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Filippo Brunelleschi, the genius architect

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Architecture is a branch of science that originated from the idea that can contribute to physical form as construction materials¹. It reflects cultural symbols and as works of art. Most famous architects were from Renaissance period where art and science came together in the same place². In the past, architecture only considered beauty and balance as a factor in designing and construction without caring safety. As Filippo Brunelleschi's idea in developing architecture concept, safety, balance, and beauty can come together. Even though he was not famous as other artists or architects in the same period, his idea is now becoming one of the most important factors that change the world of architecture.

In the early fifteenth century, there was a development in work of art and it could be said that there was a big change of the art history. Because Filippo Brunelleschi³ found the Linear Perspective Theory by spending many years in Rome that effect on every art work development. Actually, it was said that this was the newest of art history. His good friend, Donatello who is a painter and sculptor, was with him in Rome for helping him in every way⁴. Moreover, Filippo Brunelleschi also studied Mathematics very deep, so he could calculate the proportion and structure especially the perfect Romans architecture. Therefore he could solve all the problems

¹ Wikipedia contributors. "Architecture." Wikipedia, The Free Encyclopedia. 2 Sep. 2012
<<http://en.wikipedia.org/wiki/Architecture>>

² Wikipedia contributors. "Renaissance." Wikipedia, The Free Encyclopedia. 3 Sep. 2012
<<http://en.wikipedia.org/wiki/Renaissance>>

³ Wikipedia contributors. "Filippo Brunelleschi." Wikipedia, The Free Encyclopedia. 2 Sep. 2012
<http://en.wikipedia.org/wiki/Filippo_Brunelleschi>

⁴ Wikipedia contributors. "Donatello." Wikipedia, The Free Encyclopedia. 2 Sep. 2012
<<http://en.wikipedia.org/wiki/Donatello>>

about constructing. For example, no one could find the way to handle or resist the weight of Duomo Florence Cathedral that taken sixteenth years long during construction.

By his accurate calculation in proportion and structure, he designed the dome of the Duomo Florence Cathedral that was the main church of Florence in Italy⁵. It was considered as one of the Renaissance's main building enterprises. Also, Brunelleschi used the Pantheon, Roman temple, as the inspiration to build this dome. Because Brunelleschi used the Pantheon as the inspiration, he adapted the structure of Pantheon's roof from half-circle roof to hexagon roof in half-circle shape⁶.

Brunelleschi also discovered many techniques while he built Florence Cathedral's Dome. For example, the first sky crane⁷ that can lift the brick accurately and the first reverse gear system using with auto car in dairy. At that time, no one thought about the building safety but he forced all his workers to wear safety belt because there were many accidents caused to death. Also, he mixed the water in every glasses of wine and gave them to workers when building Duomo Florence Cathedral⁸.

From what he invented, it affected the development in architecture concept effectively. Not only developing architecture, it also developed the safety standard in the modern world. By using his idea in considering calculation and safety, the building and dome that he created can be seen in the present world even the time had passed for hundreds years.

⁵Wikipedia contributors. "Florence Cathedral." Wikipedia, The Free Encyclopedia. 7 Sep. 2012 <http://en.wikipedia.org/wiki/Florence_Cathedral>

⁶Wikipedia contributors. "Pantheon, Rome." Wikipedia, The Free Encyclopedia. 7 Sep. 2012 <http://en.wikipedia.org/wiki/Pantheon,_Rome>

⁷Amy and Marcia. "Filippo Brunelleschi." Yesnet. 7 Sep. 2012 <<http://www.yesnet.yk.ca/schools/projects/renaissance/main/brunelleschi.html>>

⁸"Filippo Brunelleschi" PBC, Public Broadcast Service. 10 Sep. 2012 <<http://www.pbs.org/empires/medici/renaissance/brunelleschi.html>>

For his masterpiece, linear perspective concept⁹, it was the most basic principle for all artists and architects to create their works in design. To design a building or room, linear perspective was required to make artists or architects to see the picture clearer when they designed. It could help them to see the front view and the final draft of their work what it would be looked like. In real life, there are things that need perspective design like creating stage play like drama. In order to make creator and audiences to see the same picture, linear perspective should be drawn to make the creator understand the viewpoint and function of the stage requirement. This concept helps in development of bird eye view concept to make the design clearer and more understandable for everyone¹⁰.

As he was expert in calculation proportion, it also helps him creating dome and rooftop building. Balance is the most important concept that is required in building. If architects do not think about this point, the building that they created will not last long to see in the present world. Because of his hard work, his study can help the next generation of architects to construct the building with safety and beauty¹¹.

Next is sky crane invention¹². Going back to the past, all buildings are not that high like skyscraper building in present day. There are many limits in building skyscraper in the old day. One thing is workers could not carry bricks too high. In the past, the tall building or construction can be constructed by using scaffold. People had to carry things on their back and walked up on the scaffold path for construction. Since Filippo Brunelleschi created sky crane invention, the development in height of

⁹Smarthistoryvideo. "Linear Perspective: Brunelleschi's Experiment." YouTube, Broadcast Yourself 10 Sep.2012 <http://www.youtube.com/watch?v=bkNMM8uiMww&feature=player_embedded>

¹⁰Khanacademy. "Linear Perspective: Brunelleschi's Experiment." Smarthistory 10 Sep.2012 <<http://smarthistory.khanacademy.org/Brunelleschi.html>>

¹¹Jennifer Brown. "Brunelleschi's Dome." The obscure organization. 7 Sep. 2012 <http://www.obscure.org/~perky/uofr/fall2002/ISYS203U/Duomo_Site/filippo.html>

¹²Scishow. "Filippo Brunelleschi: Great Minds." YouTube, Broadcast Yourself 10 Sep.2012 <http://www.youtube.com/watch?v=_1aJINqM1HY&feature=player_embedded>

the tall building becomes increasing and usage time for construction become decreasing. This leads to skyscrapers that we see in the today's society.

Safety was not considered as important factor in the past. People died from accidents during the construction a lot. So safety becomes considered in his thought, he invented safety belt¹³, which he thought that it would help reducing number of accidents that caused to death during his work. From this invention, it helps the present world importantly. It can reduce the number of accidents from driving effectively. From statistic, in Thailand there are about 30 000 people died in 2008-1010¹⁴, the death rates from traffic accidents are most likely to be happened from driving without using safety belt.

In conclusion, Filippo Brunelleschi's ideas are not only for construction or planning but it also helps the next generation like us to adapt and adopt his ideas to the present world. His ideas and inventions contributed the world with many new things like construction process. It also gave the idea for architects to create things based on reasons and beauty that go along with safety. Without him it might be impossible to create things by not wasting time and failures. Even though it seems like his works and inventions are less than in term of number compared to famous artists or architects in the same period, but in fact they make the world to move and change to the new position of architecture where art and science can fulfill each other.

¹³ Robert G. Calkins. The Art Bulletin. 1983. P.153

¹⁴Bung.anni. "Statistic of traffic accident from 2008-2010." Thai Health Promotion Foundation 10 Sep.2012 <http://www.thaihealth.or.th/healthcontent/special_report/11683>