

Министерство образования и науки Российской Федерации
Федеральное государственное бюджетное образовательное учреждение высшего образования
«Новгородский государственный университет имени Ярослава Мудрого»

Политехнический институт

Кафедра технологии машиностроения



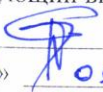
ИНОСТРАННЫЙ ЯЗЫК В СФЕРЕ ПРОФЕССИОНАЛЬНОЙ КОММУНИКАЦИИ

Учебный модуль по направлению подготовки
07.03.01 – «Архитектура»

ФОНД ОЦЕНОЧНЫХ СРЕДСТВ

СОГЛАСОВАНО

Заведующий выпускающей кафедрой АП

 С.Н. Кузьменко
« 19 » 06 2017 г.

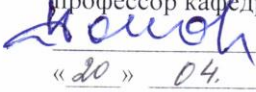
Принято на заседании Ученого совета ИИПТ
Протокол № 15 от 23.05. 2017 г.

Зам. директора ИИПТ

 А.М. Гаврилов
« 19 » 06 2017 г.

Разработал

профессор кафедры ТМ

 С.А. Попов
« 20 » 04. 2017 г.

Принято на заседании кафедры ТМ

Протокол № 8 от 20.04 2017 г.

Заведующий кафедрой ТМ

 Д.А. Филиппов

Паспорт фонда оценочных средств
для направления подготовки 07.03.01– “Архитектура”

Модуль, раздел (в соответствии с РП)	ФОС		Контролируемые компетенции (или их части)
	Вид оценочного средства	Количество вариантов заданий	
Модуль 1: Грамматические конструкции в переводе архитектурной литературы			
1.1 Введение в грамматику английского языка. Времена, залоги, использование предлогов.	опрос	1	ОК-5
1.2 Перевод последовательности существительных, порядок слов. Разговорные фразы 1-20	опрос	1	
1.3 Перевод страдательного залога в архитектурно-строительной литературе. Перевод текстов, включающих пассивный залог. Разговорные фразы 1-20	опрос	1	
1.4 Перевод модальных глаголов в архитектурно-строительной литературе. Перевод в архитектурно-строительных текстов, включающих модальные глаголов. Разговорные фразы 21-40	опрос	1	
1.5 Перевод сослагательного наклонение. Особенности употребления и перевода сослагательного наклонения. Разговорные фразы 21-40	опрос	1	
1.6 Перевод герундия. Особенности употребления и перевода герундия в специальных текстах. Разговорные фразы 41-60	опрос	1	
1.7 Перевод инфинитива. Особенности употребления и перевода инфинитива в специальных текстах. Разговорные фразы 41-60	опрос	1	
1.8 Причастия, их употребление и перевод. Разговорные фразы 61-80	опрос	1	
1.9 Причастные обороты, их употребление и перевод. Разговорные фразы 61-80	опрос	1	
1.10 Способы перевода многофункциональных слов. Разговорные фразы 81-100	опрос	1	
1.11 Перевод некоторых союзов, предлогов и наречий. Устойчивые фразеологические словосочетания. Разговорные фразы 81-100	опрос	1	
Рубежный контроль	опрос	1	
Модуль 2: Практика перевода архитектурной литературы			
2.1 Ancient architecture. Egyptian and Indian architecture. Ancient Greece; Roman architecture. Разговорные фразы 81-100	опрос	1	ОК-6, ПК-3
2.2 Byzantine Empire. Gothic architecture. Renaissance. Great Britain. Разговорные фразы 101-120	опрос	1	
2.3 American foursquare. Airports; Amusement parks. Разговорные фразы 121-140	опрос	1	
2.4 Apartment buildings. Sydney Opera House. Разговорные фразы 121-140	опрос	1	
2.5 Le Corbusier. Henrik Aalto. Разговорные фразы 141-160	опрос	1	
2.6 China. Разговорные фразы 161-180	опрос	1	
2.7 Consructivism. Dom Kommuny. Разговорные фразы 181-200	опрос	1	
2.8 Technical aspects. Water supply and waste disposal. Разговорные фразы 181-200	опрос	1	
Зачет	опрос	1	

Характеристики оценочных средств

1 Опрос

Опрос состоит из переводов с русского языка на английский и с английского на русский типовых грамматических конструкций с учетом профессиональной тематики, а также контроля знания словарного запаса в профессиональной области. Опрос также включает проверку знания типовых разговорных фраз на английском языке. Описание содержания опроса представлено в источнике (1) и на Web странице <http://www.novsu.ru/person/psa2/>

Таблица 1 – Параметры оценочного средства (опрос)

Источник (1)	Попов С.А. Научно-технический перевод: учебное пособие / С.А. Попов, Е.Ф. Жукова; НовГУ им. Ярослава Мудрого.– Великий Новгород, 2010.–271 с.
Источник (2)	Файл набора слов Architecture(En-Ru).xls на странице http://www.novsu.ru/person/psa2/
Источник (3)	Файл типовых разговорных фраз SpknEngl.doc на странице http://www.novsu.ru/person/psa2/
Предел длительности контроля	не более 15 минут на один опрос
Предлагаемое количество вопросов из одного раздела	все
Критерии оценки:	
«5» (от 9 до 10 баллов), если	Перевод выполнен правильно, владеет осмысленным пониманием материала, умеет отстаивать и доказывать свою точку зрения, отвечает на вопросы по существу. Регламент выдерживает
«4» (от 6 до 8 баллов), если	Перевод выполнен в целом правильно, смысл раскрыт, есть неточности в переводе грамматических и/или лингвистических конструкций. Выдерживает регламент.
«3» (от 3 до 5 баллов), если	Перевод в целом отражает смысл, но есть ошибки грамматических и/или лингвистических конструкций, которые несущественно искажают смысл исходного текста. Не выдерживает регламент.

Приложение В
(обязательное)

Характеристика оценочного средства
Опрос

Модуль 1: Грамматические конструкции в переводе архитектурной литературы

В.1 Тексты для перевода по разделу 1.1

1. Раз в неделю архитектор проверяет строительство (Как часто)
2. Он работает в международной компании (Где)
3. Совещание начнется в три часа (Когда)
4. Она переехала в Москву в 2012 году (Когда)
5. Есть курсы по гражданскому, промышленному и сельскохозяйственному строительству (Есть ли)
6. Вероятно, что строительное оборудование скоро прибудет (Что)
7. Население имеет доступ к медицинскому обслуживанию и образованию (Имеет ли)
8. Наши товары хорошо продаются (Как)
9. Я буду работать пока я не закончу задание (Как долго)
10. В строительстве используются железобетонные изделия (Что)
11. В следующем году наша компания открывает новый завод (Что)
1. In Anglo-Saxon countries, particularly in the United Kingdom, Canada and the United States, the term "municipal engineering" has a similar meaning to "urban engineering".
2. Urban engineering can be described as the branch of engineering that covers all the civil and environmental engineering services related to the range of complex problems associated with infrastructure, services, buildings, environmental and land-use issues generally encountered in urban areas.
3. Don't confuse indents with margins.
4. Characters are the letters, numbers, and symbols you enter from the keyboard.
5. There are many ways in which the Web can be used for education.
6. Consumers who have tried on-line shopping appreciate the ease of e-commerce.
7. If the fluid level in the container is allowed to recede, the level height h will change, which will have to be accommodated for in calculations.
8. The state of Rio de Janeiro consists of 92 communities.
9. It consists of a software directed to the technical drawing, with several computational tools.
10. University-level urban engineering teaching in Brazil has traditionally been carried out at graduate level.
11. Another problem is that the most part of the people that migrate to the big cities, do not have a profession.
12. The sustainable urban development needs planning.

В.2 Тексты для перевода по разделу 1.2

1. Я начертил план этажа (Что)
2. На каникулах летом я работаю в мастерской (Где)
3. Не мешайте, я говорю по телефону (Он говорит)
4. На следующей неделе мы едем в Гамбург (Куда)
5. Все работали, когда я пришел (Когда)
6. Что здесь строится? (Новое здание)
7. Я забыл взять книгу (Что)
8. Он уже извинился (Что)
9. Вы когда-нибудь использовали это оборудование? (Раньше)
10. Мы занимаемся уже два часа (Как долго)
11. Я ищу это слово в словаре (Что ты)
1. Decision makers have two basic options with respect to maintenance: breakdown maintenance and preventive maintenance.
2. Computer system hardware components include devices that perform the functions of input, processing, data storage, and output.
3. A management information system (MIS) is useful to a production manager to help monitor and control inventory levels, labor and job costs.

4. At the bottom is a subsurface drainage system of pierced PVC pipe in a gravel bed.
5. The second step focuses on the identification and characterization of all the factors which, some how, limit the universe of ways in which the transport system can be structured.
6. Rubber-like synthetic polymer insulation is used in industrial cables and power cables installed underground because of its superior moisture resistance.
7. Cables insulated with compressed mica flakes are sometimes used.
8. Many houses in rural areas still use a cistern or a well where convenient water supply is not available; a pump and pressure tanks are used to create and maintain system pressure needed for operating the plumbing fixtures.
9. Heat transfer by natural convection is investigated experimentally.
10. One of the main features of this design concept was the layout of the road and street systems which generally followed existing topography, however hilly or winding, thereby creating a more “natural” environment.

В.3 Тексты для перевода по разделу 1.3

1. Наша компания использует компьютеры длительное время (Как долго)
2. Когда улетает первый самолет в Париж? (Вечером)
3. Техническое обслуживание не требуется (Что)
4. Люди часто не имеют профессии (Кто)
5. Имеется программное обеспечение для проектирования зданий (Для чего)
6. Многие дома в сельской местности не имеют водоснабжения (Где)
7. Вчера я купил интересную книгу (Что)
8. Когда я приду домой, я тебе позвоню (Когда)
9. Она уже принесла учебник (Что)
10. Он прожил в этом городе 10 лет (Как много)
11. Я жду тебя полчаса (Кого)
12. Ты когда-нибудь был в Нью-Йорке? (Где)

1. A collection of pages on the World Wide Web is called a “website”.
2. This question is referred to in his article.
3. The wires of the mains cord are colored in accordance with the following code: Blue – neutral, Brown – live.
4. During “de-malling” many streets are converted to pedestrian ways.
5. Those works were based on the paradigms of environmental quality that were inherited from the Modernists.
6. Links, as part of urban design projects, can take many forms depending on the mode of transport being used.
7. The definition of public realm has often been extended to include all publicly owned property, such as schools and libraries, whose location is determined by the public sector.
8. The first topographical survey of the city of Sao Paulo was completed in 1792.
9. Military engineers, cartographers and astronomers belonging to the Royal Corps of Engineers, were also engaged in overseeing a variety of public works such as the building of hospitals, the laying down of water facilities and paved streets, as well as constructing barracks and other military-type installations.

