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R&D LAND DEVELOPMENT

HKS

2009 CREW DETROIT IMPACT AWARDS



# Water Wheel Centre

and HKS Detroit Regional Office

# TABLE OF CONTENTS

<b>SECTION 1</b>	Executive Summary
<b>SECTION 2</b>	Project Fact Sheet
<b>SECTION 3</b>	Project Team
<b>SECTION 4</b>	Challenges/Solutions
<b>SECTION 5</b>	Design Innovation
<b>SECTION 6</b>	Environmental Considerations
<b>SECTION 7</b>	Relationship to Site and Community
<b>SECTION 8</b>	Social and Economic Impact

# SECTION 1

## Executive Summary

Please provide an overall summary of your project.

Also include a 50-word project description for press releases and event program.

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### Introduction

The Water Wheel Centre has been a work in progress for more than 14 years. Now a gem on Main Street in Northville, this historic industrial building designed by Albert Kahn was saved from proposed demolition and transformed into a vital business center and community gathering place. The vision of building owners, Rick and Diane Cox, of R&D Land Development, and their many collaborators, culminated when HKS Architects, P.C., (a Dallas-based corporation) put the finishing touches on the largest segment of this historic facility for their new home in April 2009.

Collaborative innovation and symbiotic solutions between key stakeholders led to success in overcoming significant hurdles throughout the 14 year process. During the purchase of the Water Wheel Centre site and facility from Ford Motor Company in 1994, R&D Land Development, LLC, worked with the Mayor of Northville (Chris Johnson) and the Northville City Manager (Gary Word) to secure deeds of property for the City of Northville. This collaborative effort resulted in new public amenities for the city with “Ford Field” (the ball park loaned to the city from 1946 to 1994), the 4.2 acre parcel on the North side of the pond, the site now containing the playscape and a 60-car parking area shared by the city and the building. R&D Land Development, LLC, quickly renovated the original 20,000 square feet structure that was built in 1936 for Ford Motor Company to produce valves for the auto industry into a facility that housed the manufacturing facility of R&D Enterprises, a leading producer of heat exchangers for the marine, industrial and off-road industries. R&D Land Development, LLC, then proceeded to renovate the several remaining areas in the building to house other design and engineering firms. A local health club was one of the early tenants and has become an important amenity for the tenants of the building providing them with the ultimate in accessibility for personalized health and fitness. The health club has now joined a national franchise (Planet Fitness) and has expanded into more than 10,000 square feet of space.

The landscaping for the building has won several “Beautification Awards” given by the City of Northville. The plantings are in keeping with the era of the building and compliment the exterior. Lynda Lemke & Associates of South Lyon, Michigan, designed the original layout and helped oversee the installation of the landscaping materials at each segment of construction. The City has also helped make the site blend with the community by extending the Main Street sidewalk and the line of city streetlights that highlight the total site.

Growth of R&D Enterprises forced the company to relocate its manufacturing operation from the building allowing another design and engineering firm to be added to the rental roster. The remaining space of almost 13,000 square feet on the main level was recently leased by HKS Architects, Inc. This Impact Award submittal is based on the completion of HKS renovation as the culmination of the Water Wheel Centre project, with the main level of the building now fully occupied. The balance of this submittal focuses on the unique character of the overall building and site redevelopment, and the crowning project – HKS.

### 50-Word Project Description

The Water Wheel Centre: a Northville gem after a 14-year transformation. Saved from demolition, Albert Kahn’s historic industrial building is a business and community magnet. The vision of owners, Rick and Diane Cox of R&D Land Development, culminated with HKS Architects’ expansive space design in this revitalized landmark.





# SECTION 2

## Project Fact Sheet

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<b>Category Entering:</b>	Redevelopment
<b>Project Name:</b>	Water Wheel Centre
<b>Address:</b>	235 East Main Street Northville, Michigan 48167
<b>Date Completed:</b>	April 15, 2009
<b>Gross square feet:</b>	72,000 square feet
<b>Current Use:</b>	Mixed use (office and recreational)
<b>Prior Use (if applicable):</b>	Manufacturing facility (original Ford valve plant later used for manufacturing by R&D Enterprises)

### Tenants/Occupants:

- Craig David Butler Studio (photography)
- GHA Design Studios (retail design)
- HKS Architects, P.C. (architecture, interior design and planning firm)
- inFORM studio, P.C. (architects)
- McKenna & Associates (community planners/urban designers)
- Planet Fitness (health club)
- Therapy Staff (health care staff placement)

