

**GENOA CHARTER TOWNSHIP BOARD**  
**Regular Meeting**  
**August 7, 2017**  
**6:30 p.m.**

**AGENDA**

Call to Order:

Pledge of Allegiance:

Call to the Public (Public comment will be limited to two minutes per person)\*:

**Approval of Consent Agenda:**

1. Payment of Bills.
2. Request to Approve Minutes: July 17, 2017
3. Request to reappoint Chris Grajek to the Planning Commission and Dean Tengel to the Zoning Board of Appeals for three-year terms in accordance with the terms of reappointments that are limited to three years.

**Approval of Regular Agenda:**

4. Request to approve the proposal from K&J Electric for the purchase and installation of a new backup power generator at the Township Hall at a cost not to exceed \$64,307.
5. Discussion regarding interest charged on Fund #264 Roads/Lakes Special Assessment Districts.

Correspondence  
Member Discussion  
Adjournment

<p>*Citizen's Comments- In addition to providing the public with an opportunity to address the Township Board at the beginning of the meeting, opportunity to comment on individual agenda items may be offered by the Chairman as they are presented.</p>
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CHECK REGISTERS FOR TOWNSHIP BOARD MEETING

DATE: August 7, 2017

TOWNSHIP GENERAL EXPENSES: Thru August 7, 2017	\$83,708.73
July 28, 2017 Bi Weekly Payroll	\$90,721.79
OPERATING EXPENSES: Thru August 7, 2017	<u>\$414,134.07</u>
TOTAL:	<u>\$588,564.59</u>

Check Register Report For Genoa Charter Township  
 For Check Dates 07/28/2017 to 07/28/2017

Check Date	Bank	Check Number	Name	Check Gross	Physical Check Amount	Direct Deposit	Status
07/28/2017	FNBCK	EFT131	FLEX SPENDING (TASC)	1,159.13	1,159.13	0.00	Open
07/28/2017	FNBCK	EFT132	INTERNAL REVENUE SERVICE	22,404.84	22,404.84	0.00	Open
07/28/2017	FNBCK	EFT133	PRINCIPAL FINANCIAL	3,025.00	3,025.00	0.00	Open
07/28/2017	FNBCK	EFT134	PRINCIPAL FINANCIAL	1,426.63	1,426.63	0.00	Open
<b>Totals:</b>				28,015.60	28,015.60	0.00	
Total Physical Checks:					Dir. Dep.		
Total Check Stubs:				4	62,706.19		

**\$90,721.79**

Check Date	Check	Vendor Name	Amount
Bank FNBCK CHECKING ACCOUNT			
07/12/2017	33798		0.00 V
		Void Reason: PRINTED ON CHECK BY ACCIDENT	
07/13/2017	33799	DTE ENERGY	141.36
07/13/2017	33800	PLANNING & ZONING NEWS	185.00
07/17/2017	33801	AT&T	281.39
07/17/2017	33802	BLUE CROSS & BLUE SHIELD OF MI	32,712.21
07/17/2017	33803	BULLSEYE TELECOM	399.31
07/17/2017	33804	PFEFFER-HANNIFORD-PALKA	6,000.00
07/17/2017	33805	UNITED STATES TREASURY	1.68
07/17/2017	33806	VERIZON WIRELESS	382.19
07/17/2017	33807	ALLSTAR ALARM LLC	270.00
07/17/2017	33808	EVOLVING TECHNOLOGIES INC	1,158.00
07/17/2017	33809	GREEN OAK TWP TREASURER'S OFC	14.00 V
		Void Reason: RECEIVED CHECK MANGLED BY POST OFFICE	
07/17/2017	33810	LIVINGSTON COUNTY TREASURER	234.44
07/17/2017	33811	LIVINGSTON PRESS & ARGUS	80.00
07/17/2017	33812	MASTER MEDIA SUPPLY	165.68
07/17/2017	33813	TETRA TECH INC	875.00
07/17/2017	33814	UNITED STATES TREASURY	135.60
07/20/2017	33815	BAVARIAN INN LODGE	207.90
07/20/2017	33816	LSL PLANNING, INC.	4,709.76
07/20/2017	33817	US BANK EQUIPMENT FINANCE	2,055.75
07/21/2017	33818	AT&T	14.68
07/21/2017	33819	COMCAST	156.61
07/21/2017	33820	ESRI	4,128.00 V
		Void Reason: PAID OUT OF WRONG ACCOUNT	
07/21/2017	33821	GREEN OAK TWP TREASURER'S OFC	14.00
07/24/2017	33822	ESRI	4,128.00
07/25/2017	33823	CHASE CARD SERVICES	1,621.74
07/25/2017	33824	MICHAEL ARCHINAL	500.00
07/25/2017	33825	NEOPOST USA INC	787.61
07/25/2017	33826	WALMART COMMUNITY	54.50
07/26/2017	33827	NEOPOST USA INC	2,500.00
07/26/2017	33828	NETWORK SERVICES GROUP, L.L.C.	50.00
07/26/2017	33829	GUARDIAN	2,307.51
07/26/2017	33830	UNUM PROVIDENT	3,229.16
07/31/2017	33831	AMERICAN GENERAL LIFE INSURANC	296.50
07/31/2017	33832	ETNA SUPPLY COMPANY	4,975.00
07/31/2017	33833	JESSICA BUTTERMORE	53.87
07/31/2017	33834	OFFICE EXPRESS INC.	55.06
07/31/2017	33835	PERFECT MAINTENANCE CLEANING	565.00
08/01/2017	33836	DYKEMA GOSSETT, PLLC	622.58
08/01/2017	33837	EHIM, INC	11,216.64
08/01/2017	33838	PERFECT MAINTENANCE CLEANING	565.00
FNBCK TOTALS:			
Total of 41 Checks:			87,850.73
Less 3 Void Checks:			4,142.00
Total of 38 Disbursements:			83,708.73

08/01/2017 04:17 PM  
 User: Angie  
 DB: Genoa Township

CHECK REGISTER FOR GENOA TOWNSHIP  
 CHECK NUMBERS 4049 - 4100

Page: 1/1

Check Date	Check	Vendor Name	Amount
<b>Bank 503FN DPW-UTILITIES #503</b>			
07/13/2017	4049	WEX BANK	3,119.09
07/13/2017	4050	STATE OF MICHIGAN	95.00
07/17/2017	4051	PFEFFER-HANNIFORD-PALKA	500.00
07/17/2017	4052	POSTMASTER	1,484.19
07/17/2017	4053	VERIZON WIRELESS	282.73
07/24/2017	4054	BRIGHTON URGENT CARE	180.00
07/24/2017	4055	BRIGHTON URGENT CARE	97.00
07/24/2017	4056	GENOA TOWNSHIP D.P.W. FUND	300,000.00 V
		Void Reason: MADE OUT TO WRONG VENDOR	
07/24/2017	4057	GREG TATARA	500.00
07/24/2017	4058	TESHA HUMPHRISS	250.00
07/24/2017	4059	ESRI	5,472.00
07/25/2017	4060	GENOA TOWNSHIP	300,000.00
07/27/2017	4061	MWEA	70.00
07/31/2017	4062	ADVANCED AUTO PARTS	86.40
07/31/2017	4063	BLACKBURN MFG. CO.	342.30
07/31/2017	4064	MASTER MEDIA SUPPLY	90.59
07/31/2017	4065	MWEA	70.00
07/31/2017	4066	NETWORK SERVICES GROUP, L.L.C.	250.00
07/31/2017	4067	OHM ENGINEERING ADVISORS	8,662.00
07/31/2017	4068	ROY'S AUTOWORKS CORP	53.46
07/31/2017	4069	VICTORY LANE QUICK OIL CHANGE	74.98
08/01/2017	4070	US POSTAL SERVICE	50.00

**503FN TOTALS:**

Total of 22 Checks:	621,729.74
Less 1 Void Checks:	300,000.00
<b>Total of 21 Disbursements:</b>	<b>321,729.74</b>

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 User: Angie  
 DB: Genoa Township

CHECK REGISTER FOR GENOA TOWNSHIP  
 CHECK NUMBERS 4010 - 4100

Page: 1/1

Check Date	Check	Vendor Name	Amount
<b>Bank 592FN OAK POINTE OPERATING FUND #592</b>			
07/17/2017	4010	AT&T	409.16
07/17/2017	4011	BULLSEYE TELECOM	226.95
07/17/2017	4012	PFEFFER-HANNIFORD-PALKA	500.00
07/25/2017	4013	GENOA OCEOLA NEW USER	15,900.00
07/25/2017	4014	MHOG UTILITIES	37,057.88
07/27/2017	4015	AT&T LONG DISTANCE	40.00
07/31/2017	4016	DTE ENERGY	23.28
07/31/2017	4017	DUBOIS-COOPER	700.00
07/31/2017	4018	GENOA TWP OAK POINTE OPERATING	34.52
07/31/2017	4019	HACH COMPANY	321.89
07/31/2017	4020	TETRA TECH INC	7,277.50
07/31/2017	4021	UNITED STATES PLASTIC CORP.	66.65
07/31/2017	4022	USA BLUEBOOK	113.61
07/31/2017	4023	UTILITIES INSTRUMENTATION SERVICE	933.00

**592FN TOTALS:**

Total of 14 Checks:	63,604.44
Less 0 Void Checks:	0.00
<b>Total of 14 Disbursements:</b>	<b>63,604.44</b>

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User: Angie  
DB: Genoa Township

CHECK REGISTER FOR GENOA TOWNSHIP  
CHECK NUMBERS 3213 - 3300

Page: 1/1

Check Date	Check	Vendor Name	Amount
Bank 593FN LAKE EDGEWOOD OPERATING FUND #593			
07/17/2017	3213	BULLSEYE TELECOM	223.95
07/17/2017	3214	CONSUMERS ENERGY	4.78
07/17/2017	3215	PFEFFER-HANNIFORD-PALKA	500.00
07/26/2017	3216	BRIGHTON ANALYTICAL , L.L.C.	67.00
07/26/2017	3217	MHOG WATER AUTHORITY	20.00
07/26/2017	3218	FOOTE TRACTOR, INC	11,925.00
07/31/2017	3219	BRIGHTON ANALYTICAL , L.L.C.	67.00
07/31/2017	3220	HUBBELL, ROTH & CLARK, INC	2,085.16
07/31/2017	3221	MICHIGAN CAT	2,545.00
07/31/2017	3222	PVS NOLWOOD CHEMICALS, INC	962.00

593FN TOTALS:

Total of 10 Checks:	18,399.89
Less 0 Void Checks:	0.00
Total of 10 Disbursements:	18,399.89

08/01/2017 04:18 PM  
User: Angie  
DB: Genoa Township

CHECK REGISTER FOR GENOA TOWNSHIP  
CHECK NUMBERS 2189 - 2200

Page: 1/1

Check Date	Check	Vendor Name	Amount
Bank 595FN PINE CREEK OPERATING FUND #595			
07/13/2017	2189	CITY OF BRIGHTON	10,000.00
07/17/2017	2190	PFEFFER-HANNIFORD-PALKA	400.00

595FN TOTALS:

Total of 2 Checks:	10,400.00
Less 0 Void Checks:	0.00
Total of 2 Disbursements:	10,400.00

**GENOA CHARTER TOWNSHIP BOARD**

**Regular Meeting**

**July 17, 2017**

**MINUTES**

Supervisor Rogers called the regular meeting of the Genoa Charter Township Board to order at 6:30 p.m., with the Pledge of Allegiance. The following members were present constituting a quorum for the transaction of business: Bill Rogers, Paulette Skolarus, Robin Hunt, Jim Mortensen, Terry Croft, Diana Lowe and Jean Ledford. Also present were Township Manager, Michael Archinal; Township Attorney, Joe Seward; and 7 persons in the audience.

A Call to the Public was made with no response.

**Approval of Consent Agenda:**

Moved by Lowe and supported by Hunt to approve all items listed under the Consent Agenda as requested. The motion carried unanimously.

**1. Payment of Bills.**

**2. Request to Approve Minutes: June 19, 2017**

**3. Review of the three-month budget analysis of Funds 101, 212, 261, 264, 270, and 271.**

**4. Request to approve the annual rate adjustments for the Lake Edgewood Water and Pine Creek Sewer and Water customers served by the City of Brighton.**

**5. Request to reappoint Chris Grajek to the Planning Commission and Dean Tengel to the Zoning Board of Appeals for four-year terms.**

**6. Request for personnel changes related to the Liquor Law Enforcement Fund 212.**

**Approval of Regular Agenda:**

Moved by Ledford and supported by Croft to approve for action all items listed under the regular agenda. The motion carried unanimously.

**7. Request to approve the 2017 Partnership with the Economic Development Council of Livingston County in the amount of \$22,600.**

Phil Santer and Rich Pearlberg addressed the board. Santer gave a brief history and overview of the benefits SPARK and EDC provide to the township to support growth in the community.

Moved by Mortensen and supported by Skolarus to approve the 2017 Partnership with the Economic Development Council of Livingston County as requested. The motion carried unanimously.

**8. Consideration of the Environmental Impact Assessment and Site Plan for a proposed 101 room 4-story "Hampton Inn and Suites" hotel located southwest of the Grand Oaks Drive and Latson Road intersection. The property is located within the Livingston Commons Phase 2 PUD on parcel #11-08-200-020. The request is petitioned by Howell Hospitality Inc.**

**A. Disposition of the environmental impact assessment**

Moved by Skolarus and supported by Ledford to approve the impact assessment dated 05/01/2017 as requested. The motion carried unanimously.

**B. Disposition of site plan dated 06/23/2017**

Moved by Lowe and supported by Croft to approve the site plan with the following conditions:

1. The 10' buffer zone on the southeast portion of the parking lot is acceptable.
2. Signage as shown on the renderings is approved and must comply with the Township Ordinance in terms of size.
3. Recorded copies of easements for cross access to all adjacent parcels shall be provided in a format acceptable to the Township Attorney prior to a land use permit being issued.
4. All site plan application fee exceedances and tap fees shall be paid prior to issuance of the Land Use Permit.
5. Construction plan review is required per the MHOG Connection Manual.
6. All requirements of the Brighton Area Fire Authority's letter of May 31, 2017 shall be met.

The motion carried unanimously.

**9. Consideration of a PUD Amendment, Environmental Impact Assessment and Site Plan for a proposed multi-tenant commercial center to include two buildings including a drive-through restaurant located at the northwest corner of Grand Oaks Drive and Latson Road. The property is located within the Livingston Commons Phase 2 PUD on Parcel #11-08-200-017. The request is petitioned by USA 2 GO.**

**A. Disposition of the PUD Amendment**

Moved by Lowe and supported by Mortensen to approve the second amendment to the PUD Agreement provided the following conditions are met: Item 4 on page 3 shall clarify that the 3' setback is for the drive aisle only. Item 5 on page 3 shall state that the access from Grand Oaks Drive shall be right-in only. The motion carried unanimously.

**B. Disposition of the Environmental Impact Assessment**

Moved by Lowe and supported by Mortensen to approve the impact assessment dated 05/03/2017 as submitted. The motion carried unanimously.

**C. Disposition of site plan**

Moved by Hunt and supported by Skolarus to approve the site plan dated 07/05/2017 with the following conditions:

1. Minor discrepancies for daylily, spirea and emerald arborvitae on the landscaping plant list shall be corrected.
2. The gap between the landscaped island and raised concrete area located southwest of the north building shall be eliminated or minimized.
3. All site plan application fee exceedances and tap fees shall be paid prior to issuance of the Land Use Permit.
4. Recorded copies of utility easements shall be provided in a format acceptable to the Township prior to a land use permit being issued.



5. The Township Engineer's comments shall be addressed and will be reviewed during Construction plan review as required per the MHOG Connection Manual.
6. A performance guarantee in compliance with Zoning Ordinance Section 21.03 shall be provided for the deferred portion of the sidewalk along Grand Oaks Drive.
7. All requirements of the Brighton Area Fire Authority's letter of May 31, 2017 shall be met.
8. Potential access driveway easement for cross access provided an agreement can be met with Lowe's.

The motion carried unanimously.

#### **10. Review of supplemental information regarding the property at 5679 Richardson Road.**

Jamie K. Stewart addressed the board on behalf of Mr. Joseph Yaros. Stewart indicated that her client, Joseph Yaros, has many health issues and when Mr. Yaros was in the hospital; his son built the deck not knowing a permit was required. They are not trying to be adversarial and are open to any person from the township to come out to measure the structure.

Stewart made reference to ordinance 11.04.02, which states: "Attached or unattached uncovered decks and porches without a roof, walls or other form of enclosure shall be permitted to extend a maximum of twenty five (25) feet from the rear building line of the principal building, provided they shall be at least four (4) feet from any side lot line and ten (10) feet from any rear lot line." Stewart said that measurements were taken and it does not extend past twenty-five feet from the principal building. She also indicated that there are many ordinances that pertain to certain architectural features and covered porches but said Joseph Yaros should be allowed to have a deck and the footprint of the home is not an expansion of the residence. Ms. Stewart referenced two applications that he applied for. The deck is attached but can come into compliance and Yaros would like the opportunity to correct the deck. When the interior wood paneling was removed, the door wall frame was there so they just put the door wall back in.

Township Attorney Seward said the deck must be attached to the principal residence and not to an accessory building and precludes the deck addition as is. This is not a safety issue; the deck is not in compliance with either the township ordinance or the consent agreement. Expansion of an existing non-conforming structure is in violation of the consent agreement.

Moved by Mortensen and supported by Skolarus to decline any further request for expansion of a nonconforming structure that is in violation of the zoning ordinance and consent judgement with regards to the Yaros property at 5679 Richardson Road Howell. The motion carried unanimously.

#### **Correspondence:**

Skolarus and Archinal have met with a concerned resident on Westphal regarding a large professional grade fireworks display situation with Fire Chief O'Brien who is in contact with ATF to determine if the fireworks in question are professional grade and if so, what license they were obtained under.

#### **Member Discussion:**

- Archinal- Kelly VanMarter has been working with Meijer's on the Hampton Ridge and Latson signal. Thirteen trees will need to be removed, five are in the right-of-way. The original cost for the project has come down significantly. With the road commission

contributions of \$52,000.00, the township contribution will be \$168,000.00. The board asked that the project move forward.

- Croft and Rogers will meet with the SEMCOG to discuss Economic Development.

**11. Request to enter into closed session to discuss pending litigation pursuant to MCL 15.268 § 8 (e) and material exempt from discussion of disclosure by state statute MCL 15.268 § 8 (h).**

Moved by Lowe and supported by Ledford to enter into closes session at 7:40 p.m. to discuss pending litigation. The motion carried by roll call vote as follows: Ledford, Croft, Hunt, Lowe, Mortensen, Skolarus and Rogers. Nays – None. Absent – None.

The regular meeting of the board was reconvened at 8:00 p.m. and adjourned.



Paulette A. Skolarus  
Genoa Township Clerk



Tara Brown  
Genoa Township Deputy Clerk

**Genoa Township Officials  
Amended: August 7, 2017**

**PLANNING COMMISSION (3-year term)**

	<b><u>Term</u></b>
Chris Grajek	06/30/20
Barbara Figurski	06/30/18
Jill Rickard	06/30/20
John McManus	06/30/19
Jim Mortensen	11/20/17
Doug Brown	06/30/18
Eric Rauch	06/30/19

**ZONING BOARD OF APPEALS (3-year term)**

Barbara Figurski	06/30/18
Marianne McCreary	06/30/18
Jeff Dhaenens	06/30/19
Dean Tengel	06/30/20
Jean Ledford	11/20/17

**BOARD OF REVIEW (2-year term)**

Chris Grajek	12/31/17
Ron Matkin	12/31/17
Maryanne McCreary	12/31/17
Patricia Petrat (alternate)	12/31/17

**SEMCOG**

Terry Croft	11/20/20
Paulette A. Skolarus (alternate)	11/20/20

**GENOA/OCEOLA SEWER AND WATER AUTHORITY**

Robin Hunt	11/20/20
Vacant	11/20/20

**HOWELL PARKS AND RECREATION**

Diana Lowe	11/20/20
Terry Croft	11/20/20

**MHOG (Marion, Howell, Oceola and Genoa)**

Robin Hunt	11/20/20
Bill Rogers	11/20/20

**FOIA COORDINATOR**

Michael Archinal	11/20/20
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**BRIGHTON FIRE AUTHORITY**

Bill Rogers	11/20/20
Jim Mortensen	11/20/20

**BROWNFIELD DEVELOPMENT**

John Kirsch (1-year)	11/20/17
Jean Ledford (2-year)	11/20/18
Diana Lowe (2-year)	11/20/18
James Mortensen (2-year)	11/20/18
Bill Rogers (3-year)	11/20/19
Paulette A. Skolarus (3-year)	11/20/19
Robin Lynn Hunt (3-year)	11/20/19
Terry Croft (2-year)	11/20/18

**ELECTION COMMISSION**

Diana Lowe	11/20/20
Jean Ledford	11/20/20

(Policy-officials-terms)



2911 Dorr Road  
Brighton, MI 48116  
810.227.5225  
810.227.3420 fax  
genoa.org

## MEMORANDUM

**TO:** Honorable Board of Trustees  
**FROM:** Adam VanTassell  
**DATE:** July 17, 2017  
**RE:** Proposed Township Hall Generator

Manager's Review: \_\_\_\_\_

The Township Hall is currently without a backup generator. As the Township has grown, so has the services that the Township provides to residents, businesses and other customers. The installation of a generator would ensure those services are available even during power outages and other emergency events.

