Legal and Regulatory Frameworks of 195 Countries around the World with Provisions related to Wind-Resistant Design of Buildings 
Part 1. Africa, Americas and Asia

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1. Introduction

Laws and regulations and their supplemental documents related to wind-resistant design of buildings for 195 countries have been collected, surveyed and screened to compile the worldwide picture on the establishment of a legal and regulatory framework related to wind-resistant design of buildings. This article gives an overview of the legal and regulatory frameworks for 137 countries of Africa, the Americas and Asia.

The findings of this study are posted on the website (URL: https://werc.t-kougei.ac.jp/TPUdatabase.html) of the Wind Engineering Research Center, Tokyo Polytechnic University, and will be updated regularly.

2. Study Policy and Source

2.1 Study policy

Laws and regulations and their supplemental documents related to wind-resistant design of buildings for a total of 195 countries, 193 of which are member states of the United Nations (UN) and 2 of which are observer states at the UN General Assembly, were targeted in this study. Among inhabited territories, Western Sahara, where sovereignty has not yet been determined, was untargeted in this study.

For each country, desk research for this collected information was carried out down to two levels of legal and regulatory system hierarchies from the national (first) level to the state or provincial (second) level. Overseas territories are included in the second level. However, if no law or regulation was identified even at the first and second levels, laws and regulations and their supplemental documents at the city (third) level were targeted only if the city was a political or economic center.

2.2 Study source

Online libraries of laws and regulations, official gazettes and study reports powered by national or international agencies were the main study sources. Codes, standards, guidelines and manuals developed by various authorities and institutions such as governmental agencies and academic or professional bodies were also targeted. Documents on administrative guidance and from technical consultations with authorities, project-related specification documents of public works, academic writings of every kind, and internet articles including Facebook posts were referenced as well. Furthermore, questionnaires and email interviews were conducted with related parties including consultants, researchers and officials if required.

3. Legal and regulatory frameworks

Legal and regulatory frameworks including provisions regarding wind-resistant design of buildings were identified in 89 of the 137 countries of Africa, the Americas and Asia. These 89 countries are shown by check marks “✓” in Table 1, and their breakdown is shown for each region and subregion in Table 2. The numerical value in parentheses in these tables shows the number of countries that lie within each region and subregion. The divisions of region and subregion follow in principle the

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United Nations geoscheme\textsuperscript{1}.

The legal and regulatory frameworks for 89 countries are summarized into 3 regions: 4. Africa, 5. Americas and 6. Asia. The numbers of countries in each region are 24, 28 and 37, respectively. Furthermore, each region is organized into subregions. There are 5 subregions in Africa: 4.1 Eastern Africa, 4.2 Central Africa, 4.3 Northern Africa, 4.4 Southern Africa and 4.5 West Africa. The numbers of countries in each subregion are 5, 4, 7, 7 and 14, respectively. There are 4 subregions in the Americas: 5.1 Caribbean, 5.2 Central America, 5.3 Northern America and 5.4 South America. The numbers of countries in each subregion are 9, 1, 3, 5 and 6, respectively. There are 5 subregions in Asia: 6.1 Central Asia, 6.2 Eastern Asia, 6.3 South-eastern Asia, 6.4 Southern Asia and 6.5 Western Asia. The numbers of countries in each subregion are 5, 4, 7, 7 and 14, respectively.

An outline of the legal and regulatory framework is given for each country. However, if the legal and regulatory framework is identified in a superordinate legislative jurisdiction, it is not described in the subordinate legislative jurisdiction. Additionally, if the legal and regulatory framework is identified in many second and third legislative jurisdictions, it is described for only main states or provinces, overseas territories and political or economic center cities.

The document code here is unique for this study and not always the same as the official document code. For example, because the European Union (EU) standard\textsuperscript{2}: Eurocode 1: Actions on structures - Part 1-4: General actions - Wind actions was published after it was translated into each mother tongue and newly numbered as a national standard of each country with its content and style unchanged, the newly numbered standards by country are represented by EN’05 to simplify the notation in sentences as well as the citation of references in this study.