### Amenities/Features:

- Listed on the National Historic Register
- Listed on the State of Michigan Historic Register
- A health club is located in the building and used by tenants
- Downtown/Main Street location
- Building designed by Albert Kahn

### Other special features:

- Cherished community icon restored: functioning steel water wheel (7' wide x 19.5' tall) rebuilt as part of this project
- Scenic park setting on the Middle Rouge River
- Milestone building as last of Henry Ford's "village industries" built to supply auto components for main assembly facility in Dearborn, Michigan
- Replaced all the 15" x 20" single-pane windows with double-pane, argon-filled E-glass windows





# SECTION 3

## Project Team

Your project may not have included all of the team members listed below.  
Please complete as applicable.

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**Owner:** R&D Land Development, LLC  
**Address:** PO Box 701253, Plymouth, MI 48167  
**Tel. #:** 734.454.9600  
**Contact:** Richard Cox

**Developer:** R&D Land Development, LLC  
**Address:** PO Box 701253, Plymouth, MI 48167  
**Tel. #:** 734.454.9600  
**Contact:** Richard Cox

**Const. Mgr:** R&D Land Development, LLC  
**Address:** PO Box 701253, Plymouth, MI 48167  
**Tel. #:** 734.454.9600  
**Contact:** Richard Cox

**Architect:** Sahba La'al  
**Address:** 1450 Jones Drive, Ann Arbor, MI 48105  
**Tel. #:** 734.761.2344  
**Contact:** Sahba La'al

**Architect:** Mark Luther  
**Address:** Deakin University, Geelong, Victoria 3217, Australia  
**Tel. #:** 011.61.3.52.27.8315  
**Contact:** Mark Luther

**Designer:** Sahba La'al  
**Address:** 1450 Jones Drive, Ann Arbor, MI 48105  
**Tel. #:** 734.761.2344  
**Contact:** Sahba La'al

**Architect (HKS tenant space):** HKS Architects, P.C.  
**Address:** 235 East Main Street, Suite 102C, Northville, MI, 48167  
**Tel. #:** 248.347.7050  
**Contact:** Carol Johnson Kartje, AIA, IIDA, LEED AP

**Designer (HKS tenant space):** HKS Architects, P.C.  
**Address:** 235 East Main Street, Suite 102C, Northville, MI, 48167  
**Tel. #:** 248.347.7050  
**Contact:** Carol Johnson Kartje, AIA, IIDA, LEED AP

# SECTION 3

## Project Team

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Please complete as applicable.

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**Engineer (HKS tenant space): Wolf Wineman Engineers**

Address: 30500 Northwestern Highway, Suite 100, Farmington Hills, MI 48334  
Tel. #: 248.855.3053  
Contact: Mike DeHart, P.E.

**Engineer (HKS tenant space): Peter Basso Associates, Inc.**

Address: 5145 Livernois Rd, Suite 100, Troy MI 48098  
Tel. #: 428.879.5666  
Contact: Tracey Guzman, LEED AP

**Contractor (HKS tenant space): Sterling Image Construction, Inc.**

Address: 1300 N. Campbell Rd., Ste. E, Royal Oak, MI 48067  
Tel. #: 248.398.2673  
Contact: Don Urbas

**Attorney: Rock & Borgelt, PC**

Address: 24599 Ford Road, Dearborn Heights, MI  
Tel. #: 313.274.4064  
Contact: Pete Borgelt

**Engineer: Richard D. Cox, P.E.**

Address: P.O. Box 701253, Plymouth, MI 48170  
Tel. #: 734.454.9600  
Contact: Richard D. Cox, P.E.

**Property Mgr.: R&D Land Development, LLC**

Address: P.O. Box 701253, Plymouth, MI 48170  
Tel. #: 734.454.9600  
Contact: Diane Cox

**Planning/Zoning: City of Northville**

Address: 215 West Main Street, Northville, MI 48167  
Tel. #: 248.449.9906  
Contact: Patrick Sullivan

**Landscape Architect: Linda Lemke & Associates**

Address: 335 West Lake Street South, South Lyon, MI 48178  
Tel. #: 248.486.6580  
Contact: Linda Lemke



# SECTION 3

## Project Team

Your project may not have included all of the team members listed below.  
Please complete as applicable.

