APRU Membership is comprised of leading universities from 18 economies of the Pacific Rim known worldwide for their academic and research excellence.
The Pacific Rim is known for volcanoes, earthquakes, tropical storms, floods, landslides...
Multiple hazards in the Philippines: volcanoes, earthquakes, tropical storms, floods, landslides, fires...
The 8th APRU-IRIDeS Multi-Hazards Virtual Summer School 2020
3 days webinar
Day 3

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Science and Policy  Regulating Buildings  Forecasting and Nowcasting

BENITO M. PACHECO
29 JULY 2020
Reenacting a National Legislation* for Buildings:
Another Look at Multi-Hazards Resilience in
A New Normal

*AN ACT REGULATING THE PLANNING, DESIGN, CONSTRUCTION, OCCUPANCY, AND MAINTENANCE OF BUILDINGS
TODAY’S OBJECTIVES

• Review the **history** of national building regulation
• Explain new **features** of Philippine Building Act of 2020 and how to promote S&T innovations in subsidiary Regulations and Standards
To start with... Newton also was WFH for many months in 1665-1666 during the bubonic plague.
ISAAC NEWTON’S PHYSICS

Never at rest, before and after the plague: colors of light; acceleration of mass
Act according to laws of physical sciences and all our buildings will be resilient, right?

\[ F = M \times A \]

FORCE = MASS * ACCELERATION

Actually there is much more that is needed from the social sciences!
Actually there is much more that is needed from the social sciences!

**Force = Mass \times Acceleration**

F = m \times a

Will our buildings be resilient, right? According to laws of physics...
SHELTER IS INFRASTRUCTURE

• Shelter is something that covers or affords protection.
• To shelter means to protect people, property, activity,…
• Infrastructure is the resources required for an activity.
• Private + Public = Infra
• House, School, Hospital, Waste Facility, … = Social Infra
• Yes, shelter is the most basic infrastructure.
Yes, shelter is the most basic infrastructure.
EVERY BUILDING IS A SHELTER

What will the Philippine Building Act of 2020 say?

“Building is any temporary or permanent structure, anchored to the ground, for the shelter, enclosure, or support of persons, animals, [plants, produce, products,] machinery, or chattels.”

Yes, every building is a shelter and more.
EVERY BUILDING IS A SHELTER & MORE

**Occupancies** of the following types are included:

- A, assembly
- B, business
- D, disaster response
- E, educational
- F, factory and industrial
- G, agri and biological
- I, institutional
- M, mercantile
- R, residential
- S, storage
- U, utilities
- Z, high-hazard materials
GMMA RAP Study (2014) scenario of M7.2 earthquake: collapsed or completely damaged buildings would cause 37,000 fatalities in Greater Metro Manila Area.

Shelters are exposed and vulnerable to multiple hazards. And so are we, the occupants.
SINCE 1968: SELECTED MILESTONES

1972: R.A. 6541
1977: P.D. 1096
1976: Tsunami; 6,000 fatalities
1968: M7.3 eq; 6-storey collapse; 300 fatalities
1991: Volcano; 700 fatalities
1990: eq; 1,200 fatalities
2006: Landslide; 1,200 fatalities
2011: Flood; 6,000 fatalities
2013: Storm; 6,000 fatalities
2020
World Bank global report in 2015:

Developed [economies] have significantly reduced mortality risks from natural hazards through incremental improvement of their regulations for building and land use. While experiencing 47% of disaster events globally in recent decades, they accounted for only 7% of disaster-related fatalities.
SCOPE OF REVIEW AND STUDY

Unfair legal arrangements.

Outdated technological arrangements

Ineffective administrative arrangements

Multi-sector, multi-agency, multi-region consultations (2016-2018) (U.P. National Engineering Center i.c.w. U.P. Law Center)
More than 40 specialists and staff studied (2016-2018) (U.P. National Engineering Center i.c.w. U.P. Law Center)
SCOPE OF REVIEW AND STUDY

By owners, developers, architects, engineers, lawyers, contractors, officials, civil society organizers

More than 400 stakeholders contributed (2016-2018) (U.P. National Engineering Center i.c.w. U.P. Law Center)
SCOPE OF REVIEW AND STUDY

• Formulation of issue papers based on records of previous complaints, grievances, and suggestions, under five (5) broad themes, for stakeholder feedback
• Consultations with various stakeholders: four (4) regional or sub-national and one (1) national
• Focus-group discussions
• Public colloquium
• Study of international practices
SCOPE OF REVIEW AND STUDY

• National Building Code (1977) and its latest Implementing Rules and Regulations (2005) need to be fully reconciled with the various “referral codes.”

• Fire Code of the Philippines (2008) is treated as a “referral code;” but it is actually another act by Congress.