В.4 Вопросы по разделу 1.4

1. Он должен принять дополнительные меры
2. Ученым пришлось разрешить много задач
3. Мне нужно вам кое-что сказать
4. Новая программа должна быть внедрена
5. Ты болен, ты должен остаться дома
6. Ему предстоит встретить друга
7. Он должно быть опытный инженер.
8. Он должно быть был опытным инженером
9. Вред должен был быть прогнозируемым
10. Возможно, что решения не существует
11. Он, возможно, достал трубу
12. Не может быть, чтобы он это сделал

13. Вам не обязательно это делать
14. Завод давно следовало бы пустить в эксплуатацию
15. Я должен работать всю эту неделю
16. Мне следовало бы знать это
17. Я могу бегать
18. Они должно быть заметили меня
19. Вам следовало бы придти вчера
20. Она могла бы быть повышена в должности

1. We are to take into consideration all the advantages and disadvantages to decide what material is the best for the future work.
2. This arrangement must be perfectly reliable in operation.
3. He cannot have broken the tube while making this experiment.
4. The chief might have obliged him to do this if he wanted.
5. All the preparations must have been completed long ago.
6. According to Martinard (1986), urban engineering can be described as “the art of conceiving, undertaking, managing and coordinating the technical aspects of urban systems”.
7. The most powerful instrument of regional and local land use planning is called suitability area where specified land uses (e.g. wind mills) are to be concentrated.
8. Once the conceptual design devised by the master planner is accepted, a programme and set of guidelines is developed for each block that is to be built by a sub-developer.

В.5 Вопросы по разделу 1.5

1. Я бы хотел стать инженером-строителем
2. Он мог бы сделать это вчера
3. Она бы согласилась проверить стройку завтра.
4. Он возможно знает, как остановить машину.
5. Он мог бы закрыть клапан вчера
6. Мне нужно было послать ему письмо
7. Важно, чтобы он дал свои замечания
8. Если у меня будут деньги, я куплю машину.
9. Если бы у меня были деньги, я бы купил машину (реальное).
10. Если бы у меня были деньги, я бы купил машину (нереальное).
11. Он требовал, чтобы здание было проверено
12. Если бы я был там, я бы помог тебе.
13. Не нужно было открывать окно.
14. Тебе следовало бы придти раньше.
15. Жаль, что я сегодня не уезжаю в отпуск.
16. Он мог бы это сделать, если бы получил необходимое оборудование (реальное).
17. Он мог бы это сделать, если бы получил необходимое оборудование (нереальное).
18. Я помогу тебе с переводом, если мне не нужно будет работать завтра.
19. Я бы помог тебе с переводом, если бы мне не нужно было работать завтра.
20. Я бы помог тебе с переводом вчера, если бы мне не нужно было работать.
1. It would have been a good result had it not been for a little mistake.
2. We would not have made the progress we've made were it not for the support of the mayor, who has been personally monitoring the pace of the construction.
3. If Khanty-Mansiisk were a country, it would be the second-largest oil producer in the world after Saudi Arabia.
4. It could be argued that the responsibility for the purely technical aspects of water supply falls to civil engineers specializing in hydraulic and sanitation engineering – a speciality widely recognized as one of the most traditional branches of engineering.
5. On the tangible level, Ando's works may be characterized by their primary walls, constructed out of limited materials and composed of purely geometric forms.
6. I would like to thank the following persons who graciously and diligently served as the board of advisors on this project.

7. The design was already under construction when the mayor of Paris, Jacques Chirac, ordered that it be abandoned.
8. Given this observation it could be argued that what has been identified as total urban design is often simply large-scale architecture.
9. The precincts in cities may be for commercial, residential, or for entertainment uses, but many are now mixed types.
10. The sustainability of the goals and achievements was to be ensured by community monitoring.

В.6 Вопросы по разделу 1.6

1. Сверление – это способ изготовления цилиндрических отверстий
2. Эта оборудование было разработано для улучшения качества.
3. Этот план был разработан так, чтобы его можно было улучшить на основании результатов проектирования
4. Охлаждение приводит к конденсации водяного пара
5. Использование надлежащей рабочей жидкости является важным элементом для нормальной работы тепловых труб.
6. Используя надлежащую рабочую жидкость, техник понизил температуру трубы
7. Проектирование требует особого внимания
8. Проектируя здание, он не сделал ошибок
9. В работе мы использовали водозащитную краску, покрывающую всю поверхность
10. После проверки хода строительства можно проверить документацию.
11. Разрабатывая архитектурный объект, архитектор должен понимать, как строить и обслуживать объект.
12. Для обеспечения высокого качества следует выбирать специальные легированные стали
13. Обнаружив, что строительные материалы не пришли, архитектурный надзор остановил работу
14. Путем сканирования образца были найдены трещины
15. Создав инфраструктуру, подрядчик может начинать строительство.
16. Они настаивали на том, чтобы им дали архитектурно-строительную документацию.
1. A high-quality product will satisfy customers by functioning correctly and reliably, meeting needs and expectations, and being delivered on time with courtesy and respect.
2. In addition to being a straightforward survey it also provided certain guidelines as to how the city should deal with its future expansion from small village to larger urban center.
3. Having this information may facilitate enhancement of existing knowledge.
4. This would require comparing the results with some established criteria.
5. The crucial challenge for successful siting of problematic land uses is consensus building.
6. Much like her early buildings, it is an exercise in structural thinking.
7. It was while growing up in Barcelona that he developed a great fascination for the architecture of Antoni Gaudi (1852–1926) and for traditional Catalan craftsmanship.
8. Public institutions now rely heavily on private sector investments in developing the public realm.

В.7 Вопросы к разделу 1.7

1. Обеспечить надлежащий контроль за строительством является задачей архитектурного надзора
2. Чтобы использовать достижения строительных технологий используются новое строительное оборудование
3. Трудно обеспечить безопасность и приемлемую стоимость
4. Работы, которые следует выполнить подрядчику, включают строительство жилого здания.
5. Устройства, которые энергию ветра в электрическую, называются ветряными машинами
6. Устройства, которые преобразуют энергию ветра в механическую энергию, называются ветряными машинами
7. Эти вентиляционные системы известны из-за их способности создавать потоки воздуха.
8. Он был первым, кто прочитал инструкцию.
9. Они имеют механизм для автоматического выключения оборудования.
10. Происходит реакция, воды и цемента, образуя камнеподобную массу.
11. Чтобы сделать это, требуются большие усилия
12. Река течет и заполняет озеро

13. Я открыл окно, чтобы проветрить помещение
14. Техник включил машину, чтобы начать работу
15. Моделирование процесса требует много времени.
1. Оператор выключил станок, чтобы дать возможность рабочему отремонтировать его.
2. Можно показать, что система находится в равновесном состоянии.
3. Алюминий считается хорошим проводником.
4. Известно, что этот метод эффективен.
5. Говорят, что они получили новый прибор.
6. Полагается, что городской дизайн означает взаимоотношение между различными зданиями.
7. Утверждается, что городской дизайн означает взаимоотношение между различными зданиями.
8. Цемент, как было показано, реагирует с водой.
9. Было найдено, что эти металлы обладают многими интересными свойствами.
10. Мы хотим, чтобы этот процесс продолжался.
11. В этом случае необходимо, чтобы температура была измерена.
12. Используемый метод оказался эффективным.
13. Клапан был закрыт, чтобы вода текла в контейнер.
14. Я включил компьютер, чтобы проект был проверен.
15. Мы попросили переводчика, чтобы статья была переведена сегодня.
16. По-видимому, результаты были проверены.
17. Мы хотим, чтобы этот станок был отремонтирован.
1. When room air is dehumidified and recirculated, the system is said to operate in the recirculating mode.
2. To highlight results, a common approach is to construct a bar chart to represent the results graphically.
3. The overall idea is to describe how urban engineering relates to other areas of engineering expertise, particularly within the context of civil engineering.
4. The first School of Engineering in Brazil to provide exclusively a course in civil engineering was the Escola Politecnica of Rio de Janeiro, established in 1874.
5. He was also the first engineer to treat this as a science rather than as a straightforward technical approach to street planning (as had hitherto been the case).
6. In the United States, for example, an area is considered to be “urban” when it has a minimum of 2,500 inhabitants, with a minimum population density of 1,000 persons other per square mile (386 persons per km² (one square mile = approx. 2.59 km²)).
7. One of them is the lack of a complex social housing program to manage the highly needed residential space for the new inhabitants.
8. To reach this objective, it is necessary to use the existing knowledge about planning with consideration of the environment, the social necessities and the necessary economical development.
9. City planners, architects and landscape architects promote the “mallings” of streets in many countries, as a mechanism to help marginal retail activity along them thrive.
10. Buildings and their context also change from the moment a job is said to be have been completed.

В.8 Вопросы к разделу 1.8

1. Текущая вода
2. Протекая через трубу, охлаждающая вода несет песок.
3. Используя новую технологию, строители построили жилой дом.
4. Таящий лед сохраняет постоянную температуру.
5. Когда я пришел, проектировщики работали над чертежами.
6. Он показал нам эксперименты, которые в настоящее время проводятся в его лаборатории.
7. Строящийся из железобетона дом будет прочным.
8. Используемые материалы позволяют повысить качество.

9. Материалы, используемые для строительства, современные.
10. При пользовании, измерительные приборы должны быть проверены.
11. Завершив дискуссию, мы теперь составим план.
12. После того как оператор наладил ее, бетономешалка начала работать.
13. Разработанные в мастерской чертежи могут быть использованы многими заказчиками.
14. Получив запасные части, рабочие начали ремонт.
15. Прочитав книгу, я порекомендовал ее моему другу.
16. Разработанный план был одобрен.
1. Having been the most common devices used for entry and input of data, a keyboard and a computer mouse allow entering characters, text, and basic commands.
2. In February 1911 Eng. Victor da Silva Freire gave a keynote address at the Guild of Escola Politecnica of Sao Paulo in which he advanced a theoretical justification for the proposal which formed part of a series of avant-garde town planning projects.
3. The first “urbanists” were civil and architectural engineers.
4. Through his work with the engineer Lothar Cremer, they achieved reverberation times in the auditorium ranging between 2 and 2.4 seconds.
5. A triple-shell roof system and doublewall design buffer the auditorium from outside noise, and the limestone walls surrounding the orchestra act as reflectors.
6. East were evacuated and their openings bricked up, effectively making the buildings themselves the Berlin Wall.
7. Despite its formidable weight, it achieves an effect of airy lightness using just seven slender columns that support the structure.
8. Some total developments have been vast in size, covering many square kilometres.
9. It is a twoway arterial boulevard, consisting of eight lanes and includes a road divider planted with grass and trees, and with a continuous water feature along it.
10. As can be seen in Table 2, “macro-regions” throughout the world have recorded continuing urban demographic growth in both absolute and percentage terms.