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### Submitter Name: R&D Land Development

Address: P.O. Box 701253, Plymouth, MI 48170  
Tel. #: 734.454.9600  
Contact: Richard D. Cox

### CREW Company Name: HKS Architects, P.C.

Address: 235 East Main Street, Suite 102C, Northville, MI 48167  
Tel. #: 248.347.7050  
Contact: Carol Johnson Kartje, AIA, IIDA, LEED AP

### CREW Company Furniture Installer: WorkSquared

Address: 46855 Magellan Drive, Suite 100, Novi, MI 48377  
Tel. #: 248.624.2000  
Contact: Laura Agabashian





# SECTION 4

## Challenges/Solutions

What challenges did you encounter and how did you overcome these challenges?

What solutions did you develop in the response to these challenges?

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(1) Re-roofing the facility:

- The roof still contained some asbestos components; special permits and handling were accomplished with Schreiber Roofing of Detroit, Michigan.
- The second addition did not have the limestone coping or windowsills used on the original building and the first addition. R&D Land Development replaced all the pre-cast concrete copings and windowsills with new limestone to match the original building.
- The original building had a copper element on the limestone coping. R&D Land Development worked with the architect to create a method to match the original building roofing approach by adding the copper element around the entire building to make the building appear as one unit instead of three separate construction phases.
- All the sheet metal on the cupola of the original building was replaced with copper to eliminate any future maintenance problems.

(2) Window Elements:

- The steel sash windows in the building were designed to contain single pane windows with “old style” window glazing. A new argon filled thermal pane window with “low-E” glass was designed. This was then approved by the Historic Society to replace all the single pane windows. The installation technique using silicone caulk was developed by Complete Homes, Inc., to mount all 9,000 windows.
- Many of the windows had been cut out to add vents and exhaust fans. A company was located that still made the original window extrusion, and enough material was purchased to rebuild all the missing window frames. The glass and caulk was removed from all the remaining frames; they were sand blasted and repainted before installing all the new glass.
- The original Albert Kahn design included windows in the clerestory area. Ford Motor Company had replaced these windows with movable fiberglass vents to help vent the manufacturing area. R&D Land Development removed the entire fiberglass element and the actuating mechanism and replaced them with windows to match the original design of the building.

(3) Wood block flooring:

- Much of the wood block flooring that was used on the original factory floor had been removed leaving a 3” void on most of the plant floor. R&D Land Development removed the remaining wood block and all the voids were re-poured with concrete.
- This element presented a unique opportunity during the HKS project for the running of all the data and electrical lines to keep the clean visual lines to the outside park area. Since the main floor in the original building is over a basement and is 19.5 inches of reinforced cement, HKS chose to remove the top three inches of concrete in selected areas to run all the data and electrical lines.



# SECTION 4

(4) Entry to the building:

- The original 20,000 square foot structure built in 1936 had its front entry on the Northwest corner of the building. When the first addition was added, the entry was not changed; however, when the second addition was added, Ford Motor Company added the entry with canopy and steps on the South side of the building near the water wheel.
- Using the model developed by the architect, R&D Land Development petitioned the City, State, and National Historic Society for approval to cut the window out of the Southwest corner of the original building, add a copper clad canopy, and insert new entry doors that matched the original front doors on the North side (black, double doors, with three panes of glass per door). This proposal was accepted and the new front entry was created in the middle of the South side of the building.

(5) The historic bi-fold mechanized doors:

- A set of 10-foot high wood doors into the lower level on the North side of the building. Ford Motor Company had modified these doors by adding a man passage door.
- R&D Land Development commissioned the doors to be remade with one minor change. The original Albert Kahn print called for the doors to be constructed of solid 4" white pine wood. The carpenter, Mr. Edward St. John of St. John, Michigan, agreed to remanufacture the doors if allowed to use solid oak. These doors are a beautiful element of the building that often is seen in wedding photo albums after the wedding party sees the doors on the march to take pictures near the water wheel.
- The original door operation mechanism was re-built and the motor rewired to allow the doors to function the same as they did in 1936.

