 license immediately revoked. This revocation will be perpetual and the steel manufacturer or importer
20 found to have violated the provisions of this Act cannot be allowed to reorganize itself into another
21 entity, through fraud, deceit, machination or any other manner, and be allowed to operate once more
22 to the detriment of the construction industry and the general public.

23
24 Any person, natural or juridical, found to have violated the provisions of the previous paragraph shall
25 also be meted the penalty defined under Section 14 of this Act.

26
27 **SECTION 12. *Prohibition Against Public Officers and Employees.*** Any officer or employee of the
28 Certifying Authority, other agencies and local government units tasked in the proper implementation
29 of this Act, after the observance of due process, who shall not enforce or prevent the proper
30 enforcement of the provisions of this law, or shall commit one or more of the prohibited acts and
31 practices mentioned in this Act, or shall assist, facilitate or allow by any other means, that any seized
32 noncompliant rebar escape its immediate destruction, or cause its re-selling or recycling in the market
33 in violation of Section 9 of this law will be immediately dismissed from public service and will be
34 punished administratively, without prejudice to his or her other civil and criminal liabilities. Said
35 officer or employee will also be perpetually disqualified from public service.

SECTION 13. *Other Prohibited Acts and Practices.* – In addition to the aforementioned unlawful activities and practices, the following are also prohibited and shall be penalized in accordance with Section 14 of this Act:

- a. *Use of Quench Tempered (QT) or Thermomechanically Treated (TMT) Steel Rebars in High Rise Structures.* – Using QT or TMT Steel Rebars in high rise structures in any capacity;
- b. *Failure to Comply with Steel Grade Requirement.* – Using rebars in any capacity in high rise structures that fail to comply with the minimum steel grade requirement as stated in this Act;
- c. *False Certification of Conformity.* – Causing the issuance or presentation, or attempting to cause the presentation of a false Certification of Conformity;
- d. *No Certification of Conformity.* – Causing or otherwise constructing, altering, modifying, repairing, adding, renovating a high rise structure without a Certification of Conformity;
- e. *Manipulation, Submission, or Tampering with Testing Result.* – The manipulation, submission, or tampering with the testing result as mentioned in this Act, or the submission of misleading, false or forged evidence of any kind to the Certifying Authority or any accredited testing center.

SECTION 14. *Penal Provisions.* – Any person, and in cases of juridical entities, its board of directors and its officers, who shall violate any of the provisions of this Act shall, without prejudice to violations of other laws and ordinances shall, upon conviction, be sentenced to suffer imprisonment for not less than one (1) year and not more than three (3) years, and shall pay a fine of Ten Million Pesos (PHP 10,000,000.00).

SECTION 15. *Prescription of Offenses.* – All offenses punishable under this Act shall prescribe in ten (10) years.

SECTION 16. *Application.* – This Act shall apply to all high rise buildings and structures to be constructed and any change or repair made thereon after the approval of this Act. High rise buildings or structures constructed before the approval of this Act shall not be affected thereby; *Provided*, that a) where their continued use or occupancy is dangerous to life or limb; and b) where alterations, additions, conversions, or repairs are to be made thereon, this Act shall apply only to such portions of the high rise building or structure which have to be altered in order to ensure the tenants' safety and security and to effect the necessary alterations, changes, or repairs.

Where the building is in the process of construction when this Act takes effect, the construction of the portion or portions in violation of this Act shall be stopped until the same shall have been altered

1 to conform to this Act, unless such partial alteration will impair the stability and safety of the whole
2 or part of the structure, in which case, only the remaining portions to be constructed shall conform to
3 this Act.

4
5 **SECTION 17. *Implementing Rules and Regulations.*** – Within a period of ninety (90) days from
6 the effectivity of this Act, representatives from the Consumer Protection Group (CPG) of DTI, with
7 the Bureau of Philippine Standards (BPS) as the lead unit, alongside the representatives of the:
8 Construction Industry Authority of the Philippines (CIAP) of DTI, Bureau of Customs (BOC),
9 Housing and Land Use Regulatory Board (HLURB), Union of Local Authorities of the Philippines
10 (ULAP), League of Provinces of the Philippines, League of Cities of the Philippines, League of
11 Municipalities of the Philippines, *Liga ng mga Barangay*, other relevant government agencies and
12 units, nongovernmental organizations (NGOs), civil society organizations (CSOs) and other
13 stakeholders shall craft the implementing rules and regulations (IRR) of this law.

14
15 **SECTION 18. *Separability Clause.*** – If any provision of this Act or the application of such provision
16 or circumstances is declared invalid, the remainder of the Act or the application of such provision to
17 other persons or circumstances shall not be affected by such declaration.

18
19 **SECTION 19. *Repealing Clause.*** - All other laws, presidential decrees or issuances, executive
20 orders, letters of instruction, administrative orders, rules and regulations contrary to or inconsistent
21 with the provisions of this Act are hereby repealed, modified, or amended accordingly.

22
23 **SECTION 20. *Effectivity.*** – This Act shall take effect after fifteen (15) days following its complete
24 publication in the *Official Gazette* or in a newspaper of general circulation.

25
26 *Approved,*