В.9 Вопросы к разделу 1.9

1. Мы видели, как строители завершали стройку.
2. Он заметил, как деталь охлаждается во время этого процесса.
3. Они хотели, чтобы результаты были объяснены.
4. Они настаивали, чтобы установка была хорошо отрегулирована.
5. Они слышали, как запускали новую установку.
6. Поскольку здания проектируются, требуются новые материалы.
7. Поврежденное в прошлом, здание было отреставрировано.
8. При внедрении новой технологии, были использованы новые материалы.
9. После внедрения новой технологии, строительство было продолжено.
10. После того как работа закончилась, строители покинули строительный участок.
11. Так как погода была хорошая, они продолжили проверку.
12. Когда балка была заменена, кран продолжил свою работу.
13. Теперь, когда промышленность развивается, производство требует больше электроэнергии.
1. Prior to the late 18th century, so-called public works such as the construction of bridges and the paving of roads and streets tended to be undertaken by ordinary people using makeshift building techniques and perishable materials such as mud reinforced with straw (adobe).
2. The engineers introduced a series of new techniques, employing more durable materials such as stone and lime.
3. Having identified the adequate transport policy to be adopted, it will then be necessary to select a coherent set of basic strategies capable of guarantying its adequate implementation.
4. Dealing with this kind of problems, it is difficult for the small communities to plan the economical growth of the municipality.

5. Since 1961 the urban and sub-urban rail based systems have been jointly organized and managed, covering a network with over 600Km.
6. Having defined the problem – here, a suitable site for a specific land use has to be found within a given normative decision space – certain evaluation criteria are to be determined.

В.10 Вопросы к разделу 1.10

1. Теперь, когда проектирование закончено, можно начать производство.
2. Важно, чтобы измерения были записаны.
3. Нужно быть внимательным при работе .
4. Этот результат рассматривался как более надежный.
5. Все детали, кроме одной, были доставлены.
6. Они хотели, чтобы все товары были доставлены немедленно.
7. Не начиная работу, грузовик остановился.
8. В конце концов, это очень интересно.
9. Мы начали работу, так как уже было утро.
10. Я работаю здесь с 2002 года.
11. Поскольку это была известная процедура расчета, мы ее использовали.
12. У нас есть только два варианта.
13. Это единственный способ.
14. Это способ подходит только для сухого климата.
15. Проверяя высоту фундамента, строители сделали бетонную стяжку.
16. Завершив замену детали, кран продолжил работу.
17. Он готов начать работу.
18. Они уезжают сегодня.
1. To calculate stresses in beams, one must first model the beam correctly in terms of its supports and loading, determine the appropriate unknown external reactions, and establish the corresponding shear and moment diagrams using a consistent sign convention.
2. A rigid body is defined as one in which the particles are rigidly connected.
3. The project was one in which plots were prepared and services provided by the IDA but the construction of houses was left to the owners of the plots.
4. Energy is defined as the ability to do work.
5. He was surprised as if he had never seen such a device.
6. As of today our company is debt free.
7. We need to be able to learn to survive as well as to make advances in life so learning is present in achieving all our basic needs.
8. Portland is a city with a lively street-life, yet the proposal turned life inwards as if it was a suburban shopping centre.
9. Every architect should be responsible for the good and long life of his projects.
10. Everything was ready for the research to begin.
11. I, for one, hope you get the job.
12. 4. No man is so old but that he may learn.
13. The machine would have broken down but that the operator stopped it.
14. It is covered by a tented, glass canopy supported on steel beams rather like the spokes on a bicycle wheel and surrounded by five buildings, all but one of which have concave.
15. There remain only two cases to be considered.
16. As yet no practicable means of controlling this procedure has been found.
17. Yet occasionally such important operations are delegated to unskilled, inefficient workmen.
18. Buildings are either constructed of extensive amounts of glass, steel and expensive polished stones (even if slippery when underfoot), or they incorporate classical architectural elements of columns and pediments in a variety of ways.
19. Few landscape architects since the era of Olmsted have, however, engaged themselves in urban design.

В.11 Тексты к разделу 1.11

1. Еще не ясно, будем ли мы здесь работать.
2. Как только экскаватор начал работу, вскоре появлялась поверхность глины.
3. Как только технология была внедрена, все должны ее использовать.

4. В то время, как население городов увеличивалось, население сельской местности уменьшалось.
5. При обнаружении дефекта, процесс останавливался.
6. Важна разность между теоретическими и экспериментальными значениями.
7. Кто бы ни пришел, мы всегда рады.
8. Это не достаточно, чтобы решить проблему.
9. Хотелось бы надеяться встретиться в этом году.
10. Очевидно, что результаты не устойчивые.
11. Прилагаем при сем экземпляр нашего прейскуранта, в котором ниже указаны цены.
12. Чем быстрее, тем лучше.
13. Вскоре мы начали двигаться.
14. Мы разрабатывали концептуальный план, а не генеральный план.
15. Они проверили все, чтобы не сделать ошибки.
16. Я не дам тебе другую книгу, если ты не вернешь первую.
17. Мы получили как оборудование, так и технологию.
18. Мы обратили внимание, что аппаратура разрабатывается.
19. Они не в состоянии, чтобы решать, что делать.
20. Новые результаты представляют интерес, а другие не имеют значения.
21. Новая технология была введена в эксплуатацию.
22. Закон вступил в действие.
23. Чем толще балка, тем она тяжелее.
24. Ответы, по-видимому, верны.
25. Оборудование устаревшее.
26. Недостаточно знать, что стены имеют заданную толщину.
27. Это особенно характерно для зимних условий.
28. Насколько я знаю, это неверно.
29. Проектирование было выполнено вовремя.
30. Исследование было выполнено ранее посредством новых методов.
31. Эти условия были учтены согласно документации.
32. Стройка была остановлена, так как были плохие погодные условия.
33. Несмотря на погодные условия, стройка была продолжена.
34. Оказывается, что она была повышена в должности.
1. One of the debates in current urban design is whether to create images that refer to specific locales or to create international images favoured by the institutions of the global economy.
2. There are various ways of considering the infrastructure of cities but the most inclusive manner covers everything that is part of the public domain whether privately or publicly owned.
3. Once an employer has established the criteria, they must be applied equally to all and with no exceptions.
4. "Measure twice, cut once."
5. Once basic physiological needs are at least partially met, people are motivated to seek a sense of safety and security.
6. In this view once decisions are made at the precinct level the problems of interrelationships amongst precincts can be addressed. 5. A statue of a man driving sheep – the area was once a livestock market – stands at one entrance to the square.
7. While some universities are merged into the surrounding city: the Sorbonne, Stellenbosch and the University of the District of Columbia, many others, especially recent ones, are separate entities.
8. While the population of the metropolitan Philadelphia continues to grow, the population of the core city itself declined from over two million in 1950 to a little over a million in 2000.
9. The portland cement and water form a paste that hardens as a result of a chemical reaction between the cement and water.
10. The distinction between landscape architecture and the core of urban design work depends on whether the enclosing elements form part of the design or whether it is simply the ground surface between buildings that is of concern.
11. The purpose is to understand the resources, intellectual and financial upon which specific projects have drawn.
12. However, their flat surfaces were at right angles to each other.
13. Whereas upon examination the goods were found to be defective, we are now claiming damages.

14. Wherever loading or unloading the goods takes place it is necessary to comply with the marks showing the way the goods are to be handled.
15. Russia and the United States, account for 90 percent of the world's nuclear arsenal between them.
16. Smaller firms do not have sufficient resources of their own to properly dispose of their wastes at reasonable cost. The line was sufficiently complete to be opened in late 2013 although work on it continues.
17. If they are large enough such buildings are called "megastructures".
18. The world is too complex for every function of built form to be considered simultaneously.
19. The broader the knowledge available the sooner are difficulties explained.
20. There are important differences between the two materials, both in their technology and in their physical properties.
21. The members were very conscious of their individual identities and of houses as financial investments and wanted the designs to be non-controversial and less obviously communal.
22. The master plan of 1958 had statutory authority and accordingly was amended (and has been every 5 years since) within the specifications of the concept plan.
23. A new approach has to take the climatic factors into account to find out if a double-skin facade can help to reduce the energy consumption in buildings in a hot and humid climate.
24. In spite of the severe difficulties that the economy had to face, the intensification of building construction was necessary.
25. According to Freitag (2006), only with the advent of Le Corbusier (1887-1965) considered to be the founding father of modern town planning, could "urbanism" be considered to have become a universally accepted science, capable of providing practical solutions to the urban problems emerging in the context of 20th century industrial society.
26. This approach is of crucial importance if we wish to understand our cities and find ways of tackling the problems incurred in and by these cities.
27. The pedestrian mode has all the potential to be the main mode in city centers, in residential ones or, in any sensitive locations in general.
28. Due to massive public funding, Germany experienced a tremendous growth in wind energy production in recent years.
29. Many cities around the world have over the last few decades assumed a coherent strategy of systematic promotion of the bike and pedestrian modes as real alternatives to the use of the private car.

Модуль 2: Практика перевода архитектурно-строительной литературы

В.9 Тексты к разделу 2.1

Ancient architecture

Wood appears to have been the earliest material used for the building of a home when out-of-door dwellings took the place of the caves that were the first shelters of primitive man. Walls were made of squared beams piled up horizontally and fastened together at the corners with wooden pegs; the roof being formed of roughly sawn planks. Limestone, granite, and sandstone were used for building at a very remote period in much the same way as wood, large blocks being piled up horizontally or stood on edge, no cement being employed, though in certain cases crushed stone was used to fill up the spaces between the blocks. Bricks, that is to say, dried blocks of clay, were used at a very early date as a supplement to or substitute for wood and stone for building purposes. The most ancient bricks were not subjected to artificial heat but were simply exposed to the sun. The main features of a building are determined by the shape of the walls or the way of arrangement of the pillars that take the place of walls and in which the openings of the doors and windows are spanned. The earliest roofs were flat, and the most ancient way of linking together the supports of doors and windows was to place a plank of wood or slab of stone across them at the top. Then the arch takes place of the horizontal beam. An arch whether circular or pointed consists of two series of stones cut into the form of wedges, a central one at the apex or highest point called the "keystone" locking the two series together.

