

OK Site Certification Program Development Type Overview

Research and Development Park

General Description

Research and development facilities are highly sought after economic development projects because they create excellent jobs with limited infrastructure development. Also, it is a statement that your community has the ability to provide resources and amenities that meet the special needs of highly skilled, highly paid professionals.

A research and development facility's configuration and makeup varies widely according to the industry type. Biotech and life sciences companies, electronics research and development facilities, and Internet start-ups may conceivably be looking at the same site, but their specific needs are much different. A small facility, 25,000 - 50,000 square feet, is typical. Limited acreage is needed, 5 acres for example, but the location must be served by excellent telecommunications and electrical infrastructure, and be within a setting conducive to professional employees. Investments can range from \$5 MM - \$50 MM, with over 75% of the cost in the equipment budget.

In general, a limited number of people are employed at the facility (100 or less). Based on their skills and knowledge workers are paid well. Management is limited due to the fact that most teams or projects are self-directed.

Market Analysis

Research and development facilities are historically found in clusters. Research parks create a critical mass of innovation and scientific expertise that in turn acts as a magnet for manufacturers requiring such information and support services. For industry, the benefits of an area with a high R&D concentration are two-fold: consolidation of highly valuable resources, and opportunities for knowledge transfers and research collaboration.

However, research park property is often expensive, and that cost alone can be prohibitive to start-up companies and cost sensitive contract research facilities and manufacturers.

Therefore, R&D parks aid companies in becoming more competitive globally. Increasingly, research facilities are searching for smaller communities with access to highly skilled workers, and a less expensive cost of living. Communities benefit from the parks by virtue of diversification of industry and government; and universities become recipients of new technology creation.

In today's technologically advanced world, companies across industry boundaries are increasing R&D investment. Biotech research and Internet start-up companies are not the only kind of firms conducting advanced research, but also manufacturing companies and government related research functions.

Oklahoma has a variety of different facilities involved in research and development, including electronics facilities and several biotech/life sciences companies. Oklahoma

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also has an abundance of research and development facilities across the state-in and around the large to mid-sized cities and research universities.

Minimum Site Acreage

A research and development site is rather small, 2-10 acres. Real estate costs are usually higher for a R&D facility because of the locational requirements (telecom, commercial facilities nearby, etc.), and companies typically only purchase or lease what is needed. This being said, it is important that enough area is allocated to provide expansion capability. The added space will benefit both the company and the community.

Appropriate Topography

The overall topography should be flat or gently rolling in order to minimize site preparation.

Utility Needs

All utilities must be underground in the R&D park.

Electricity

- Kilowatt (kW) demand: 600 kW
- Kilowatt Hour (kWh) Usage: 324,000 kWh / month

Natural Gas (LP is acceptable)

- Usage: 1500 mcf / month

Water

- Usage: Pp to 300,000 gallons / day
- Municipal System Preferred

Sewer

- Usage: up to 300,000 gallons / day
- Municipal System Preferred

Telecommunications

- T-1 minimum or equivalent required; Fiber OC-1 or equivalent with SONET ring infrastructure preferred

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Transportation Requirements

The site should be within 90 miles of a medium-to-large sized, commercial service airport so senior management, corporate officers and technical employees can easily access the new site.

Labor/Workforce Needs

A typical facility will employ 50 people, 10 of which will be management level with average salaries of \$80,000 per year, 30 will be researchers with average salaries of \$60,000 per year, and 10 will be maintenance personnel earning approximately \$10/hour.

Research and development facilities are comprised of well-paid salaried employees and pay a national or international market rate for employees with limited local comparisons.

The following table shows the typical occupations that may be found in a research and development facility. The table compares 2004 Oklahoma mean hourly wages with 2004 national mean hourly wages. *Please refer to the Application Package for the detailed “Comparison of Wages” and “Description of Occupations” sections.*

Research and Development Park			
OCC Code	Title	Oklahoma	National
17-2041	Chemical Engineers	\$36.21	\$38.49
17-2061	Computer Engineers	\$38.29	\$40.39
19-2031	Chemists, except Biochemists	\$23.21	\$29.43
19-1029	Biological Scientists	\$26.75	\$29.03
19-4011	Agricultural and food science technicians	\$15.37	\$12.75
19-4021	Biological technicians	\$17.04	\$14.63
19-4031	Chemical Technicians and Technologists	\$17.50	\$19.04
19-4099	All Other Physical and Life Science Technicians and Technologists	\$19.01	\$20.52

Proximity of Support Facilities

Three important support factors are required for a community to qualify for site selection:

- Proximity to other types of research and development facilities.
- Presence of a university preferably with a research function and Ph.D. programs.
- Presence of technical equipment support services.

Site Development Barriers & Issues

Flexibility is key in research & development space since R&D requirements vary by industry and build-to-suit will typically be the desired course of action. In the case of a speculative building, R&D space should resemble office space with a few necessary alterations. The space should be completely built-out, air-conditioned and heated throughout, have high-density parking, lower ceiling heights than manufacturing but higher than general office space, and, similar to manufacturing, have roll-up delivery doors.

Site Ownership vs. Lease

The client will own the facility due to the high level of investment required to build.

Surrounding Land Use Issues

The ideal situation for the project is construction in an existing research and development park or within close proximity of one.

Other Criteria Critical to the Selection

Affiliation with a nearby university is necessary.

Because of the highly specialized work force needs of R&D facilities, quality of life is a very important factor.

Telecommunications infrastructure is increasingly important for information management and sharing.