### Recommended Motion

Moved by \_\_\_\_\_, Supported by \_\_\_\_\_ to approve the proposal from K & J Electric for the purchase and installation of a new backup power generator for the Township Hall for \$64,307.00.

**SUPERVISOR**

Bill Rogers

**CLERK**

Paulette A. Skolarus

**TREASURER**

Robin L. Hunt

**TRUSTEES**

Jean W. Ledford

H. James Mortensen

Terry Croft

Diana Lowe

**MANAGER**

Michael C. Archinal

**PROPOSAL**  
**K & J Electric, Inc.**

7219 East Highland Rd., Howell, MI, 48843-9081    Ph. 517-546-6245, Fax 517-548-7810

TO: Genoa Township  
2911 Dorr Rd.  
Brighton, MI 48116  
Phone: 810-227-5225 Fax: \_\_\_\_\_

Date: 11-Jul-17  
Project Name: Generator  
Project Location: \_\_\_\_\_  
Project #: \_\_\_\_\_  
Proposal Number: \_\_\_\_\_

**We propose to:** Provide and install the following items:

1-100 kw 120/208 volt 3 phase generator with 1-600 amp auto transfer switch, concrete pad for generator, gas piping from meter to generator, factory start up, install auto transfer switch in basement next to main service, rewire service thru transfer switch, run 2 new 20 amp 120 volt circuits to generator for block heater and battery charger, electric permit, the mechanical permit will be provided by my mechanical contractor. The system when completed will put the entire building on generator back up.

NOTE No gas company fees included.

NOTE I did speak with Consumers Energy they check there system the supply to the building is large enough to handle the load of the generator. However the gas pressure is to low to run the generator so they are going to install a second gas meter with the correct pressure. The existing gas meter is to small to handle the load of the generator, so this is the best way to take care of both of these issues. They gave me a budget cost for the upgrade of \$ 2,600.00.

We propose to furnish material and labor - complete in accordance with the above specifications, for the sum of:

Sixty Four Thousand Three Hundred Seven \_\_\_\_\_ Dollars \$64,307.00

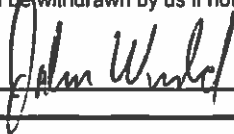
**Payment to be made as follows:**

In full upon completion of project. 30 days NET.

All material is guaranteed to be as specified. All work is to be completed in a workmanlike manner according to standard practices. Any alteration or deviation from above specifications involving extra costs, will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control.

NOTE: This proposal will be withdrawn by us if not accepted within 30 days.

Authorized  
Signature: \_\_\_\_\_



Date of Proposal: 11-Jul-17

**Acceptance of Proposal:** The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be made as outlined above. All accounts not paid within 30 days after bill date are subject to 1.5% per Month (18% per Year) Service Charge.

Date of  
Acceptance: \_\_\_\_\_

Authorized  
Signature: \_\_\_\_\_



# Standby Generators



# GENERAC®

**K & J ELECTRIC INC.**  
7219 E. Highland  
Howell, Michigan 48843  
(517) 546-6245

**Standby Generators  
Liquid-Cooled Gaseous Engine**

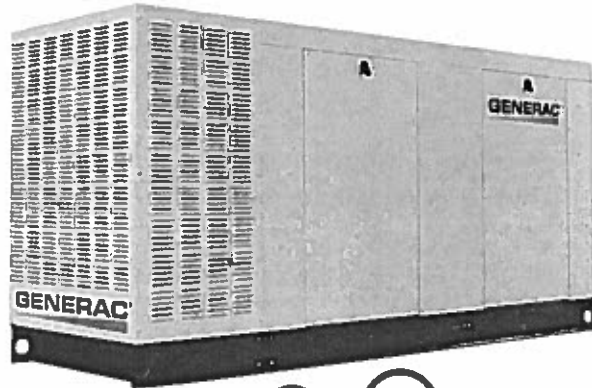
Standby Generators  
1 of 9

### INCLUDES:

- Two Line LCD Tri-Lingual Digital Nexus™ Controller
- Isochronous Electronic Governor
- Sound Attenuated Enclosure
- Closed Coolant Recovery System
- Smart Battery Charger
- UV/Ozone Resistant Hoses
- ±1% Voltage Regulation
- Natural Gas or LP Operation
- 2 Year Limited Warranty
- UL 2200 Listed

### Standby Power Rating

- Model QT070 (Aluminum - Bisque) - 70 kW 60 Hz
- Model QT080 (Aluminum - Bisque) - 80 kW 60 Hz
- \* Model QT100 (Aluminum - Bisque) - 100 kW 60 Hz
- Model QT130 (Aluminum - Bisque) - 130 kW 60 Hz
- Model QT150 (Aluminum - Bisque) - 150 kW 60 Hz



**QUIET-TEST**

Meets EPA Emission Regulations

70, 100, 130 & 150 kW meet CA/MA emissions requirement with optional catalyst  
80 kW not for sale in CA/MA

## FEATURES

- **INNOVATIVE DESIGN & PROTOTYPE TESTING** are key components of GENERAC'S success in "IMPROVING POWER BY DESIGN." But it doesn't stop there. Total commitment to component testing, reliability testing, environmental testing, destruction and life testing, plus testing to applicable CSA, NEMA, EGSA, and other standards, allows you to choose GENERAC POWER SYSTEMS with the confidence that these systems will provide superior performance.
- **TEST CRITERIA:**
  - ✓ PROTOTYPE TESTED
  - ✓ SYSTEM TORSIONAL TESTED
  - ✓ NEMA MG1-22 EVALUATION
  - ✓ MOTOR STARTING ABILITY
- **SOLID-STATE, FREQUENCY COMPENSATED VOLTAGE REGULATION.** This state-of-the-art power maximizing regulation system is standard on all Generac models. It provides optimized FAST RESPONSE to changing load conditions and MAXIMUM MOTOR STARTING CAPABILITY by electronically torque-matching the surge loads to the engine. Digital voltage regulation at ±1%.
- **SINGLE SOURCE SERVICE RESPONSE** from Generac's extensive dealer network provides parts and service know-how for the entire unit, from the engine to the smallest electronic component.
- **GENERAC TRANSFER SWITCHES.** Long life and reliability are synonymous with GENERAC POWER SYSTEMS. One reason for this confidence is that the GENERAC product line includes its own transfer systems and controls for total system compatibility.

# GENERAC®



**70 • 80 • 100 • 130 • 150 kW****application & engineering data****GENERATOR SPECIFICATIONS**

Type	Synchronous
Rotor Insulation Class	H
Stator Insulation Class	H
Telephone Interference Factor (TIF)	<50
Alternator Output Leads 1-Phase	4 wire
Alternator Output Leads 3-Phase	6 wire (70, 80 & 150 kW) or 12 wire (100 & 130 kW)
Bearings	Sealed Ball
Coupling	Flexible Disc (70, 80 & 150 kW) or Gear Drive (100 & 130 kW)
Excitation System	Brushless

**VOLTAGE REGULATION**

Type	Electronic
Sensing	Single Phase
Regulation	± 1%

**GOVERNOR SPECIFICATIONS**

Type	Electronic
Frequency Regulation	Isochronous
Steady State Regulation	± 0.25%

**ELECTRICAL SYSTEM**

Battery Charge Alternator	12 Volt 30 Amp
Static Battery Charger	2 Amp
Recommended Battery (battery not included)	Group 24F, 525 CCA (70, 80 & 150 kW) or Group 27F, 700 CCA (100 & 130 kW)
System Voltage	12 Volts

**GENERATOR FEATURES**

Revolving field heavy duty generator Directly connected to the engine Operating temperature rise 120 °C above a 40 °C ambient Class H insulation is NEMA rated All models fully prototyped tested
---

**ENCLOSURE FEATURES**

Aluminum weather protective enclosure	Ensures protection against mother nature. Electrostatically applied textured epoxy paint for added durability.
Enclosed critical grade muffler	Quiet, critical grade muffler is mounted inside the unit to prevent injuries.
Small, compact, attractive	Makes for an easy, eye appealing installation.
SAE	Sound attenuated enclosure ensures quiet operation.

**ENGINE SPECIFICATIONS: 80 kW**

Make	Generac
Model	V-Type
Cylinders	8
Displacement (Liters)	5.4
Bore (in/mm)	3.55/90.2
Stroke (in/mm)	4.17/105.9
Compression Ratio	9:1
Intake Air System	Naturally Aspirated
Lifter Type	Hydraulic

**ENGINE SPECIFICATIONS: 70, 100, 130 & 150 kW**

Make	Generac
Model	V-Type
Cylinders	10
Displacement (Liters)	6.8
Bore (in/mm)	3.55/90.2
Stroke (in/mm)	4.17/105.9
Compression Ratio	9:1
Intake Air System	Naturally Aspirated
Lifter Type	Hydraulic

**ENGINE LUBRICATION SYSTEM**

Oil Pump Type	Gear
Oil Filter Type	Full flow spin-on cartridge
Crankcase Capacity (qt/l)	5/4.7 (70, 100, 130 & 150 kW) or 6/5.7 (80 kW)

**ENGINE COOLING SYSTEM**

Type	Closed
Water Pump	Belt driven
Fan Speed (rpm)	2300 - 70 kW 2174 - 80 kW 1670 - 100 kW 1950 - 130 kW 2200 - 150 kW
Fan Diameter (in/mm)	22/558.8 (70 kW) or 26/660.4 (80, 100, 130 & 150 kW)
Fan Mode	Pusher (70 kW) or Puller (80, 100, 130 & 150 kW)

**FUEL SYSTEM**

Fuel Type	Natural gas, propane vapor
Carburetor	Down Draft
Secondary Fuel Regulator	Standard
Fuel Shut Off Solenoid	Standard
Operating Fuel Pressure	11-14" water column/21-26 mm HG

(All ratings in accordance with BS5514, ISO3046, ISO8528, SAE J1349 and DIN6271)



## 70 • 80 • 100 • 130 • 150 kW

## operating data

### GENERATOR OUTPUT VOLTAGE/kW - 60 Hz

		kW LPG	Amp LPG	kW Nat. Gas	Amp Nat. Gas	CB Size (Both)
QT070	120/240 V, 1Ø, 1.0 pf	67	292	64	267	300
	120/208 V, 3Ø, 0.8 pf	70	243	67	232	300
	120/240 V, 3Ø, 0.8 pf	70	211	67	201	250
	277/480 V, 3Ø, 0.8 pf	70	105	67	101	125
QT080	120/240 V, 1Ø, 1.0 pf	77	333	77	333	400
	120/208 V, 3Ø, 0.8 pf	80	278	80	278	300
	120/240 V, 3Ø, 0.8 pf	80	241	80	240	300
	277/480 V, 3Ø, 0.8 pf	80	120	80	120	150
QT100	120/240 V, 1Ø, 1.0 pf	100	417	89	371	500
	120/208 V, 3Ø, 0.8 pf	100	347	94	326	400
	120/240 V, 3Ø, 0.8 pf	100	301	94	283	350
	277/480 V, 3Ø, 0.8 pf	100	150	94	141	175
QT130	120/240 V, 1Ø, 1.0 pf	130	542	117	488	600
	120/208 V, 3Ø, 0.8 pf	130	451	122	423	500
	120/240 V, 3Ø, 0.8 pf	130	391	122	367	450
	277/480 V, 3Ø, 0.8 pf	130	195	122	183	225
QT150	120/240 V, 1Ø, 1.0 pf	144	625	136	567	700
	120/208 V, 3Ø, 0.8 pf	150	520	142	493	600
	120/240 V, 3Ø, 0.8 pf	150	451	142	427	500
	277/480 V, 3Ø, 0.8 pf	150	225	142	214	250

### SURGE CAPACITY IN AMPS

		Voltage Dip @ < .4 pf	
		15%	30%
QT070	120/240 V, 1Ø	129	356
	120/208 V, 3Ø	194	471
	120/240 V, 3Ø	168	408
	277/480 V, 3Ø	83	201
QT080	120/240 V, 1Ø	174	435
	120/208 V, 3Ø	186	466
	120/240 V, 3Ø	161	404
	277/480 V, 3Ø	70	175
QT100	120/240 V, 1Ø	150	413
	120/208 V, 3Ø	186	452
	120/240 V, 3Ø	161	392
	277/480 V, 3Ø	107	261
QT130	120/240 V, 1Ø	236	648
	120/208 V, 3Ø	364	885
	120/240 V, 3Ø	315	767
	277/480 V, 3Ø	161	390
QT150	120/240 V, 1Ø	486	1214
	120/208 V, 3Ø	534	1334
	120/240 V, 3Ø	463	1156
	277/480 V, 3Ø	250	624

### ENGINE FUEL CONSUMPTION

		Natural Gas		Propane		
		(ft <sup>3</sup> /hr)	(m <sup>3</sup> /hr)	(gal/hr)	(l/hr)	(ft <sup>3</sup> /hr)
QT070	Exercise cycle	110	3.1	1.2	4.6	44
	25% of rated load	260	7.4	2.85	10.8	104
	50% of rated load	500	14.2	5.46	20.8	200
	75% of rated load	696	19.8	7.62	29.1	280
	100% of rated load	1020	29	11.17	42.6	411
QT080	Exercise cycle	95	2.7	1	3.9	53
	25% of rated load	549.5	15.6	6.99	1.85	126
	50% of rated load	784.4	22.2	10.16	2.68	241
	75% of rated load	1024.8	29.0	13.11	3.46	336
	100% of rated load	1252.2	35.5	15.71	4.15	465
QT100	Exercise cycle	130	3.7	1.4	5.4	52
	25% of rated load	371	10.5	4.1	15.5	149
	50% of rated load	713	20.3	7.9	29.8	287
	75% of rated load	991	28.2	11	41.5	400
	100% of rated load	1260	35.8	13.9	52.6	507
QT130	Exercise cycle	135	3.8	1.4	5.7	55
	25% of rated load	482	13.7	5.3	20	193
	50% of rated load	927	26.3	10.3	38.7	373
	75% of rated load	1292	36.7	14.3	54	520
	100% of rated load	1786	50.8	19.8	74.6	719
QT150	Exercise cycle	155	4.4	1.7	6.5	63
	25% of rated load	556	15.8	6.09	23.2	224
	50% of rated load	1070	30.4	11.72	44.7	431
	75% of rated load	1491	42.4	16.33	62.3	600
	100% of rated load	2061	58.6	22.57	86.1	830

Note: Fuel pipe must be sized for full load.

For Btu content, multiply gal/hr x 90950 (LP) or ft<sup>3</sup>/hr x 1000 (NG).

For megajoule content, multiply l/hr x 25.35 (LP) or m<sup>3</sup>/hr x 37.26 (NG).

Refer to "Emissions Data Sheets" for maximum fuel flow for EPA and SCAQMD permitting purposes.

STANDBY RATING: Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. Ratings are in accordance with ISO-3046-1. Design and specifications are subject to change without notice.

**70 • 80 • 100 • 130 • 150 kW****operating data****ENGINE COOLING**

	70 kW	80 kW	100 kW	130 kW	150 kW
Air flow (inlet air including alternator and combustion air in ft <sup>3</sup> /min)	5200/147.2	5300/150.1	5500/155.7	6450/182.6	7800/220.9
System coolant capacity (gal/liters)	4.5/17	4/15.1	4.5/17	4.5/17	4.5/17
Heat rejection to coolant (BTU/hr)	287,000/302.8	316,000/333.4	342,000/360.8	496,000/523.3	568,000/599.3
Maximum operation air temperature on radiator (°C/°F)	60/150				
Maximum ambient temperature (°C/°F)	50/140				

**COMBUSTION REQUIREMENTS**

Flow at rated power (cfm/cmm)	205/5.8	143/4	262/7.4	336/9.5	410/11.6
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**SOUND EMISSIONS**

Sound output in dB(A) at 23 ft (7 m) with generator in exercise mode*	64	65	68	69	66
Sound output in dB(A) at 23 ft (7 m) with generator operating at normal load*	72	74	72	75	79

\*Sound levels are taken from the front of the generator. Sound levels taken from other sides of the generator may be higher depending on installation parameters.

**EXHAUST**

Exhaust flow at rated output (cfm/cmm)	557/15.8	720/20.4	888/25.1	1119/31.7	1535/43.5
Exhaust temperature at muffler outlet (°C/°F)	477/890	796/1465	516/960	521/970	593/1100

**ENGINE PARAMETERS**

Rated Synchronous rpm	1800	3600	2300	2970	3600
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**POWER ADJUSTMENT FOR AMBIENT CONDITIONS**

Temperature Deration .....	3% for every 10 °C above 25 °C or 1.65% for every 10 °F above 77 °F
Altitude Deration (70,100,130 & 150) .....	1% for every 100 m above 183 m or 3% for every 1000 ft above 600 ft
Altitude Deration (80 kW) .....	1% for every 100 m above 915 m or 3% for every 1000 ft above 3000 ft

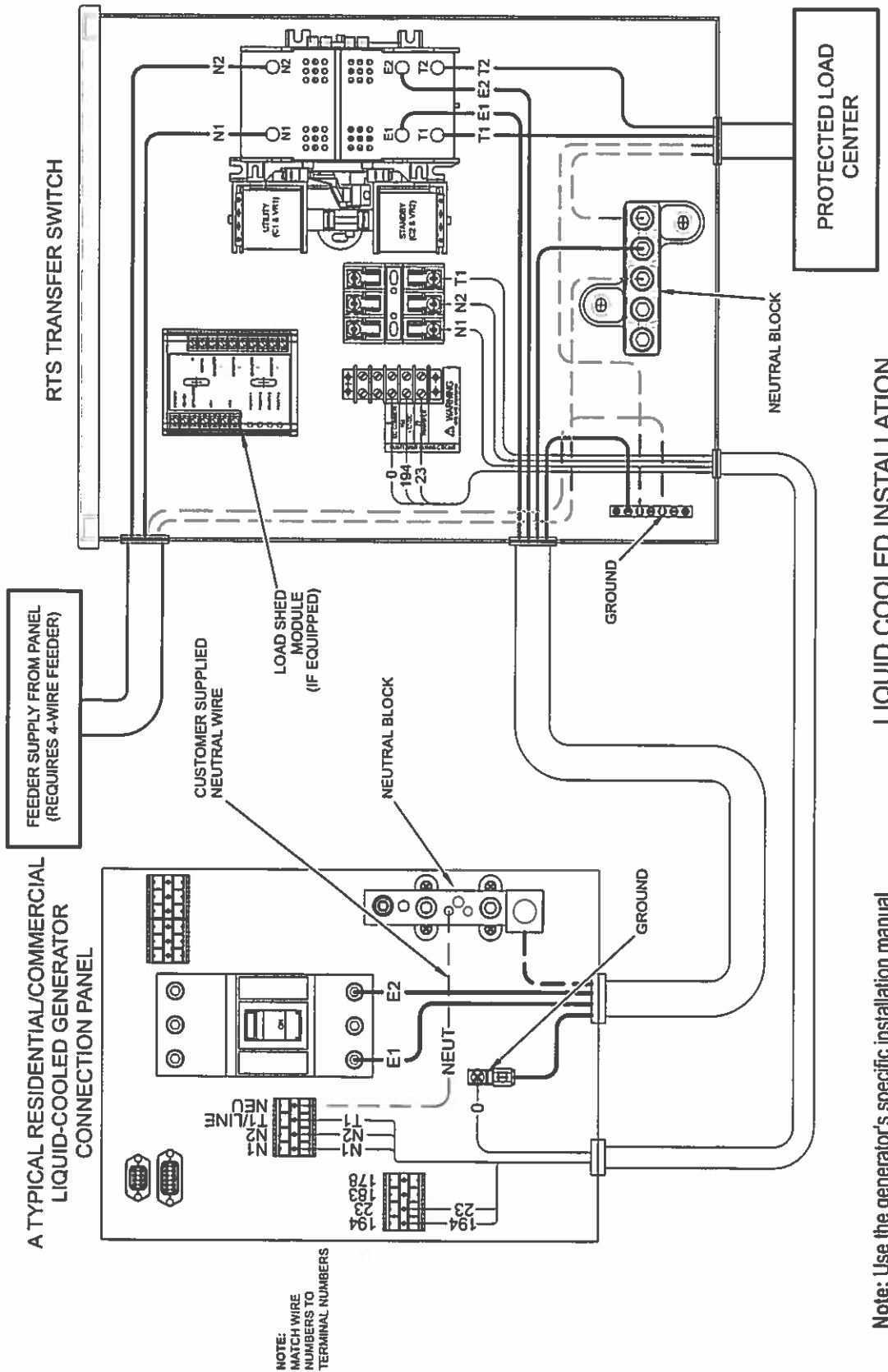
**CONTROLLER FEATURES**

2-Line Plain Text LCD Display .....	Simple user interface for ease of operation.
Mode Switch: Auto .....	Automatic Start on Utility failure. 7 day exerciser
Off .....	Stops unit. Power is removed. Control and charger still operate.
Manual .....	Start with starter control, unit stays on. If utility fails, transfer to load takes place.
Programmable start delay between 10-30 seconds .....	Standard
Engine Start Sequence .....	Cyclic cranking: 16 sec on, 7 rest (90 sec maximum duration)
Engine Warm-up .....	5 sec
Engine Cool-Down .....	1 min
Starter Lock-out .....	Starter cannot re-engage until 5 sec after engine has stopped.
Smart Battery Charger .....	Standard
Automatic Voltage Regulation with Over and Under Voltage Protection .....	Standard
Automatic Low Oil Pressure Shutdown .....	Standard
Overspeed Shutdown .....	Standard, 72 Hz
High Temperature Shutdown .....	Standard
Overcrank Protection .....	Standard
Safety Fused .....	Standard
Failure to Transfer Protection .....	Standard
Low Battery Protection .....	Standard
50 Event Run Log .....	Standard
Future Set Capable Exerciser .....	Standard
Incorrect Wiring Protection .....	Standard
Internal Fault Protection .....	Standard
Common External Fault Capability .....	Standard
Governor Failure Protection .....	Standard