Table 1. List of countries in which the legal and regulatory framework was identified

| Africa (54) | Algeria | ✓ | Antigua and Barbuda | ✓ | Colombia | ✓ | Timor-Leste |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Eastern Africa (18) | Egypt | ✓ | Bahamas | ✓ | Ecuador | ✓ | Vietnam |
| Burundi | ✓ | Libya | ✓ | Barbados | ✓ | Guyana | ✓ | Southern Asia (9) |
| Comoros | ✓ | Morocco | ✓ | Cuba | ✓ | Paraguay | ✓ | Afghanistan |
| Djibouti | ✓ | Sudan | ✓ | Dominica | ✓ | Peru | ✓ | Bangladesh |
| Eritrea | ✓ | Tunisia | ✓ | Dominican Republic | ✓ | Suriname | ✓ | Bhutan |
| Ethiopia | ✓ | South Africa (5) | ✓ | Grenada | ✓ | Uruguay | ✓ | India |
| Kenya | ✓ | Botswana | ✓ | Haiti | ✓ | Venezuela | ✓ | Iran |
| Madagascar | ✓ | Eswatini | ✓ | Jamaica | ✓ | Asia (48) | ✓ | Maldives |
| Malawi | ✓ | Lesotho | ✓ | St. Kitts and Nevis | ✓ | Central Asia (5) | ✓ | Nepal |
| Mauritius | ✓ | Namibia | ✓ | St. Lucia | ✓ | Kazakhstan | ✓ | Pakistan |
| Mozambique | ✓ | South Africa | ✓ | St. Vincent and the | ✓ | Kyrgyzstan | ✓ | Sri Lanka |
| Rwanda | ✓ | Western Africa (16) | ✓ | Grenadines | ✓ | Tajikistan | ✓ | Western Asia (18) |
| Seychelles | ✓ | Benin | ✓ | Trinidad and Tobago | ✓ | Turkmenistan | ✓ | Armenia |
| Somalia | ✓ | Burkina Faso | ✓ | Central America (8) | ✓ | Uzbekistan | ✓ | Azerbaijan |
| South Sudan | ✓ | Cabo Verde | ✓ | Belize | ✓ | Eastern Asia (5) | ✓ | Bahrain |
| Tanzania | ✓ | Cote d’Ivoire | ✓ | Costa Rica | ✓ | China | ✓ | Cyprus |
| Uganda | ✓ | Gambia | ✓ | El Salvador | ✓ | Japan | ✓ | Georgia |
| Zambia | ✓ | Ghana | ✓ | Guatemala | ✓ | Mongolia | ✓ | Iraq |
| Zimbabwe | ✓ | Guinea-Bissau | ✓ | Honduras | ✓ | North Korea | ✓ | Israel |
| Middle Africa (9) | ✓ | Guinea-Conakry | ✓ | Mexico | ✓ | South Korea | ✓ | Jordan |
| Angola | ✓ | Liberia | ✓ | Nicaragua | ✓ | South-eastern Asia (11) | ✓ | Kuwait |
| Benin | ✓ | Cameroon | ✓ | Central Africa (13) | ✓ | Kazakhstan | ✓ | Lebanon |
| Chad | ✓ | Central African Republic | ✓ | Equatorial Guinea | ✓ | Gabon | ✓ | Georgia |
| Congo-Brazzaville | ✓ | Chad | ✓ | Equatorial Guinea | ✓ | Gabon | ✓ | Georgia |
| Congo-Kinshasa | ✓ | Central African Republic | ✓ | Gabon | ✓ | Sao Tome and Principe | ✓ | Georgia |
| Equatorial Guinea | ✓ | Chad | ✓ | Gabon | ✓ | Sao Tome and Principe | ✓ | Georgia |
| Gabon | ✓ | Central African Republic | ✓ | Gabon | ✓ | Sao Tome and Principe | ✓ | Georgia |
| Sao Tome and Principe | ✓ | Chad | ✓ | Gabon | ✓ | Sao Tome and Principe | ✓ | Georgia |
| Northern Africa (6) | ✓ | Caribbean (13) | ✓ | Chile | ✓ | Thailand | ✓ | Yemen |