1. What was the first shelter of primitive man?
2. Was wood the earliest building material?
3. What were walls made of?
4. How beams were fastened together?
5. Was roof formed of roughly sawn planks?
6. What kinds of stone were used for building?
7. Was cement employed for building?
8. Were ancient bricks subjected to artificial heat?
9. What was the most ancient way of linking together the supports of doors and windows?

10. Did the arch take place of the horizontal beam?

11. What were the keystones used for?

2.2 Egyptian and Indian architecture

The most ancient existing examples of Egyptian architecture are the royal tombs known as the Pyramids. The Pyramids consist of masses of admirably squared and polished stones, in certain cases supplemented with bricks piled up in the form of a rectangle around a sepulchral chamber, the entrance to which was most carefully concealed. When the body of the monarch had been placed in it the tapering mound above it was finished off with huge facing blocks, that were skilfully worked into the angle required and finally leveled to a smooth surface. The plan of all Egyptian temples of whatever size was the same: a horizontal gateway flanked on either side by masses of masonry of considerably greater height than it, known as pylons, their surfaces enriched with symbolic carvings, giving access to a square space open to the sky, and partly surrounded with cloisters, leading into a noble hall of huge dimensions, its flat roof upheld by columns, some with capitals resembling lotus buds. Beyond this hall were a number of small dark rooms, the use of which has never been ascertained. Outside these noble buildings were ranged obelisks, or four-sided tapering-pillars of great height, covered with hieroglyphics commemorating the triumphs of the kings, and colossal figures, few of which remain "in situ", which added greatly to the dignity of the appearance of the whole. Very great is the contrast to Egyptian architecture presented by the Asiatic buildings. They originally consisted of lofty many-roomed structures raised on high platforms, and entered from arched gateways flanked by colossal winged bulls of stone. The brick walls were encased in carved alabaster slabs. The most ancient examples of Indian architecture are temples. All alike hewn out of the living rock, the former consist of a square central hall with or without columns, surrounded by cells for the monks, while the latter, of more complicated design, resemble in general plan a Roman basilica. A wide nave with rows of massive pillars upholding a slightly domed roof is flanked by lateral aisles, and at the eastern end rises a semicircular sanctuary containing a seated figure of Buddha. Hindu architecture differs very greatly from Buddhist, its chief characteristic being a lofty pyramidal tower of several stories, as a general rule covered with ornament, that reached its fullest development in the so-called pagodas.

1. What are the most ancient existing examples of Egyptian architecture?
2. What do pyramids consist of?
3. Was the entrance to the pyramids carefully concealed?
4. Were bricks used?
5. What was the plan of all Egyptian temples?
6. What was the use of a number of small dark rooms beyond the hall?
7. What did Asiatic buildings originally consist of?
8. What were the most ancient examples of Indian architecture?
9. What was at the eastern end of the sanctuary?
10. What is the chief characteristic of Hindu architecture?

2.3 Ancient Greece

The finest buildings of ancient Greece entirely fulfilled the conditions of true architecture, for they were beautiful alike in design and execution, admirably adapted to the purpose for which they were erected, and in complete harmony with their surroundings. Moreover they are of exceptional importance in the history of the evolution of the art on account of the influence they exercised on that of other countries, all their distinctive features having been either copied or modified in those of the rest of Europe. The Greeks, though they were doubtless acquainted with the arch, the dome, and the tower, refrained as a general rule from using them, probably because they considered them unsuitable to the topographical and climatic conditions that prevailed in their native land. They achieved their highest results by means of correctness of proportion and dignity of outline, giving far more attention to the exterior than to the interior of their buildings, and in this respect differing greatly from the Egyptians, who endeavoured to impress the spectator chiefly by the vast extent and massiveness of their temples and palaces.

The grand temples of Greece were built either of stone or of marble. As a general rule they are set on a platform to which a long flight of steps lead up, and are enclosed within an outer wall or a continuous colonnade. Their plan is extremely simple: a parallelogram, formed in some cases entirely of columns, in others with walls at the side and columns at the ends only, encloses a second and considerably smaller pillared space known as the cella or naos, that enshrined the image of the god to whom the building was dedicated, and was entered from a pronaos or porch, and with a posticum or back space behind it, sometimes supplemented by a kind of second cella called the opisthodomus or back temple. The front columns at either end are spanned by horizontal beams that uphold a sloping gable called a pediment, the flat, three-cornered surface of which is generally adorned with sculpture in bas-relief, and along the side-columns is placed what is known as the entablature, that consists of three parts, the architrave resting on the capitals of the columns, the frieze above it and the cornice, the last of which sustains the flat roof, usually covered with tiles or marble copies of tiles.

Greek architecture is generally divided into three groups or orders: the Doric, Ionic, and Corinthian, each of which, though the buildings belonging to them resemble each other in general plan, is distinguished by certain peculiarities of the columns and entablaments. The Doric was the earliest to be employed, but the Ionic, that early succeeded it, was long used simultaneously with it, sometimes even in the same building, while the Corinthian did not come into use until considerably later.

In the Doric order the column has no separate base, but rises direct from the top step of the platform on which the building it belongs to stands. It is of massive form and has what is known as an entasis or slightly convex surface, it is generally fluted, that is to say, cut into parallel perpendicular channels, several rings called annulets connecting it with the capital, which consists of an echinus or rounded moulding and an abacus or unrounded slab resting on the echinus.

The Ionic and Corinthian orders are alike characterised by lightness and grace rather than massiveness and simplicity. In both, the columns, instead of rising direct from the platform, have a complex base consisting of a number of circular mouldings above another, the fluted shafts are comparatively slim and tapering, and the channels in them are divided by spaces called fillets. In the Ionic order the flat abacus of the Doric capital is replaced by two coiled volutes projecting beyond the echinus on either side, and the horizontal portion between the volutes is surmounted by finely carved leaf mouldings.

1. What are the conditions of true architecture?
2. Did the finest buildings of ancient Greece fulfill the conditions of true architecture?
3. Were they in complete harmony with their surroundings?
4. Why were they of exceptional importance in the history of the evolution of the art?
5. Why the Greeks as a general rule did not use the arch, the dome, and the tower?
6. What were the grand temples of Greece built of?
7. How is Greek architecture generally divided?
8. How are the buildings belonging to different orders distinguished?
9. What are the features of Doric order?
10. What are the features of Doric and Corinthian orders?

2.4 Roman architecture

From whatever source Roman architects got their inspiration, they very soon absorbed all external influences and stamped the buildings they erected with a character of their own. From the first sun-dried bricks, sometimes combined with stone, were the chief materials used, even the grand structures of the best period such as the huge palaces and halls were of plastered brickwork, stone having been as a general rule reserved for such works as temples, theatres, and triumphal arches. Concrete was also largely employed, and timber in many cases was used for roofing. The most distinctive feature of the architecture of the Romans is the vaulted roof, which they employed in an infinite variety of ways, introducing it at every possible opportunity. The simplest form, known as the waggon or barrel vault, is a semicircular arch spanning two walls, while a more elaborate contrivance consists of two intersecting vaults of the same height crossing each other at right angles, which was used in Rome as early as 75 B.C. These two forms were sometimes supplemented by what are known as conches or half-domes over external semicircular recesses, of which the apse is a characteristic example. With the aid of these three varieties of vaulting, that were occasionally combined with consummate skill, the Romans were able to roof in large or small circular spaces, and in some few cases, as in the Baths of Caracalla in Rome, they even to a certain extent anticipated the clever contrivance known as the pendentive, a triangular piece of vaulting springing from the corners of a right-angled enclosure, that was later brought to such perfection in Byzantine architecture.

With their wonderful system of vaulting the Romans combined the columnation and entablement of the Greeks, introducing innovations however that were in many cases anything but improvements. Thus they sometimes supplemented the foliage of the Corinthian capital with the volutes of the Ionic; while what is known as the Tuscan style is really merely a modification of the Doric. Roman architects were in fact rather skilful engineers and adapters of the aesthetic conceptions of others than original designers of new forms of beauty, but they were unrivalled in their power of harmoniously co-ordinating in a single building an infinite variety of structural features. They were moreover exceptionally successful in the laying out of cities, as proved by the wonderful groups of buildings in the fora or public squares in which courts of justice and markets were held, of the capital and other cities, and by the fine continuous vistas of their streets, in which irregularities were masked by clever contrivances, adding greatly to the symmetry of the general effect. Temples, basilicas, baths, bridges, aqueducts, triumphal arches, palaces, and private houses were all set in the environment most suitable to them, and even tombs were ranged according to a definite plan, not, as in most modern cemeteries, dotted here and there in an arbitrary manner.

Whether the Romans were or were not the first people of Western Europe to use the arch, they certainly delighted by it, setting up ornately decorated examples of it at the entrances to their towns, their fora, and their bridges, as well as in commemoration of great victories in war and of the completion of civic enterprises. Most remarkable of those still standing in Rome are the Arch of Titus of one span only, erected in memory of the destruction of Jerusalem by the Emperor after whom it is named; the

triple-span arch of Septimius Severus, and the smaller one of Constantine. The fine stone built aqueducts must be also mentioned here on account of the aesthetic effect of the long rows of lofty arches.

1. What were the chief materials used for palaces and halls?
2. What was the chief material used for temples, theatres, and triumphal arches?
3. What material was used for roofing?
4. What is the most distinctive feature of the architecture of the Romans?
5. What is the simplest form of vault?
6. What is a more elaborate contrivance of vault?
7. Were Roman architects skilful engineers and adapters of the aesthetic conceptions of others?
8. What were Roman architects exceptionally successful in?
9. How the Romans used the arch?
10. What are the most remarkable examples of arches?

2.5 Byzantine Empire

The term Byzantine has been given to the style of architecture which was the outcome of the fusion of the best building traditions of the East and of the West, the former contributing the distinctive structural feature of the dome, the latter dignified symmetry of proportion and scientific solidity of construction.