Model #	Product	Description
006463-3	Mobile Link™	Generac's Mobile Link allows you to check the status of your generator from anywhere that you have access to an Internet connection from a PC or with any smart device. You will even be notified when a change in the generator's status occurs via e-mail or text message. Note: Harness Adapter Kit required. Available in the U.S. only.
006478-0	Harness Adapter Kit	The Harness Adapter Kit is required to make liquid-cooled units compatible with Mobile Link™.
005632-1 - 70, 80 & 150 kW 005633-0 - 100 & 130 kW	Cold Weather Kit	If the temperature regularly falls below 32 °F (0 °C), install a cold weather kit to maintain optimal battery temperature. Kit consists of battery warmer with thermostat built into the wrap.
005620-0 - 70, 100 & 130 kW 006204-0 - 80 kW 005667-0 - 150 kW	Extreme Cold Weather Kit	Recommended where the temperature regularly falls below 32 °F (0 °C) for extended periods of time. For liquid cooled units only.
005651-0	Base Plug Kit	Add base plugs to the base of the generator to keep out debris.
005703-0	Paint Kit	If the generator enclosure is scratched or damaged, it is important to touch-up the paint to protect from future corrosion. The paint kit includes the necessary paint to properly maintain or touch-up a generator enclosure.
005660-0 - 70, 100, 130 & 150 kW 006915-0 - 80 kW	Scheduled Maintenance Kit	The Liquid-Cooled Scheduled Maintenance Kits offer all the hardware necessary to perform complete maintenance on Generac liquid-cooled generators.
006664-0	Local Wireless Monitor	Completely wireless and battery powered, Generac's wireless remote monitor provides you with instant status information without ever leaving the house.
006665-0	Wireless Remote Extension Harness	Recommended for use with the Wireless Remote on units up to 60 kW, required for use on units 70 kW or greater.
006873-0	Smart Management Module (50 Amps)	Smart Management Modules are used in conjunction with the Automatic Transfer Switch to increase its power management capabilities. It provides additional power management flexibility not found in any other power management system.

70 • 80 • 100 • 130 • 150 kW

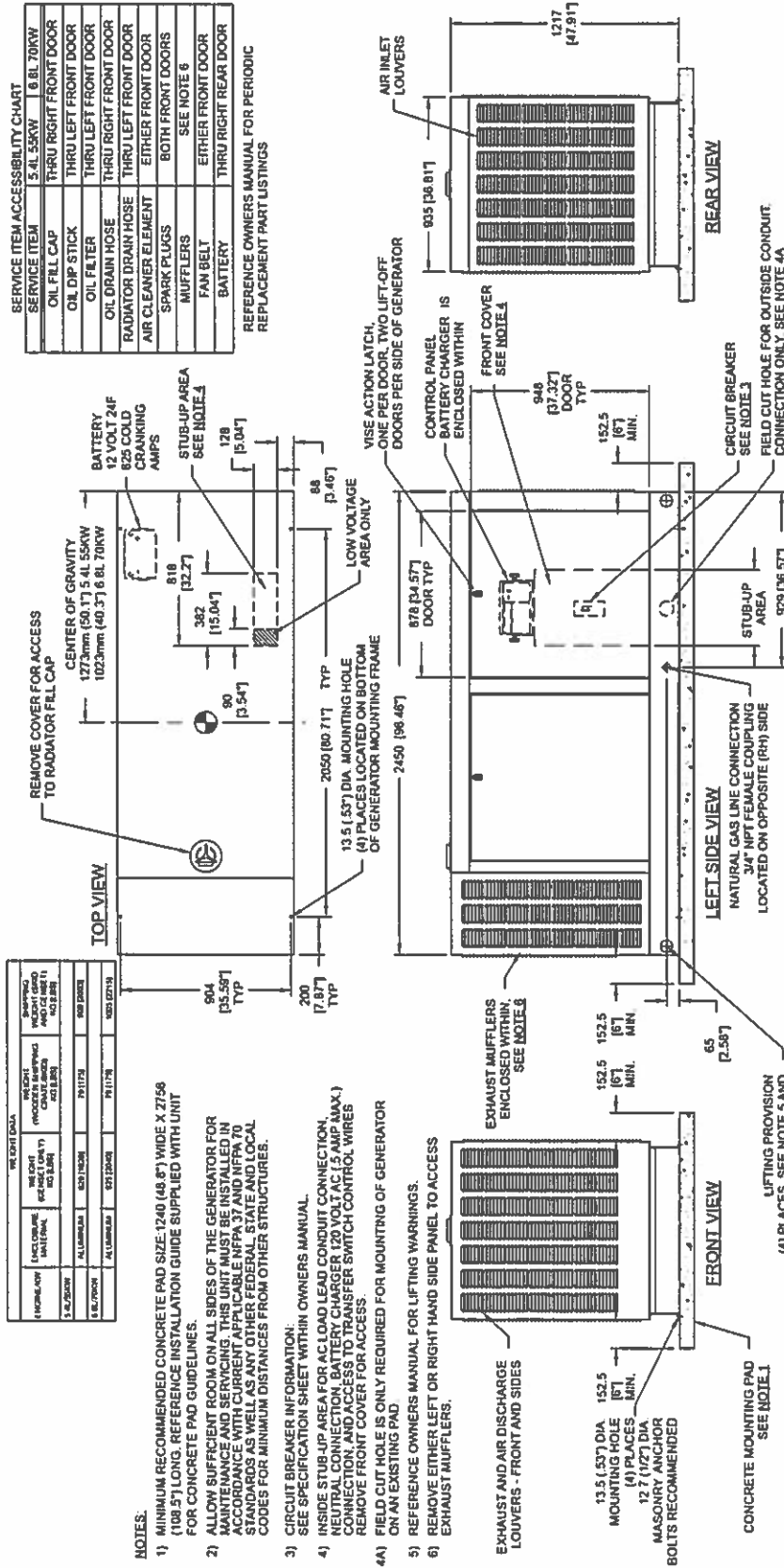
Drawing #0H7452-D



**NOTE:**  
MATCH WIRE  
NUMBERS TO  
TERMINAL NUMBERS

**Note:** Use the generator's specific installation manual and wiring diagrams to verify generator wiring connections, as they may differ slightly from illustration.

**LIQUID COOLED INSTALLATION**



DIMENSIONS: MM (INCH)

- NOTES:**
- 1) MINIMUM RECOMMENDED CONCRETE PAD SIZE: 1240 (48.8") WIDE X 2756 (108.3") LONG. REFERENCE INSTALLATION GUIDE SUPPLIED WITH UNIT FOR CONCRETE PAD GUIDELINES.
  - 2) ALLOW SUFFICIENT ROOM ON ALL SIDES OF THE GENERATOR FOR MAINTENANCE AND SERVICING. THIS UNIT MUST BE INSTALLED IN ACCORDANCE WITH CURRENT APPLICABLE NFPA 70 AND NFPA 70B REQUIREMENTS. MAINTENANCE CLEARANCES MUST BE IN ACCORDANCE WITH LOCAL CODES FOR MINIMUM DISTANCES FROM OTHER STRUCTURES.
  - 3) CIRCUIT BREAKER INFORMATION: SEE SPECIFICATION SHEET WITHIN OWNERS MANUAL.
  - 4) INSIDE STUB-UP AREA FOR AC LOAD LEAD CONDUIT CONNECTION, NEUTRAL CONNECTION, BATTERY CHARGER (20 VOLT AC (1.5 AMP MAX.) CONNECTION, AND ACCESS TO TRANSFER SWITCH CONTROL WIRES REMOVE FRONT COVER FOR ACCESS.
  - 4A) FIELD CUT HOLE IS ONLY REQUIRED FOR MOUNTING OF GENERATOR ON AN EXISTING PAD
  - 5) REFERENCE OWNERS MANUAL FOR LIFTING WARNINGS
  - 6) REMOVE EITHER LEFT OR RIGHT HAND SIDE PANEL TO ACCESS EXHAUST MUFFLERS.

# 80 kW

## Drawing #0L3178-B

# GENERAC®

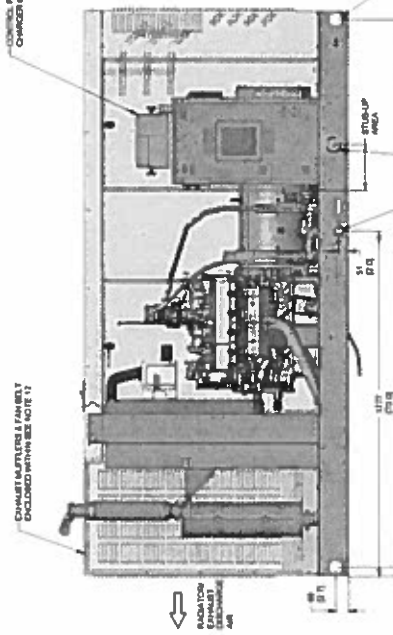
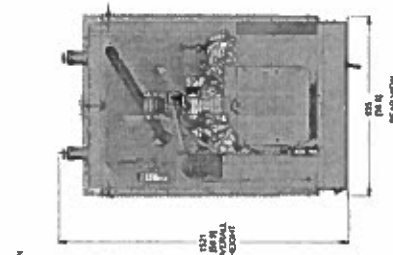
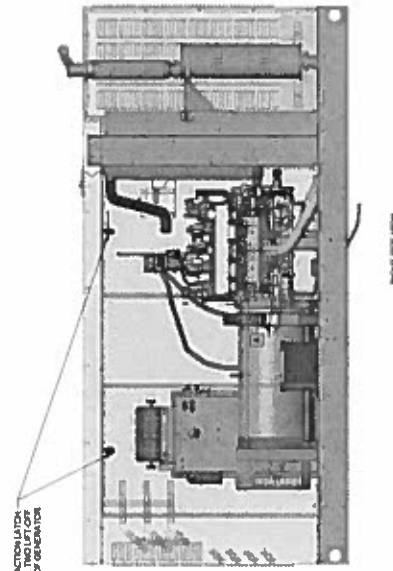
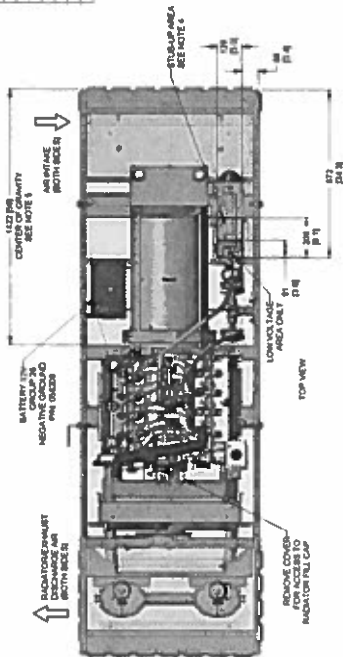
## installation layout

**NOTE:**

1. ALWAYS REFER TO THE OWNER'S MANUAL FOR THE GENERATOR FOR ALL INFORMATION REGARDING THE GENERATOR'S OPERATION AND MAINTENANCE.
2. ALWAYS REFER TO THE OWNER'S MANUAL FOR THE GENERATOR FOR ALL INFORMATION REGARDING THE GENERATOR'S OPERATION AND MAINTENANCE.
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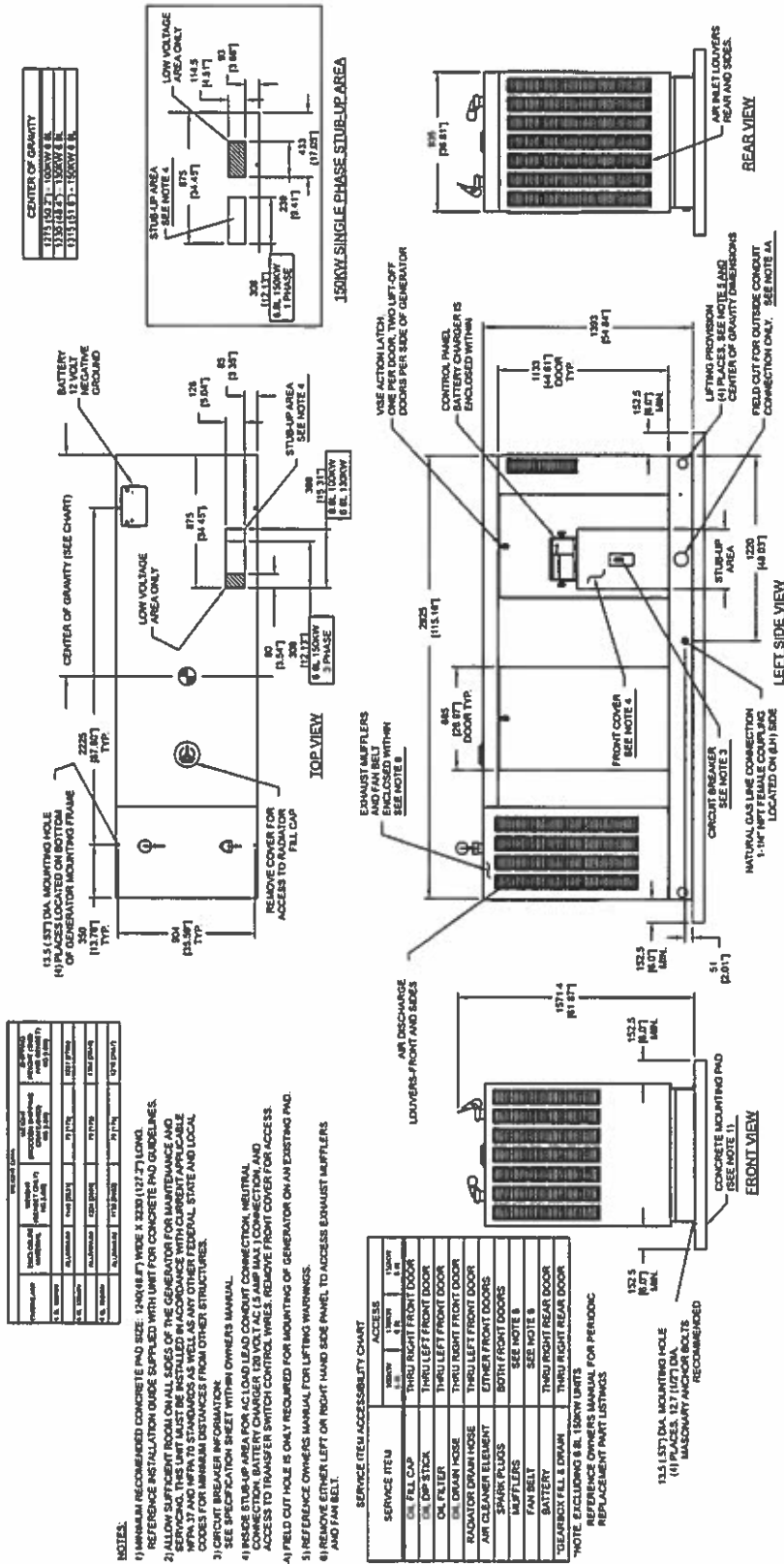
SERVICE ITEM	ITEM
LEFT DOOR	LEFT DOOR
RIGHT DOOR	RIGHT DOOR
OIL FILTER	OIL FILTER
LEFT DOOR	LEFT DOOR
RIGHT DOOR	RIGHT DOOR
INSULATION	INSULATION
LEFT DOOR	LEFT DOOR
RIGHT DOOR	RIGHT DOOR
SPARK PLUGS	SPARK PLUGS
FAN BELT	FAN BELT
BATTERY	BATTERY

REFERENCE OWNER MANUAL FOR PARTS AND REPLACEMENT PART LISTINGS



DESCRIPTION	ITEM	WEIGHT	WEIGHT	WEIGHT
GENERATOR ONLY	1511	1111.9	1111.9	1111.9
GENERATOR AND BATTERY	1512	1511.9	1511.9	1511.9
GENERATOR AND BATTERY WITH CHARGING BATTERY CHARGER	1513	1511.9	1511.9	1511.9

DIMENSIONS: MM [INCH]



DIMENSIONS: MM [INCH]

# CRG Electric LLC

CRG Electric LLC  
 P.O. Box 2183  
 Belleville, MI 48112-2183

(734) 757-4308  
 service@crgelectricllc.com  
 www.crgelectricllc.com

## Estimate

Date	Estimate #
06/19/2017	7605
Exp. Date	
07/19/2017	

Address
Genoa Township 2911 Dorr Road Brighton, MI 48116

P.O. Number	Sales Rep
CES286	Curt

Activity	Amount
<ul style="list-style-type: none"> <li>• Generator Installation:                              One (1) New Kohler Model 60REZGB Natural Gas Engine Generator Set.                              60kW @ 0.8PF, 60 Hz, Three Phase, 120/208 Volt, EPA CERTIFIED, UL Certified 2200 Listing</li>   <li>One (1) Kohler Automatic Transfer Switch, KSS-ACTA-0600S                              600 Amp, 208 Volt, Three Phase, 3 Pole, 4 Wire, Nema 1 Enclosure, Programmable Input/Output Module</li> <li>• Location:                              2911 Dorr Road, Brighton, MI 48116</li> <li>• The transfer switch will be located on the interior of the building.                              A 600 amp fused disconnect will installed to feed the new transfer switch.                              The transfer switch will be installed so it feeds the entire building and only one of the AC units.                              The remaining five AC units will be locked out so they can not operate on generator.</li> <li>• The generator will be placed near the gas meter on the South East end of the building.                              The sod will be removed and a concrete pad will be formed.                              Concrete will be pored for the unit to be placed on.                              All the conduits going to the generator will be below grade and come up into the unit.</li> <li>• A generator and control feed will be installed underground from the generator to the transfer switch.                              The feeds will be installed in conduit from building to the transfer switch.                              Two circuits will be installed to the generator for the block heater and battery charger.                              A portion of the sidewalk will be removed to installed the generator feeds.                              After underground inspections are complete the sidewalk will be pored back in place.</li> <li>• A separate gas meter will need to be installed at the unit.                              It will be the customers responsibility to organize this.                              All costs will be paid direct from the customer to the utilities.</li> <li>• The gas line will be tapped at the new meter.                              The line will be surface mounted to the generator.                              A shut off, drip leg and flex line will be installed at the unit.                              All the new pipe on the exterior of the building will be painted.</li> <li>• Customer will be responsible for any screening that may be needed to be placed around the unit.</li> </ul>	

Continue to the next page



Activity	Amount
<ul style="list-style-type: none"> <li>• All permits will need to be issued and approved through the city before any equipment is ordered.</li> <li>• If the city required stamped and sealed drawings from an engineer this will be an added expense.</li> <li>• A 50 percent deposit is required upon acceptance of this proposal.</li> <li>• All work is to be done during normal business hours Monday through Friday. If an after hours shut down is needed it will be an added expense.</li> <li>• Any pre-existing code violations that are present and need repaired will be an added cost and tracked at time and material if needed. If any items are found they will be discussed with the owner/tenant before any repairs are done. Not responsible for unforeseeable items.</li> <li>• Generator and Transfer Switch</li> <li>• Labor and Material</li> <li>• Permit Allowance and Processing</li> </ul>	<p>28,850.00</p> <p>43,756.00</p> <p>0.00</p>
<p>Thank you for the opportunity to bid this project. We look forward to working with you.</p>	<p><b>Total</b>      \$72,606.00</p>

Accepted By \_\_\_\_\_

Accepted Date \_\_\_\_\_



**Transfer Switch Standard Features**

**Enclosed Contact Power Switching Units**

- Service entrance automatic transfer switches incorporate an isolating mechanism and overcurrent protection on the utility supply, eliminating the need to have a separate, upstream utility source circuit breaker/disconnect switch.
- UL 1008 listed, file #58962
- IBC seismic certification available
- Fully enclosed silver alloy contacts provide high withstand rating.
- 3-cycle short circuit current withstand-tested in accordance with UL 1008
- Completely separate utility and generator set power switching units provide redundancy (no common parts) and are easy to service.
- Utility disconnect power switching units have overcurrent protection; generator disconnect is available with or without overcurrent protection:
  - Molded case circuit breakers (MCCB) include thermal-magnetic or electronic trip overcurrent protection (80% rated).
  - Molded case switches (MCSW) do not include overcurrent protection (100% rated) (available on generator disconnect only).
  - Insulated case circuit breakers (ICCB) include electronic trip overcurrent protection (100% rated).
  - Insulated case switches (ICSW) do not include overcurrent protection (100% rated) (available on generator disconnect only).
- Inherent stored-energy design prevents damage if manually switched while in service.
- Heavy duty brushless gear motor and operating mechanism provide mechanical interlocking and extreme long life with minimal maintenance.
- Safe manual operation permits easy operation even under adverse conditions.
- All mechanical and control devices are visible and readily accessible.
- Padlockable service disconnect control switch
- Status indicators
- Two-position control circuit isolation switch disconnects utility power to the transfer switch controller.
- Load shed (Forced transfer from Emergency to OFF). (Customer-supplied signal [contact closure] is required for the forced transfer to OFF function.)
- NEMA 1, 3R, 4X and 12 enclosures are available.