The numerical value in parentheses shows the number of countries that lie within each region and subregion.
Table 2. Number of countries in which the legal and regulatory framework was identified

| Region   | Subregion               | Number of countries |
|----------|-------------------------|---------------------|
| Africa   | Eastern Africa (18)     | 9                   |
|          | Middle Africa (9)       | 1                   |
|          | Northern Africa (6)     | 3                   |
|          | Southern Africa (5)     | 5                   |
|          | Western Africa (16)     | 6                   |
|          | **Total**               | 24                  |
| Americas | Caribbean (13)          | 8                   |
|          | Central America (8)     | 8                   |
|          | Northern America (2)    | 2                   |
|          | South America (12)      | 10                  |
|          | **Total**               | 28                  |
| Asia     | Central Asia (5)        | 5                   |
|          | Eastern Asia (5)        | 4                   |
|          | South-eastern Asia (11) | 7                   |
|          | Southern Asia (9)       | 7                   |
|          | Western Asia (18)       | 14                  |
|          | **Total**               | 37                  |

The numerical value in parentheses shows the number of countries that lie within each region and subregion.

4. Africa

4.1 Eastern Africa

(1) Ethiopia

The national standard\(^3\) is authorized as mandatory in accordance with the Standards Agency Establishment Council of Ministers Regulation\(^4\).

(2) Madagascar

The Rules for Wind Resistant Constructions\(^5\), which require compliance with the French (FR) reference document\(^6\): NV 65’00, are enforced in accordance with the Wind Resistant Building Construction Regulations\(^7\).

(3) Malawi

The Building Bylaws, which require buildings to withstand wind loads, are enforced in the center of commerce, Blantyre under the Local Government Act\(^8\).\(^9\) However, the national standard\(^10\) is not mandatory in the Bylaws.

(4) Mozambique

The General Regulation of Urban Buildings\(^11\) requires consideration of wind actions on metal structures. In addition, the Portuguese (PT) ministerial ordinance\(^12\), which was enacted to extend the PT ministerial regulation\(^13\) to overseas territories at the time of the PT overseas territory, is still inherited.\(^14\)

(5) Rwanda

The Urban Planning and Building Regulations\(^15\), which provide the Building Code\(^16\), are enforced under the Urban Planning and Building Law\(^17\). Compliance with the Code is established through the national standard\(^18\).

(6) Seychelles

The Town and Country Planning Regulations\(^19\), which require compliance with the United Kingdom (UK) national standard\(^20\): BS CP3 CV2’72, are enacted under the Town and Country Planning Act\(^21\).

(7) Tanzania

The Urban Planning Regulations\(^22\) are enforced under the Urban Planning Act\(^23\). Compliance with the Regulations is established through the Technical Guideline\(^24\), which accepts BS CP3 CV2’72.

(8) Uganda

The Building Control Regulations\(^25\), which require compliance with the Structural Design Guidelines\(^26\), are enforced under the Building Control Act\(^27\).

(9) Zimbabwe

The Building By-laws\(^28\) are enforced in the capital, Harare under the Urban Councils Act\(^29\). The By-laws adopt the Model Building By-laws\(^30\), which require compliance with the Central African standard\(^31\).

4.2 Middle Africa

(1) Angola

The General Regulation of Urban Buildings\(^32\), which requires building walls to withstand winds, is enforced under the Land and Urban Planning Law\(^33\). However, the Regulation does not define any wind-resistant requirements. EN’05 is not mandatory.

4.3 Northern Africa

(1) Algeria

The Snow and Wind Regulations\(^34\) are enforced in accordance with the governmental decree\(^35\), which establishes the powers of the responsible minister.