(6) The Water Wheel;

- The bearings were replaced in 1995 and the wheel was re-started as a visual element for the city.
- The new bearings were destroyed within three months due to the lack of grease. About this time the water buckets started to break off the 75-year-old water wheel. A combined effort to completely rebuild the water wheel was initiated.
- Ford Motor Company had used the same Fitz water wheel on one of their facilities in Tecumseh, Michigan. The Tecumseh water wheel had been rebuilt and the forms used to produce the water buckets were still available. The man who made the buckets for the Tecumseh water wheel was commissioned to produce the 52 buckets for the Northville water wheel.
- R&D Land Development then commissioned Castle Enterprises of Plymouth, Michigan, to lift the water wheel, install new bearings and completely rebuild the waterwheel with all new steel. The only elements used of the old wheel were the 8" diameter shaft and the 1-inch by 6-inch wide spokes. All other elements of the water wheel were reconstructed in 10 sections, which were hoisted into position and bolted together on the original spokes. The wheel should have approximately another 75 years of life after the rebuild. An automatic greasing device has been placed on the wheel to keep the bearings greased .
- Castle Enterprises also repaired the gate mechanism that is located in the bottom of the water tower behind the wheel that is fed with water from the upper pond located at the North side of the Historic Village.



# SECTION 5

## Design Innovation

How is the project design innovative?

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The real design innovation of the Water Wheel Centre redevelopment is confidence, restraint, and patience not to do too much. For over 14 years, the R&D Land Development owners and their collaborators have breathed new life into a vacant historic industrial building to be reborn as a magnet for business and community life. Indeed, the Water Wheel Centre has achieved the delicate balance of respecting the spirit and integrity of the historic architecture of the industrial economy, to creating a design and business center and community resource that is responsive to the creativity needed in our own creative knowledge economy.

The 1930's manufacturing facility for the automobile industry is now a vibrant community resource and business center for the "creative industry." The expansive windows and clerestory glass bring an abundance of light and fresh air into open, contemporary, high tech, creative workplaces. Innovative businesses have been drawn to this powerful place where creative "productivity" and holistic wellness is inspired. HKS and the other new creative workers in the Water Wheel Centre owe much to Henry Ford's belief that the quality of the work environment could positively affect workers' attitudes and the productivity of their efforts and required optimal conditions for light and ventilation. The soaring ceiling heights that once accommodated the overhead cranes of the industrial assembly process, now offer inspiration for innovation. The large open spans of the steel structure met the practical needs of mass production with flexibility for experimentation in the assembly process and adaptation for increasing modernization of industrial production equipment. Now the expansive open spaces provide flexibility for nimble responsiveness to changing needs of collaborative creative workers.

New elements have been designed and constructed to achieve the goal of maintaining the authenticity of Albert Kahn's architecture. The strong, functionally driven massing and fenestration, the use of man-made materials of steel, glass and brick, the symmetrical feature elements, repetitive geometric and linear brick ornament remain integral to the design. The transformation celebrated the essential character of the building and site, respecting the National and State Historic regulations as well as the local Historic District expectations. True to the spirit of collaborative synergy, R&D Land Development invited the contributions of creative services from each of its tenants to continue to improve the environment in and around the building.

The Water Wheel Centre now serves as an active contemporary and historic landmark for the people of Northville and State of Michigan expressing the enduring vitality of the area that embraces the future while respecting the past. The sound and sight of the river flowing over the iconic water wheel reflects this message with poignancy.



# SECTION 5

For HKS, the Water Wheel Centre was a perfect match. For over seventy years, HKS has designed buildings of distinction that reflect the unique characteristics of both location and the people who use them. Indeed, the Water Wheel Centre is a place of distinction: a magnetic place for business success, inspired innovation, and community rejuvenation.

The design innovation for HKS also began with the confidence and restraint not to do too much. The vitality of the downtown location, intrinsically strong industrial architecture of the Water Wheel Centre, and the scenic park setting along the Rouge River created the ideal catalysts. Commitment to sustainability guided design throughout the process (see innovations in Section 5). The holistic design response reflects HKS goals to use HKS resources and the resources of our environment wisely. The design for the 13,000 square foot area is predominantly open, respecting and celebrating the powerful potential of the dramatic industrial space to inspire future innovation in HKS team members' design work. The large spans of the steel trusses enabled an open studio with a variety of settings, ideal for intense individual activities, one-on-one mentoring, or collaborative work sessions with colleagues and clients. The HKS culture of inter-discipline collaboration is already accelerating to new levels in this inspiring place. Experimentation and flexibility for the future are also supported in this open studio, and the design is responsive to the HKS goal to fluidly adapt to change. As part of the sustainable focus, large expanses of windows remain predominantly unobstructed to maximize access to daylight, views and fresh air for all throughout the entire space. Indeed the design is truly a systemic approach to integrating existing architecture, new high tech MEP and light harvesting systems, and high impact design elements. HKS now has another regional office that expresses connection to the context of community while reflecting the HKS brand identity as among the top three architecture firms in the nation. HKS is honored to have created a place of distinction within a gem of Northville, Michigan, the Water Wheel Centre.