**Controller**

- Decision-Maker® MPAC 1500

**Ratings**

Power Switching Device	Current	Voltage, Frequency
Molded case (MCCB)	200	208-240 VAC 60 Hz
	100-800	208-480 VAC 60 Hz
Insulated Case (ICCB)	800-4000	208-480 VAC, 60 Hz

**Service Disconnect Switch**

- Service disconnect to OFF position
- Two-position switch with padlockable cover disconnects the normal and emergency sources.
- Controller display shows Service Disconnected and the NOT IN AUTO LED flashes.
- Lamp illuminates to indicate that the switch is in the DISCONNECT position.

## Automatic Transfer Switch Controller

The Decision-Maker® MPAC 1500 Automatic Transfer Switch Controller is used on service entrance transfer switch models.

### Decision-Maker® MPAC 1500 Controller



- LCD display, 4 lines x 20 characters, backlit
- Complete programming and viewing capability at the door using the keypad and LCD display
- LED indicators: Source available, transfer switch position, service required (fault), and “not in auto”
- Modbus communication is standard
- Programmable voltage and frequency pickup and dropout settings
- Programmable time delays
- Programmable generator exerciser
- Time-based load control
- Current-based load control (current sensing kit required)
- Two programmable inputs and two programmable outputs (one programmable input and one programmable output are used for factory connections on these models and are not available for customer connection)
- Up to four I/O extension modules available
- RS-485 communication standard
- Ethernet communication standard
- Three-source system
- Prime power

For more information about Decision-Maker® MPAC 1500 features and functions, see specification sheet G11-128.

## Codes and Standards

The ATS meets or exceeds the requirements of the following specifications:

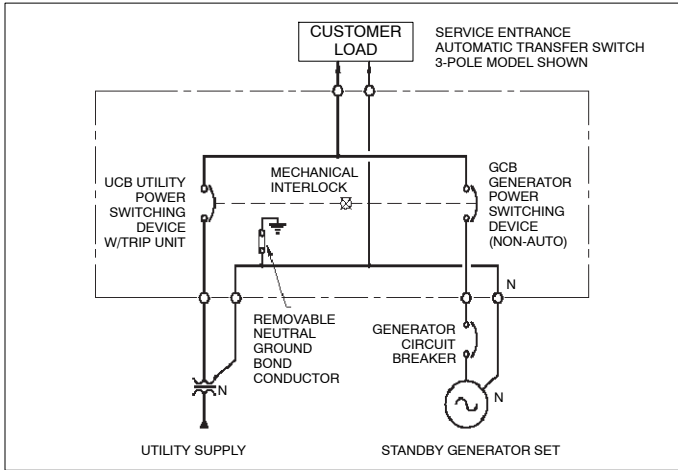
- EN61000-4-4 Fast Transient Immunity Severity Level 4
- EN61000-4-5 Surge Immunity Class 4 (voltage sensing and programmable inputs only)
- IEC Specifications for EMI/EMC Immunity:
  - CISPR 11, Radiated Emissions
  - IEC 1000-4-2, Electrostatic Discharge
  - IEC 1000-4-3, Radiated Electromagnetic Fields
  - IEC 1000-4-4, Electrical Fast Transients (Bursts)
  - IEC 1000-4-5, Surge Voltage
  - IEC 1000-4-6, Conducted RF Disturbances
  - IEC 1000-4-8, Magnetic Fields
  - IEC 1000-4-11, Voltage Dips and Interruptions
- IEC 60947-6-1, Low Voltage Switchgear and Control Gear; Multifunction Equipment; Automatic Transfer Switching Equipment
- IEEE Standard 446, IEEE Recommended Practice for Emergency and Standby Power Systems for Commercial and Industrial Applications
- IEEE 472 (ANSI C37.90A) Ring Wave Test
- NEMA Standard ICS 10-2005, Electromechanical AC Transfer Switch Equipment
- NFPA 70, National Electrical Code
- NFPA 99, Essential Electrical Systems for Health Care Facilities
- NFPA 110, Emergency and Standby Power Systems
- Underwriters Laboratories UL 1008, Standard for Automatic Transfer Switches for Use in Emergency Standby Systems file #58962

## Application Data

Environmental Specifications	
Operating Temperature	-15°C to 50°C (5°F to 122°F)
Storage Temperature	-20°C to 70°C (-4°F to 158°F)
Humidity	95% noncondensing

Auxiliary Position-Indicating Contacts	
MCCB Models	Use programmable digital outputs
ICCB Models	3 Normal, 2 Emergency Rated 2.5 A @ 24/48 VDC, 6 A @ 480VAC

## Typical Single-Line Diagram



## Ratings

Withstand Current Ratings in RMS Symmetrical Amperes *				
(No upstream circuit breaker protection required)				
Power Switching Device	Switch Rating, Amps	Voltage, Max.	Amps RMS	
			@ 240 V	@ 480 V
Molded case	100	600	65,000	25,000
	150			
	200			
	250	600	65,000	65,000
	400			
	600			
Insulated case	800	600	100,000	100,000
	1000			
	1200			
	1600			
	2000			
	2500			
	3000			
	4000			

\* With molded case/insulated case switching devices equipped with integral overcurrent protection. (UL 1008 WCR)

## Cable Sizes

Model	Amps	Cable Sizes, Al/Cu Wire		
		Circuit Breaker (per Phase)	Neutral	Ground
KEP, MCCB	100	(1) #14 - 1/0 AWG	(3) #14 - 2/0 AWG	(3) #14 - 1/0 AWG
	150	(2) #2 - 4/0 AWG		
	200	(1) #6 - 350 KCMIL	(3) #6 - 350 KCMIL	
	250			
	400	(2) 2/0 - 500 KCMIL	(6) 2/0 - 500 KCMIL	(3) #6 - 350 KCMIL
	600			
	800			
KEP, ICCB	800	(3) 3/0 - 750 KCMIL	(9) 3/0 - 750 KCMIL	(3) #6 - 250 KCMIL
	1000	(4) 3/0 - 750 KCMIL	(12) 3/0 - 750 KCMIL	
	1200	(4) 3/0 - 750 KCMIL	(12) 3/0 - 750 KCMIL	
	1600	(5) 3/0 - 750 KCMIL	(15) 3/0 - 750 KCMIL	
	2000	(6) 3/0 - 750 KCMIL	(18) 3/0 - 750 KCMIL	
	2500	(8) 3/0 - 750 KCMIL	(24) 3/0 - 750 KCMIL	
	3000	(9) 3/0 - 750 KCMIL	(27) 3/0 - 750 KCMIL	
	4000	(12) 3/0 - 750 KCMIL	(36) 3/0 - 750 KCMIL	

## Weights and Dimensions

**Note: Always use the transfer switch dimension drawing for planning and installation.** Weights and dimensions may vary for different configurations. See your local distributor for dimension drawings.

Weights and dimensions are shown for NEMA type 1 enclosures. Consult the factory for other enclosure types.

<b>Molded Case Circuit Breaker (MCCB) Models</b>									
Model	Amps	Dimensions, mm (in.)				Weight, kg (lb.)			Dimension Drawing
		Poles	Height	Width	Depth	2P	3P	4P	
KEP, MCCB	100-150	2,3,4	914 (36.0)	725 (28.5)	462 (18.2)	68 (150)	68 (150)	68 (150)	ADV-8612
	200	2,3	914 (36.0)	725 (28.5)	462 (18.2)	68 (150)	68 (150)	N/A	
	250	2,3,4	914 (36.0)	725 (28.5)	462 (18.2)	81 (178)	81 (178)	81 (178)	
	400	2,3,4	1231 (48.4)	995 (39.2)	486 (19.1)	195 (430)	195 (430)	195 (430)	ADV-8614
	600-800	2,3,4	1231 (48.4)	995 (39.2)	486 (19.1)	200 (441)	200 (441)	200 (441)	

<b>Insulated Case Circuit Breaker (ICCB) Models</b>							
Model	Amps	Poles	Dimensions, mm (in.)			Weight, kg (lb.)	Dimension Drawing
			Height	Width	Depth		
KEP, ICCB	800	3	2324 (91.5)	914 (36.0)	1219 (48.0)	544 (1200)	ADV-8618
		4	2324 (91.5)	914 (36.0)	1219 (48.0)	635 (1400)	
	1000-1200	3	2324 (91.5)	914 (36.0)	1219 (48.0)	553 (1220)	
		4	2324 (91.5)	914 (36.0)	1219 (48.0)	644 (1420)	
	1600	3	2324 (91.5)	914 (36.0)	1372 (54.0)	598 (1320)	
		4	2324 (91.5)	914 (36.0)	1372 (54.0)	625 (1380)	
	2000	3	2324 (91.5)	914 (36.0)	1372 (54.0)	607 (1340)	
		4	2324 (91.5)	914 (36.0)	1372 (54.0)	644 (1420)	
	2500	3	2324 (91.5)	914 (36.0)	1524 (60.0)	625 (1380)	
		4	2324 (91.5)	1067 (42.0)	1524 (60.0)	662 (1460)	
	3000	3	2324 (91.5)	914 (36.0)	1524 (60.0)	644 (1420)	
		4	2324 (91.5)	1067 (42.0)	1524 (60.0)	680 (1500)	
	4000	3	2324 (91.5)	1372 (54.0)	1524 (60.0)	907 (2000)	
		4	2324 (91.5)	1372 (54.0)	1524 (60.0)	1270 (2800)	

## Accessories

Accessories are available either factory-installed or as loose kits, unless otherwise noted.

### Digital Meter

- Measure and display voltage, current, frequency, and power for both sources:
- Programmable visual alarms for high voltage, low voltage, and high current
- Three digital outputs
- Serial port for optional network connections
- Password-protected programming menus
- Joystick operation
- Factory-installed

### Heater, Anti-Condensation

- Hygrostat-controlled 120 VAC strip heater (customer-supplied voltage source required)
- 100 or 250 watts (sized for enclosure)
- Protective 15 Amp circuit breaker

### Literature Kits

- Production literature kit (one set of literature is included with each transfer switch)
- Overhaul literature kit

### RSA III Remote Serial Annunciator

- Monitors the generator set
- Monitors Normal and Emergency source status and connection
- Monitors ATS common alarm
- Allows remote testing of the ATS
- For more information, see specification sheet G6-139.

### Seismic Certification

- Certification depends on application and geographic location. Contact your distributor for details.
- Available for the transfer switches and enclosures shown below:

ATS Type and Size		Enclosure, NEMA Type:			
Type	Amps	1	3R	4X	12
MCCB	100-600			●	
MCCB	100-800	●	●		●
ICCB	800-4000	●	●		

### Surge Protection Device (SPD)

- SPD available for the normal source supply
- Surge protection reduces transient voltages to harmless levels
- Protection modes: L-L / L-N / L-G / N-G
- Replaceable phase and neutral cartridges for service
- Frequency: 50-60 Hz
- Operating Temperature Range: -40 to 176°F (-40 to 80°C)
- Remote contacts for customer-supplied status indicators:
  - Contacts: 1 NO, 1 NC
  - Min Load: 12VDC / 10 mA
  - Max. Load: 250 VAC / 1 A
  - Wire Size (max.): 16AWG
- Fuse protection: 30 amps / 600 V
- UL 1449, 3rd Edition for Type 2 applications
- IEC 61-643-1, 2nd Edition T2/11
- See additional specifications below

### Extended Warranties

- 2-year basic
- 5-year basic
- 5-year comprehensive
- 10-year major components

## Additional Controller Accessories

See the controller specification sheet for more information.

### Accessory Modules

- Alarm Module
- External Battery Supply Module
- Input/Output Module
- High-Power Input/Output Module

### Current Sensing Kit

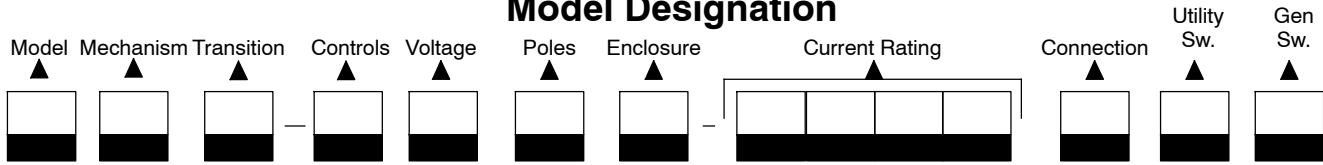
### Line-to-Neutral Voltage Monitoring

### Padlockable User Interface Cover

### Supervised Transfer Control Switch

SPD Specifications								
Nominal Voltage (V ± 15%)	Max. Discharge Current (kA)	Phase	Poles	UL VPR 3rd Ed (L-N/N-G/L-G) (kV)	Limiting Voltage, (L-N/N-G/L-G) (kV)		Short Circuit Withstand Current (kA)	Maximum Continuous Operating Voltage (VAC)
					at 3kAmps	at 10kAmp		
240/120	40	Split	3	0.6 / 1.2 / 0.7	0.6 / 0.4 / 0.6	0.8 / 0.7 / 0.8	200	175 / 350
208/120	40	Wye	4	0.6 / 1.2 / 0.7	0.6 / 0.4 / 0.6	0.8 / 0.7 / 0.8	200	175 / 350
480/277	40	Wye	4	1.0 / 1.2 / 1.1	1.0 / 0.4 / 1.0	1.2 / 0.7 / 1.2	200	320 / 460
240/120	40	HLD	4	1.0 / 1.2 / 1.1	1.0 / 0.4 / 1.0	1.2 / 0.7 / 1.2	200	320 / 460
600/347	40	Wye	4	1.3 / 1.2 / 1.4	1.3 / 0.4 / 1.3	1.5 / 0.7 / 1.5	200	440 / 880

## Model Designation



Record the transfer switch model designation in the boxes. The transfer switch model designation defines characteristics and ratings as explained below.

**Sample Model Designation: KEP-DMTA-0400S-NK**

### Model

K: Kohler

### Current, Amps

0100	0600	2000
0150	0800	2500
0200	1000	3000
0250	1200	4000
0400	1600	

### Mechanism

E: Service Entrance Rated

### Transition

P: Programmed

### Connections

S: Standard

### Controller

D: Decision-Maker® MPAC 1500, Automatic

### Utility Switching Device

M: MCCB w/thermal magnetic trip 100–200 A
N: MCCB w/electronic trip 250–800 A
R: ICCB w/electronic trip 800 A
T: ICCB w/electronic trip and GF 1000–4000 A

### Voltage/Frequency

C: 208 Volts/60 Hz	M: 480 Volts/60 Hz
F: 240 Volts/60 Hz	R: 220 Volts/60 Hz
K: 440 Volts/60 Hz	

### Generator Switching Device

K: MCSW 100–800 A
M: MCCB w/thermal magnetic trip 100–200 A
N: MCCB w/electronic trip 250–800 A
Q: ICSW 800–4000 A
R: ICCB w/electronic trip 800–4000 A

### Number of Poles/Wires

N: 2 Poles/3 Wires, Solid Neutral
T: 3 Poles/4 Wires, Solid Neutral
V: 4 Poles/4 Wires, Switched Neutral

### Enclosure

A: NEMA 1	C: NEMA 3R
B: NEMA 12	F: NEMA 4X

**Note:** Some selections are not available for every model.  
 Contact your Kohler distributor for availability.

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Availability is subject to change without notice. Kohler Co. reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. Contact your local Kohler® generator distributor for availability.



**Transfer Switch Standard Features**

- UL 1008 listed at 208–480 VAC file #E58962 (automatic), #E86894 (nonautomatic)
- CSA certification available
- IBC seismic certification available
- Standard-transition operation
- Silver tungsten alloy contacts on 400–600 amp models
- Solid or switched neutral
- Available with either automatic or non-automatic control (non-automatic control requires the Decision-Maker® MPAC 1200 controller)
- Available in 2, 3, or 4 pole configurations
- High withstand/closing ratings, for use with specific breakers only
- Electrically operated, mechanically held mechanism
- Double-throw, mechanically interlocked design (break-before-make power contacts)
- Enclosed arc chambers with arc chutes
- Front-accessible contacts for easy inspection
- Main shaft auxiliary position-indicating contacts (see page 3 for contact ratings)
- Standard one-year limited warranty. Extended limited warranties are available.

**Available Controllers**

- Decision-Maker® MPAC 750
- Decision-Maker® MPAC 1200

**Ratings**

Model	Current	Voltage, Frequency
KSS	40–600 amps	208–600 VAC, 50/60 Hz
	800–1000 amps	208–480 VAC, 50/60 Hz



## Available Automatic Transfer Switch Controllers

Select one of the following controllers for your automatic transfer switch.

### Decision-Maker® MPAC 750 Controller



- Test pushbutton
- Exercise pushbutton
- LED indicators: Source available, transfer switch position, service required (fault), and “not in auto”
- Programmable voltage pickup and dropout settings
- Programmable time delays
- Seven day generator exerciser
- Two programmable inputs and two programmable outputs
- Modbus communication standard
- RS-485 communication standard
- Ethernet communication optional

For more information about Decision-Maker® MPAC 750 features and functions, see specification sheet G11-126.

### Decision-Maker® MPAC 1200 Controller



- LCD display, 4 lines x 20 characters, backlit
- Complete programming and viewing capability at the door using the keypad and LCD display
- LED indicators: Source available, transfer switch position, service required (fault), and “not in auto”
- Programmable voltage and frequency pickup and dropout settings
- Programmable time delays
- Programmable generator exerciser
- Time-based load control
- Two programmable inputs and two programmable outputs
- Up to four I/O extension modules available
- Modbus communication standard
- RS-485 communication standard
- Ethernet communication optional

For more information about Decision-Maker® MPAC 1200 features and functions, see specification sheet G11-127.