The most distinctive feature of Byzantine architecture is the roofing over of square spaces with the aid of the pendentive, that was carried to great perfection by the builders of Constantinople and those who elsewhere followed their example. Previously employed in comparatively small structures, it now became the fundamental principle for the roofing over of spaces of a great variety of extent, groups of domes and semi-domes, in many cases supplemented by tapering towers rising with imposing effect from massive outer walls. The long aisles and nave of the Roman and early Christian basilicas were replaced by a more or less square plan, lofty piers spanned by arches upholding the central cupola, while the galleries above the aisles rested on slender columns such as were also employed to rail off the sanctuary and narthex from the main body of the building. The whole of the interior, which was lighted from windows in the dome, was most profusely decorated, the walls having dados or slabs of different coloured marbles supplemented by mosaics, with which every portion of the domes, semi-domes, and pendentives were also covered, while the columns had beautifully carved capitals of an infinite variety of design.

1. What kind of architecture style the term Byzantine was given to?
2. What is the most distinctive feature of Byzantine architecture?
3. What is the fundamental principle for the roofing over groups of domes and semi-domes?
4. What were the long aisles and nave of the Roman and early Christian basilicas replaced by?
5. How was the interior lighted?
6. How was the interior decorated?

2.6 Renaissance

The term Renaissance, signifying revival, has been given to the style which succeeded the Gothic. It was, to a great extent, a reversion to classic ideals modified to suit modern requirements. Its leading characteristics are simplicity of plan, symmetry of proportion, and massive grandeur of general effect, a minor characteristics being the lavish use of plaster, not only for surface decoration, but also in some cases for the actual structure of such details as cornices.

The Renaissance style was inaugurated in Italy, where the Gothic never took root, and spread to the other countries of Europe, assuming in each country a certain distinctive character of its own in harmony with its environment. In Italian Renaissance ecclesiastical architecture the old basilican plan was revived, the dome became again, as in ancient Rome, the crowning glory of the building, and was combined with horizontal entablatures upheld by columns, with capitals of one or another of the Greek orders, and porticoes with pediments. In secular Italian Renaissance a very notable feature is the central cortile or courtyard surrounded by open arcades, above which are the principal apartments. The principal facade of Italian palaces was especially ornate, richly decorated courses of stone dividing the stories from each other, in which the fenestration or grouping of the windows was peculiarly effective.

1. What does the term Renaissance signify?
2. What are the leading characteristics of Renaissance?
3. What was plaster used for?

4. Where was the Renaissance style inaugurated?
5. What is a notable feature of secular Italian Renaissance?
6. What is fenestration?

2.7 Gothic architecture

The term Gothic, that now calls up a vision of ethereal beauty, was first given to the style that grew out of the Romanesque by the artists of the Renaissance as an expression of their contempt for what they looked upon as outworn methods of building, similar to those of the Gothic barbarians in warfare. It very soon, however, lost all association with this most inappropriate comparison, becoming synonymous with all that is most beautiful in the architecture of the period to which it is applied.

The most important characteristics of Gothic buildings are the introduction, of vertical or very sharply pointed details, such as highly pitched roofs and gables, spires and pinnacles, pointed arches and pointed vaulting, flying buttresses, that grew ever slenderer and more decorative, leading downwards from the roof. The so-called lancet or long narrow window with stilted head, pointed like an arch, is specially distinctive of Early Gothic, and was later supplemented by the more elaborate rose window, the stained glass in them, and in the more complex groups, adding greatly to the aesthetic effect of the whole building, the many coloured light from them relieving the monotony of the stone work.

The general appearance of the interior of a Gothic cathedral, with its long perspective of nave, aisles, and choir, its finely proportioned triforia and clerestories, and, above all, its graceful arches leading up to their points of union in the soaring roof, while its exterior is equally remarkable for the close correlation of all its parts, producing an impression of consistent unity of design. An added charm is given to the interior and exterior by the combined richness and quaintness of the decorative sculpture, in which is clearly illustrated the delight in symbolism of the medieval craftsmen, who, working in close accord with architect and builder, supplemented effigies of heroes and heroines of the faith, royal patrons, with emblematic animals, fruit, flowers, and foliage.

1. How did Gothic style appear?
2. What are the most important characteristics of Gothic buildings?
3. What are the most important characteristics of interior of a Gothic cathedral?
4. What did the decorative sculpture add to the interior and exterior of a Gothic cathedral?

2.8 Great Britain

In Great Britain, even more than on the Continent, the architecture of the past reflects national character, its distinctive features having been the outcome of local conditions differing widely from those that obtained elsewhere, which largely modified the styles introduced from outside. On the arrival of the Romans in the first century of the Christian era, there were, with the exception of the monoliths on Salisbury plain known as Stonehenge and other prehistoric relics, the origin of which has never yet been discovered, no buildings of greater pretension than mud huts or circular stone or wooden houses with a hole in the tapering roof through which air was admitted and smoke dispersed. The houses, palaces, and churches erected by the invaders were, as proved by the remains at Silchester, Wroxeter, and elsewhere, of the type of those of Imperial Rome, and on them many British masons were employed, who thus acquired knowledge of the principles of construction.

The chief characteristics of the so-called Anglo-Saxon style are the great height in comparison with the length and width of a building, a rectangular plan, massive square towers, unadorned angular or semicircular arches, stunted clumsy-looking columns with roughly carved or plain capitals, long narrow recessed windows, massive walls without internal decoration, with on the exterior a somewhat ornate surface ornamentation, combined with a series of peculiar clamps. There were no aisles in early Anglo-Saxon buildings, but the chancel was divided from the nave by an arch sometimes with and sometimes without carving.

1. What does the architecture of the past reflect in Great Britain?
2. When did the Romans arrive?
3. What is known as Stonehenge?
4. What were the buildings like before arrival of the Romans?
5. How did British masons acquire knowledge of the principles of construction?
6. What are the chief characteristics of the Anglo-Saxon style?

2.9 American foursquare

“American foursquare” refers to a house type that is little recognized in traditional architectural history sources yet is visible in virtually any urban neighborhood developed during the period 1900–40. Despite its lack of official approval, this hardy survivor was far and away the dwelling of choice for generations of people with modest means constructing or purchasing

homes. The design was eminently practical: it was spacious, it was quite attractive, and it was cheap. Various called “Builder’s Houses,” “American Basic,” “Square Houses,” “Box Houses,” “double-deckers,” “double cubes,” “American Farm Houses” (something of a misnomer, since the vast majority of these homes were built in cities and suburbs), or, because of their sheer numbers across the land, “National Houses,” the houses themselves remain clearly boxlike in their design.

The foursquare design is often not truly square. In its rectilinear proportions, lowhipped roof, square plan, and simple facades, the foursquare resembles early prairie houses of the Midwest made popular by the Prairie School architects. As American cities grew, land values soared. Urban blocks were jammed with narrow lots, usually rectangles with the short side abutting the street. Thus, the foursquare could often be somewhat narrower in front and back and have longer sides to accommodate the site. As cities expanded, urban—and finally suburban—growth allowed greater flexibility in building. The foursquare house, once removed from the strictures of cramped, rectangular lots, usually grew in size and, in the process, frequently became more ornamented. As a rule, box houses located closer to traditional “downtowns” tend to be smaller and less ornate than those found in outlying neighborhoods and suburbs. The essentially cubelike shape is the initial indicator of the type.

The American foursquare is an efficient, self-contained box. No matter how many bays, wings, porches, or other appendages the house might offer, the basic shape of the building should be apparent. In addition, broad, overhanging eaves follow the upper perimeter of the building, providing shade for the second story and the bedrooms therein and a settled look for the house as a whole. The rooflines growing from these extended eaves are usually pyramidal. Unlike more expensive homes, chimneys are seldom of any great aesthetic importance and are often made of concrete or brick. A large front dormer, usually hipped like the roof, serves as a trademark and helps provide light and air to the attic sections. Windows are simple in both arrangement and presentation, usually standard, massproduced, double-hung models that can be opened for maximum ventilation. As a rule, the lower half is a sheet of plain glass; the upper portion usually consists of smaller panes grouped in one frame and divided by thin muntins. In some of the more unadorned box houses, even the upper half of the window is a single glass pane, further reducing costs. Because these homes were designed more for utility than for architectural or stylistic purity, the windows are often irregularly spaced, thereby serving the interior of the house in the allimportant admission of light and air in the most efficient way.

Virtually every foursquare has a porch across its front. Decorative style for this appendage varies, from a simple raised floor with an equally simple roof over it to elaborate classical columns and railings that support an ornamented roof complete with garlands, friezes, and fancy shingles. A major selling point of the box house was its interior arrangement. Because these homes are normally two-story structures, the first floor contains a spacious living room, a formal dining area, a den, and an airy, well-equipped kitchen with pantry. The second floor commonly consists of four large bedrooms, each with its own closet. Finishing off this emphasis on livable space is an attic that offers either storage or the potential of still more rooms. A full basement—or “cellar,” as they were usually called at the time, a dank, dark hole beneath the dwelling with a bare earth floor and no living amenities whatsoever—typically houses the furnace and accompanying coal bin and little else. As this immensely popular residential style gained momentum with buyers, it moved from its initial simplicity to ever-more applied decoration. Plain clapboard or stucco walls evolved into brick or shingle facades, and vestigial turrets, towers, and bays sprouted out of the basic cube. The hipped roof might feature a widow’s walk at its apex, or a balustrade might appear above the broad overhanging eaves. Catalogs of simple plans—usually done by draftsmen, not architects—flooded the market, offering, in essence, a massproduced house to anyone.

Following World War II, the style was completely eclipsed by innumerable tract subdivisions that seemingly sprang up everywhere. The box house never achieved a comeback, but in its brief 40-year history it has left its mark nonetheless. How many thousands and thousands of box houses were built will never be known, but their legacy endures in myriad ways. In many eastern American cities, the foursquare house—in sheer numbers of extant structures—remains the dominant residential design.

1. What does “American foursquare” mean?
2. Was that dwelling expensive?
3. What was design of the houses like?
4. What happened to the box houses located closer to downtowns?
5. What appendages might the house offer?
6. What were the overhanging eaves for?
7. What were the windows like?
8. What was the porch like?
9. What did the first floor contain?
10. What does the second floor consist of?
11. What was the attic and cellar used for?
12. What can the hipped roof contain at its apex?