(2) Egypt

The Code of Practice for Calculating Loads and Forces\(^36\) is enforced under the Law on Basis of Design and Conditions\(^37\).

(3) Morocco

The Aseismic Construction Regulations\(^38\), which require consideration of the most unfavorable conditions including wind effects, are enforced under the Law on Town Planning\(^39\). However, the Regulations do not define any wind-resistant requirements. The draft Construction Code\(^40\), which is supposed to require compliance with EN’05 with the draft national annex\(^41\), is not officialized.

4.4 Southern Africa

(1) Botswana

The Building Control Regulations\(^42\), which accept BS CP3 CV2’72 and the ZA Standard Building Regulations\(^43\): SBR’70,
are enforced under the Building Control Act\(^{40}\). The national standard\(^{43}\) is not mandatory.

(2) Eswatini

The Standard Building Regulations\(^{42}\), which require compliance with the ZA Standard Building Regulations\(^{47}\): SBR’66, are enforced under the Building Act\(^{48}\). Their revised editions\(^{49}\)\(^{50}\), which adopt the ZA national standard\(^{51}\): SANS 10160-3’18, have not yet superseded the Act and the Regulations.

(3) Lesotho

The Building Control Regulations\(^{52}\), which require buildings to withstand winds, are enforced under the Building Control Act\(^{53}\). However, the Regulations do not define any wind-resistant requirements.

(4) Namibia

The Building Regulations are enacted in at least 2 municipalities under the Local Authorities Act\(^{54}\). Of these, the Building Regulations\(^{55}\), which require consideration of wind forces, are enforced in the capital, Windhoek but do not define any wind-resistant requirements. On the other hand, the Building Regulations\(^{56}\), which adopt SBR’70, are enforced in the largest commercial port, Walvis Bay, in accordance with section 14bis of the Standards Act\(^{57}\).

(5) South Africa

The National Building Regulations\(^{58}\), which require compliance with the national standard\(^{51}\): SANS 10160-3’18, are enforced under the National Building Regulations and Building Standards Act\(^{59}\).

4.5 Western Africa

(1) Cabo Verde

The Technical Building Code\(^{60}\), which requires building walls to withstand winds, is enforced under the General Regulation of Construction and Urban Housing\(^{61}\). The Code does not define any wind-resistant requirements but places top priority on compliance with PT regulations.

(2) Cote d’Ivoire

The Code of Construction and Housing\(^{62}\) requires constructions to withstand strong winds. However, no relevant regulation is identified under the Code.

(3) Ghana

The National Building Regulations\(^{63}\) under the Local Governance Act\(^{64}\) and the Building Code\(^{65}\) is accepted under the Land Use and Spatial Planning Act\(^{66}\). The Regulations require compliance with the UK national standard\(^{67}\): BS CP3 CV2’70.

(4) Mauritania

The General Construction Regulations\(^{68}\), which require constructions to withstand extreme climatic loads, are enforced in accordance with the ministerial decree\(^{69}\), which establishes the powers of the responsible minister. However, the Regulations do not define any wind-resistant requirements.

(5) Nigeria

The Building Control Regulation\(^{70}\), which requires compliance with the National Building Code\(^{71}\), is enforced in metropolitan Lagos under the Urban and Regional Planning and Development Law\(^{72}\). The national standard\(^{73}\) is not mandatory.

(6) Senegal

The Construction Code (Regulatory part)\(^{74}\), which requires constructions to withstand extreme climatic loads, is enforced under the Construction Code (Legislative part)\(^{75}\). However, the national standard\(^{76}\) is not located under the Codes.

5. Americas

5.1 Caribbean

(1) Antigua and Barbuda

The Land Development and Control Regulations\(^{77}\) are enforced under the Physical Planning Act\(^{78}\). Compliance with the Regulations is established through the Building Code\(^{79}\), which accepts the Caribbean Building Code\(^{80}\): CUBiC’85. The Organization of Eastern Caribbean States (OECS) Building Code\(^{81}\): OECS-BC’16, which accepts CUBiC’85, the draft Bajan (BD) national standard\(^{82}\): BNS DPC’10, the United States (US) academic society standards\(^{83}\)\(^{84}\): ASCE 7’05 and ASCE 7’10, is not mandatory.