## Codes and Standards

The ATS meets or exceeds the requirements of the following specifications:

- Underwriters Laboratories UL 1008, Standard for Automatic Transfer Switches for Use in Emergency Standby Systems file # E58962 (automatic), # E86894 (nonautomatic)
- CSA C22.2 No. 178 certification available, file # LR58301
- NFPA 70, National Electrical Code
- NFPA 99, Essential Electrical Systems for Health Care Facilities
- NFPA 110, Emergency and Standby Power Systems
- IEEE Standard 446, IEEE Recommended Practice for Emergency and Standby Power Systems for Commercial and Industrial Applications
- NEMA Standard ICS 10-2005, Electromechanical AC Transfer Switch Equipment
- EN61000-4-4 Fast Transient Immunity Severity Level 4
- IEC 60947-6-1, Low Voltage Switchgear and Control Gear; Multifunction Equipment; Automatic Transfer Switching Equipment
- EN61000-4-5 Surge Immunity Class 4 (voltage sensing and programmable inputs only)
- IEC Specifications for EMI/EMC Immunity:
  - CISPR 11, Radiated Emissions
  - IEC 1000-4-2, Electrostatic Discharge
  - IEC 1000-4-3, Radiated Electromagnetic Fields
  - IEC 1000-4-4, Electrical Fast Transients (Bursts)
  - IEC 1000-4-5, Surge Voltage
  - IEC 1000-4-6, Conducted RF Disturbances
  - IEC 1000-4-8, Magnetic Fields
  - IEC 1000-4-11, Voltage Dips and Interruptions
- IEEE 472 (ANSI C37.90A) Ring Wave Test
- Seismic certification in accordance with the International Building Code is available. (Accessory kit is required for seismic certification.)
  - IBC 2000, referencing ASCE 7-98 and ICC AC-156
  - IBC 2003, referencing ASCE 7-02 and ICC AC-156
  - IBC 2006, referencing ASCE 7-05 and ICC AC-156
  - IBC 2009, referencing ASCE 7-05 and ICC AC-156
  - IBC 2012, referencing ASCE 7-10 and ICC AC-156

## Application Data

Environmental Specifications	
Operating Temperature	-20°C to 70°C (-4°F to 158°F)
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Humidity	5% to 95% noncondensing

UL-Listed Solderless Screw-Type Terminals for External Power Connections				
Model	Switch Rating, Amps	Range of Wire Sizes, Copper or Aluminum*		
		Normal, Emergency, and Load	Neutral	Ground
KSS	40-150	(1) #8 to 3/0 AWG	(3) #6 - 3/0 AWG	(3) #6 - 3/0 AWG
	200-225	(1) #6 AWG to 250 KCMIL	(3) #4 - 600 KCMIL or (6) 1/0 - 250 KCMIL	
	260	(1) #6 AWG to 350 KCMIL		
	400	(1) #4 AWG to 600 KCMIL or (2) #6 AWG to 250 KCMIL	(6) #2 - 600 KCMIL	(3) #4 - 600 KCMIL or (6) 1/0 - 250 KCMIL
	600	(2) #2 AWG to 600 KCMIL		
	800	(2) #1/0 AWG to 750 KCMIL	(12) #2 - 600 KCMIL	
	1000	(4) #2 AWG to 600 KCMIL		

\* Use 60°C minimum wire for #14 to #1 AWG. Use 75°C minimum wire for 1/0 AWG and larger.

Contact Ratings				
	Resistive Load	Inductive Load	Motor Load	
			NC	NO
Engine Start Contacts	2 A @ 30 VDC	N/A	N/A	N/A
Auxiliary Contacts, (40-600A) ‡	15 A @ 250 VAC	N/A	N/A	N/A
Auxiliary Contacts, (800-1000A) ‡	15 A @ 480 VAC	15 A @ 250 VAC; 6 A @ 500 VAC	5 A @ 125 VAC; 3 A @ 250 VAC; 1.5 A @ 500 VAC	2.5 A @ 125 VAC; 1.5 A @ 250 VAC; 0.75 A @ 500 VAC

‡ Auxiliary position-indicating contacts, one set Normal and one set Emergency

## Weights and Dimensions

**Note: Always use the transfer switch dimension drawing for planning and installation.** Weights and dimensions may vary for different configurations. See your local distributor for dimension drawings.

Weights and dimensions are shown for transfer switches in NEMA type 1 and type 3R enclosures. Consult the factory for open units and other enclosures.

Amps	NEMA Type	Dimensions mm (in.)			Weight kg (lb.)			ADV Drawing
		Height	Width	Depth §	2-Pole	3-Pole	4-Pole	
40-225	1, 3R	791 (31.1)	450 (17.7)	316 (12.5)	28 (62)	30 (65)	31 (68)	ADV-8584
260	1, 3R	1219 (48.0)	560 (22.0)	362 (14.3)	52 (115)	56 (123)	59 (131)	ADV-8586
400	1, 3R	1223 (48.1)	560 (22.0)	362 (14.3)	52 (115)	56 (123)	59 (131)	ADV-8588
600	1, 3R	1702 (67.0)	610 (24.0)	514 (20.2)	179 (395)	183 (403)	186 (410)	ADV-8590
800	1, 3R	1932 (76.1)	864 (34.0)	515 (20.3)	N/A	226 (498)	236 (520)	ADV-8592
1000	1, 3R	1932 (76.1)	864 (34.0)	515 (20.3)	N/A	231 (509)	241 (531)	ADV-8592

§ Allow enough room to fully open the door for inspection and service per NEC and local codes. The NEMA type 3R enclosures have a security cover on the controller that extends 54 mm (2.1 in.) beyond the door.

## Withstand and Close-On Ratings (WCR) Ratings Summary

The transfer switch is rated for use on a circuit capable of delivering not more than the RMS symmetrical Amperes listed at the specified maximum voltage below, but no greater than the interrupting capacity of the selected circuit breaker or fuse. Circuit breakers and fuses are supplied by the customer.

Certified Withstand Current Ratings in RMS Symmetrical Amperes ¶											
Switch Rating, Amps	With Current-Limiting Fuses				Specific Coordinated Breaker Rating, (see the following tables)			Any Breaker Ratings **			
	Fuse Class	Fuse Size, Max Amps	Maximum Circuit Amps		Maximum Voltage	Maximum Circuit Amps		Maximum Voltage	Maximum Circuit Amps		Time Duration, Seconds Max.
			480 VAC	600 VAC		480 VAC	600 VAC		480 VAC	600 VAC	
40-150	J	400	200,000	200,000	600 V	30,000	22,000	600 V	10,000	10,000	0.025
200-225	J	400	200,000	N/A	600 V	30,000	22,000	600 V	10,000	10,000	
260	N/A	N/A	N/A	N/A	480 V	35,000	N/A	N/A	N/A	N/A	N/A
400	J	600	200,000	200,000	600 V	50,000	42,000	600 V	35,000	35,000	0.050
	RK5 RK1	600	100,000	N/A							
600	N/A	N/A	N/A	N/A	600 V	50,000	42,000	N/A	N/A	N/A	N/A
800	L	3000	200,000	N/A	480 V	65,000	N/A	N/A	N/A	N/A	N/A
1000	L	4000									

¶ All values are available symmetrical RMS Amperes and tested in accordance with the withstand/closing requirements of UL 1008.  
\*\* Applicable to breakers with instantaneous trip elements.

### Ratings with Specific Manufacturers' Circuit Breakers

Withstand and close-on ratings (WCR) in RMS symmetrical Amperes for specific manufacturers' circuit breakers.

Switch Rating, Amps	Molded-Case Circuit Breakers				
	Voltage, Max.	WCR, Amps RMS	Manufacturer	Type	Max. Size, Amps
40 80 100 150 200 225	480	30,000	Eaton	FCL	100
				JGS, JGH, JGC, JGU, JGX, JBD, JD, HJD, JDC, LCL, LCLA	250
				LDC, CLDC, KDB, KD, HKD, KDC, LD, CLD, HLD, CHLD	400
			ITE/Siemens	CED6, HED4, HED6	125
				CFD6, FD6A, FXD6, HFD6, HFXD6, HHFD6, HHFXD6	250
				CJD6	400
			General Electric	SEL, SEP, THLC1	150
				THLC2	225
				SFH, SFL, SFP	250
			Schneider	SGH, SGL, SGP, FGN, FGH, FGL, FGP	400
				HG, HJ, HL, HR	150
				JJ, JL, JR	250
	600	22,000	Eaton	LG, LJ, LL, LR	400
				JGS, JGH, JGC, JGU, JGX, JDB, JD, HJD, JDC, LCL, LCLA	250
				LDC, CLDC, KDB, KD, HKD, KDC, LD, CLD, HLD, CHLD	400
			ITE/Siemens	CED6, HED4, HED6	125
CFD6, FD6, FXD6, HFD6, HFXD6, HHFD6, HHFXD6				250	
SEL, SEP, THLC1				150	
General Electric			THLC2	225	
			SFH, SFL, SFP	250	
			SGH, SGL, SGP, FGN, FGH, FGL, FGP	400	

Switch Rating, Amps	Molded-Case Circuit Breakers				
	Voltage, Max.	WCR, Amps RMS	Manufacturer	Type	Max. Size, Amps
260	480	35,000	Eaton	JGS, JGH, JGC, JGU, JGX, JDB, JD, HJD, JDC, LCL, LCLA	250
				LDC, CLDC, LD, CLD, HLD, CHLD, KDB, KD, HKD, KDC	400
			ITE/Siemens	CED6, HED4, HHED6	125
				CFD6, FD6, FXD6, HFD6, HFXD6, HHFD6, HHFXD6	250
			General Electric	SEL, SEP, THLC1	150
				THLC2	225
				SFH, SFL, SFP	250
				SGH	350
			Schneider	SGH, SGL, SGP, FGN, FGH, FGL, FGP	400
				HG, HJ, HL, HR	150
				JJ, JL, JR	250
				LG, LJ, LL, LR	400
400	480	50,000	Eaton	HJD, JDC, JGC, JGH, JGU, JGX	250
				CHLD4, CLD, HLD4, CLDC, LDC, KDC, HKD, CHMDL4, CMDL4	400
				CHLD6, HDL6, CHMDL6, CMDL6, CLDC, CLD6, LDC6, CLDC6	600
				CHMDL8, HMDL8, MDL8, CMDL8	800
			ITE/Siemens	CFD6, HFD6, HFXD6, HHFD6, HHFXD6	250
			General Electric	SFL, SFP	250
				FGL, FGP	600
			Schneider	LJ, LL, LR	600
			600	42,000	Eaton
	CLDC4, KDC, LDC4	400			
	CLDC6, LDC6, NB Tri-Pac	600			
	NB Tri-Pac	800			
	ITE/Siemens	CFD6			250
		CJD6, SCLD6			400
		CLD6, HHLD6, HHLXD6, SCLD6			600
		CMD6, HMD6, HMXD6, SCMD6, SHMD6			800
	General Electric	THLC1			150
		FGL4, FGP4, THLC4, TLB4	400		
SGL, SGP, FGL6, FGP6		600			
Schneider	SKL8, SKP8	800			
Schneider	JL, JR	250			

Switch Rating, Amps	Molded-Case Circuit Breakers					
	Voltage, Max.	WCR, Amps RMS	Manufacturer	Type	Max. Size, Amps	
600	480	50,000	Eaton	HJD, JDC, JGC, JGH, JGU, JGX	250	
				CHLD4, CLD, HLD4, CLDC, LDC, KDC, HKD, CHMDL4, CMDL4	400	
				CHLD6, HLD6, CHMDL6, CMDL6, CLDC6, LDC6, CLD6, CLDC	600	
				CHMDL8, HMDL8, MDL8, CMDL8	800	
			ITE/Siemens	CFD6, HFD6, HFXD6, HHFD6, HHFXD6	250	
			General Electric	SFL, SFP	250	
				FGL, FGP	600	
	Schneider	LJ, LL, LR	600			
	600	600	42,000	Eaton	JGU, JGX	250
					CLDC4, KDC, LDC4	400
					CLDC6, LDC6, NB Tri-Pac	600
					NB Tri-Pac	800
				ITE/Siemens	CFD6	250
					CJD6, SCLD6	400
CLD6, HHLD6, HHLXD6, SCLD6					600	
CMD6, HMD6, HMXD6, SCMD6, SHMD6					800	
General Electric				THLC1	150	
				FGL4, FGP4, THLC4, TLB4	400	
	SGL, SGP, FGL6, FGP6	600				
	SKL8, SKP8	800				
Schneider	JL, JR	250				
800 1000	65,000	480	Eaton/ Cutler-Hammer	TRI-PAC NB, CHMDL, HMDL, CHND, HND, NDC, CNDC	800	
				TRI-PAC NB, CNDC, NDC, CRDC, TRI-PAC PB, RDC, CHND, HND, RD. CRD	1200	
			Schneider/ Square D	MJ, PJ, PL, RJ	800	
				PJ, PL, RL	1000	
			ITE/Siemens	CMD6, HMD6, SCMD6, SHMD6, CND6, HND6, SCND6, SHND6, CPD6	800	
				CND6, HND6, SCND6, CPD6, SHND6, HPD6	1200	
			General Electric	TB8, TC, THC, THP	1000	
				THC, THP, TRP	1200	

## Transfer Switch Accessories

Accessories are available either factory-installed or as loose kits, unless otherwise noted.

### CSA Certification

### Digital Meter (with MPAC 1200 only)

- Measure and display voltage, current, frequency, and power for both sources
- Programmable visual alarms for high voltage, low voltage, and high current
- Three digital outputs
- Serial port for optional network connections
- Password-protected programming menus
- Joystick operation
- Factory-installed
- Three digital outputs
- Joystick operation

### Extended Limited Warranties

- 2-year basic
- 5-year basic
- 5-year comprehensive
- 10-year major components

### Export Packaging

### Heater, Anti-Condensation

- Hygrostat-controlled 120 VAC strip heater (customer-supplied voltage source required)
- 100 or 250 watts (sized for enclosure)
- Protective 15 amp circuit breaker

### Literature Kits

- Production literature kit (one kit is included with each transfer switch)
- Overhaul literature kit

### Neutral Assembly

- Available as loose kit for open units

### RSA III Remote Serial Annunciator

- Monitors the generator set
- Monitors Normal and Emergency source status and connection
- Monitors ATS common alarm
- Allows remote testing of the ATS

For more information, see specification sheet G6-139.

### Seismic Certification

- Certification depends on application and geographic location. Contact your distributor for details.
- Available for 40–1000 amp KSS models with NEMA 1, 3R, 4, 4X, and 12 enclosures

### Surge Protection Device (SPD)

- Surge protection reduces transient voltages to harmless levels
- Protection modes: L-L / L-N / L-G / N-G
- Replaceable phase and neutral cartridges for service
- Frequency: 50–60 Hz
- Operating Temperature Range: –40 to 176°F (–40 to 80°C)
- Remote contacts for customer-supplied status indicators:
  - Contacts: 1 NO, 1 NC
  - Min Load: 12VDC / 10 mA
  - Max. Load: 250 VAC / 1 A
  - Wire Size (max.): 16AWG
- Fuse protection: 30 amps / 600 V
- UL 1449, 3rd Edition for Type 2 applications
- IEC 61-643-1, 2nd Edition T2/11
- See additional specifications below

## Additional Controller Accessories

See the controller spec sheet for more information.

### Accessory Modules (with MPAC 1200 only)

- Alarm Module
- External Battery Supply Module
- Input/Output Module
- High-Power Input/Output Module

### Controller Disconnect Switch

### Ethernet Communications

### Current Sensing Kit (with MPAC 1200 only)

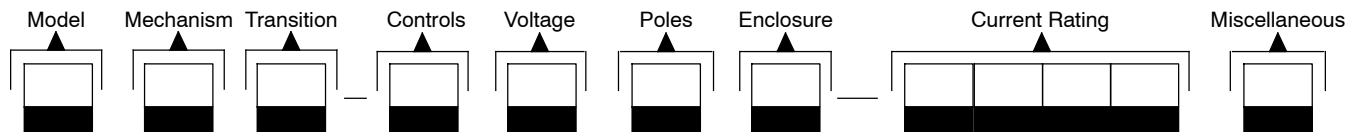
### Line-to-Neutral Voltage Monitoring (with MPAC 1200 only)

### Padlockable User Interface Cover

### Supervised Transfer Control Switch (with MPAC 1200 only)

SPD Specifications								
Nominal Voltage (V ±15%)	Max. Discharge Current (kA)	Phase	Poles	UL VPR 3rd Ed (L-N/N-G/L-G) (kV)	Limiting Voltage, (L-N/N-G/L-G) (kV)		Short Circuit Withstand Current (kA)	Maximum Continuous Operating Voltage (VAC)
					at 3kA	at 10kA		
240/120	40	Split	3	0.6 / 1.2 / 0.7	0.6 / 0.4 / 0.6	0.8 / 0.7 / 0.8	200	175 / 350
208/120	40	Wye	4	0.6 / 1.2 / 0.7	0.6 / 0.4 / 0.6	0.8 / 0.7 / 0.8	200	175 / 350
480/277	40	Wye	4	1.0 / 1.2 / 1.1	1.0 / 0.4 / 1.0	1.2 / 0.7 / 1.2	200	320 / 460
240/120	40	HLD	4	1.0 / 1.2 / 1.1	1.0 / 0.4 / 1.0	1.2 / 0.7 / 1.2	200	320 / 460
600/347	40	Wye	4	1.3 / 1.2 / 1.4	1.3 / 0.4 / 1.3	1.5 / 0.7 / 1.5	200	440 / 880

## Model Designation



Record the transfer switch model designation in the boxes. The transfer switch model designation defines characteristics and ratings as explained below.

### Sample Model Designation: KSS-JCNA-0100S

#### Model

K: Kohler

#### Mechanism

S: Standard (Specific-Breaker)

#### Transition

S: Standard

#### Controller

A: Decision-Maker® MPAC 1200, Automatic  
 B: Decision-Maker® MPAC 1200, Non-Automatic  
 J: Decision-Maker® MPAC 750, Automatic

#### Voltage/Frequency

C: 208 Volts/60 Hz	K: 440 Volts/60 Hz
D: 220 Volts/50 Hz	M: 480 Volts/60 Hz
F: 240 Volts/60 Hz	N: 600 Volts/60 Hz
G: 380 Volts/50 Hz	P: 380 Volts/60 Hz
H: 400 Volts/50 Hz	R: 220 Volts/60 Hz
J: 416 Volts/50 Hz	

#### Number of Poles/Wires

N: 2 Poles/3 Wires, Solid Neutral  
 T: 3 Poles/4 Wires, Solid Neutral  
 V: 4 Poles/4 Wires, Switched Neutral

#### Enclosure

A: NEMA 1	D: NEMA 4
B: NEMA 12	F: NEMA 4X
C: NEMA 3R	G: Open Unit

#### Current, Amps

0040	0200	600
0080	0225	800
0100	0260	1000
0150	0400	

#### Connections

S: Standard

**Note:** Some selections are not available for every model. Contact your Kohler distributor for availability.

**DISTRIBUTED BY:**

Availability is subject to change without notice. Kohler Co. reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. Contact your local Kohler® Power Systems distributor for availability.