2.10 Airports

Airports were a novel development without precedent. Although similar to railway stations, aircraft had quite different architectural requirements to passenger trains. This did not deter designers in the early 20th century from using the styling of train stations and train interiors in their designs for the new airport terminals and aircraft cabin interiors. Much as the great railway stations encapsulated the engineering achievements of the 19th century, airport terminals were to become highly visible indicators of technological advancement for nations and global cities in the 20th century.

The symbolism of airport terminals was present almost from the outset, but it has undergone significant alteration over time, from the oversized modern designs of the 1930s; to expressive structures such as Eero Saarinen's eaglelike TWA Terminal, Idlewild, New York (1962); to the futurist high-tech terminals of the 1980s and 1990s. In the mid-1960s air terminals had evolved into large complex megastructures that were purely systems to deal with enormous numbers of travelers. The air terminal type embodied an inevitable romanticism about flight and movement in contrast with the reality of scale and flexibility in an environment subject to rapid unrelenting change.

Aircraft have changed enormously since that first flight at Kitty Hawk, North Carolina, in 1903. The changes in commercial aircraft design over the 34 years that separate the Douglas DC-3 (1935) from the Boeing 747-100 (1969) have been staggering; airports raced to keep up with the new aircraft and airline needs. The much increased seating capacities, safety, reliability, speed and range of aircraft lowered costs and increased the popularity of air travel, which encouraged ever greater numbers to fly; in turn, airport terminals around the globe were confronted by new pressures to expand facilities. The one constant factor in airport terminal design was change—swift, unrelenting, and unpredictable. Airport terminal design is a contest between the rival claims of centralization and dispersal, between providing minimum passenger walking distances on the landside and dispersal on the airside to take advantage of the maneuverability of airplanes.

The challenge of mass air travel in the 1990s led to the building of extremely large terminals to handle upward of 35 million passengers per year in an unprecedented expansion of airports around the world that culminated in a stunning new architectural synthesis. This new generation of terminals were hugely complex, giant high-tech steel sheds that responded to the demands of extreme efficiency and a renewed emphasis on architectural expression. Indeed, it is hardly an original observation to say that much as train stations were the great popular monuments to 19th century industrialism, in the 20th century, these extraordinary airport terminals similarly express the pinnacle of 20th century achievement in architecture and construction.

1. Were the first airports similar to train stations?
2. When and where was the first flight?
3. What were the main features of airport terminals of the 1930s, 1960s and 1990s?
4. What characteristics of aircrafts increased the popularity of air travel?
5. What factors influence the airport terminal design?
6. What are the characteristics of new generation of terminals?

2.11 Amusement parks

Amusement parks are controlled environments that entertain visitors through the simulation of space, place, and experience. It is the element of control that is initially most important in defining the building type because the amusement park presents itself as a safe, and indeed sanitized, environment wherein conventionally dangerous or arduous activities can be undertaken without fear of their consequences. The desire for control leads to the necessity of simulating or fictionalizing each and every space and event that the visitor to the park will experience. For this reason, amusement park designers often treat their buildings and settings simply as film sets, facades that are divorced from the function of their interiors and that are dismantled and changed at will. In the early years of the 20th century, this transience was exacerbated by the fact that a single designer was rarely responsible for more than one part of any park. In combination, these factors render the task of determining who has designed the park, and even its date of completion, difficult. This situation has changed in recent years, with many respected architects, including Michael Graves, Robert Stern, Antoine Predock, Frank Gehry, Robert Venturi, and Denise Scott Brown, accepting commissions for the design of amusement parks and associated facilities (hotels and training centers). Major 20th-century amusement parks include Disneyland (1955) in Anaheim, Florida; Six Flags over Texas (1961) near Fort Worth, Texas; Walt Disney World (1965) in Orlando, Florida; Universal Studios (1970–80) in Los Angeles, California; Tokyo Disneyland (1983) in Tokyo; and Fox Studios (1996–99) in Sydney.

One particular type of amusement park, the theme park, also rose to prominence in the last half of the 20th century. The theme park is characterized by a limited set of welldefined thematic boundaries. Typical theme parks include the Old Westflavored Knotts Berry Farm (1940, 1970) in Anaheim, California; the theologically focused Bible World (1975) in Orlando, Florida; the evolutionary-themed Darwin Centre (1995) in Edinburgh; and the pirical Mundomar (1996) by Estudio Nombela on Spain's Costa Blanca.

Despite these differences, the terms “theme park” and “amusement park” are often used interchangeably to refer to any space that promotes enjoyment through simulation. The origins of the amusement park are frequently traced to the 17th-century

pleasure gardens of England and France. One of the most famous of these parks was Vauxhall Gardens in London, which first opened in 1661 and by 1728 contained mechanical rides, parachute jumps, and balloon ascensions. Perhaps the most popular of these early amusement parks was the Prater in Vienna, which became the site of the 1873 Vienna World's Fair and which featured both a primitive wooden Ferris wheel and one of the first large carousels. However, although amusement parks first came to prominence in Europe, it was in North America that they enjoyed their greatest success. One of the first large American amusement parks was Jones's Wood, which opened in New York in the early years of the 19th century. Jones's Wood comprised a loose collection of beer halls, music houses, viewing platforms, dioramas, and shooting galleries. Rapid development of the surrounding areas forced Jones's Wood to close in the late 1860s just as a new era in amusement park design was beginning on nearby Coney Island.

1. How can you define amusement park?
2. How do amusement park designers often treat their buildings?
3. Was a single designer responsible for more than one part of any park in the early years of the 20th century?
4. Did this situation change?
5. What is a theme park?
6. What was the most popular early amusement park?

2.12 Apartment buildings

Population growth and the increasing density of cities created a housing crisis in the 20th century. The apartment building emerged as a solution for housing large numbers of people in small areas. During the 20th century the development of the apartment building dramatically reshaped the built environment of cities and their surrounding suburbs. Apartment buildings developed in locations convenient to transportation networks and services that encouraged dense residential land use. The increase in apartment living subsequently inspired continued international dissemination of the modern apartment building type. An apartment building contains multiple dwelling units of one or more rooms. Other basic aspects of the 20th-century apartment building's program are a bathroom and kitchen for each unit and the provision of heating, ventilation, air conditioning, and other systems. As with other commercial building types, efficient use of space is integral to good apartment building design. Public areas of the apartment building are normally minimal, with a small lobby and laundry room or, in more luxurious examples, a roof deck, recreation room, or swimming pool.

All apartment buildings share the basic function of providing shelter for numerous household groups, but the features and appointments of a building can vary greatly, depending on the socioeconomic level of the intended residents. Apartment buildings need to balance efficiency with comfort; this requirement is challenging, especially when building for low-income tenants. In the early 20th century, most architecturally notable apartment buildings were intended for upper-class tenants. Living in a full-service apartment building could provide a luxurious home at much smaller cost than maintaining a single-family house.

Rising land values in many cities made sole ownership prohibitively expensive even for the relatively well off. For low- and middle-income tenants, apartment building design was characterized by tension between aesthetics and economic viability. Tenement house design frequently sacrificed aesthetic and sanitary concerns to create a profitable investment. By the 1920s, apartment buildings were integral to the international debate over housing and social reform. European avantgarde architects used the apartment building type to explore the potential of modernism and prefabricated structural systems for providing affordable worker housing. Government sponsorship of housing projects provided important opportunities for architectural experimentation not available in the commercial real estate market of the United States despite housing reform efforts. The housing policy of the Weimar Republic generated pioneering modern apartment buildings for German cities. Another example is an International Style garden apartment complex built in Rotterdam. Both the garden apartment and the high-rise form of the apartment building were explored by architects throughout the mid-20th century. These two primary apartment building forms—the mainly urban high-rise and the suburban garden apartment—became internationally prevalent by the 1930s. High-rise apartment buildings, alone and later in planned groups, capitalized on an economy of scale. They distributed the rising cost of elevators, ventilation, and other systems-related apparatus by using modern building materials to create taller structures with more living units. Garden apartments were suitable for lower-density development on the urban periphery, where land was less expensive. Groups of two- or three-story buildings arranged on landscaped sites contained units that shared an entrance stairwell. The garden apartment form did not require formal public areas or expensive elevators but was not as efficient in land use or building materials as a more compact high-rise apartment building. In the post-World War II period, the housing crisis became more acute owing to years of postponed building and wartime destruction. European governments again sponsored the construction of major apartment housing projects. In the United States, the new Federal Housing Administration and later the Department of Housing and Urban Development began to fulfill a role similar to that of their European counterparts, although more limited in scope. International Style modernism, particularly the slab-form high-rise developed by Le Corbusier, dominated these construction efforts.

1. What factors created a housing crisis in the 20th century?

2. How was this crisis solved?
3. How did the apartment buildings develop?
4. What were the basic aspects of the 20th-century apartment building's program?
5. What were the public areas of the apartment building like?
6. For what kinds of tenants were the most architecturally notable apartment buildings intended and why?
7. What were the characteristics of the apartment building design for low- and middle-income tenants?
8. What was the problem with tenement house design?
9. What is a garden apartment?
10. How did the high-rise apartment buildings capitalize on an economy of scale?
11. What are the characteristics of the a garden apartment?
12. Did the housing crisis become more acute in the post-World War II period and why?
13. Did European and the United States governments sponsor the construction of major apartment housing projects?
14. What kind of high-rise was developed by Le Corbusier?

2.13 Sydney Opera House

Despite such problems as drastically escalating construction costs, conflicting political ambitions, and the fact that the winning architect ultimately abandoned the project, the Sydney Opera House is today the much admired symbol of both Sydney and Australia. The competition was initiated by J.J.Cahill, prime minister of New South Wales, in an attempt to garner votes for the Labour Party. In 1956 an open international competition was organized. Two hundred and thirtythree designs, all line drawings as required by the program, were submitted. The jury included Gobden Parkes, head of the Public Works Department, and three architects: J.L.Martin of Cambridge University, Henry Ingham Ashworth of Australia, and Eero Saarinen of the United States. The winner, Jorn Utzon, had worked for and been influenced by both Alvar Aalto and Frank Lloyd Wright. Previous to the competition, his projects had consisted primarily of single-family residences. His inexperience became evident when he attempted to solve the problem of the construction of the roof shell structure. Eventually, under time constraints and political pressure, he resigned in 1966, relinquishing the project to Australians Peter Hall, David Littlemore, and Lionel Todd. He proposed free-form layered roof shells, which proved to be structurally indeterminate. Utzon developed a reinforced concrete ribbed structural system finished in curved white ceramic tiles, each "shell" being a segment of a sphere. The interiors and glass walling were finished by Hall Todd & Littlemore (1973).