(2) Bahamas

The Building Code\(^{85}\), which requires compliance with the US academic society standard\(^{86}\): ASCE 7’88, is enforced under the Buildings Regulation Act\(^{87}\).

(3) Cuba

The national standard for seismic effects\(^{88}\), which requires consideration of the most unfavorable conditions including wind effects, is authorized as mandatory under the Decree-Law of Standardization and Quality\(^{89}\). However, the national standard for wind effects\(^{90}\) is not located under the Decree-Law.

(4) Dominica

The Physical Planning Act\(^{91}\) requires hurricane precautions for buildings. However, the draft Building Code\(^{92}\), which requires compliance with CUBiC’85, is not officially located under the Act. OECS-BC’16 is not mandatory either.
Grenada
The ministerial order\(^{93}\), which adopts the OECS Building Code\(^{94}\): OECS-BC’15, is enforced under the Physical Planning and Development Control Act\(^{95}\). OECS-BC’15 accepts CUBiC’85, BNS DPC’10, ASCE 7’05 and ASCE 7’10.

Jamaica
The national standard\(^{96}\), which was developed for the adoption of the US model code\(^{97}\): IBC’12, is enforced as one of the National Building Codes under the Building Act\(^{98}\).

St. Kitts and Nevis
The Building Regulations\(^{99}\), which require compliance with the BD professional society standard\(^{100}\): BNS CP 28’81, are enforced under the Development Control and Planning Act\(^{101}\). OECS-BC’16 is not mandatory.

St. Vincent and the Grenadines
The Building Regulations\(^{102}\), which require compliance with CUBiC’85, are enforced under the Town and Country Planning Act\(^{103}\). OECS-BC’16 is not mandatory.

Central America

Belize
The Building Act\(^{104}\) requires hurricane precautions for buildings. However, no relevant regulation is identified under the Act.

Costa Rica
The Construction Regulations\(^{105}\) are enforced under the Urban Planning Law\(^{106}\).

El Salvador
The Regulations for Structural Safety of Buildings\(^{107}\), which require compliance with the professional society standard\(^{108}\), are enforced under the Urban Planning and Construction Law\(^{109}\).

Guatemala
The Disaster Reduction Standard\(^{110}\), which requires compliance with the academic society standard\(^{111}\), is enacted under the Law of the National Coordinator for Disaster Reduction\(^{112}\).

Honduras
The professional society standard\(^{113}\) is adopted under the Construction Code\(^{114}\).

Mexico
Laws or regulations that define wind-resistant requirements for buildings are enforced in at least 6 of 32 states. Of these, the Complementary Technical Standards\(^{115}\), which are provided in Mexico City\(^{116}\), are also adopted in Baja California\(^{117}\), Baja California Sur\(^{118}\), Oaxaca\(^{119}\) and Tamaulipas\(^{121}\). The Building Regulations\(^{122}\) are enforced in Tabasco.

Nicaragua
The Construction Regulations\(^{123}\) are enforced under the Law of Organization, Competence and Procedures of the Executive Power\(^{124}\).

Panama
The Structural Design Regulations\(^{125}\), which require compliance with ASCE 7’05, are enforced under the Law by which the exercise of the engineering and architecture professions is regulated\(^{126}\).

Northern America

Canada
Either or both of the 2010 and 2015 editions of the National Building Codes\(^{127}\)\(^{128}\), which require each user’s guide\(^{129}\)\(^{130}\), are accepted in all provinces and territories under respective acts and regulations\(^{131}\).