# SECTION 6

## Environmental Considerations

Does the project have any 'green' or sustainable features?

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- The entire Water Wheel Centre has been redeveloped to respond to environmentally sustainable concepts.
  - The replacement of all window glass (originally single-pane, clear glass) with double-paned, argon-filled, E-glass reduces energy waste and improves the temperature quality of the indoor work environment.
  - All manually operated windows were repaired and large sections can be opened with a single crank mechanism that was part of the original Albert Kahn design. The opportunity for fresh air improves indoor air quality.
  - The replacement of clerestory fiberglass panels with double-pane, argon-filled, low E-glass, reduces energy consumption, improves daylighting, and quality of the work environment. (The building originally had glass, operable panels which had been replaced at some point with the fiberglass panels.)
  - Most of the rooftop HVAC units have been replaced with high-efficiency Trane units to reduce energy waste.
  - The only carpet cleaning technique used in the building "common areas" is a sustainable dry cleaning method (Host).
  - Much of the floor in the tenant spaces including HKS has been finished by grinding and polishing the concrete and using low emission floor coverings.
  - "Van pool" parking is provided and bicycle racks are being installed.
  - Expansive windows and a new outdoor patio near the North Entry provides direct access and views to the Middle Rouge River and the park-like setting improves the quality of the work experience.
  - Fuel consumption and auto emissions are reduced by the downtown location of the site within easy walking distance to restaurants, shops, banks, drugstores, drycleaners, churches, schools and other community amenities.
  - The dumpsters for trash and recyclables are contained inside the building to encourage waste reduction and improve the appearance of the site.
  - The HKS space is designed for sustainability and is registered as a LEED (*Leadership in Energy and Environmental Design*) Commercial Interiors project with the United States Green Building Council (USGBC) targeting Silver Certification and one of the other tenants has achieved Silver Certification.



## SECTION 6

- The HKS HVAC control system combines sophisticated technology and common sense to optimize indoor environmental quality and reduce energy consumption. Wolf Wineman worked collaboratively with HKS to achieve their MEP goals.
- The HKS indoor air quality system includes large scale fans suspended from the structure above and sensors to indicate when temperature and humidity conditions are optimal to use the original hand crank mechanism to open the windows and let in fresh air.
- The HKS lighting system designed in collaboration with Peter Basso Associates, Inc., is integral to the sustainable design; the light harvesting system includes energy efficient light fixtures that turn off when the daylighting reaches the targeted level of illumination detected by sensors. On a sunny summer day, the overall lighting system automatically turns off by 9:00 a.m. and does not come back on until 7:00 or 8:00 p.m.



# SECTION 7

## Relationship to Site and Community

How does the project relate to its site and the surrounding community?  
(please include site plan or aerial view)

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- Located on Main Street in Northville, Michigan, the Water Wheel Centre is integrally connected to the pulse of city life of downtown businesses and recreation areas, and community events.
- The Northville Mayor, City Manager, Planning Commission, the Historic Society, Ford Motor Company and R&D Land Development have all worked in unison to help create a park-like setting for the historic building to be transformed into a vibrant design center in Southeast Michigan. The gift of the park lands to the city set the stage for the rebirth of the building.
- The deed to almost 10 acres of property was transferred to the city with a signed agreement that the city will only use this area as parks and recreation. These areas included the 3.2 acres of property that Henry Ford had allowed the city to use since 1946 as a ballpark, the 4.3 acres of property on the North side of the Middle Rouge River, which has already been converted into usable park area, the 1.0 acre of property adjacent to the water wheel and South of the slue – extending to the Northville well, and the 1.4 acres of land on the West side of Griswold that contains the Playscape and a shared parking lot.
- The Northville Parks & Recreation master plan includes fishing piers, a bridge over the dam and the water wheel stream that would complete a running path around the entire 14.2-acre site purchased by R&D Land Development from the Ford Motor Company.