• National Structural Code of the Philippines (2015) is treated as another “referral code;” but it is actually a set of standards by the association of structural engineers.
EXAMPLE OF “REFERRAL CODE”

Fire Code of 2008;
Repealed PD 1185;
Implemented by another national agency, BFP;
23 pp RA 9514;
475 pp IRR (2009)

Issue: minimum required width of aisles for egress, which was ”hardcoded” into the NBCP, is in conflict with the IRR of the Fire Code of 2008.
EXAMPLE OF “REFERRAL CODE”

NSCP 2015; 7th Edition;
Developed by the national association of civil-structural engineers, ASEP;
1,000 pp

Issue: peer review of “special” structures is not well provided in the NBCP; but it is prescribed in the NSCP.
WHAT LONG-STANDING CONCERNS?

• Building permit process: outdated? discretionary?
• Design of buildings: unconscious of multiple hazards?
• Old buildings: orphaned by professionals after 15 years
• Retrofit of old buildings: legal, admin, techno dilemma…
• Inter-agency and multi-sectoral council to review and update every five (5) years or sooner: needed yesterday!
• …
WHAT LONG-STANDING CONCERNS?

HOSPITAL HOTEL
Institutional Residential

OCTOBER 31, 2019 M6.5
OCTOBER 29, 2019 M6.6
OCTOBER 16, 2019 M6.3
Do we have to wait for the perfect storm before we act?
WE NEED THE REFORM TODAY, IN A
NEW NORMAL, AND IN THE FUTURE.

• Philippine Development Plan 2017-2022: Chapter 20…

• Nat’l Econ & Dev’t Authority: We agree… to reform the National Building Code [of 1977] in order to improve and update said legal framework, and make such more responsive and relevant to current issues and developments.

• We: anticipate the emergent and the emerging.
FRAMEWORK EXAMPLE: NZ

2004

• Building Act 2004*

* Replaced the Building Act 1991

PROVENANCE

• Legislative act
• The Governor-General may make general regulations, and regulations, to be called the building code, that prescribe functional requirements for buildings and the performance criteria.

• Standards and other materials are incorporated by reference.
FRAMEWORK EXAMPLE: JP

2014

• Building Standard Law: Law No. 201*
• Fire Service Law
• Regulations
• Building Codes

PROVENANCE

• Acts of parliament: procedures, penalties, outline technical requirements
• Enforcement by the Ministry: detailed procedures
• Notification by the Ministry: detailed technical requirements

* Since 1950, last amended in 2014
FRAMEWORK REFORM: PH

1977

• National Building Code: PD 1096
• Other national legislations such as Fire Code of 2008
• Implementing Rules and Regulations
• Referral Codes

2020

• Philippine Building Act of 2018 …or 2019…or 2020
• Other national legislations such as Fire Code of 2008
• Implementing Rules and Regulations
• Reference Standards
WE NEED THE REFORM TODAY, IN A NEW NORMAL, AND IN THE FUTURE.

• Reform legally.

• Reform administratively.

• Reform technologically.
  - Prefer performance-based standards
  - Defer prescription-based standards
Office of the President to certify the Philippine Building Act of 2020 as urgent.

House and Senate of the Congress of the Philippines to approve and co-implement the Act reforming the system of regulations & standards for various types of public and private buildings in the country, proposed, existing, or old.

LEGISLATE

MAJOR REFORMS
Republic of the Philippines
HOUSE OF REPRESENTATIVES
Quezon City

EIGHTEENTH CONGRESS
First Regular Session

HOUSE BILL No. 5605

INTRODUCED BY CWS PARTY-LIST REPRESENTATIVE ROMEO S. MOMO, SR.

EXPLANATORY NOTE

Presidential Decree No. 1096 or the National Building Code of the Philippines was enacted to formulate and adopt a uniform building code which shall embody up-to-date and modern technical knowledge on building design, construction, use, occupancy and maintenance. However, since its enactment in 1977, no amendments or modifications were introduced to cope up with the technological advancements in the construction industry and likewise the unpredictable changes in our environment and natural disasters.

Thus, it is imperative that we introduce a new National Building Code which shall provide a better framework of minimum standards and requirements that are needed in the regulation and control of building construction in terms of location, site, design, quality of materials, construction, use, occupancy and maintenance that is more relevant and appropriate.

With these foregoing reasons, passage of this bill is earnestly sought.