1. How was the project competition to design the Sydney Opera House organized?
2. Who was the winner? What inexperience did he have?
3. Why he resigned? Was his project abandoned?
4. What was the idea of the project?
5. What was the problem with the roof shells?
6. How was that problem solved?

2.14 Le Corbusier

Le Corbusier (Charles-Edouard Jeanneret) was born in Switzerland, although he studied and worked primarily in France. In 1905, when still in his teens, Le Corbusier was commissioned by one of the trustees at the school where he studied to design the Villa Fallet. The house was constructed of freestone, rendered and decorated with stylized fir-cone patterns, with the steep roofs and all-round balcony traditional in the region. In 1907 the fee for this commission enabled Jeanneret, in the company of fellow student Leon Perrin, to travel to Italy, where they visited 16 major northern Italian cities, including Siena, Florence, and Venice. He worked on their design during a stay in Vienna of four and a half months in 1908. In the spring of 1911, Jeanneret left Germany and set off on another major formative journey that lasted six months. The next commission was for a house for his parents in 1912, a medium-size villa, with a studio and a music room. Essentially classical in form, with white cubic and cylindrical forms under a pyramidal roof, it has strong echoes of the houses that Jeanneret had visited. Aligned along a terrace on a steep hillside and approached from the side, the striking feature of the composition of this house is the circular court greeting the visitor, the diameter of which was the turning circle of a car.

At the outbreak of war, which he did not expect to last long, Jeanneret thought that the first priority would be for rapidly constructed houses in the devastated areas. With the help of an engineer, Max du Bois, who ran a reinforced-concrete building firm, he planned the Domino housing type. Based on a standardized concrete skeleton unit consisting of three rectangular horizontal slabs supported on six slender stanchions placed well back from their edges, there were no capitals or beams or transitional brackets between the vertical pillars and the horizontal planes; the slabs were quite flat underneath. The three slabs were to be of pot tiles with steel reinforcement and connected by two dogleg staircases cast as part of the whole. The Villa

Schwob (1916), however, was a major turning point, the first building that the architect (the later Le Corbusier) considered to be representative of his oeuvre. From the beginning he conceived the building in terms of a reinforced concrete frame with brick in-filling walls. The site slopes steeply away to the south. Aligned alongside the road, the facade rises straight from the sidewalk. It is a three-story house flanked by a high wall extending along the street on either side of the entrance; the single-story kitchen wing, attached to the house, is hidden behind this wall. Behind the rectangular volume containing the hall and staircase, on the north (or road) side, the basic form of the house is roughly a cube, but with the addition of two apsidal-ended projections to the east and west. Inside, the plan is splendidly open, with a two-story-high central living room, from which the dining room and drawing room open on either side, terminating in bay windows, and another window, the full height of this space, opens onto the garden and extended views over the landscape. To the left and right of this window, the space is open on one side into the library and on the other to a study. Le Corbusier's second Paris commission was a studio house for Amedee Ozenfant, completed in 1924. This cubic building—smooth, white, and with huge metal-framed windows—had sawtooth factory-style windows as part of its roof, and throughout, the aesthetic is one of modern industrial engineering. In brilliant counterpoint to the rectangular forms is the white-walled exterior spiral staircase leading to the entrance. The double house Villa Stein/de Monzie (1926–28) was Le Corbusier's most ambitious work yet and was soon recognized as one of his masterpieces. During World War II, under the Vichy government of France, Le Corbusier at first sought to work for the authorities but was eventually obliged to retreat to Ozon in the Pyrenees, devoting 1942–44 to painting and writing and beginning to devise the system of proportion he called "The Modulor." His cousin Jean, who joined the Resistance, would not work with him for a number of years after the war because of his attempts to collaborate. Soon after the liberation, he was asked by Raoul Dautry, minister of reconstruction, to design prototypes for mass housing. The result was the Unite d'Habitation at Marseilles (1947–52), another key building of its time —rough, boardmarked concrete was used for an 18-story block of flats incorporating many services. The concept was inspired by the ideal of the oceangoing liner. Le Corbusier received the Gold Medal of the Royal Institute of British Architects in 1953 and that of the American Institute of Architects in 1961. Throughout his life he was inspired by the polarities of the architecture of Mediterranean civilization stretching back to antiquity and the potential of the most modern technology of his day.

1. What was Villa Fallet like?
2. What did Le Corbusier do in Italy?
3. What was his next commission?
4. What was the house for his parents like?
5. Why did he plan the Domino housing type?
6. What was Domino housing like?
7. Why was the Villa Schwob a major turning point?
8. What was the Villa Schwob like?
9. How can you describe Le Corbusier's second Paris commission – a studio house for Amedee Ozenfant?
10. What was Le Corbusier's most ambitious work?
11. What did Le Corbusier do after the liberation?
12. What was the concept of the oceangoing liner?
13. What did Le Corbusier receive the Gold Medal of the Royal Institute of British Architects for?

2.15 Henrik Aalto

Hugo Alvar Henrik Aalto, whose architecture is often described as organic and close to nature, is regarded as one of the most significant architects of the 20th century. The majority of historians and critics emphasize three aspects in Aalto's architecture that set it apart from any other architect's work and explain his importance: his concern for the human qualities of the environment, his love of nature, and his Finnish heritage. It seems that Aalto's architecture is a socially refined reflection of Le Corbusier's work, a masterly connection of avant-garde culture with traditional values. Despite being well integrated into the art world, apparently Aalto did not hesitate to include in his designs unfashionable issues that were dismissed by other architects of his time: individuality in mass housing, social equality in theaters, and his foible for details, such as extreme, carefully planned light systems in public buildings. From this angle, Aalto turns out to be a pure dissident of the avant-garde, emphasizing the complexity of architecture by leaving aesthetic values behind him.

1. How is Aalto's architecture described?
2. What are three aspects in Aalto's architecture that set him apart from any other architect's work?
3. What unfashionable issues did Henrik Aalto include in his designs?
4. Why is Aalto called a pure dissident of the avant-garde?

2.16 China

With the liberalization of the Chinese economy in 1979, the nationalistic style continued to be adopted only for political purposes during this period of internationalization. This is particularly apparent in buildings along the main east-west boulevard of Beijing, Chang'an Jie, which are required by city officials to adopt national characteristics in their form. This is accomplished by adding small Chinese pavilions on otherwise multistoried modern buildings. However, there was also more genuine integration of the two forms, such as the Beijing Library (Yang Yun, 1987), the Beijing West Railway Station (Zhu Jialu, 1996), and the Peking University Library (Guan Shaoye, 1998). In these attempts large tiled roofs appeared again on top of tall buildings, much like the examples from the 1920s. The search for a new Chinese architecture had found a new interpretation in the Fragrant Hill Hotel completed in 1982. In it I.M. Pei used traditional elements from southern China, such as diagonal windows and whitewashed walls, integrated in modern and yet distinctive Chinese spaces. Similar examples designed by Chinese architects include the Queli Hotel in Qufu (Dai Nianci, 1984) and a housing design in Ju'er Hutong in Beijing. However, the most significant development of the period was the return of foreign architects to the Chinese architectural scene in the last two decades of the century. They were involved in joint ventures with local design institutes in the design of new hotels operated by major Western hotel chains. These buildings served important purposes of introducing the International Style and modern construction technology to China, rapidly updating China from its 20-year isolation from the rest of the world. In the 1990s other commercial and cultural projects also benefited from international designers. Some of these were the first facilities built to international standards in China. The Shanghai Grand Theater has successfully utilized the curtain wall both as a symbol of modernization in the day and a bright jewel at night. The curved roof soaring into the sky is reminiscent of the traditional curved roof of south China and is a source of inspiration for many buildings in China. Although some architects were particularly sensitive to the local context, the majority designed massive curtain-wall buildings totally out of context with the surroundings. Sadly, these buildings became the icons of modernization and were copied all over China in a less satisfactory manner. With the development of Pudong district in Shanghai, imposing skyscrapers, unseen before in China, started to dominate the generally flat skyline.

These projects were mainly won in an international competition, which was becoming the norm for larger and joint-venture projects in the late 1990s. The foreign designers of these projects were clearly sensitive to the Chinese tradition within which the buildings are located. They often incorporated Chinese elements, motifs, or symbolism in their design. For example, the tallest building in China, the Jin Mao Building, was conceived as a Chinese pagoda with a shimmering curtain wall, whereas the World Financial Center was designed to invoke the Chinese conception of the heaven as round and the earth as square. Chinese architects boldly attempted architectural symbolism in building form. The Shanghai Museum is designed in the shape of an ancient bronze cauldron (Xing Tonghe, 1996), and the Memorial to the Victims of Japanese Massacre used a stark granite surface and dry landscape to evoke the extreme horror of the massacre (Qi Kang, 1985). However, the most controversial project that epitomizes the tension between internationalism and nationalism in architecture is the winning entry of the design competition for the National Grand Theater of China in Beijing. The design of Paul Andreu consists of a gigantic glass dome covering three separate theater structures. Located next to the Great Hall of the People, the heart of political China, this project has generated heated debates in the local architectural community and was put on hold in 2000. The stark contrast of the ultramodern structure with nationalistic architecture at such an important site and the cultural symbolism of the glass dome are two major objections to the scheme. On the other hand the supporters argue that China needs national icons of this sort to launch itself into the new millennium. This is perhaps a clear indication that Chinese architecture was standing at the crossroad at the end of the century. The desperate search for a Chinese identity has so far yielded no satisfactory answer. In the meantime, the pressure of commercial development has produced two extremes: well-conceived buildings designed by international offices and big design institutes in major cities, and mediocre buildings by the thousands all over the vast country.

1. Was the nationalistic style used after liberalization of the Chinese economy?
2. What are the examples of the nationalistic style in China?
3. How is it accomplished?
4. When did foreign architects return to the Chinese architectural scene?
5. Did they work with local design institutes?
6. What purposes did these new buildings serve?
7. What was the curved roof used for?
8. Where did skyscrapers appear first?
9. Did the foreign designers incorporate Chinese elements in their design?
10. Did the Chinese architects use architectural symbolism in building form?
11. What was the most controversial project that epitomized the tension between internationalism and nationalism in architecture?
12. Why was it put on hold?
13. What are two extremes in Chinese architecture?