United States
Any edition of the International Building Codes\(^{129}\)\(^{131}\)\(^{133}\)\(^{134}\): IBC’03, IBC’12, IBC’15 or IBC’18, which requires any edition of the academic society standards\(^{135}\)\(^{136}\): ASCE 7’02, ASCE 7’10 or ASCE 7’16, is accepted in at least 43 states and the District of Columbia under respective acts and regulations\(^{137}\). Furthermore, any one of the old and new editions is also adopted in 5 unincorporated territories. Of these, in American Samoa, the Uniform Building Code\(^{138}\), which requires compliance with the Uniform Building Code\(^{139}\): UBC’64, is enacted as a public law. In Guam and Northern Mariana Islands, the Building Code\(^{140}\) and the Building Safety Code Rules and Regulations\(^{141}\), both of which require compliance with the International Building Code\(^{142}\): IBC’09, are regarded as a public law, respectively. IBC’09 requires ASCE 7’05. In the Virgin Islands, the Building Code\(^{143}\), which requires compliance with IBC’03 and any subsequent updates, is enforced as a public law. In Puerto Rico, the Building Code\(^{144}\), which was developed for the adoption of IBC’18, is enacted under the Law for the Reform of Permitting Process\(^{145}\).

South America

Argentina
The National Safety Regulations for Civil Works\(^{146}\), which include the Regulation of Wind Action on Constructions\(^{147}\), are enforced in accordance with the presidential decree\(^{148}\), which establishes the powers of the responsible ministry.
Bolivia

The Code of Urban Planning and Works[149], which accepts the municipal and national standards[150][151], is made obligatory in metropolitan Santa Cruz de la Sierra under the Framework Law on Autonomy and Decentralization[152].

Brazil

The Simplified Works and Buildings Code[153], which requires compliance with national standards including the national standard for wind forces[154], is enforced to supplement the ordinary and complementary laws for metropolitan Rio de Janeiro[155][156].

Chile

The General Ordinance of Urban Planning and Constructions[157], which requires design reviews through the withdrawn national standard[158], is enforced under the General Law of Urban Planning and Constructions[159]. The current national standard[160] is not mandatory.

Colombia

The Seismic Resistant Construction Regulations[161], which also define wind forces, are enacted under the Law by which norms on Earthquake Resistant Constructions are adopted[162].

Ecuador

The ministerial agreement[163], which endorses the Construction Standard[164], is enforced in accordance with the Statute of Administrative Legal Regime of the Executive Function[165].

Peru

The National Building Regulations[169] are enacted under the Law of Organization and Functions of the Ministry of Housing, Construction and Sanitation[170].

Suriname

The Building Ordinance[171] and Decree[172], which were enacted at the time of the Dutch constituent country, have still been enforced.

Venezuela

The national standard for seismic effects[173], which requires consideration of the national standard for wind effects[174], is made obligatory under the Organic Law of the National System for Quality[175].

Asia

Central Asia

Kazakhstan

The list of normative documents[176], which includes EN’05 with the national annex[177], is promulgated under the Law on Architectural, Urban Planning and Construction Activities[178][179].

Kyrgyzstan

The order from the responsible state agency[180], which endorses the Russian (RU) national standard[181]: SNiP 2.01.07’05, is promulgated under the Law on Technical Regulations “Safety of Buildings and Structures”[182].

Tajikistan

The governmental decree[183], which endorses SNiP 2.01.07’05, is promulgated for compliance with the Law on Technical Regulations[184].

Turkmenistan

The Construction Norms[185], which include the ministerial standard[186], apply under the Law on Architectural Activity[187].

Uzbekistan

The list of normative documents[188], which includes the national standard[189], is promulgated under the Law on Technical Regulations[190].

Eastern Asia

China

The national standard[191] is enforced as one of the compulsory standards under the Standardization Law[192]. At the same time, legislation is independently implemented in 2 special administrative regions. Of these, in Hong Kong, the Building (Construction) Regulations[193] are enforced under the Building Ordinance[194], and compliance with the Regulations is established through the Practice Notes[195], which accept the Code of Practice on Wind Effects[196]. In Macau, the existing Regulations on Safety and Actions in Structures of Buildings and Bridges[197] have not yet been superseded by the revised edition[198]. In Taiwan, the Building Technical Regulations[199], which require compliance with the Specifications for Wind Resistant Design of Buildings[200], are enforced under the Building Act[201].