[Signature]
ROMEO S. MOMO, SR.
Representative
CWS Party-list

H.B. 5605
H.B. 175   H.B. 1891
H.B. 238   H.B. 4008
H.B. 364   H.B. 5605
H.B. 723   H.B. 6820
H.B. 825   H.R. 32
H.B. 923   H.R. 132
H.B. 1650
AN ACT
ESTABLISHING THE PHILIPPINE BUILDING ACT OF 2019, THEREBY
REPEALING PRESIDENTIAL DECREE NO. 1096, AND FOR OTHER
PURPOSES

EXPLANATORY NOTE

Since Presidential Decree No. 1096, otherwise known as the National
Building Code of the Philippines, was signed into law in 1977, it has been the
guiding document for buildings and structures in the Philippines. Over the years,
amendments and related laws and regulations have been created to improve and
enhance the efficacy of its implementation. One example of such is the enactment
of the Fire Code of the Philippines in 2008, which aimed to refresh standards that
further ensure public safety and economic development through the prevention and
suppression of all kinds of destructive fire.

Despite all existing regulatory measures related to this end, experience tells
us that there is an urgent need to strengthen the overall policy on how buildings and
structures are built in the country. Not to mention the country’s geographical

B. M. Pacheco 2020 July 29
MAJOR LEGAL REFORMS

• Streamline building permit process
• Design buildings to be more resilient against multiple hazards, including evacuation buildings
• Assess old buildings, every 15 years
• Incentivize retrofit of old buildings
• Create inter-agency and multi-sectoral Building Regulations and Standards Council (BRSC) to review and update every five (5) years or sooner
Simple structures like ordinary houses and small buildings need only follow a set of predetermined guidelines before getting a permit, thereby reducing fees and shortening the process.

SIMPLER FOR SIMPLE BUILDINGS

Include those in the regulation.
Do not exempt, nor take those for granted.
MORE COMPLICATED FOR SPECIAL BUILDINGS ONLY

Provide clear criteria for classifying buildings as special.
STREAMLINE BUILDING PERMIT PROCESS

The Act adds a new building classification in order to streamline the permit process.

Simple structures like ordinary houses and small buildings need only follow a set of predetermined guidelines before getting a permit, thereby reducing fees and shortening the process.

REGULAR PROCESS FOR REGULAR BUILDINGS

Special structures meant to be occupied by large groups of people need an additional peer review process to ensure structural stability, making sure our buildings are more safe.

Make more transparent.
MAJOR LEGAL REFORMS

- Streamline building permit process
- Design buildings to be more resilient against multiple hazards, including evacuation buildings
- Assess old buildings, every 15 years
- Incentivize retrofit of old buildings
- Create inter-agency and multi-sectoral Building Regulations and Standards Council (BRSC) to review and update every five (5) years or sooner
Dept. of Public Works and Highways and Dept. of Interior and Local Government to engage partner government agencies and private sectors in crafting and updating periodically the regulations and standards for buildings, mainstreaming disaster risk reduction and management.
KEY AGENCIES

• Dept. of Public Works and Highways
• Dept. of Human Settlements and Urban Development
• Professional Regulation Commission
• Dept. of Interior and Local Government
• Dept. of Trade and Industry
• Dept. of Environment and Natural Resources
• Dept. of Science and Technology
• ...
Dept. of Science and Technology and National Economic and Development Authority to collaborate across agencies and sectors in the compliance with building regulations and standards and the enforcement of the same, infusing with research and development in particular and a culture of science, technology, and innovation in general.
WHO ARE RESPONSIBLE?

1977
• Owner or Developer
• Official

2020
• Owner or Developer
• Professional
• Contractor
• Official

Liabilities are proportionate to the size and cost of the building project.
EQUAL COLLABORATORS

• Educators and Researchers (in BRSC)
• Representatives-at-Large (in BRSC)
• Building Owners, Developers, Managers, Administrators
• Building Professionals
• Building Contractors
• Building Officials

Regulations and standards are dependent on advancing knowledge, skill and attitude. Buildings are the most basic social infrastructure.
IS THERE ROOM FOR SCIENCE, TECHNOLOGY AND INNOVATION?

• Yes, not just a room but a whole building!
• Safety, security, health, comfort, and many more!
• Water conservation
• Energy conservation and generation
• Food production
• Waste or pollution minimization
• Information and communication
IS THERE ROOM FOR SCIENCE, TECHNOLOGY AND INNOVATION?

• Information and communication: ubiquitous
• Online database of documents: all buildings
• Building information management system as tool for maintenance: most buildings
• Earthquake recording instruments: special buildings
• Virtual twin for digital monitoring: very special buildings
• …
SUMMARY

• After 43 years of history of nationwide regulation of buildings, we need major reforms in order to reduce mortalities, economic losses, and social infrastructure disruptions.

• Five (5) major reforms and numerous others are geared towards balancing regulation and innovation, while aiming for sustainable development.
SHELTER
most basic infrastructure
Day 3

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THANK YOU FOR JOINING!
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