2.17 Constructivism

For the 15 or so years of its existence, from the first years of Soviet power to the early 1930s, Constructivism endeavored to alter conceptions of architectural space, to create an environment that would inculcate new social values, and at the same time to use advanced structural and technological principles. Paradoxically, the poverty and social chaos of the early revolutionary years propelled architects toward radical ideas of design, many of which were related to an already thriving modernist movement in the visual arts. For example, El Lissitzky's concepts of space and form, along with those of Kazimir Malevich (1878–1935) and Vladimir Tatlin (1885–1953), played a major part in the development of an architecture expressed in "stereometric forms," purified of the decorative elements of the eclectic past. The experiments of Lissitzky, Vasily Kandinsky, and Malevich in painting and of Tatlin and Alexander Rodchenko (1891–1956) in sculpture had created the possibility of a new architectural movement, defined by Lissitzky as a synthesis with painting and sculpture. In its initial phase, Constructivism was closely associated with radical design studios. The preeminent institution was named VKhUTEMAS (the Russian acronym for "Higher Artistic and Technical Workshops"), following a reorganization of the Free Workshops in 1920. In 1925 it was reorganized yet again, subsequently to be called the Higher Artistic and Technical Institute (VKhUTEIN). VKhUTEMAS-VKhUTEIN was by no means the only Moscow institution concerned with the teaching and practice of architecture in the 1920s, but it was unique in the scope of its concerns (which included the visual and the applied arts) as well as in the variety of programs and viewpoints that existed there before its closing in 1930. Its first program curriculum, developed by Kandinsky, was found too abstract by many and Kandinsky soon left for Germany and the Bauhaus. However, the concern with abstract, theoretical principles did not abate with Kandinsky's departure.

Indeed, the issue of theory versus construction became a major source of factional dispute in Russian modernism. The crux of the debate between the rationalists, or formalists, and the Constructivists lay in the relative importance assigned to aesthetic theory as opposed to a functionalism derived from technology and materials. Constructivist ideologues maintained that the work of the architect must not be separated from the utilitarian demands of technology. The Constructivist theoretician Moisei Ginzburg (1892–1946) accused the rationalists of ignoring this principle. ASNOVA, the main rationalist group that included Nikolai Ladovsky (1881–1941),

Vladimir Krinsky (1890–1971), Nikolai Dokuchaev (1899–1941), and for a time Lissitzky, countered by accusing the Constructivists of "technological fetishism." The most dramatic expression of artistic form as a function of material revealed in space was Tatlin's Utopian project for a monument to the Third International (1919–20), intended to be 400 meters in height, with a spiral steel frame containing a rotating series of geometric forms. The monument was dismissed as technologically infeasible when the large model constructed by Tatlin was brought to Moscow for exhibition and discussion. Until 1925 the Constructivists had little more to show in actual construction than their more theoretically minded colleagues, the rationalists. In fact, the most advanced of Constructivist works in the early 1920s were wooden set designs by Alexander Vesnin, Varvara Stepanova, and Liubov Popova. Perhaps the most accomplished example of the functional aesthetic is Ginzburg's own creation, the apartment house for the People's Commissariat of Finance (1928–30) at Narkomfin, designed in collaboration with Ivan Milinis. It illustrates Ginzburg's statements on the necessary interdependence of aesthetics and functional design, from the interior to the exterior. Built to contain apartments, as well as dormitory rooms arranged in a communal living system, the interior was meticulously designed, like that of many Constructivist buildings. The main structure culminated in an open-frame solarium. The front, or east, facade of the building is defined by the sweeping horizontal lines of window strips and, on the lower floors, of connecting balconies. Larger communal apartment buildings of the period were necessarily less refined in detail, yet a few examples, such as Ivan Nikolaev's massive eight-story dormitory (1000 rooms, each six square meters, for 2000 students) built in 1929–30 on Donskoi Lane in south Moscow, were strikingly futuristic in the streamlined contours of their machine-age design.

Despite the appearance of late examples of Constructivist architecture, such as the Pravda Building (1931–35) by Panteleimon Golosov (1882–1945), Soviet architectural design during the 1930s increasingly adopted historicist approaches to the articulation of structure, whether derived from variants of neoclassicism or skyscraper Gothic. Only in the 1960s did critical interest in Constructivist concepts and innovations begin to revive. Interest in the legacy of Constructivism continues to this day in the form of numerous publications and major museum exhibitions devoted to the work of the Constructivists.

1. What was the aim of Constructivism?
2. How did Lissitzky define a new architectural movement?
3. How the preeminent radical design studio was called?
4. Why was it unique?
5. Who developed its first program curriculum?
6. Where did the crux of the debate between the rationalists and the Constructivists lay?
7. What was the main idea of Constructivism ideology?
8. What was the most dramatic expression of artistic form as a function of material revealed in space?
9. What were the most advanced of Constructivist works in the early 1920s?

10. What was the most accomplished example of the functional aesthetic?
11. What was it like?
12. What was another example of larger communal apartment?
13. When did the interest in Constructivist concepts and innovations begin to revive?

2.18 Dom Kommuny

Dom Kommuny was a daring experiment in communal living. Now it houses a new generation of inhabitants. In 1929 a group of architects led by Moisei Ginzburg decided to become the guinea pigs for their own experiment in communal living. They designed Dom Kommuny, or communal house, where residents could live, work and eat without ever going outside. Two years later the architects moved in themselves, and a unique lifestyle unfolded inside the walls, built from a mixture of lime and bulrushes. The residential complex at 8 Gogolevsky Bulvar was made up of three blocks: one for bachelors, one for families and one for eating. On the roof of the family building was a solarium and a kindergarten. The two residential blocks were linked by a metal walkway, while a tunnel led to the cafeteria. On the lower floors were well-lit studios and workshops.

Today, the kindergarten and solarium are long gone, the tunnel is blocked and the cafeteria building has been privatized. The bachelor pads are now occupied by a wide variety of people, who have all added a personal touch to their unusual split-level apartments. The apartments vary as much as their inhabitants. Galina Maxwell, a gallery owner, has added glass chandeliers and an animal skin rug. Sergei, a businessman, put in a dark brown wood floor and decorated his living room with a red-toned painting by an Argentine artist and various earth-colored sculptures. Decorative plates hang on the walls, and rugs cover the couches in the apartment of Yelena Sinyavskaya, 80, who has lived there since she was 3. Her father, Mikhail Sinyavsky, was one of the architects who designed the building. In the apartment of architecture teacher Albina Starkova stairs descend from a tiny entrance hall into living room, which has a high ceiling and a huge window looking onto the Moscow River. The room leads into a small kitchen area and a low-ceilinged bedroom, lit by a strip of windows. The apartment has the luxury of a bathroom with a tub, because she has a pocket of extra space. Starkova's kitchenette used to have folding doors that could hide any signs of domesticity. Although her apartment was designed for one person, Starkova and her son have lived there since he was 11. She said she has never felt that the space was too small. Belongings from various stages of her life decorate her apartment. A lamp Starkova rescued from being thrown away from a federal ministry building hangs in the living room, and a terracotta tea set with minute cups, which she bought in San Francisco, stands on the bookshelf. Dom Kommuny was built on the site of a church. The crypt of the church is still in the basement of the building and now houses a restaurant. The building is now in a poor condition. The pipes are old and rusty, the stairwells have not been touched and the wiring has never been checked properly. Most seriously, workmen damaged the supporting concrete pillars in 2004 when the owners of the basement restaurant complained they were wasting space.

1. When was Dom Kommuny built?
2. Who moved in Dom Kommuny?
3. How did they design their communal house?
4. How many blocks did the house have? What were they like?
5. What kind of people live in the house now?
6. How did inhabitants decorate their apartments?
7. What is Starkova's apartment like?
8. In what condition is the building now?

2.19 Concrete

Concrete is a composite material produced by mixing a paste of cement and water with inert materials called aggregates. Because concrete is mixed and poured, it is well suited for molds and can be molded around reinforcing steel, a practice so common that by 1900 nearly all concrete structures were reinforced in some way by steel hidden from view. The first ingredient, cement paste, is the binding agent, and a number of different types were developed throughout the century. Consisting of Portland cement and water, this paste hardens via a curing process called hydration. Curing is a chemical process in which water reacts with the cement paste and generates heat.

The second ingredient, aggregates, varies considerably in size from sand particles to 3-inch rocks mixed with the paste. Lightweight varieties of concrete substitute these aggregates for expanded shale, slate, or slag to reduce the finished product's weight. Because concrete's usefulness is complicated by its own dead load, a variety of engineers and builders have sought inventive alternatives. One of the more unusual experiments was conducted by the American architect Bernard Maybeck (1923). In a clotheswashing drum he combined cement paste, water, and sand; added some chemicals; and after mixing the concoction he dipped burlap sacks into the tank and pasted them onto wooden wall studs to form a concrete cladding.

Well-made concrete enjoys significant resistance to compression, but unlike steel it has little strength against tensile stress. The compressive strength of concrete is primarily based on the ratio of water to cement. The smaller the ratio of water to cement paste, the stronger the concrete. Once mixed, concrete is poured into molds called formwork, which may vary from a hole dug out of the earth for a foundation, to wood boards bolted together, to fiberglass panels. The pour is crucial because laborers must work the paste and aggregates evenly throughout the formwork. As the mix is spread within the formwork, laborers must ensure that all voids are filled and that the aggregate is evenly distributed. After engineers determine the concrete is strong enough to support its own weight, laborers remove the formwork for reuse at the next pour. In cold conditions curing concrete must be covered to ensure the temperature necessary for developing a designed compressive strength.

Horizontal concrete structural members (slabs and beams) develop the tendency to gradually deflect over long periods of time, and this can become so severe as to make buildings uninhabitable. Structural engineers devised prestressing strategies to counter this creeping deflection. Designers and builders have devised myriad ways of altering the construction process to obtain specific aesthetic effects. Various admixtures, especially those added at the end of a pour, have been used to alter the color of the finished material. The architects are interested in manipulating the texture and the quality of concrete's finished surface. Ornamental aggregates have been left exposed to give concrete a more rustic appearance, and a variety of surface treatments have been developed to alter the appearance of the finished concrete.

1. Why is concrete well suited for molds?
2. What aggregates are used?
3. What is the disadvantage of concrete?
4. What experiment did Bernard Maybeck conduct?
5. Does concrete have significant resistance to compression or to tensile stress?
6. When concrete is stronger?
7. Why is the pour crucial?
8. What kind of formwork can be used?
9. What tendency do concrete structural members develop over time?
10. How do designers and builders alter the construction process to obtain specific aesthetic effects?