Japan

The Building Standard Law Enforcement Order[202], which accepts two ministerial stipulations[203][204], is promulgated under the Building Standard Law[205]. The academic society standard[206] is not mandatory.

Mongolia

The Code on Loads and Reactions[207] and the Climatic and
Geophysical Parameters for Construction become a part of the General System of Norms and Normative Documents for Construction under the Law on Construction. The national standard and EN’05 are not mandatory.

(4) South Korea

The Building Structural Standards Rules, which require compliance with the Building Structural Standards, are enacted under the Building Law.

6.3 South-eastern Asia

(1) Brunei

The Building Control Regulations are enforced under the Building Control Order. Compliance with the Regulations is established through the Guidelines for Building Technical Requirements, which accept BS CP3 CV2’72, the UK national standard, BS 6399.2’97 and EN’05 with the UK national annex.

(2) Indonesia

The Implementing Regulations are enforced under the Law on Buildings. Compliance with the Regulations is established through the Guidelines for Building Technical Requirements, which accept the withdrawn national standard. The current national standard is not mandatory.

(3) Malaysia

Ordinances or by-laws that define wind-resistant requirements for buildings are enforced in at least 5 of 16 states and federal territories under the Street, Drainage and Building Act. Of these, the Uniform Building By-Laws, which require compliance with BS CP3 CV2’72, are adopted in Johor and the Federal Territory of Kuala Lumpur, and the Buildings Ordinance, which requires compliance with BS 6399.2’97, is enforced in Sarawak. The Uniform Building By-Laws, which require compliance with the national standard, are enforced in Melaka and Selangor. EN’05 is not mandatory.

(4) Philippines

The National Building Code, which requires compliance with the professional society code, is enforced in accordance with its Implementing Rules and Regulations.

(5) Singapore

The Building Control Regulations are enforced under the Building Control Act. Compliance with the Regulations is established through the Approved Document, which accepts BS CP3 CV2’72, BS 6399.2’97 and EN’05 with the national annex.

(6) Thailand

The ministerial regulations are enforced under the Building Control Act. The ministerial standard is not mandatory.

(7) Vietnam

The Building Code, which requires compliance with the national standard, and the National Technical Regulations are enacted in accordance with the governmental decree, which establishes the functions and tasks of the responsible ministry. EN’05 is not mandatory.

6.4 Southern Asia

(1) Bangladesh

The National Building Code is enforced under the Building Construction Act.

(2) Bhutan

The Building Regulation is enforced under the Local Government Act. Compliance with the Regulation is established through the Building Code, which accepts the Indian national standard: IS 875.3’87.

(3) India

Bye-laws or rules that define wind-resistant requirements for buildings are enacted in at least 8 of 36 states and union territories. Of these, the National Building Code and the national standard: IS 875.3’15 are adopted in Andhra Pradesh, Karnataka, Maharashtra, Tamil Nadu, West Bengal and the National Capital Territory of Delhi. The withdrawn National Building Code and the withdrawn national standard: IS 875.3’87 are still enforceable in Bihar and Jharkhand.

(4) Iran

Compliance with the National Building Regulations is deemed to be equivalent to compliance with the Law on Engineering System and Building Control. The national standard is not mandatory.

(5) Maldives

The National Building Code, which requires buildings to withstand winds, is enforced under the Construction Act. The draft Approved Document, which accepts BS 6399.2’97, is not endorsed as mandatory for compliance with the Code.

(6) Nepal

The National Building Code, which requires compliance with IS 875.3’87, is enforced under the Building Act.