# CRG Electric LLC

CRG Electric LLC  
 P.O. Box 2183  
 Belleville, MI 48112-2183

(734) 757-4308  
 service@crgelectricllc.com  
 www.crgelectricllc.com

## Estimate

Date	Estimate #
06/19/2017	7603
Exp. Date	
07/17/2017	

Address
Genoa Township 2911 Dorr Road Brighton, MI 48116

P.O. Number	Sales Rep
CES286	Curt

Activity	Amount
<ul style="list-style-type: none"> <li>• Generator Installation:                              One (1) New Kohler Model 125REZGC Natural Gas Engine Generator Set.                              60kW @ 0.8PF, 60 Hz, Three Phase, 120/208 Volt, EPA CERTIFIED, UL Certified 2200 Listing</li>   <li>One (1) Kohler Automatic Transfer Switch, KSS-ACTA-0600S                              600 Amp, 208 Volt, Three Phase, 3 Pole, 4 Wire, Nema 1 Enclosure, Programmable Input/Output Module</li> <li>• Location:                              2911 Dorr Road, Brighton, MI 48116</li> <li>• The transfer switch will be located on the interior of the building.                              A 600 amp fused disconnect will installed to feed the new transfer switch.                              The transfer switch will be installed so it feeds the entire building including the AC units.</li> <li>• The generator will be placed near the gas meter on the South East end of the building.                              The sod will be removed and a concrete pad will be formed.                              Concrete will be pored for the unit to be placed on.                              All the conduits going to the generator will be below grade and come up into the unit.</li> <li>• A generator and control feed will be installed underground from the generator to the transfer switch.                              The feeds will be installed in conduit from building to the transfer switch.                              Two circuits will be installed to the generator for the block heater and battery charger.                              A portion of the sidewalk will be removed to installed the generator feeds.                              After underground inspections are complete the sidewalk will be pored back in place.</li> <li>• A separate gas meter will need to be installed at the unit.                              It will be the customers responsibility to organize this.                              All costs will be paid direct from the customer to the utilities.</li> <li>• The gas line will be tapped at the gas meter.                              The line will be surface mounted to the generator.                              A shut off, drip leg and flex line will be installed at the unit.                              All the new pipe on the exterior of the building will be painted.</li> <li>• Customer will be responsible for any screening that may be needed to be placed around the unit.</li> <li>• All permits will need to be issued and approved through the city before any equipment is ordered.</li> </ul>	

Continue to the next page



Activity	Amount
<ul style="list-style-type: none"> <li>• If the city required stamped and sealed drawings from a engineer this will be a added expense.</li> <li>• A 50 percent deposit is required upon acceptance of this proposal.</li> <li>• All work is to be done during normal business hours Monday threw Friday. If a after hours shut down is needed it will be a added expense.</li> <li>• Any pre-existing code violations that are present and need repaired will be an added cost and tracked at time and material if needed. If any items are found they will be discussed with the owner/tenant before any repairs are done. Not responsible for un-foreseeable items.</li> <li>• Generator and Transfer Switch</li> <li>• Labor and Material</li> <li>• Permit Allowance and Processing</li> </ul>	<p>31,500.00</p> <p>48,556.00</p> <p>0.00</p>
<p>Thank you for the opportunity to bid this project. We look forward to working with you.</p>	<p><b>Total</b>      <b>\$80,056.00</b></p>

Accepted By \_\_\_\_\_

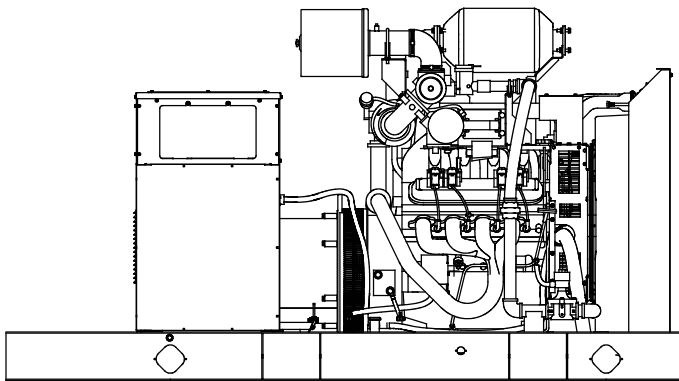
Accepted Date \_\_\_\_\_



**EPA-Certified for Stationary  
Emergency Applications**

**Ratings Range**

Standby:	kW	60 Hz
	kVA	91-156



**Standard Features**

- Kohler Co. provides one-source responsibility for the generating system and accessories.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- The 60 Hz generator set offers a UL 2200 listing.
- At 60 Hz, the generator set accepts rated load in one step.
- The 60 Hz generator set meets NFPA 110, Level 1, when equipped with the necessary accessories and installed per NFPA standards.
- A one-year limited warranty covers all generator set systems and components. Two- and five-year extended limited warranties are also available.
- Alternator features:
  - The unique Fast-Response® X excitation system delivers excellent voltage response and short-circuit capability using a rare-earth, permanent magnet (PM)-excited alternator.
  - The brushless, rotating-field alternator has broadrange reconnectability.
- Other features:
  - Kohler designed controllers for one-source system integration and remote communication. See Controllers on page 3.
  - The electronic, isochronous governor incorporates an integrated drive-by-wire throttle body actuator delivering precise frequency regulation.

**Generator Set Ratings**

Alternator	Voltage	Ph	Hz	Natural Gas 130°C Rise Standby Rating		LP Gas 130°C Rise Standby Rating	
				kW/kVA	Amps	kW/kVA	Amps
4R12X	120/208	3	60	124/155	430	105/131	364
	127/220	3	60	125/156	410	105/131	344
	120/240	3	60	124/155	373	105/131	316
	120/240	1	60	91/91	379	91/91	379
	139/240	3	60	125/156	376	105/131	316
	220/380	3	60	112/140	213	105/131	199
	277/480	3	60	125/156	188	105/131	158
	347/600	3	60	125/156	150	105/131	126
4R13X	120/208	3	60	125/156	434	106/133	368
	127/220	3	60	125/156	410	106/133	348
	120/240	3	60	125/156	376	106/133	319
	120/240	1	60	107/107	446	100/100	417
	139/240	3	60	125/156	376	106/133	319
	220/380	3	60	124/155	235	106/133	201
	277/480	3	60	125/156	188	106/133	159
347/600	3	60	125/156	150	106/133	128	
4T13X	120/240	1	60	125/125	521	105/105	438

RATINGS: All three-phase units are rated at 0.8 power factor. All single-phase units are rated at 1.0 power factor. Standby Ratings: The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. Prime Power Ratings: At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528-1 and ISO-3046-1. For limited running time and continuous ratings, consult the factory. Obtain technical information bulletin (TIB-101) for ratings guidelines, complete ratings definitions, and site condition derates. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. For dual fuel engines, use the LP gas ratings for both the primary and secondary fuels.

# Alternator Specifications

Specifications	Alternator
Manufacturer	Kohler
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Rare-Earth Permanent Magnet
Leads: quantity, type	
4RX	12, Reconnectable
4TX	4, 110-120/220-240
Voltage regulator	Solid State, Volts/Hz
Insulation:	NEMA MG1
Material	Class H
Temperature rise	130°C, Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Voltage regulation, no-load to full-load	Controller Dependent
One-step load acceptance	100% of Rating
Unbalanced load capability	100% of Rated Standby Current
Peak motor starting kVA:	(35% dip for voltages below)
480 V      4R12X (12 lead)	448 (60 Hz)
480 V      4R13X (12 lead)	540 (60 Hz)
240 V      4T13X (4 lead)	440 (60 Hz)

- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting.
- Sustained short-circuit current of up to 300% of the rated current for up to 10 seconds.
- Sustained short-circuit current enabling downstream circuit breakers to trip without collapsing the alternator field.
- Self-ventilated and dripproof construction.
- Windings are vacuum-impregnated with epoxy varnish for dependability and long life.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.

## Application Data

### Engine

Engine Specifications	
Manufacturer	PSI
Engine: model, type	Industrial 8.8 L, 4-Cycle, Turbocharged
Cylinder arrangement	V-8
Displacement, L (cu. in.)	8.8 (537)
Bore and stroke, mm (in.)	110 x 114 (4.35 x 4.5)
Compression ratio	10.1:1
Piston speed, m/min. (ft./min.)	411 (1350)
Main bearings: quantity, type	5, Bi-Metal Steel and Aluminum
Rated rpm	1800
Max. power at rated rpm (NG), kW (HP)	142 (190)
Max. power at rated rpm, (LPG) kW (HP)	121 (162)
Cylinder head material	Cast Iron
Piston type and material	Flat Top, Hypereutectic Cast Alum.
Crankshaft material	Forged Steel, Induction Hardened, Tangential Fillet
Valve (exhaust) material	Int.-A193 Exh. Inconel
Governor type	Electronic
Frequency regulation, no-load to full-load	Isochronous
Frequency regulation, steady state	±0.5%
Frequency	Fixed
Air cleaner type, all models	Dry

### Exhaust

Exhaust System	
Exhaust manifold type	Dry
Exhaust flow at rated kW, m <sup>3</sup> /min. (cfm)	21.1 (745)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	649 (1200)
Maximum allowable back pressure, kPa (in. Hg)	10.2 (3.0)
Exhaust outlet size at engine hookup, mm (in.)	Flanged Outlet at Catalytic see ADV drawing

### Engine Electrical

Engine Electrical System	
Ignition system	Individual Coil Near Plug Ignition
Battery charging alternator:	
Ground (negative/positive)	Negative
Volts (DC)	12
Ampere rating	70
Starter motor rated voltage (DC)	12
Battery, recommended cold cranking amps (CCA):	
Qty., rating for -18°C (0°F)	1, 630
Battery voltage (DC)	12

### Fuel

Fuel System	
Fuel type	Natural Gas, LP Gas, or Dual Fuel
Fuel supply line inlet	1.5 NPTF
Natural gas fuel supply pressure, kPa (in. H <sub>2</sub> O)	1.74-2.74 (7-11)
LPG vapor withdrawal fuel supply pressure, kPa (in. H <sub>2</sub> O)	1.24-2.74 (5-11)
Dual fuel engine, LPG vapor withdrawal fuel supply pressure, kPa (in. H <sub>2</sub> O)	1.24 (5)

Fuel Composition Limits *	Nat. Gas	LP Gas
Methane, % by volume	90 min.	1.2 max.
Ethane, % by volume	4.0 max.	10 max.
Propane, % by volume	1.0 max.	96 max.
Propene, % by volume	0.1 max.	3 max.
C <sub>4</sub> and higher, % by volume	0.3 max.	3 max.
Sulfur, ppm mass		25 max.
Lower heating value, MJ/m <sup>3</sup> (Btu/ft <sup>3</sup> ), min.	33.2 (890)	78.8 (2116)

\* Fuels with other compositions may be acceptable. If your fuel is outside the listed specifications, contact your local distributor for further analysis and advice.

# Application Data

## Lubrication

### Lubricating System

Type	Full Pressure
Oil pan capacity, L (qt.)	8.0 (8.5)
Oil pan capacity with filter, L (qt.)	8.5 (9.0)
Oil filter: quantity, type	1, Cartridge

## Cooling

### Radiator System

Ambient temperature, °C (°F) *	50 (122)
Engine jacket water capacity, L (gal.)	13.4 (3.54)
Radiator system capacity, including engine, L (gal.)	27.6 (7.3)
Engine jacket water flow, Lpm (gpm)	125 (33)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	73.5 (4184)
Heat rejected to engine oil at rated kW, kW (Btu/min.)	1.2 (67.5)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	660 (26.0)
Fan, kWm (HP)	8.9 (12.0)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H <sub>2</sub> O)	0.125 (0.5)

\* Enclosure with enclosed silencer reduces ambient temperature capability by 5°C (9°F).

## Operation Requirements

### Air Requirements

Radiator-cooled cooling air, m <sup>3</sup> /min. (scfm) †	306 (10800)
Combustion air, m <sup>3</sup> /min. (cfm)	6.9 (244)
Heat rejected to ambient air:	
Engine, kW (Btu/min.)	21.6 (1230)
Alternator, kW (Btu/min.)	15.7 (893)

† Air density = 1.20 kg/m<sup>3</sup> (0.075 lbm/ft<sup>3</sup>)

### Fuel Consumption ‡

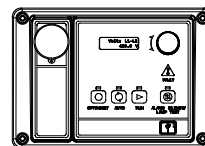
Natural Gas, m <sup>3</sup> /hr. (cfh) at % load	Standby Ratings	
100%	42.8	(1511)
75%	34.1	(1204)
50%	25.2	(890)
25%	16.5	(583)
0%	6.8	(240)
LP Gas, m <sup>3</sup> /hr. (cfh) at % load	Standby Ratings	
100%	17.7	(626)
75%	13.4	(473)
50%	9.5	(334)
25%	5.9	(209)
0%	2.7	(95)

‡ Nominal fuel rating: Natural gas, 37 MJ/m<sup>3</sup> (1000 Btu/ft.<sup>3</sup>)  
LP vapor, 93 MJ/m<sup>3</sup> (2500 Btu/ft.<sup>3</sup>)

LP vapor conversion factors:

8.58 ft.<sup>3</sup> = 1 lb.  
0.535 m<sup>3</sup> = 1 kg.  
36.39 ft.<sup>3</sup> = 1 gal.

## Controllers

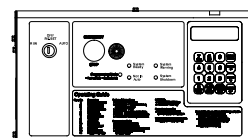


### Decision-Maker® 3000 Controller

Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.

- Digital display and menu control provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or serial configuration
- Controller supports Modbus® protocol
- Integrated hybrid voltage regulator with ±0.5% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-100 for additional controller features and accessories.

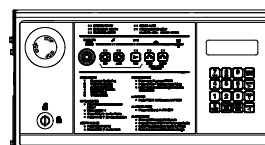


### Decision-Maker® 550 Controller

Provides advanced control, system monitoring, and system diagnostics with remote monitoring capabilities.

- Digital display and keypad provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or modem configuration
- Controller supports Modbus® protocol
- Integrated voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-46 for additional controller features and accessories.



### Decision-Maker® 6000 Paralleling Controller

Provides advanced control, system monitoring, and system diagnostics with remote monitoring capabilities for paralleling multiple generator sets.

- Paralleling capability with first-on logic, synchronizer, kW and kVAR load sharing, and protective relays
- Digital display and keypad provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or modem configuration
- Controller supports Modbus® protocol
- Integrated voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-107 for additional controller features and accessories.

Modbus® is a registered trademark of Schneider Electric.

## Standard Features

- Alternator Protection
- Battery Rack and Cables
- Closed Crankcase Ventilation (CCV) Filters
- Customer Connection  
(Standard with Decision-Maker® 6000 controller only)
- Electronic, Isochronous Governor
- Gas Fuel System (includes fuel mixer, electronic secondary gas regulator, gas solenoid valve, and flexible fuel line between the engine and the skid-mounted fuel system components)
- Integral Vibration Isolation
- Local Emergency Stop Switch
- Oil Drain Extension
- Operation and Installation Literature
- Three-Way Exhaust Catalyst

## Available Options

### Approvals and Listings

- CSA Certified
- IBC Seismic Certification
- UL 2200 Listing

### Enclosed Unit

- Sound Enclosure (with enclosed critical silencer)
- Weather Enclosure (with enclosed critical silencer)

### Open Unit

- Exhaust Silencer, Critical (kit: PA-324470)
- Flexible Exhaust Connector, Stainless Steel

### Fuel System

- Dual Fuel NG/LPG (automatic changeover)
- Flexible Fuel Line  
(required when the generator set skid is spring mounted)
- Gas Filter
- LP Liquid Withdrawal (vaporizer)
- Secondary Gas Solenoid Valve

### Controller

- Common Fault Relay
- Communication Products and PC Software
- Customer Connection  
(Decision-Maker® 550 and 6000 controllers only)
- Dry Contact (isolated alarm)  
(Decision-Maker® 550 and 6000 controllers only)
- Input/Output Module (Decision-Maker® 3000 controller only)
- Remote Annunciator Panel
- Remote Audiovisual Alarm Panel  
(Decision-Maker® 550 and 6000 controllers only)
- Remote Emergency Stop
- Run Relay

### Cooling System

- Block Heater, 1800 W, 110-120 V
- Block Heater, 2000 W, 190-240 V  
Required for ambient temperatures below 10°C (50°F)
- Radiator Duct Flange

### Electrical System

- Alternator Strip Heater
- Battery
- Battery Charger, Equalize/Float Type
- Battery Heater
- Line Circuit Breaker (NEMA1 enclosure)
- Line Circuit Breaker with Shunt Trip (NEMA1 enclosure)

### Miscellaneous

- Air Cleaner Restrictor Indicator
- Certified Test Report
- Crankcase Ventilation Heater  
Recommended for ambient temperatures below 0°C (32°F)
- Engine Fluids Added
- Rated Power Factor Testing
- Rodent Guards

### Literature

- General Maintenance
- NFPA 110
- Overhaul
- Production

### Warranty

- 2-Year Basic Limited Warranty
- 5-Year Basic Limited Warranty
- 5-Year Comprehensive Limited Warranty

### Other Options

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

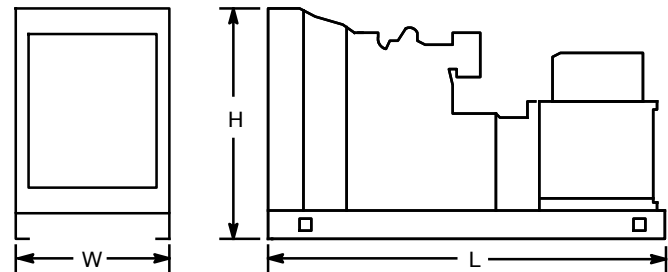
## Dimensions and Weights

Overall Size, L x W x H, mm (in.):

Wide Skid 2800 x 1120 x 1538 (110.2 x 44.1 x 60.6)

Narrow Skid 2400 x 864 x 1538 (94.5 x 34.0 x 60.6)

Weight (radiator model), wet, kg (lb.): 1365 (3009)



NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

### DISTRIBUTED BY:





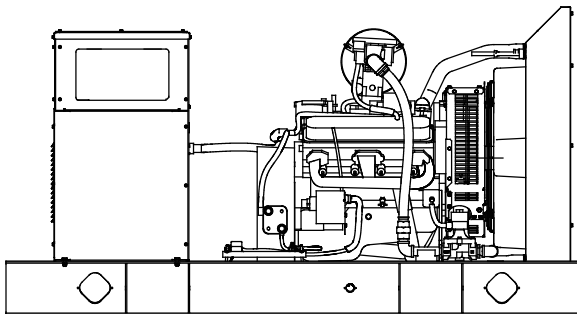
**EPA-Certified for Stationary Applications**

**Standard Features**

- Kohler Co. provides one-source responsibility for the generating system and accessories.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- The 60 Hz generator set offers a UL 2200 listing.
- The generator set accepts rated load in one step.
- The 60 Hz generator set meets NFPA 110, Level 1, when equipped with the necessary accessories and installed per NFPA standards.
- A one-year limited warranty covers all systems and components. Two- and five-year extended limited warranties are also available.
- Alternator features:
  - The unique Fast-Response™ X excitation system delivers excellent voltage response and short-circuit capability using a rare-earth, permanent magnet (PM)-excited alternator.
  - The brushless, rotating-field alternator has broadrange reconnectability.

**Ratings Range**

		60 Hz	50 Hz
Standby:	kW	44-64	40-53
	kVA	44-80	40-66
Prime:	kW	39-56	36-47
	kVA	39-70	36-59



**Generator Set Ratings**

Alternator	Voltage	Ph	Hz	Natural Gas 130°C Rise Standby Rating		LP Gas 130°C Rise Standby Rating		Natural Gas 105°C Rise Prime Rating		LP Gas 105°C Rise Prime Rating	
				kW/kVA	Amps	kW/kVA	Amps	kW/kVA	Amps	kW/kVA	Amps
4P7BX	120/208	3	60	54/68	189	54/68	189	48/60	166	48/60	166
	127/220	3	60	57/71	186	57/71	186	51/63	167	51/63	167
	120/240	3	60	54/68	164	54/68	164	48/60	144	48/60	144
	120/240	1	60	44/44	183	44/44	183	39/39	162	39/39	162
	139/240	3	60	60/75	180	60/75	180	54/67	162	54/67	162
	220/380	3	60	49/61	93	49/61	93	44/55	83	44/55	83
	277/480	3	60	60/75	90	60/75	90	54/67	81	54/67	81
	347/600	3	60	57/71	68	57/71	68	51/63	61	51/63	61
	110/190	3	50	44/55	167	44/55	167	39/49	148	39/49	148
	115/200	3	50	47/59	170	47/59	170	41/52	150	41/52	150
	120/208	3	50	46/58	161	46/58	161	40/51	141	40/51	141
	110/220	3	50	44/55	144	44/55	144	39/49	128	39/49	128
110/220	1	50	40/40	182	40/40	182	36/36	163	36/36	163	
220/380	3	50	44/55	83	44/55	83	39/49	74	39/49	74	
230/400	3	50	47/59	85	47/59	85	41/52	75	41/52	75	
240/416	3	50	46/58	80	46/58	80	40/51	70	40/51	70	
4P8X	120/208	3	60	60/75	208	62/78	215	54/67	187	55/68	190
	127/220	3	60	60/75	197	62/78	203	54/67	177	55/68	180
	120/240	3	60	60/75	180	62/78	186	54/67	162	55/68	165
	120/240	1	60	54/54	225	54/54	225	48/48	200	48/48	200
	139/240	3	60	60/75	180	62/78	186	54/67	162	55/68	165
	220/380	3	60	60/75	114	62/78	118	54/67	102	55/68	104
	277/480	3	60	60/75	90	62/78	93	54/67	81	55/68	82
	347/600	3	60	60/75	72	62/78	75	54/67	64	55/68	66
	110/190	3	50	48/60	182	50/62	188	43/54	164	44/56	170
	115/200	3	50	48/60	173	50/62	179	43/54	155	44/56	161
	120/208	3	50	45/56	155	45/56	155	40/50	138	40/50	138
	110/220	3	50	48/60	157	50/62	163	43/54	141	44/56	146
110/220	1	50	48/48	218	48/48	218	43/43	195	43/43	195	
220/380	3	50	48/60	91	50/62	94	43/54	82	44/56	85	
230/400	3	50	48/60	87	50/62	89	43/54	77	44/56	80	
240/416	3	50	45/56	78	45/56	78	40/50	69	40/50	69	

NOTE: Generator Set Ratings are continued on page 2.