PROPOSED SITE PLAN  
K&D LAND DEVELOPMENT

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4p/374

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4p/378

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2019  
 2018  
 (2017)

21

FOR THIS DOCUMENT, CONTACT THE ARCHITECT IF THERE ARE ANY CHANGES TO THE LOCATION OR DIMENSIONS OF ELEMENTS SHOWN ON THIS DRAWING. CONTACT THE ARCHITECT IF THERE ARE ANY CHANGES TO THE LOCATION OR DIMENSIONS OF ELEMENTS SHOWN ON THIS DRAWING. CONTACT THE ARCHITECT IF THERE ARE ANY CHANGES TO THE LOCATION OR DIMENSIONS OF ELEMENTS SHOWN ON THIS DRAWING.



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\* 6h Pill, 10min 100 mg

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DATE OF V. 10/13/2006	DATE	BR0508ED
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	WORKING	

PHASE	NO. OF COMPLETED TOWERS	NO. OF COMPLETED TOWERS
PHASE ONE	100	100
PHASE TWO	100	100
PHASE THREE	100	100
PHASE FOUR	100	100

TOL RISE	4 OVC	4 W VC
TOL COVERAGE	MOME	SBA
EVA	MOME	39X
RSEA	20.	382. VAE
BSEP	42.	12. X AS. WHX

FROM: 20. RECEIVED: 105. 03. 38. DATING: EXISTING

SITE INVESTIGATION

SEE INDEX PAGE

RECONSTRUCTED ZONING INTO UNCLASSIFIED UNIT (DEVELOPMENTAL)

RECONSTRUCTED ZONING INTO CLASSIFIED RECONSTRUCTED UNIT (HISTORICAL)

AT&T  
701 WEST 182 STREET (4TH FL)  
LOS ANGELES, CA 90061-1500

WATERHEET BUILDING  
332 SOUTH MAIN STREET  
NORTHVILLE, MICHIGAN 48861

8400 ECT ADDRESSES  
TEL 348 348 1011  
NORTHVALE WICHITA 67218  
P O BOX 2380  
MR RICHARD COX PRESIDENT  
SUNSHINE R.O. EMERSONIA WASH DC 20506 DEPT 050001

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Wissenschaftliche Beschreibung

1121

1. Wavelength is the distance between two consecutive crests or troughs of a wave.



# SECTION 8

## Social and Economic Impact

What is the social impact of the project on its surrounding area?

What is the economic impact of the project on its surrounding area?

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Social Impact: Wedding parties are often seen on the Water Wheel Centre grounds for a “photo shoot” by the historic water wheel with the park-like setting as a backdrop. The engaging natural features of the site provide many individuals and families from the surrounding area with an opportunity to: fish in the pond; watch the ducks and geese that have made this special place their “home”; and bike or walk the meandering pathways. Since the property is in downtown Northville, parking during non-business hours is welcomed by the building owners for 200 visitors to community events such as parades, festivals, concerts, flower sales, and art shows. Committed to community outreach, R&D Land Development also opens the grounds to a charitable organization for its annual “run-walk” fundraiser. Additionally, a local group advertises their annual “Polar Bear Dip” by hanging a large banner from the roof of the building, with this wintertime event taking place in the pond located on the site.

With HKS moving to Northville, the Water Wheel Centre is now a meeting place for a growing bicycling club that has begun to explore the street routes and nature trails of the surrounding area. HKS is also opening their doors to special events as part of their company-wide commitment to the 1% Solution for community service. Bringing the broader community together with students and emerging HKS design talent, the first annual HKS 2009 Detroit Design Fellowship was launched in the HKS space, with a presentation for the revitalization of Detroit to LTU and U of M architecture faculty and urban design leaders from Northville and Detroit.

Economic Impact: By bringing new business to the community (businesses that employ approximately 140 people), the project provides an economic stimulus to the community. The people who work in the Water Wheel Centre also frequent other local business; they dine in the surrounding area – buy coffee at the local coffee shops – attend the local theatre – shop at the stores – because all these services are within walking distance of the Water Wheel Centre. The occupants of the Water Wheel Centre also bring their visitors, family and friends to enjoy the array of services and commodities available from the businesses in the surrounding area. The 7,000 members of the health club located in the Water Wheel Centre often patronize other local businesses. When HKS joined the Water Wheel Centre community, many business of Northville and surrounding areas welcomed them graciously and in turn are enjoying the benefits of entertaining and providing services for an array of HKS clients and colleagues from across the nation and overseas.