(7) Pakistan

Regulations or bye-laws that accept one or more of the US...
model codes, the UK national standards and the ministerial code are enacted in at least 5 of 7 provinces, and autonomous and federal territories. For example, the UK national standard: BS CP3 CV’52 and the ministerial code are accepted in the Islamabad Capital Territory, and the US model codes or the UK national standards approved by the responsible authority are commonly accepted in Khyber Pakhtunkhwa and Sind’. In Punjab, where multiple responsible authorities are established, the requirements of UBC’97, the US model code: IBC’06 and the ministerial code shall be met in metropolitan Lahore. In Azad Jammu and Kashmir, the ministerial code, UBC’97, IBC’03 and IBC’06 shall apply with proper engineering judgment. IBC’06 requires ASCE 7’05.

6.5 Western Asia

(1) Armenia
The Normative Acts Regulations, which require compliance with the RU national standard: SNiP 2.01.07’88, and the Construction Norms are enforced under the Law on Urban Development.

(2) Azerbaijan
The list of normative documents, which includes the construction standard, is promulgated under the Urban Building and Construction Code.

(3) Cyprus
The Road and Building Regulations, which require compliance with EN’05 with the national annex, are enforced under the Road and Building Regulations Law.

(4) Georgia
The Construction Norms and Rules, which require compliance with SNiP 2.01.07’88, and the Design Norms on Construction Climatology are enforced under the Law on Construction Activities, respectively. EN’05 is not mandatory.

(5) Iraq
The Code of Loads and Forces is enacted as one of the Building Codes under the Law on Central Organization for Standardization and Quality Control.

(6) Israel
The Planning and Building Regulations, which require compliance with the national standard, are enforced under the Planning and Building Law.

(7) Jordan
The National Building Code are enacted in accordance with the Instructions of Codes Application under the National Construction Law.

(8) Lebanon
The Public Safety Law, which accepts standards and specifications of EU countries, the US and Canada, is enforced under the Construction Law. The national standard is not mandatory.

(9) Palestine
The Regulation on Multistory Buildings, which requires buildings to withstand winds, is enforced in the Gaza Strip under the Town Planning Law. However, the Regulation does not define any wind-resistant requirements.

(10) Qatar
The Construction Specifications, which accept ASCE 7’05, IBC’12, BS 6399.2’97 and EN’05 with the UK national annex, are enforced under the Law on Building Regulations.

(11) Saudi Arabia
The Building Code is enforced in accordance with the Implementing Regulations.

(12) Syria
The Building Code is enforced in the capital, Damascus under the Local Administration Law. Compliance with the Code is established through the professional society codes.

(13) Turkey
The Regulations for Buildings to be built in Disaster Areas, which require consideration of the most unfavorable conditions of seismic or wind effects, are enforced under the Law on Aid and Measures to be taken due to Disasters affecting Public Life. However, the municipal regulations for metropolitan Istanbul, the national standard and EN’05 are not mandatory.

(14) United Arab Emirates
Codes or regulations that define wind-resistant requirements for buildings are enforced in at least 3 of 7 emirates. Of these, in Abu Dhabi and Ras Al Khaimah, the Building Codes both accept ASCE 7’05. In Dubai, the municipal regulations and circular accept the municipal Wind Code, BS 6399.2’97, and ASCE 7’05 and its subsequent editions.

7. Summary
Laws and regulations and their supplemental documents related to wind-resistant design of buildings for 195 countries have been investigated to compile the worldwide picture on the establishment of the legal and regulatory framework related to wind-resistant design of buildings. This article gives an
overview of the legal and regulatory frameworks for 137 countries of Africa, the Americas and Asia. The findings are summarized as follows.

- Legal and regulatory frameworks including provisions regarding wind-resistant design of buildings were identified in 89 of the 137 countries of Africa, the Americas and Asia.
- For Africa, 24 of 54 countries have established legal and regulatory frameworks. This comprises just 44% of the regional total. In particular, in Middle Africa, no legal and regulatory framework was identified in 8 of 9 countries.
- For the Americas, 28 of 35 countries have established legal and regulatory frameworks. This accounts for 80% of the regional total.
- For Asia, 37 of 48 countries have established legal and regulatory frameworks. This accounts for 77% of the regional total.

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