RATINGS: All three-phase units are rated at 0.8 power factor. All single-phase units are rated at 1.0 power factor. Standby Ratings: The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. Prime Power Ratings: At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528-1 and ISO-3046-1. For limited running time and continuous ratings, consult the factory. Obtain technical information bulletin (TIB-101) for ratings guidelines, complete ratings definitions, and site condition derates. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. For dual fuel engines, use the natural gas ratings for both the primary and secondary fuels.

Alternator	Voltage	Ph	Hz	Natural Gas 130°C Rise		LP Gas 130°C Rise		Natural Gas 105°C Rise		LP Gas 105°C Rise	
				Standby Rating kW/kVA	Amps	Standby Rating kW/kVA	Amps	Prime Rating kW/kVA	Amps	Prime Rating kW/kVA	Amps
4P10X	120/208	3	60	60/75	208	63/79	219	54/67	187	56/70	194
	127/220	3	60	60/75	197	64/80	210	54/67	177	56/70	183
	120/240	3	60	60/75	180	63/79	189	54/67	162	56/70	168
	120/240	1	60	59/59	246	61/61	254	52/52	216	52/52	216
	139/240	3	60	60/75	180	64/80	192	54/67	162	56/70	168
	220/380	3	60	60/75	114	63/79	120	54/67	102	56/70	106
	277/480	3	60	60/75	90	64/80	96	54/67	81	56/70	84
	347/600	3	60	60/75	72	64/80	77	54/67	64	56/70	67
	110/190	3	50	48/60	182	53/66	200	43/54	164	47/59	179
	115/200	3	50	48/60	176	53/66	191	43/54	155	47/59	170
	120/208	3	50	48/60	169	53/66	183	43/54	149	47/59	163
	110/220	3	50	48/60	157	53/66	173	43/54	141	47/59	154
	110/220	1	50	50/50	227	52/52	236	45/45	204	46/46	209
	220/380	3	50	48/60	91	53/66	100	43/54	82	47/59	89
	230/400	3	50	48/60	87	53/66	95	43/54	77	47/59	85
	240/416	3	50	48/60	85	53/66	92	43/54	74	47/59	81
4Q10X	120/240	1	60	60/60	250	60/60	250	54/54	225	54/54	225
	110/220	1	50	53/53	241	53/53	241	47/47	213	47/47	213

## Alternator Specifications

Specifications	Alternator
Manufacturer	Kohler
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Rare-Earth Permanent Magnet
Leads: quantity, type	
4PX	12, Reconnectable
4QX	4, 110-120/220-240
Voltage regulator	Solid State, Volts/Hz
Insulation:	NEMA MG1
Material	Class H
Temperature rise	130°C, Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Voltage regulation, no-load to full-load	Controller Dependent
One-step load acceptance	100% of Rating
Unbalanced load capability	100% of Rated Standby Current
Peak motor starting kVA:	(35% dip for voltages below)
480 V, 400 V 4P7BX (12 lead)	180 (60 Hz), 136 (50 Hz)
480 V, 400 V 4P8X (12 lead)	261 (60 Hz), 218 (50 Hz)
480 V, 400 V 4P10X (12 lead)	275 (60 Hz), 220 (50 Hz)
240 V, 220 V 4Q10X (4 lead)	144 (60 Hz), 132 (50 Hz)

- The unique Fast-Response™ X excitation system delivers excellent voltage response and short-circuit capability using a rare-earth, permanent magnet (PM)-excited alternator.
- The brushless, rotating-field alternator has broadrange reconnectability.
- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting.
- Sustained short-circuit current of up to 300% of the rated current for up to 10 seconds.
- Sustained short-circuit current enabling downstream circuit breakers to trip without collapsing the alternator field.
- Self-ventilated and dripproof construction.

## Application Data

### Engine

Engine Specifications	60 Hz	50 Hz
Manufacturer	General Motors	
Engine: model, type	Industrial Powertrain Vortec 5.7 L, 4-Cycle Natural Aspiration	
Cylinder arrangement	V-8	
Displacement, L (cu. in.)	5.7 (350)	
Bore and stroke, mm (in.)	101.6 x 88.4 (4.00 x 3.48)	
Compression ratio	9.1:1	
Piston speed, m/min. (ft./min.)	318 (1044)	265 (870)
Main bearings: quantity, type	5, M400 Copper Lead	
Rated rpm	1800	1500
Max. power at rated rpm, kW (HP)	78.3 (105)	65.6 (88)
Cylinder head material	Cast Iron	
Piston type and material	High Silicon Aluminum	
Crankshaft material	Nodular Iron	
Valve (exhaust) material	Forged Steel	
Governor type	Electronic	
Frequency regulation, no-load to full-load	Isochronous	
Frequency regulation, steady state	±0.5%	
Frequency	Fixed	
Air cleaner type, all models	Dry	

### Exhaust

Exhaust System	60 Hz	50 Hz
Exhaust manifold type	Dry	
Exhaust flow at rated kW, m <sup>3</sup> /min. (cfm)	16.4 (580)	13.6 (480)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	649 (1200)	
Maximum allowable back pressure, kPa (in. Hg)	10.2 (3.0)	
Exhaust outlet size at engine hookup, mm (in.)	76 (3.0) OD	

### Engine Electrical

Engine Electrical System	60 Hz	50 Hz
Ignition system	Electronic	
Battery charging alternator:		
Ground (negative/positive)	Negative	
Volts (DC)	12	
Ampere rating	70	
Starter motor rated voltage (DC)	12	
Battery, recommended cold cranking amps (CCA):		
Qty., rating for -18°C (0°F)	1, 630	
Battery voltage (DC)	12	

# Application Data

## Fuel

Fuel System	60 Hz	50 Hz
Fuel type	Natural Gas, LP Gas, or Dual Fuel	
Fuel supply line inlet	1 NPTF	
Natural gas fuel supply pressure, kPa (in. H <sub>2</sub> O)	1.74–2.74 (7-11)	
LPG vapor withdrawal fuel supply pressure, kPa (in. H <sub>2</sub> O)	1.24–2.74 (5-11)	
Dual fuel engine, LPG vapor withdrawal fuel supply pressure, kPa (in. H <sub>2</sub> O)	1.24 (5)	
Fuel Composition Limits *	Nat. Gas	LP Gas
Methane, % by volume	90 min.	—
Ethane, % by volume	4.0 max.	—
Propane, % by volume	1.0 max.	85 min.
Propene, % by volume	0.1 max.	5.0 max.
C <sub>4</sub> and higher, % by volume	0.3 max.	2.5 max.
Sulfur, ppm mass	25 max.	
Lower heating value, MJ/m <sup>3</sup> (Btu/ft <sup>3</sup> ), min.	33.2 (890)	84.2 (2260)

\* Fuels with other compositions may be acceptable. If your fuel is outside the listed specifications, contact your local distributor for further analysis and advice.

## Lubrication

Lubricating System	60 Hz	50 Hz
Type	Full Pressure	
Oil pan capacity, L (qt.)	4.3 (4.5)	
Oil pan capacity with filter, L (qt.)	4.7 (5.0)	
Oil filter: quantity, type	1, Cartridge	

## Cooling

Radiator System	60 Hz	50 Hz
Ambient temperature, °C (°F) *	50 (122)	
Engine jacket water capacity, L (gal.)	6.8 (1.8)	
Radiator system capacity, including engine, L (gal.)	20.8 (5.5)	
Engine jacket water flow, Lpm (gpm)	117.3 (31)	98.4 (26)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	54.8 (3120)	45.7 (2600)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	533 (21)	
Fan, kWm (HP)	4.5 (6.0)	2.6 (3.5)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H <sub>2</sub> O)	0.125 (0.5)	

\* Enclosure with enclosed silencer reduces ambient temperature capability by 5°C (9°F).

## Operation Requirements

Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m <sup>3</sup> /min. (scfm) †	170 (6000)	136 (4800)
Combustion air, m <sup>3</sup> /min. (cfm)	5.2 (185)	4.4 (155)
Heat rejected to ambient air:		
Engine, kW (Btu/min.)	30.9 (1760)	26.5 (1510)
Alternator, kW (Btu/min.)	7.7 (440)	6.9 (390)

† Air density = 1.20 kg/m<sup>3</sup> (0.075 lbm/ft<sup>3</sup>)

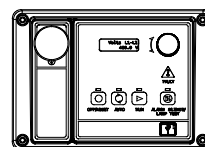
Fuel Consumption ‡	60 Hz	50 Hz
Natural Gas, m <sup>3</sup> /hr. (cfh) at % load	Standby Ratings	
100%	22.4 (790)	18.1 (640)
75%	19.4 (685)	15.6 (550)
50%	14.7 (520)	11.8 (415)
25%	9.9 (350)	7.8 (275)
LP Gas, m <sup>3</sup> /hr. (cfh) at % load	Standby Ratings	
100%	9.3 (330)	7.9 (280)
75%	7.1 (250)	6.2 (220)
50%	5.4 (190)	4.7 (165)
25%	3.8 (135)	3.1 (110)
Natural Gas, m <sup>3</sup> /hr. (cfh) at % load	Prime Ratings	
110%	22.4 (790)	18.1 (638)
100%	21.5 (758)	17.3 (612)
75%	18.1 (638)	14.6 (513)
50%	13.7 (483)	11.0 (387)
25%	9.5 (334)	7.4 (262)
LP Gas, m <sup>3</sup> /hr. (cfh) at % load	Prime Ratings	
110%	9.3 (328)	7.9 (279)
100%	8.3 (294)	7.2 (253)
75%	6.6 (231)	5.7 (203)
50%	5.1 (179)	4.4 (155)
25%	3.6 (128)	2.9 (103)

‡ Nominal fuel rating: Natural gas, 37 MJ/m<sup>3</sup> (1000 Btu/ft.<sup>3</sup>)  
LP vapor, 93 MJ/m<sup>3</sup> (2500 Btu/ft.<sup>3</sup>)

LP vapor conversion factors:

8.58 ft.<sup>3</sup> = 1 lb.  
0.535 m<sup>3</sup> = 1 kg.  
36.39 ft.<sup>3</sup> = 1 gal.

## Controllers

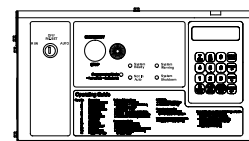


### Decision-Maker® 3000 Controller

Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.

- Digital display and menu control provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or serial configuration
- Controller supports Modbus® protocol
- Integrated hybrid voltage regulator with ±0.5% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-100 for additional controller features and accessories.



### Decision-Maker® 550 Controller

Provides advanced control, system monitoring, and system diagnostics with remote monitoring capabilities.

- Digital display and keypad provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or modem configuration
- Controller supports Modbus® protocol
- Integrated voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-46 for additional controller features and accessories.



## Standard Features

- Alternator Protection
- Battery Rack and Cables
- Electronic, Isochronous Governor
- Gas Fuel System (includes fuel mixer, electronic secondary gas regulator, gas solenoid valve, and flexible fuel line between the engine and the skid-mounted fuel system components)
- Integral Vibration Isolation
- Local Emergency Stop Switch
- Oil Drain Extension
- Operation and Installation Literature

## Available Options

### Approvals and Listings

- CSA Approval
- IBC Seismic Certification
- UL 2200 Listing

### Enclosed Unit

- Sound Enclosure (with enclosed critical silencer)
- Weather Enclosure (with enclosed critical silencer)

### Open Unit

- Exhaust Silencer, Critical (kit: PA-352663)
- Flexible Exhaust Connector, Stainless Steel

### Fuel System

- Dual Fuel NG/LPG (automatic changeover)
- Flexible Fuel Line (required when the generator set skid is spring mounted)
- Gas Filter
- LP Liquid Withdrawal (vaporizer)
- Secondary Gas Solenoid Valve

### Controller

- Common Fault Relay
- Communication Products and PC Software
- Customer Connection (Decision-Maker® 550 controller only)
- Input/Output Module (Decision-Maker® 3000 controller only)
- Remote Annunciator Panel
- Remote Audiovisual Alarm Panel (Decision-Maker® 550 controller only)
- Remote Emergency Stop
- Run Relay

### Cooling System

- Block Heater, 1500 W, 110-120 V (Recommended for ambient temperatures below 10°C (50°F))
- Radiator Duct Flange

### Electrical System

- Alternator Strip Heater
- Battery
- Battery Charger, Equalize/Float Type
- Battery Heater
- Line Circuit Breaker (NEMA1 enclosure)
- Line Circuit Breaker with Shunt Trip (NEMA1 enclosure)

### Miscellaneous

- Air Cleaner Restrictor Indicator
- Certified Test Report
- Engine Fluids Added
- Rated Power Factor Testing
- Rodent Guards

### Literature

- General Maintenance
- NFPA 110
- Overhaul
- Production

### Warranty

- 2-Year Basic
- 5-Year Basic
- 5-Year Comprehensive

### Other Options

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

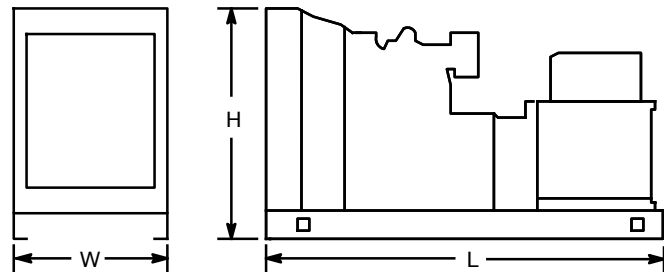
## Dimensions and Weights

Overall Size, L x W x H, mm (in.):

Wide Skid 2200 x 1040 x 1175 (86.6 x 40.9 x 46.3)

Narrow Skid 2200 x 864 x 1175 (86.6 x 34.0 x 46.3)

Weight (radiator model), wet, kg (lb.): 878 (1937)



NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

## DISTRIBUTED BY:

Genoa Township  
2911 Dorr Road  
Brighton, Michigan 48116

July 12, 2017

Attn: Adam VanTassell

**Re: Township Hall Generator & ATS**

We are pleased to submit our proposal to provide Electrical work for the above referenced project in accordance with the following clarifications:

- Coordination with Consumers Energy for an upgraded gas service is included.
- Furnishing & installation of a concrete generator pads is included.
- Furnishing & installation of a 80kw natural gas Cummins generator east of the A/C units included.
- Furnishing & installation of 600 amp ATS in Township Hall basement included.
- Furnishing & installation of conduit and wire between existing CT cabinet and new automatic transfer switch is included.
- Furnishing and installation of conduit and wire from ATS to the generator is included.
- Furnishing & installation of natural gas piping from existing meter to generator is included.
- Excavation & backfill for underground conduit and gas line to generator is included. Backfill to be done with excavated material.
- Coring and patching for new conduits is included.
- Overtime to cut in new service is included.
- Start-up, testing, and training for the new equipment is included.
- Warranties and all applicable sales tax are included.

The following items are **not included** in our proposal:

- Cost of bond
- Landscape repair or replacement
- DTE or Consumers Power charges
- Electrical Permit

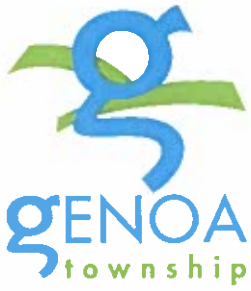
**Our lump sum price is:**

**\$ 89,700.00**

Sincerely,

*David F Best*

David F. Best



## MEMORANDUM

2911 Dorr Road  
Brighton, MI 48116  
810.227.5225  
810.227.3420 fax  
genoa.org

August 2, 2017

To: Genoa Township Board

From: Robin Hunt, Genoa Township Treasurer

Re: Discussion of Interest charged on Special Assessments for Road Projects

As requested by the Township Board I have attached examples showing what the interest charge would have calculated out to for some of the Road Improvement Projects that the Township has levied over the past 5 years.

I calculated at both a 1% charge and a 2% charge. This is strictly an estimate based on total cost, total parcels and total years. It does not reflect any adjustments for early pay offs.

In looking at the projects that have been approved over the last 5 years I think it's important to note that we did have the Oak Pointe Honors project which paid on the 2016 Winter tax prior to construction which is being done now.

If charging interest on the Road Improvement Projects is something the Board wants to pursue, I would request adding wording to the policy to not include any districts that prepay for their project.

Please let me know if you have any questions.

**SUPERVISOR**

Bill Rogers

**CLERK**

Paulette A. Skolarus

**TREASURER**

Robin L. Hunt

**TRUSTEES**

Jean W. Ledford

H. James Mortensen

Terry Croft

Diana Lowe

**MANAGER**

Michael C. Archinal

	<u>Year</u>	<u># Years</u>	<u># Parcels</u>	<u>Cost</u>	<u>Less Twp. Contribution</u>	<u>Total SAD</u>	<u>Total Per Parcel</u>	<u>1% Interest Per Parcel</u>	<u>2% Interest Per Parcel</u>
Red Oaks Rd Imp.	2013	10	245	\$806,703.12	-\$201,675.78	\$ 605,027.34	\$2,469.49	\$135.84	\$ 271.64
<b>Total Interest for 10 years 245 Parcels</b>								<b>\$33,280.00</b>	<b>\$66,551.80</b>

Per Parcel Amortization Table					
Principal: 2,469.49, APR Interest: 1.0000000					
Period	Payment	Toward Interest	Toward Principal	Outstanding	
2013	\$271.64	\$24.69	\$246.95	\$2,222.54	
2014	\$269.18	\$22.23	\$246.95	\$1,975.59	
2015	\$266.71	\$19.76	\$246.95	\$1,728.64	
2016	\$264.24	\$17.29	\$246.95	\$1,481.69	
2017	\$261.77	\$14.82	\$246.95	\$1,234.74	
2018	\$259.30	\$12.35	\$246.95	\$987.79	
2019	\$256.83	\$9.88	\$246.95	\$740.84	
2020	\$254.36	\$7.41	\$246.95	\$493.89	
2021	\$251.89	\$4.94	\$246.95	\$246.94	
2022	\$249.41	\$2.47	\$246.94	\$0.00	
	\$2,605.33	\$135.84	\$2,469.49		

Per Parcel Amortization Table					
Principal: 2,469.49, APR Interest: 2.0000000					
Period	Payment	Toward Interest	Toward Principal	Outstanding	
2013	\$296.34	\$49.39	\$246.95	\$2,222.54	
2014	\$291.40	\$44.45	\$246.95	\$1,975.59	
2015	\$286.46	\$39.51	\$246.95	\$1,728.64	
2016	\$281.52	\$34.57	\$246.95	\$1,481.69	
2017	\$261.77	\$29.63	\$246.95	\$1,234.74	
2018	\$259.30	\$24.69	\$246.95	\$987.79	
2019	\$256.83	\$19.76	\$246.95	\$740.84	
2020	\$254.36	\$14.82	\$246.95	\$493.89	
2021	\$251.89	\$9.88	\$246.95	\$246.94	
2022	\$249.41	\$4.94	\$246.94	\$0.00	
	\$2,689.28	\$271.64	\$2,469.49		

	<u>Year</u>	<u># Years</u>	<u># Parcels</u>	<u>Cost</u>	<u>Less Twp. Contribution</u>	<u>Total SAD</u>	<u>Total Per Parcel</u>	<u>1% Interest Per Parcel</u>	<u>2% Interest Per Parcel</u>
Homestead Dr. Rd Improvement	2016	5	62	\$180,000.00	\$0.00	\$ 180,000.00	\$2,904.00	\$87.12	\$ 174.24
<b>Total Interest for 5 years 62 Parcels</b>								<b>\$5,401.44</b>	<b>\$10,802.88</b>

Per Parcel Amortization Table Principal \$2,904.00, APR Interest: 1.0000000					
<u>Period</u>	<u>Payment</u>	<u>Toward Interest</u>	<u>Toward Principal</u>	<u>Outstanding</u>	
2016	\$609.84	\$29.04	\$580.80	\$2,323.20	
2017	\$604.03	\$23.23	\$580.80	\$1,742.40	
2018	\$598.22	\$17.42	\$580.80	\$1,161.60	
2019	\$592.42	\$11.62	\$580.80	\$580.80	
2020	\$586.61	\$5.81	\$580.80	\$0.00	
	\$2,991.12	\$87.12	\$2,904.00		

Per Parcel Amortization Table Principal \$2,904.00, APR Interest: 2.0000000					
<u>Period</u>	<u>Payment</u>	<u>Toward Interest</u>	<u>Toward Principal</u>	<u>Outstanding</u>	
2016	\$638.88	\$58.08	\$580.80	\$2,323.20	
2017	\$627.26	\$46.46	\$580.80	\$1,742.40	
2018	\$615.65	\$34.85	\$580.80	\$1,161.60	
2019	\$604.03	\$23.23	\$580.80	\$580.80	
2020	\$592.42	\$11.62	\$580.80	\$0.00	
	\$3,078.24	\$174.24	\$2,904.00		

Genoa Township  
 Road Reimbursement Projects

	<u>Year</u>	<u># Years</u>	<u># Parcels</u>	<u>Cost</u>	<u>Less Twp. Contribution</u>	<u>Total SAD</u>	<u>Total Per Parcel</u>	<u>1% Interest Per Parcel</u>	<u>2% Interest Per Parcel</u>
Sundance Trail Rd Improvement	2016	6	30	\$252,000.00	-\$30,000.00	\$ 222,000.00	\$7,404.00	\$259.14	\$ 518.28
<b>Total Interest for 6 years 30 Parcels</b>								<b>\$7,774.20</b>	<b>\$15,548.40</b>

<b>Per Parcel Amortization Table</b>				
Principal \$7,404.00, APR Interest: 1 %				
Period	Payment	Toward Interest	Toward Principal	Outstanding
2016	\$1,308.04	\$74.04	\$1,234.00	\$6,170.00
2017	\$1,295.70	\$61.70	\$1,234.00	\$4,936.00
2018	\$1,283.36	\$49.36	\$1,234.00	\$3,702.00
2019	\$1,271.02	\$37.02	\$1,234.00	\$2,468.00
2020	\$1,258.68	\$24.68	\$1,234.00	\$1,234.00
2021	\$1,246.34	\$12.34	\$1,234.00	\$0.00
	\$7,663.14	\$259.14	\$7,404.00	

<b>Per Parcel Amortization Table</b>				
Principal \$7,404.00, APR Interest: 2 %				
Period	Payment	Toward Interest	Toward Principal	Outstanding
2016	\$1,382.08	\$148.08	\$1,234.00	\$6,170.00
2017	\$1,357.40	\$123.40	\$1,234.00	\$4,936.00
2018	\$1,332.72	\$98.72	\$1,234.00	\$3,702.00
2019	\$1,308.04	\$74.04	\$1,234.00	\$2,468.00
2020	\$1,283.36	\$49.36	\$1,234.00	\$1,234.00
2021	\$1,258.68	\$24.68	\$1,234.00	\$0.00
	\$7,922.28	\$518.28	\$7,404.00	

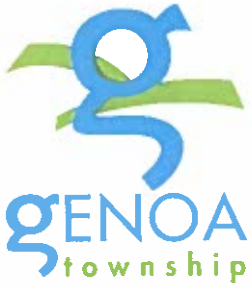
	<u>Year</u>	<u># Years</u>	<u># Parcels</u>	<u>Cost</u>	<u>Less Twp. Contribution</u>	<u>Total SAD</u>	<u>Total Per Parcel</u>	<u>1% Interest Per Parcel</u>	<u>2% Interest Per Parcel</u>
Sunrise Park Rd Improvement	2016	5	153	\$650,000.00	\$0.00	\$ 650,000.00	\$4,248.37	\$127.45	\$ 254.90
<b>Total Interest for 5 years 153 Parcels</b>								<b>\$19,499.85</b>	<b>\$38,999.70</b>

Per Parcel Amortization Table				
Principal: 4,248.37, APR Interest: 1.0000000				
Period	Payment	Toward Interest	Toward Principal	Outstanding
2016	\$892.15	\$42.48	\$849.67	\$3,398.70
2017	\$883.66	\$33.99	\$849.67	\$2,549.03
2018	\$875.16	\$25.49	\$849.67	\$1,699.36
2019	\$866.66	\$16.99	\$849.67	\$849.69
2020	\$858.19	\$8.50	\$849.69	\$0.00
	\$4,375.82	\$127.45	\$4,248.37	

Per Parcel Amortization Table				
Principal: 4,248.37, APR Interest: 2.0000000				
Period	Payment	Toward Interest	Toward Principal	Outstanding
2016	\$934.64	\$84.97	\$849.67	\$3,398.70
2017	\$883.66	\$67.97	\$849.67	\$2,549.03
2018	\$875.16	\$50.98	\$849.67	\$1,699.36
2019	\$866.66	\$33.99	\$849.67	\$849.69
2020	\$866.68	\$16.99	\$849.69	\$0.00
	\$4,426.80	\$254.90	\$4,248.37	

# **Board Correspondence**





2911 Dorr Road  
Brighton, MI 48116  
810.227.5225  
810.227.3420 fax  
genoa.org

August 3, 2017

Mr. Joseph Yaros  
5679 Richardson Road  
Howell, MI 48843

Dear Mr. Yaros:

Subject: Review of supplemental information regarding the property located at 5679 Richardson Road, Howell, MI

I am in receipt of your correspondence dated August 1, 2017 asking that the board minutes of July 17, 2017 be amended. Please understand that the Minutes of the Township Board are not meant to be an account of dialog between the petitioner, board members, or your attorney Ms. Jamie K. Stewart. I did include the high points of the presentation made by Ms. Stewart. In addition, your application included 27 pages related to your petition. All of this information was included in the board packet and on the internet for review by the board and township residents. The policy of the board has always been to paraphrase the main points of the discussion, record the motion and the voice vote. The township board is not required to answer questions with regard to this petition; we are only required to consider your request.

Please know that I will include your August 1<sup>st</sup> correspondence in the next packet prepared for the board meeting scheduled for August 7, 2017 so that your concerns and expectations may be considered.

Sincerely,

Paulette A. Skolarus, Clerk  
Genoa Charter Township Board

Cc: Ms. Jamie K. Stewart  
Genoa Charter Township Board

**SUPERVISOR**

Bill Rogers

**CLERK**

Paulette A. Skolarus

**TREASURER**

Robin L. Hunt

**TRUSTEES**

Jean W. Ledford

H. James Mortensen

Terry Croft

Diana Lowe

**MANAGER**

Michael C. Archinal

5. The Township Engineer's comments shall be addressed and will be reviewed during Construction plan review as required per the MHOG Connection Manual.
6. A performance guarantee in compliance with Zoning Ordinance Section 21.03 shall be provided for the deferred portion of the sidewalk along Grand Oaks Drive.
7. All requirements of the Brighton Area Fire Authority's letter of May 31, 2017 shall be met.
8. Potential access driveway easement for cross access provided an agreement can be met with Lowe's.

The motion carried unanimously.

#### **10. Review of supplemental information regarding the property at 5679 Richardson Road.**

Jamie K. Stewart addressed the board on behalf of Mr. Joseph Yaros. Stewart indicated that her client, Joseph Yaros, has many health issues and when Mr. Yaros was in the hospital; his son built the deck not knowing a permit was required. They are not trying to be adversarial and are open to any person from the township to come out to measure the structure.

Stewart made reference to ordinance 11.04.02, which states: "Attached or unattached uncovered decks and porches without a roof, walls or other form of enclosure shall be permitted to extend a maximum of twenty five (25) feet from the rear building line of the principal building, provided they shall be at least four (4) feet from any side lot line and ten (10) feet from any rear lot line." Stewart said that measurements were taken and it does not extend past twenty-five feet from the principal building. She also indicated that there are many ordinances that pertain to certain architectural features and covered porches but said Joseph Yaros should be allowed to have a deck and the footprint of the home is not an expansion of the residence. Ms. Stewart referenced two applications that he applied for. The deck is attached but can come into compliance and Yaros would like the opportunity to correct the deck. When the interior wood paneling was removed, the door wall frame was there so they just put the door wall back in.

Township Attorney Seward said the deck must be attached to the principal residence and not to an accessory building and precludes the deck addition as is. This is not a safety issue; the deck is not in compliance with either the township ordinance or the consent agreement. Expansion of an existing non-conforming structure is in violation of the consent agreement.

Moved by Mortensen and supported by Skolarus to decline any further request for expansion of a nonconforming structure that is in violation of the zoning ordinance and consent judgement with regards to the Yaros property at 5679 Richardson Road Howell. The motion carried unanimously.

#### **Correspondence:**

Skolarus and Archinal have met with a concerned resident on Westphal regarding a large professional grade fireworks display situation with Fire Chief O'Brien who is in contact with ATF to determine if the fireworks in question are professional grade and if so, what license they were obtained under.

#### **Member Discussion:**

- Archinal- Kelly VanMarter has been working with Meijer's on the Hampton Ridge and Latson signal. Thirteen trees will need to be removed, five are in the right-of-way. The original cost for the project has come down significantly. With the road commission

August 1, 2017

**VIA FEDERAL EXPRESSS OVERNIGHT**

Ms. Polly Skolarus  
Genoa Charter Township Clerk  
2911 Dorr Road  
Brighton, MI 48116

Re: Genoa Charter Township Board  
Regular Meeting, July 17, 2017 Minutes

(10) Review of Supplemental Information Regarding the Property at 5679 Richardson Road.

Dear Ms. Skolarus:

I am addressing you prior to the August 7, 2017 Meeting regarding the above subject matter. At the next meeting your protocol requires a Request to Approve the Minutes dated July 17, 2017, which I have found to be incomplete.

It is my understanding your minutes are a draft until approved by the Board at the next August 7<sup>th</sup> meeting.

It was very apparent that the drafted July 17, 2017 Minutes had a few omissions regarding the above matter. I noticed the only Board Members mentioned by name in the drafted Minutes were... "Moved by Mortensen and supported by Skolaruks", et al.

My attorney J. K. Stewart addressed the Board, although your drafted minutes did not reflect any response or dialog from the Board Members, to her requests, questions, interpretations and concerns.

Also omitted from your drafted minutes:

Concurrently, was the Board Members' Discussion regarding an undisclosed computerized photographs. Since the nature of the photographs was not revealed, I suspect this document was from a 2006 law suit between the Township and previous owner, eleven years ago.

Also omitted from your drafted minutes:

The Board Members' dialog as they shuffled this photographs amongst themselves, while they queried my attorney and myself.

I requested a copy of these photographs, to review what they were talking about.

My attorney and I addressed their remarks pertaining to an eleven year old photographs, to the best of our knowledge.

The minutes did reflect one of our many answers to the Boards' query regarding this picture:

*Yaros: When the interior wood paneling was removed, the door wall frame was there so they just put the door wall back in.*

Per your drafted Minutes:

Township Attorney Seward remarks reflected terms which were inaccurate which I object to:

Accessory Structure,

[The building was always a single family dwelling, a second residence, and was not converted from a  
a domestic or agricultural storage or as a barn, shed, stable, tool room, pole barn,  
garage, or storage unit. ORDINANCE 25 DEFINITIONS]

*The original owner designed the barn façade to avoid taxes, and the use of a  
second residence on the CE residential zone five acres. Hence the 2006 law suit*

Also, Attorney Seward refers to the two residences in his May Memorandum Packet  
"Here the non-conforming use is the second residential house"

[The non-conforming use per the Consent Judgment is the use on the Property  
Not the second residential house as Seward mentioned.] – No violation

Per your drafted Minutes:

I also object to the terms in the Motion:

Non-conforming structure is a term which is inaccurate:

Expansion is a term which is inaccurate:

Violation of the zoning ordinance and consent judgment is inaccurate

Zoning Ordinance no specifications as to which ordinance is in violation.

*The Motion Moved by Mortensen and supported by Skolarus to decline any further  
request for expansion of a nonconforming structure that is in violation of the zoning  
ordinance and consent judgment with regards to the Yaros property et al.*

There was no violation:

Per the Consent Judgment the parties agreed to recognized the

"Use of two residences."

"a second, accessory residence on the property"

(there is no reference in the consent judgment to a "non-conforming structure")

**"Deck" is not an expansion of the footprint as long as it is uncovered and no  
walls.**

**Principal Building (Ordinance Section 25 – Definition) – No determination has been met if The second residence will be Mr. Yaros’ principal residence. Two poles does not constitute an expansion or a change in the foundation footprint.**

**Section 24.04.08 Expansion of a Nonconforming Residential Building is permitted.**

To the best of my knowledge, the dialog was omitted from the drafted Minutes.

1. Members Discussion regarding a 2003-2006 undisclosed computerized pictures which was not in the July 17<sup>th</sup> Packet:
  - a) what is the Permit Number?
  - b) looks like only two poles holding it up, does not look safe;
  - c) is there a deck on the side of the building;
  - d) is there a drop off;
  - e) are you going to add steps, “well that changes everything”;  
*(removal of the deck and just steps was denied at the previous meeting as an “expansion”)*
  - f) is there a door wall;
  - g) than just open the door if you need to breath,
  - h) the deck was illegally constructed without a permit;
  - i) looks like a barn to me.
  
2. The drafted Minutes did not reflect any response or lack of response to Attorney Jamie K. Stewart’s due diligence and interpretation to have a dialog regarding why we were actually there.
  - a) any response from the Board regarding an unenclosed deck as an architectural feature per your Ordinance Section 11; is not an expansion of the footprint of a residence;
  
  - b) any response from the Board regarding Joseph Yaros’ health issues and use of oxygen;  
except, I believe Ms Ledford did mentioned if you have a door wall just open it if you have to breath.
  - c) any response from the Board regarding the (25) feet from the rear building line of the principal building, and the members were welcome to measure;
  - d) any response from the Board that Mr. Yaros should be allowed to make any corrections; and or redesign the deck
  - e) she acknowledged that the deck was built without a permit, *that is why we are here*, no mention of the Board’s autocratic remark.
  
3. The drafted Minutes did not include my friend’s concerns to the Board regarding the assistance I requested from the Zoning Department to correctly submit a Residential Land Use Permits, for the deck for a second residence.

Two Residential Land Use Permit forms were submitted; one dated April 10<sup>th</sup> and another on April 19<sup>th</sup> for a deck already completed at my second residence.

Requested assistance from zoning department on How to submit a corrected Residential Land Use Permit for a second residence.

A second residence, [which is not a non conforming structure or accessory building as per the Zoning Department and per Township Attorney Seward's May Packet Memorandum.] See Consent Judgment.

Both requests were rejected by Attorney Seward, and advised to go back to Court.

My friend paused and

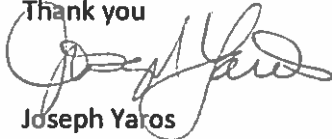
4. Jim Mortensen made an immediate remark to us regarding her concerns as she paused addressing the Board. The remark which was not heard, and not reflected in the drafted minutes.

The minutes did reflect his immediate response to Move to decline any further request.

I was at both May and July meetings expecting assistance from the Board and the Zoning Department, to continue to enhance this blighted property.

The Minutes should be an accurate account of the dialog between the Board Members and my attorney, friend and myself. I would expect a correction to be submitted for approval at the August 7<sup>th</sup> meeting.

The deck will be removed per the correspondence received from the Zoning Department.

Thank you  
  
Joseph Yaros



July 26, 2017

Ms. Polly Skolarus, Clerk  
Township of Genoa  
2911 Dorr Rd.  
Brighton, MI 48116

Dear Ms. Skolarus,

As part of our ongoing commitment to keep you updated on issues that concern our customers in Genoa, we would like to let you know that in the coming days we will be notifying our customers of updates to our Comcast Agreement for Residential Services as well as providing a copy of the updated agreement with their August bill.

The Comcast Agreement for Residential Services provides the terms and conditions for our Xfinity TV, Internet and Voice services and can be viewed at:

[www.xfinity.com/Corporate/Customers/Policies/SubscriberAgreement.html](http://www.xfinity.com/Corporate/Customers/Policies/SubscriberAgreement.html). Key updates include the following.

- We've identified additional ways for us to notify customers of changes to our services, including by email and online on our website.
- We've moved some material related to our Internet and Voice services to our website.
- We require customers to notify us of changes to their telephone number and other contact information so we can ensure that we are contacting the correct person in accordance with applicable laws.
- We've updated portions of our arbitration provision to make its terms more clear.

A sample customer notification is attached for your reference.

If I can be of any further assistance, please contact me at 734-254-1557.

Sincerely,

Kyle V. Mazurek  
Manager of External Affairs  
Comcast, Heartland Region  
41112 Concept Drive  
Plymouth, MI 48170

Attachment: Customer Notice Sample



## We've made updates to our Comcast Agreement for Residential Services

We want to let you know that we're updating our customer terms of service. You can view the agreement [here](#), and you also will receive a copy with your upcoming bill. You don't need to take any action.

You should review the agreement, but here are a few of the key updates:

- We've identified additional ways for us to notify you of changes to our services, including by email and online on our website.
- We've moved some material related to our Internet and Voice services to our website. They may be viewed [here](#).
- Under the new agreement we require you to notify us of changes to your telephone number and other contact information so we can ensure that we are contacting the correct person in accordance with applicable laws.
- We've updated portions of our arbitration provision to make its terms more clear.

Thank you for being an XFINITY customer.



All part of our commitment to you



This is a service-related email. Comcast will occasionally send you service-related emails to inform you of service upgrades or new benefits.

Please do not reply to this email; it is not monitored. If you'd like to contact us, please visit our website [here](#).

Comcast respects your privacy. For a complete description of our privacy policy, [click here](#).

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Comcast Cable, One Comcast Center, 1701 JFK Boulevard, Philadelphia, PA 19103  
Attn: Email Communications



## MEMORANDUM

TO: Township Board  
FROM: Michael Archinal   
DATE: 8/3/2017  
RE: Crooked Lake Road

On July 31<sup>st</sup> I forwarded to you an email thread regarding Crooked Lake Road paving. I expect that there may be residents in attendance on Monday to discuss this matter. The purpose of this memorandum is to provide you with information you may find helpful in this regard.

1. Total General Fund revenue for the approved FY 2017/2018 Budget is \$4,413,950
2. Estimate for Crooked Lake paving is \$2,800,000
3. Our statutory millage rate is 1.1 mills. Under Headlee our current millage rate is .8061. With a total taxable value of \$1,098,948,552 Headlee will reduce our tax receipts by \$322,980 this year.
4. The proposed road millage in 2014 included a project to pave Crooked Lake. The millage failed by a wide margin.
5. We are not able to specially assess properties that do not front on Crooked Lake Road.
6. For point of reference, a .25 mill road millage would generate \$274,737 per year. A .5 mill road millage would generate \$549,474.
7. As noted in my email our top priority large scale project is a signal at Hampton Ridge. I expect this project to be complete in either Fall of 2017 or Spring of 2018.
8. Depending on the Board's direction the next large scale project would likely be either Bauer/Challis reconfiguration (\$2.1 M) or Crooked Lake paving (\$2.8 M).
9. Costs associated with maintaining our infrastructure (parks/sidewalks) will continue to place a burden on the General Fund.
10. The General Fund has subsidized Fund #264 (Lakes/Roads SAD) with \$2,450,000 over the last five years.
11. The General Fund has subsidized refuse collection since FY 2012/2013 by \$1,027,818. As we add homes this subsidy increases.

12. Our fund balance for #264 is projected to be \$967,000 at the end of this FY.
13. A home with a TCV of \$300,000 and taxable value of \$150,000 pays \$120.92 in taxes to Genoa Township operating.
14. Roads are funded in Michigan through the gas tax and registration fees. There is no relation to property taxes and the payments to cities, villages and road commissions are based on lane miles. There is nothing in the formula for population. Livingston County ranks 83<sup>rd</sup> out of 83 counties for per capita road funding.

As a final note I would caution the Board against promoting optimism for getting Crooked Lake Road paved without a significant shift in our road funding paradigm such as a road millage or the issuance of debt. The residents I have spoken to are pleased when they hear that there is a plan to pave Crooked Lake and that the project ranks as either #2 or #3 on our list. Based on what I see we are a long way from getting #2 or #3 done.